

## A new species of pikeblenny, *Chaenopsis megalops*, from the southwestern Caribbean (Teleostei: Chaenopsidae)

William F. Smith-Vaniz

U.S. Geological Survey, Florida Caribbean Science Center, 7920 NW 71st Street, Gainesville, Florida 32653, U.S.A.

**Abstract.**—A new species of blennioid fish, *Chaenopsis megalops*, is described from two specimens trawled in 60–72 m off Colombia. Previously confused with *C. resh* Robins & Randall, 1965, its presumed closest known congener in the western Atlantic, the new species differs in pigmentation pattern, morphometrics, number of vertebrae, gill rakers, and supraorbital pores. It is the only Atlantic species of *Chaenopsis* with a single supraorbital pore on each side of the head. The authorship of *Chaenopsis* Gill, 1865, and its type species, *C. ocellata* Poey in Gill, 1865, are discussed, as is the publication date of three Gill papers.

The blennioid genus *Chaenopsis* Gill, 1865 is represented by two poorly defined species groups (Böhlke 1957). Western Atlantic members of the short-bodied, low count (or *coheni*) group, which have 44–47 total dorsal-fin elements and 29–31 segmented anal-fin rays, were treated by Hastings & Shipp (1980) and include two named species, *Chaenopsis roseola* Hastings & Shipp, 1980 and *C. stephensi* Robins & Randall, 1965. The taxonomic status of one specimen collected in 275 meters on Arrowsmith Bank off Yucatán, Mexico is problematical (Hastings & Shipp 1980), and is either an undescribed species or the second known specimen of *C. stephensi*. Robins and Randall (1965) reviewed the Atlantic members of the long-bodied, high count (or *ocellata*) group, which have 51–57 total dorsal-fin elements and 33–37 segmented anal-fin rays, including *Chaenopsis ocellata* Poey, 1865, *C. limbaughi* Robins & Randall, 1965 and *C. resh* Robins & Randall, 1965.

The new species described herein was first reported by Robins (1971), who identified it as *Chaenopsis resh* despite some obvious differences in color pattern. Color pattern differences were attributable either

to the greater depth of capture of the two Colombian specimens (60–72 m, versus less than 5 m for all other specimens) or to their larger sizes, or both. These specimens also were reported to have fewer gill rakers on the first arch, 14 or 15 versus 19–27 in the five type specimens of *C. resh*, but because gill rakers had not previously been studied in *Chaenopsis* the significance of the discrepancy was difficult to assess. Acero (1987) considered the two Colombian specimens to represent an undescribed species, which he contrasted with *C. resh* in his key to western Atlantic species of *Chaenopsis*. No additional material of this relatively deep-water pikeblenny has become available in over three decades, and I describe it now to make the scientific name available and to further document the biodiversity of the mostly New World family Chaenopsidae. *Neoclinus*, the only chaenopsid genus not restricted to the western Atlantic or eastern Pacific oceans, is represented by nine species (Fukao 1987), three from California, five from Japan, and one from Taiwan.

Although most workers have recognized the Chaenopsidae (tube blennies) as a distinctive group of blennioid fishes, there has



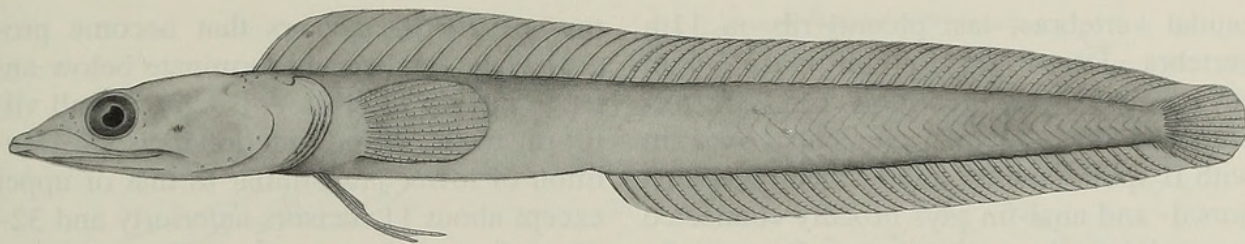


Fig. 1. *Chaenopsis megalops*: holotype, UF 226440, male, 102.3 mm SL, off Gulf of Uraba, S. of Punta Caribana, Colombia; row of nine double spots along side behind pectoral fin which was originally present no longer evident (see discussion of color pattern in species description). Drawn by Tracy D. Pedersen.

