WILLIAM F. SMITH-VANIZ
and VICTOR G. SPRINGER

Synopsis of the Tribe Salariini, with Description of Five New Genera and Three New Species (Pisces: Blenniidae)

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ABSTRACT

Smith-Vaniz, William F., and Victor G. Springer. Synopsis of the Tribe Salariini, with Description of Five New Genera and Three New Species (Pisces: Blenniidae). *Smithsonian Contributions to Zoology*, 73:1–72, 1971.—The blenniid tribe Salariini is characterized and a key is given to twenty-four genera we recognized in the tribe. Five of these genera (*Alloblennius, Crossosalarias, Litobranchus, Mimoblennius, Nannosalarias*) are here described as new. All genera are diagnosed and comments are given on their relationships, nomenclature, distribution, and estimated number of species. One genus, *Medusablennius,* previously placed in the tribe Blenniini is transferred to the Salariini. The approximately 350 nominal species of the Salariini are listed and each name is provided with a generic allocation. The institutional depository of primary type material, if known, is cited for each species. Some annotation to this list is made where there are involved nomenclatural problems. Three new species are described: *Alticus simplicirrus* from the Marquesas Islands; *Crossosalarias macrospilus* from the Solomon, Tonga, and Palau Islands, Great Barrier Reef, and South China Sea; and *Mimoblennius cirrosus* from the Gulf of Aqaba and Red Sea. *Alloblennius jugularis* (Klunzinger), *A. pictus* (Lotan), *Litobranchus fowleri* (Herre), *Mimoblennius atrocinctus* (Regan), and *Nannosalarias nativitatus* (Regan) are redescribed. All described and redescribed species and genera are figured, and illustrations of characteristic cephalic pore patterns are given for all genera and subgenera.

Alloblennius pictus, one species treated, exhibited statistically significant differences in mean numbers of dorsal and anal fin rays and caudal vertebrae between specimens from the Gulf of Aqaba and the southern Red Sea. Mean numbers of these meristic characters were significantly different for males and females of the southern Red Sea specimens, but were not significantly different for the Gulf of Aqaba specimens.

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Synopsis of the Tribe Salariini, with Description of Five New Genera and Three New Species (Pisces: Blenniidae)

Introduction

The purpose of this study is to lay the foundation for a revision of the blenniid fish tribe Salariini. This study evolved as a result of our attempts to classify some apparently undescribed genera and species that belonged in the Salariini (as defined by Springer, 1968b). Two of the new genera we describe were mentioned by Springer (1968b), but were not described in that paper. *Medusablennius,* one genus included by Springer in the tribe Blenniini, is here transferred to the Salariini. Description of the five new genera and three species required that we examine the entire nomenclature of the Blenniidae and a large portion of the blenniid specimens (especially types) available in museums. As a result, we present an annotated list of the approximately 350 nominal species of the Salariini and a reinterpretation of and key to the included genera. While some minor extensions and corrections are necessary, our findings accord with our recent revisions of genera of the Salariini (Springer, 1962, 1967, 1968a, 1971; Springer and Smith-Vaniz, 1968) and Springer's (1968b) osteology and classification of the Blenniidae. Because 13 of the 24 genera we recognize in the Salariini have not been recently revised, some changes in the number of genera may be expected.

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This study was made possible by a summer graduate student research appointment to Smith-Vaniz in 1968 by the Office of Academic Programs, Smithsonian Institution, and a research award to Springer by the Smithsonian Research Foundation. Important material of some of the new genera and species described below was obtained by Springer during field work in the Gulf of Aqaba and Red Sea under Smithsonian Foreign Currency Grant 7–0062 (2), Drs. W. Aron and H. Steinitz, principal investigators, and by Smith-Vaniz in Ceylon under Smithsonian Foreign Currency Grant 3818, Dr. C. R. Robins and Mr. F. H. Berry, principal investigators.

Methods and Material

COUNTS.—In determining the range of variation for meristic characters we have drawn on information in our previous generic revisions and the literature for counts on species of which we had little or no material. When possible, counts were made on at least ten specimens of each species we examined, in addition to the type material examined.