been little agreement on familial limits and relationships of the family. I follow Hastings & Springer (1994) who present evidence for recognition of an expanded Chaenopsidae (sensu Stephens 1963), including *Stathmonotus*, *Mccoskerichtys*, and *Neoclinus*. As here recognized, the family consists of 14 genera and at least 80 species.

#### Methods

Methods follow Hastings & Shipp (1980), except head pore terminology which agrees with that of Hastings & Springer (1994). MP index equals  $10 \times$  distance between mandibular pores 3 and 2 divided by the distance between mandibular pores 1 and 2 (Robins & Randall 1965). In the description, counts for the paratype are given in parentheses if different from the holotype, as are measurements of the paratype. All measurements other than standard length (SL) are expressed as a percentage of SL. Collection data for comparative material are abbreviated and the number of specimens, followed by size in mm SL, is given in parentheses. Institutional or collection abbreviations are as follows: ANSP, Academy of Natural Sciences of Philadelphia; UF, Florida Museum of Natural History, Gainesville; UMML, University of Miami Marine Laboratory (collection transferred to UF); USNM, National Museum of Natural History, Washington, D.C.

#### *Chaenopsis megalops*, new species

Figs. 1, 2a

*Chaenopsis resh* (not Robins & Randall). Robins, 1971:180 (misidentification; two specimens from western Colombian Caribbean; comparison and meristic data); Palacio, 1974:69 (listed; same specimens as Robins 1971).

*Chaenopsis* sp. Acero P., 1987:7 (underscribed species; diagnosis; in key).

**Holotype.**—UF 226440 (formerly UMML 26440), 102.3 mm SL, off Gulf of Uraba, S. of Punta Caribana, Colombia,  $08^{\circ}51'12''\text{N}$ ,  $77^{\circ}01'36''\text{W}$  to  $08^{\circ}49'06''\text{N}$ ,  $77^{\circ}04'06''\text{W}$ , 72 m, 10 ft otter trawl, 17 Jul 1966, R/V *Pillsbury* sta. 402.

**Paratype.**—ANSP 138519 (formerly UMML 28600), 89.2 mm, off Cartagena, Colombia,  $10^{\circ}20'42''\text{N}$ ,  $75^{\circ}39'06''\text{W}$  to  $10^{\circ}18'24''\text{N}$ ,  $75^{\circ}38'06''\text{W}$ , 60–66 m [not 73–79 m as reported by Robins (1971)] 10 ft otter trawl, 1 Aug 1968, R/V *Pillsbury* sta. 796.

**Diagnosis.**—A long-bodied species of *Chaenopsis* with a relatively high number of vertebrae (57), dorsal-fin elements (XVII–XVIII, 35–36; 53 total), and anal-fin elements (II, 36). Nine pairs of double spots present along side behind pectoral fin. Males with small black spot on dorsal fin membrane between spines 2 and 3, and blackish mark on cheek, if present, consisting of small blotch about equal to pupil diameter. A single supraorbital pore on each side of median commissural pore.

**Description.**—Eighteen precaudal and 39



caudal vertebrae; last pleural rib on 11th vertebra. Dorsal fin low in males, with XVII-(XVIII) spines and (35)-36 unbranched rays, 53 total elements. Anal fin with II spines and 36 unbranched rays. Last dorsal- and anal-fin rays broadly connected to caudal fin by a membrane. Pectoral fin rounded, extending about half distance to level of anus, with 13 unbranched rays. Pelvic fin I, 3; first and second rays elongate, third short and inconspicuous (about four times as long as the short pelvic spine). Caudal fin rounded, with 13 segmented rays and 4 upper and 3 lower procurent rays. Gill rakers 4 + 10-(11) on first arch.