Usually we counted the dorsal, anal, and caudal fin rays, the vertebrae, and pleural and epipleural ribs from radiographs. Cleared and stained material, mostly that reported by Springer (1968b), was also used in making counts (or obtaining other osteological data).

Dorsal-fin elements: The unsegmented rays are all flexible and are treated as spines. Frequently, the terminal spine of many species is reduced greatly in size and is not visible except in osteological preparations or on radiographs. When the dorsal fin is deeply notched between the spinous and rayed portions, the last spine is usually difficult to distinguish externally. As the posteriormost dorsal pterygiophore always supports a single ray, each dorsal fin ray was counted and considered a separate element.

Anal-fin elements: All Salariini have two flexible anal spines except for aberrant specimens. In sexually undifferentiated specimens and males these spines are recognizable. In mature males of some genera they are enveloped in rugose fleshy processes (to a lesser degree, the skin of some of the anterior rays of these species may also be plicated). In females of most species the first anal spine is greatly reduced and completely embedded in the flesh of the urogenital papilla. The first anal spine of females usually is visible only in osteological preparations or on radiographs. In the Salariini the last anal-fin pterygiophore may support one or two rays, in which case the two rays are quite close together and appear as one ray split to the base. In reporting our anal ray counts we counted two such rays as one element, but when the last two anal pterygiophores each supported a single ray, the last two rays were recorded as two elements (see Springer, 1967, for a discussion of the last anal ray in *Entomacrodus*).

Pectoral-fin ray counts were made on one side (one fin).

Pectoral-fin radials are reported as a three-part formula, for example 1-1-2, indicating that one radial articulates only with the scapula, one radial articulates with both the scapula and coracoid in the area where the latter two bones meet, and two radials articulate only with the coracoid.

Pelvic-fin rays (Figures 1*a* and *b*): The pelvic fin always has a single spine, which is greatly reduced, closely applied to the first segmented ray and is visible only in osteological preparations. In addition, there are always three or four segmented pelvic rays in the Salariini, but the intermost ray may be much reduced and extremely difficult to find. In some species the innermost ray is completely imbedded and closely applied to the adjacent ray, or it is reduced to a few fragments of bone visible only in cleared and stained material (for example *Glyptoparus*). Unless otherwise indicated, we report *apparent* segmented pelvic rays in our counts for the pelvic fin. Springer (1968b) reported that the pelvic-ray counts for Salariini ranged from I,2 to I,4 neglecting to note that the I,2 count was an apparent count.

Vertebral counts: These counts are reported as total vertebrae (includes hypural vertebra), precaudal vertebrae (those vertebrae anterior to the

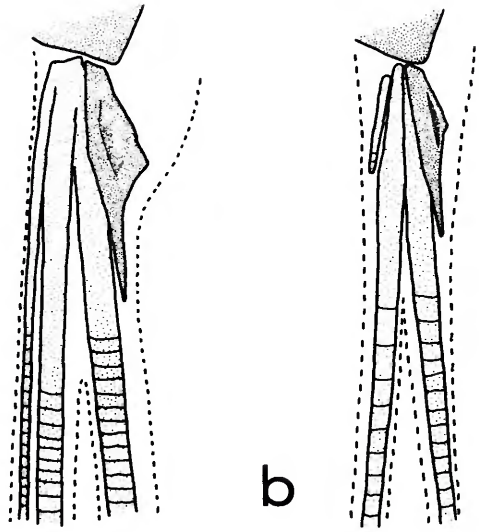


FIGURE 1.—Ventral view of left pelvic fin showing relative development of innermost segmented ray: *a, Antennablennius velifer,* USNM 200205, male, 44.3 mm, Astola Island, W. Pakistan, *b, Alloblennius pictus,* USNM 203776, male, 27.7 mm, Strait of Jubal, Red Sea.

first vertebra with a well-developed hemal spine, which articulates with at least the first anal pterygiophore), and caudal vertebrae (all vertebrae, including the hypural, posterior to the precaudal vertebrae). Sometimes the last precaudal vertebra bears a moderate hemal spine, but in these cases it will be apparent that the first anal pterygiophore is closer to the well-developed hemal spine of the next vertebra (first caudal).

Epipleural ribs are considered to begin on the first vertebra and the posteriormost rib is counted whether on the right or left side. Pleural ribs are considered to begin on the third vertebra and are counted similarly.