Snout bluntly U-shaped when viewed from above, with forehead sloping when viewed from side. Lower jaw projecting slightly, visible from above. Dewlap on chin poorly developed, not evident in lateral view. Anterior nostril a short tube, its length about 1/3 minimum width of bony interorbital. Posterior nostril with a slightly raised rim. Tongue bluntly rounded, extending only slightly beyond anterior end of palatine tooth row. Median, round fleshy papilla present just behind anterior villiform teeth of either jaw. As noted by Böhlke (1957) in his description of *Chaenopsis coheni*, the papillae of the two jaws are nearly opposed and possibly make contact with each other when the mouth is closed. The lower jaw is greatly expanded distally, then abruptly constricted with the rami straight and almost parallel, similar to the condition described by Rosenblatt & McCosker (1988:108) for species of *Acanthemblemaria*. The following tooth counts are based only on the paratype because the lower jaw of the holotype is strongly locked preventing a clear view of the dentition. Palatine with a single row of 27 bluntly rounded teeth; 16 relatively large teeth anteriorly followed by a series of much smaller teeth. Vomerine teeth absent. Upper jaw anteriorly with an outer row of 17-18 moderately large spatulate incisors (a few of the lateral ones almost conical in holotype) that are continuous posteriorly with a straight

row of 29-30 incisors that become progressively smaller and terminate below anterior margin of orbit. A patch of small villiform teeth behind anterior incisors. Dentition of lower jaw similar to that of upper except about 11 incisors anteriorly and 32-33 uniformly short incisors in straight posterior row.

Cephalic sensory pores as illustrated in Fig. 2a: nasal 1; anterofrontal 1; anterior infraorbitals 3; posterior infraorbitals 3; supraorbital 1; median commissural 1; median supratemporal 1; lateral supratemporal 1; posttemporal 4; mandibular 4 (first pore not shown in figure); common pore (between anguloarticular and preopercle) 1; preopercle 4. Second mandibular pore slightly closer to first than third, MP index 10.1 (10.2).

*Measurements*.—Predorsal length 22.3 (23.1); preanal length 43.2 (50.3); body depth at dorsal-fin origin 8.2 (8.1); body depth at anal-fin origin 6.8 (6.4); caudal peduncle depth 3.0 (3.4); caudal peduncle length 2.5 (2.7); 3rd dorsal-fin spine length 10.2 (13.0); longest pectoral fin ray 11.6 (12.9); 1st pelvic-fin ray length 11.0 (11.5); 2nd pelvic-fin ray length 15.9 (18.2); head length 28.2 (29.6); head depth 8.3 (9.2); head width 8.1 (7.7); snout length 6.2 (6.6); pigmented eye diameter 4.8 (5.5); least bony interorbital width 1.5 (1.5); upper jaw length 13.4 (15.1).

*Color pattern in alcohol*.—Both specimens are badly faded after many years of storage in isopropanol (now changed to ethanol) and the illustration of the holotype depicts its present appearance. The following observations, made before the specimens had faded, are those of Robins (1971): "Both specimens are much less boldly marked than Venezuelan males [= *C. resh*] and have 9 pairs of double spots along the side behind the pectoral fin, and one black ovoid mark above the corner of the mouth at the level of the lower edge of the eye. One male has a second spot along the posterior rim of the eye. Pigmentation in the dorsal fin fits the original description, especially with regard to the spot being be-



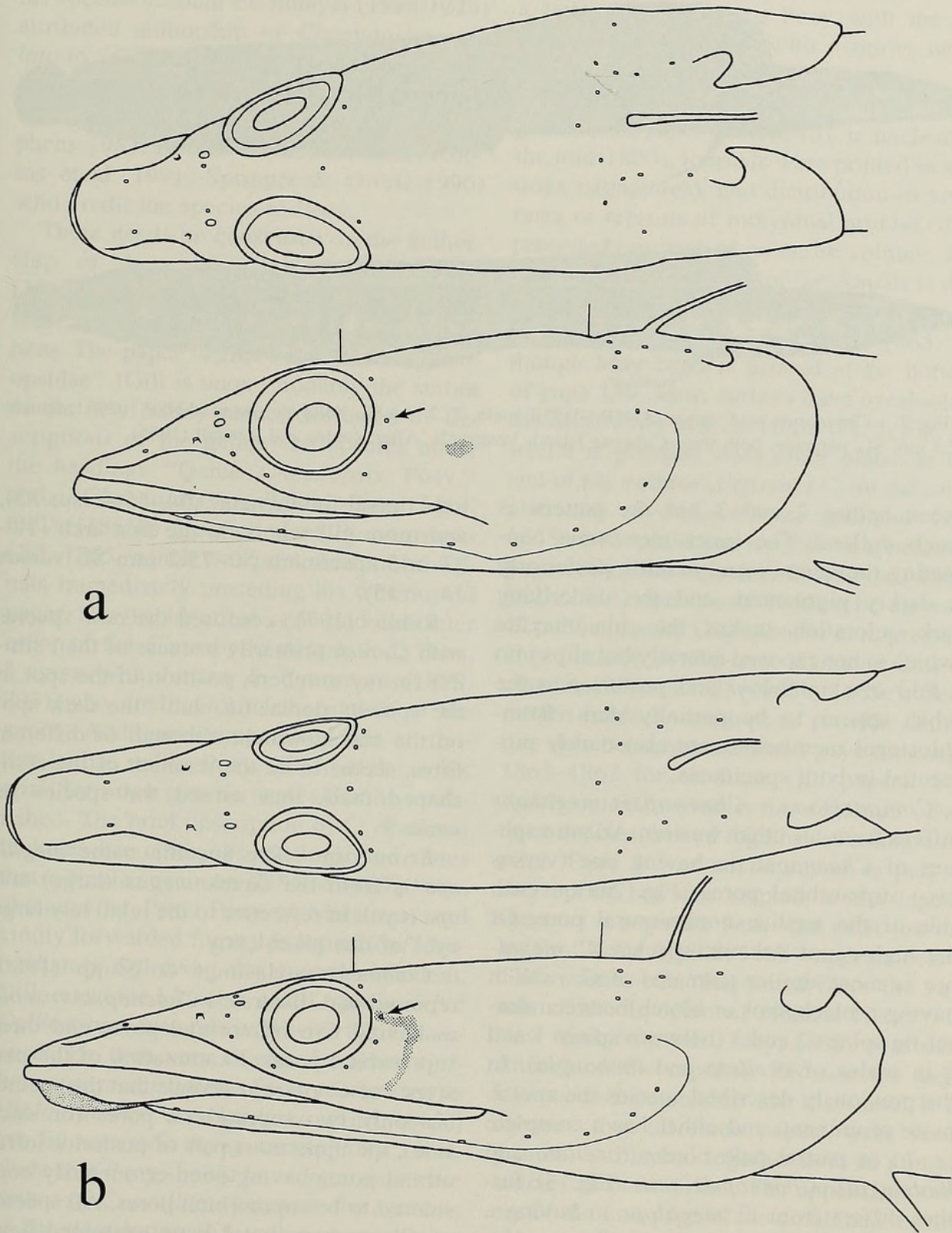


Fig. 2. Dorsal and lateral views of head in two species of *Chaenopsis*: a, *C. megalops*, holotype, UF 226440, 102.3 mm SL; b, *C. resh*, holotype; ANSP 102730, 75.2 mm SL. Arrows indicate position of uppermost posterior infraorbital pore in lateral views (infraorbital pores not shown in dorsal views); vertical lines extending from dorsum of head in lateral views indicate positions of median commissural and median supratemporal pores, respectively.