Teeth: Counts given are total counts for either both dentaries or both premaxillaries, exclusive of the posterior dentary canines. In *Ecsenius* the anterior set of canines, which in most species are difficult to distinguish from the incisoriform teeth, are included in the dentary count. *Ecsenius* is the only genus with both anterior and posterior canines (Figure 5).

Typically in the Salariini, the number of teeth increases with increase in size (see Springer and Smith-Vaniz, 1968, for *Atrosalarias*). In the diagnoses and Table 3, the tooth counts given are indications of the range for adults, but the actual range will probably vary from the given range when all the species of the various genera are surveyed.

Circumorbital bones: The lachrymal and dermosphenotic were included in the counts of circumorbital bones.

MEASUREMENTS.—Standard length (SL) was measured from the midtip of the upper jaw to the middistal end of the hypural vertebra (taken externally).

HEAD PORES.—All illustrations of cephalic pore patterns were made using a camera lucida. Pore diameters are slightly exaggerated for clarity. To facilitate orientation, small arrows that mark pores in corresponding positions have been included in both dorsal and lateral views of most species illustrated. All lateral view pore pattern figures are presented as if the left side of the specimens were illustrated. In some instances the right side was actually drawn but was presented as the left side for the sake of consistency. In such cases the dorsal views were adjusted to accord with the mirror-image figures.

OCCIPITAL CREST.—We define this structure as a thin, bladelike, longitudinal, median flap on top of the head. Mature males in many species of the Salariini (see Springer, 1967, pl. 5*d*) have a raised, fleshy, swollen area on top of the head that should not be confused with an occipital crest.

ABBREVIATIONS OF INSTITUTIONS CITED.—

AMNH	American Museum of Natural History, New York City
AMS	Australian Museum, Sydney
ANSP	Academy of Natural Sciences of Philadelphia
BMNH	British Museum (Natural History), London
BOC	Bingham Oceanographic Collection (now Peabody Museum), New Haven, Connecticut
BPBM	Bernice P. Bishop Museum, Honolulu, Hawaii
CAS	California Academy of Sciences, San Francisco
FMNH	Field Museum of Natural History, Chicago
HUI	Hebrew University, Jerusalem, Israel
ISZZ	Institut für Spezielle Zoologie und Zoologisches Museum, Berlin
KUMF	Kasetart University Museum of Fisheries, Bangkok, Thailand
MCZ	Museum of Comparative Zoology, Cambridge, Massachusetts
MMS	Macleay Museum, University of Sydney, Australia
MNHN	Muséum National d'Histoire Naturelle, Paris
MNRJ	Museu Nacional, Rio de Janeiro
NFIS	Natur-Museum und Forschungs-Institut Senckenberg, Frankfurt
NMV	Naturhistorisches Museum, Vienna
QMB	Queensland Museum, Brisbane
RMNH	Rijksmuseum van Natuurlijke Historie, Leiden
RU	Rhodes University, J. L. B. Smith Institute of Ichthyology, Grahamstown, South Africa
SAMN	South African Museum, Capetown
SMNS	Staatliches Museum für Naturkunde, Stuttgart
SU	Stanford University, Division of Systematic Biology, Palo Alto, California
UMML	University of Miami, Rosenstiel School of Marine and Atmospheric Sciences, Florida
USNM	National Museum of Natural History, Division of Fishes, Washington, D.C.
UZMK	Universitetets Zoologiske Museum, Copenhagen
VMN	Vanderbilt Marine Museum, Centerport, New York
ZIAS	Zoological Institute, Academy of Sciences, Leningrad
ZITU	Zoological Institute, University of Tokyo
ZMA	Zoölogisch Museum, Universiteit van Amsterdam
ZSIC	Zoological Survey of India, Calcutta

MATERIAL.—The material upon which our study is based falls into three categories:

1. Primary type material, mostly examined over a period of several years prior to this study.

2. Material examined and reported in our previous published papers (see introduction), not necessarily reexamined for the present study.

3. Material in the extensive collections at the National Museum of Natural History and a few other museums that was examined during the course of this study.