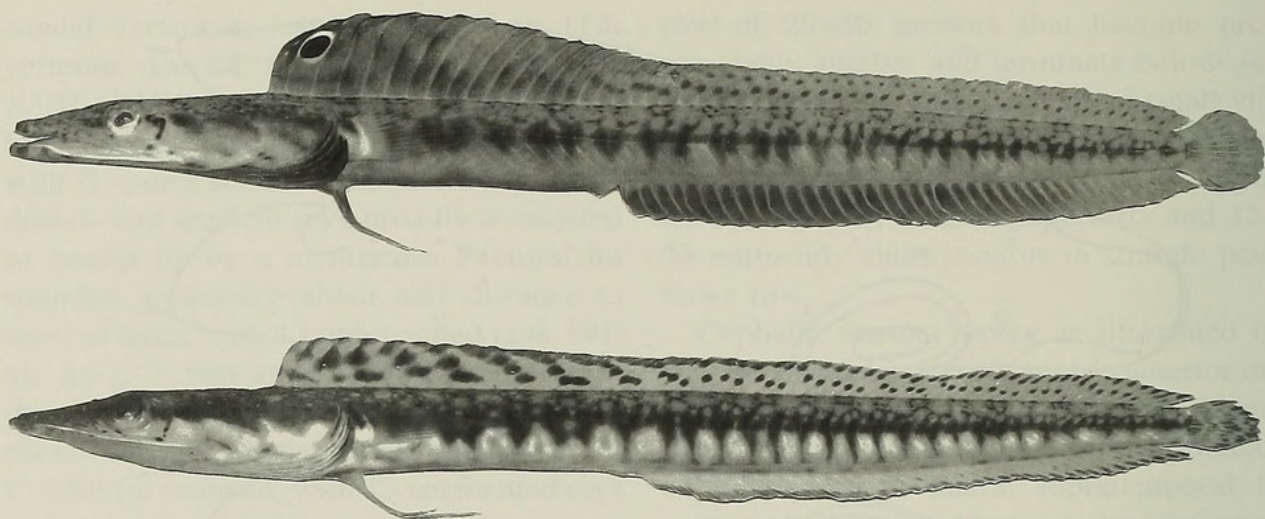


Fig. 3. *Chaenopsis resh*: upper: ANSP 102730, male, 75.2 mm SL, holotype; lower: ANSP 102731, female, 72.4 mm SL, paratype; both from Cubagua Island, Venezuela. After Robins and Randall (1965).

tween spines 2 and 3 but the pattern is much duller." The inner membrane connecting the dentary and maxilla posteriorly is darkly pigmented, and the underlying dark coloration makes the thin maxilla (which is not exposed laterally but slips into a fold of skin below and posterior to the orbit) appear to be partially dark. Branchiostegal membranes are also darkly pigmented in both specimens.

**Comparisons.**—*Chaenopsis megalops* differs from all other western Atlantic species of *Chaenopsis* in having one (versus two) supraorbital pores (Fig. 2a) on each side of the median commissural pore. Of the high-count Atlantic species, *C. megalops* is most similar to males of *C. resh* in having a black spot or blotch between dorsal-fin spines 2 and 3 (between spines 1 and 2 in males of *ocellata* and *limbaughi*). In the previously described species the spot is more prominent, and either has a complete (*resh*) or partial pale border (*ocellata* and *limbaughi*). *Chaenopsis resh* (Fig. 3) further differs from *C. megalops* in having a dark postorbital mark shaped like the Hebrew letter resh (ר); rows of dark spots extending entire length of soft portion of dorsal fin (forming diagonal rows in females); smaller eye diameter 2.0–4.3 (versus 4.8–5.5% SL); more precaudal (20 versus 18) and total vertebrae (58–59 versus 57), more

total dorsal-fin elements (54–55 versus 53), and more gill rakers on the first arch (19–27 in 5 specimens 50–75.2 mm SL versus 14 or 15).

Robins (1971) confused the new species with *C. resh* primarily because of their similar fin-ray numbers, position of the spot in the spinous dorsal fin, and "the dark spot on the cheek, which, although of different form, seems to be the remnant of the resh-shaped mark that earned the species its name."

**Etymology.**—The specific name *megalops* is from the Greek *megas* (large) and *ops* (eye), in reference to the relatively large eyes of this pikeblenny.

**Comments.**—Hastings & Shipp (1980) reported and illustrated *Chaenopsis roseola* as having five infraorbital pores and three supraorbital pores. Examination of the paratypes of *C. roseola* reveals that the species has only two supraorbital pores (on each side), the uppermost pair of posterior infraorbital pores having been erroneously considered to be supraorbital pores. All species of *Chaenopsis* that I have examined have six infraorbital pores, and none has more than two supraorbital pores.

In his Catalog of Fishes, Eschmeyer (1998:1885) gave the authorship of *Chaenopsis* and its type species, *Chaenopsis ocellatus*, as Poey in Gill, 1865. However, in



his species account Eschmeyer (1998:1223) attributed authorship of *Chaenopsis ocellata* to "Gill (ex Poey)," in contrast to previous authors (e.g., Jordan & Evermann 1898, Jordan et al. 1930, Böhlke 1957, Stephens 1963, Robins & Randall 1965, Robins et al. 1991, Springer & Orrell 1996) who credit the species to Poey.

There needs be consensus on the authorship of these taxa, and because Gill's (1865c) paper is not readily available to most readers, discussion of it is included here. The paper begins with "Fam. Chaenopsidae" (Gill is unquestionably the author of the new family name), followed by descriptions of the genus and species under the headings "Genus *Chaenopsis*, Poey," and "*Chaenopsis ocellatus*, Poey Ms." Gill's (1865b) description of *Plagiotremus* Gill, 1865, which was published in the *Annals* immediately preceding his chaenopsid paper, has the identical style and character order of the *Chaenopsis* description. Thus, I agree with Jordan & Evermann (1898: 203) who credit Gill as the author of the genus. Additional support for that attribution is that, unlike Poey, Gill used the suffix *opsis* for other generic names that he established. The brief description of *C. ocellatus* includes life color observations, and states that a single specimen [USNM 8007] "was obtained by Prof. Poey at Matanzas, and kindly forwarded for my examination." Immediately following the quoted statement, Gill mentioned that a small specimen of *Callionymus* was received with the *Chaenopsis*. He then very briefly described *Callionymus pauciradiatus* [now recognized as *Diplogrammus pauciradiatus* (Gill 1865)] but did not credit the species to Poey. I conclude that Poey should be recognized as the author of *C. ocellatus* because: the contents of the description (life color observations) contain direct evidence that only he could have provided; the inclusion of "Poey Ms." after the species name suggests (although it is not conclusive evidence) that Poey recognized the uniqueness of the specimen and had provided Gill with a description of it in

a letter; and crediting Poey with the description is consistent with majority usage and will cause the least confusion.

Even the date of publication of Gill's chaenopsid paper (article 15), is unclear. In the mid-1800s, journals were printed in sections (signatures), and distribution of separates or reprints of individual articles often preceded issuance of an entire volume. The title page for volume 8 of the *Annals* is dated 1867, and the signature in which the description appears is dated April 1865, although May 1865 is printed at the bottom of page 139. Most authors have overlooked the illustration of *C. ocellata* (Pl. 3, Fig. 3), which is grouped with other plates at the end of the volume; Figures 1–2 on the same plate are of *Plagiotremus spilistius* Gill, 1865. An explanation for plate 3 appears on page 300 of the signature dated April 1866. Dall (1916) considered 1865 to be the year of publication of Gill (1865a) and, presumably because of the later signature date of plate 3, 1866 for Gill (1865b, 1865c); Dean (1916) made no attempt to provide definitive date determinations and gave the range 1863–1867 for all three Gill papers. The Smithsonian Institution has separates of all three articles, bound together as a single reprint. Plate 3 was not included as part of the reprint but was stapled to the legend sheet as a separate item. On each journal article "Read April 8, 1865" appears below Gill's name, but "Reprinted from the *Annals of the Lyceum of Natural History in New York*, vol. viii., May, 1865" was substituted on the reprints. Because the page layouts and pagination are the same, it is obvious that all three papers were read, printed, and issued together both as journal articles and as reprints. The upper right corner of the first page of the combined reprint has what appears to be a library stamp that is clearly dated "6 JulL [sic] 65." I conclude from this that the text of all three Gill articles was distributed (published) no later than 6 July 1865, and that plate 3 was published later, probably in 1866.

*Comparative material.*—*Chaenopsis ocel-*



*lata*: UF 202319 (1, 67), Florida, Dade Co.; UF 202320 (1, 61), Florida, Dade Co.; UF 202376 (1, 71), Florida, Dade Co.; UF 208723 (1, 92), Florida, Dade Co.; UF 212553 (1, 48), Florida Keys, Islamorada; UF 217843 (1, 45), Florida Keys, Alligator Light; UF 224612 (1, 66), Florida, Dade Co.; UF 229747 (1, 81), Florida, Dade Co.; USNM 8007 (1, 110), holotype, Cuba, Matanzas. *Chaenopsis limbaughii*: UF 202377 (2, 59–65), Virgin Is.; UF 205624 (1, 70), Virgin Is.; UF 211240 (3, 28–58), Virgin Is.; UF 211241 (1, 72), Virgin Is.; UF 211242 (2, 45–46), Virgin Is.; UF 214678 (3, 50–57.5), Virgin Is.; UF 205980 (2, 28–59), Bahamas, Exuma Cays; UF 217361 (1, 40), Puerto Rico, Mayaguez; UF 217362 (1, 46), Puerto Rico, Culebra Is. *Chaenopsis resh*: ANSP 102730 (1, 75.2), holotype, Cubagua Island, Venezuela; UF 217219 (2, 50–51), taken with the holotype. *Chaenopsis roseola*: UF 27444 (1, 41), 30 km SW of Panama City Beach, Florida; UF 27445 (1, 30), 60 km SSE of Apalachicola, FL. *Chaenopsis* sp. (*stephensi* of Robins 1971): UF 228601 (1, 49.9), Arrowsmith Bank, off Yucatan, Mexico. *Chaenopsis alepidota*: UF 26733 (2, 55–61), Gulf of California. *Chaenopsis schmitti*: USNM 322451 (1, 52), Galapagos Is.

### Acknowledgments

I thank George H. Burgess and Robert H. Robins (UF) and William G. Saul (ANSP) for facilitating the loan of specimens; C. Richard Robins for providing photographs of *Chaenopsis resh*, and Philip A. Hastings and Victor G. Springer for review of the manuscript. William N. Eschmeyer and Victor G. Springer generously provided useful discussions and information concerning authorship and publication dates of taxa described in Gill (1865a, 1865b, 1865c)

### Literature Cited

- Acero, P. A. 1987. The chaenopsine blennies of the southwestern Caribbean (Pisces, Clinidae, Chaenopsinae). III. The genera *Chaenopsis* and *Coralliozetus*.—Boletín Ecotropical 16:1–21.
- Böhlke, J. E. 1957. A review of the blenny genus *Chaenopsis*, and the description of a related new genus from the Bahamas.—Proceedings of the Academy of Natural Sciences of Philadelphia 109:81–103.
- Dall, W. H. 1916. Biographical memoir of Theodore Nicholas Gill, 1837–1914.—National Academy of Sciences, Biographical Memoirs, 8:313–343.
- Dean, B. 1916. A bibliography of fishes.—American Museum of Natural History, N. Y., 1 (A–K), 718 pp.
- Eschmeyer, W. N. (ed.) 1998. Catalog of fishes.—California Academy of Sciences, San Francisco, 2905 pp.
- Fukao, R. 1987. Fishes of *Neoclinus bryope* species complex from Shirahama, Japan, with description of two new species.—Japanese Journal of Ichthyology 34(3):291–308.
- Gill, T. N. 1865a. Note on the family of myliobatoids, and on a new species of *Aetobatis*.—Annals of the Lyceum of Natural History of New York 8 (13):135–138.
- . 1865b. On a remarkable new type of fishes allied to *Nemophis*.—Annals of the Lyceum of Natural History of New York 8(14):138–141.
- . 1865c. On a new family type of fishes related to the blennioids.—Annals of the Lyceum of Natural History of New York 8(15):141–144.
- Hastings, P. A., & R. L. Shipp. 1980. A new species of pikeblenny (Pisces: *Chaenopsis*) from the western Atlantic.—Proceedings of the Biological Society of Washington 93:875–886.
- , & V. G. Springer. 1994. Review of *Stathmonotus*, with redefinition and phylogenetic analysis of the Chaenopsidae (Teleostei: Blennioidei).—Smithsonian Contributions in Zoology 558:1–48.
- Jordan, D. S., & B. W. Evermann. 1889. The fishes of North and Middle America: a descriptive catalogue of the species of fish-like vertebrates found in the waters of North America north of the Isthmus of Panama. Part III.—Bulletin of the United States National Museum 47:I-xxiv + 2183a–3136.
- , ———, & H. W. Clark. 1930. Check list of the fishes and fishlike vertebrates of North and Middle America north of the northern boundary of Venezuela and Colombia.—Report of the United States Commissioner of Fisheries, for the year 1928, Part II, 670 pp.
- Palacio, F. J. 1974. Peces colectados en el Caribe Colombiano par la Universidad de Miami.—Boletín del Museo del Mar 6:1–137.
- Robins, C. R. 1971. Comments on *Chaenopsis stephensi* and *Chaenopsis resh*, two Caribbean



blennioid fishes.—Caribbean Journal of Science 11(3-4):179-180.

———, & J. E. Randall. 1965. Three new western Atlantic fishes of the blennioid genus *Chaenopsis*, with notes on the related *Lucayablennius zingaro*.—Proceedings of the Academy of Natural Sciences of Philadelphia 117(6):213-234.

———, R. M. Bailey, C. E. Bond, J. R. Brooker, E. A. Lachner, R. N. Lea, & W. B. Scott. 1991. Common and scientific names of fishes from the United States and Canada, 5th edition.—American Fisheries Society Special Publication 20, 183 pp.

Rosenblatt, R. H., & J. E. McCosker. 1988. A new species of *Acanthemblemaria* from Malpelo Island, with a key to the Pacific members of the genus (Pisces: Chaenopsidae).—Proceedings of the California Academy of Sciences 45(7):103-110.

Springer, V. G., & T. M. Orrell. 1996. Catalog of type specimens of Recent fishes in the National Museum of Natural History, Smithsonian Institution, 7: Chaenopsidae, Clinidae, Dactyloscopidae, Labrisomidae, and Tripterygiidae.—Smithsonian Contributions to Zoology 576:1-38.

Stephens, J. S., Jr. 1963. A revised classification of the blennioid fishes of the American family Chaenopsidae.—University of California Publications in Zoology 68:1-165.





2000. "A New Species Of Pikeblenny, *Chaenopsis Megalops*, From The Southwestern Caribbean (Teleostei : Chaenopsidae)." *Proceedings of the Biological Society of Washington* 113, 918–925.

**View This Item Online:** <https://www.biodiversitylibrary.org/item/110038>

**Permalink:** <https://www.biodiversitylibrary.org/partpdf/49218>

**Holding Institution**

Smithsonian Libraries and Archives

**Sponsored by**

Biodiversity Heritage Library

**Copyright & Reuse**

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Biological Society of Washington

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

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>.