The material in the first category is cited in our annotated list of nominal species. The material in the second category can be found cited in the relevant publications. The material in the third category is only partially cited in the present paper. We cited this material in our descriptions of new genera (even when a new species was not involved) because we know of no material of these genera other than that which we list. We also cited some material that significantly extended the known geographic range of one genus we previously revised, *Atrosalarias*. Illustrated material is all cited. The remaining material was not cited because: we could not specifically identify the specimens even though we knew the genus; data on genera were not reported by species, but were lumped; there is a possibility that some lots of specimens we examined actually contained more than one species (ignored when we were only interested in generic ranges of characters); and we did not always examine every specimen in a particular lot of specimens (usually only a series of ten).

Tribe Salariini

Type-genus: *Salarias* Cuvier, 1817

The Salariini constitute the largest tribe of the four tribes of the Blenniidae. We recognize 24 genera with an estimated 150 species in the Salariini. The tribe is predominantly restricted to the Indian and western and central Pacific oceans, with only nine species occurring in the Atlantic and eastern Pacific oceans. All species lack a swim bladder, are essentially benthic, and most are rarely seen swimming off the bottom. Some genera have become secondarily adapted for a semiterrestrial existence and spend much of their time out of water. An excellent account of aerial respiration in the genus *Andamia* was given by Rao and Hora (1938).

The Salariini have been variously accorded family or subfamily rank, primarily as a result of Norman's (1943) classification of the Blenniidae. Norman used the nature of the jaws and dentition as primary characters in recognizing the Salariinae. Springer (1968b) reexamined the nature of the jaws and dentition of blenniids and accorded the Salariinae only tribal rank because there were a few species of blennies that had the jaws and dentition apparently intermediate in structure between those in the typical Salariini and their closest relatives, the Blenniini, which Norman accorded the rank of subfamily, Blenniinae. The Salariini and Blenniini could be combined, but because there are few intermediate forms, Springer chose to keep the tribes separate. In the present paper we maintain the separation for much the same reason, as well as for the fact that all but one genus of the intermediate forms appears to us to be most similar to the typical Salariini in general physiognamy.

Although Springer (1968b, p. 44) adequately discussed the nature of the dentition and jaws of the Salariini, he (1968b, p. 65) may have been misleading when he diagnosed the tribe using only the characters of the jaws and dentition of the typical members. Because of the importance of the nature of the jaws and dentition in the recognition of the Salariini, we present an expanded discussion of these structures.

In the other tribes of the Blenniidae the premaxillaries and dentaries are essentially closed bony capsules supporting the functional teeth. The replacement teeth develop inside these capsules and exit through small foramina in the wall of each capsule when proceeding into position in the functional row.

In most Salariini (all genera except those in group 21 of Figure 51) the anteroventral wall of each premaxillary capsule and the anterior wall of each dentary capsule are absent, and these bones are relatively thin, concave (arched) structures (Figures 2, 3, and 5). In those species with relatively large numbers of incisoriform teeth, the functional teeth (except the canines, which always develop in a separate capsular compartment of the dentaries and are ankylosed to the bone) are loosely held in a thick band of connective tissue that fills the concavity of each premaxillary and dentary. The bases of the functional teeth are not ankylosed to the bone of the jaws. In those species with relatively few teeth, the band of connective tissue is much reduced and the bases of the functional teeth (except the canines) are weakly ankylosed to the jaw bones. The replacement teeth in both these types develop in the same bands of connective tissue that hold the functional teeth. The replacement teeth are dorsal and anterior to the bases of the functional premaxillary teeth and ventral and anterior to the bases of the functional dentary teeth. Inasmuch as the walls of the premaxillary and dentary bones are open, the replacement teeth merely move through the band of connective tissue to take position in the functional row.

The nature of the dentition and jaws in the remaining genera (group 21 of Figure 51), all with relatively few teeth, is variable. In all these genera except *Hirculops,* the premaxillary is typical of the other Salariini except that the bone is heavier (Figure 3). In *Hirculops* (Figure 4) the premaxillary is open mesially, with normal salariinine replacement of teeth, but laterally the premaxillary is closed, with the replacement teeth entering the functional row through foramina in the bone. The dentaries of the other genera (group 21, Figure 51 and Figure 7), except one species of *Rhabdoblennius,* (*R. snowi*), are all blenniinine-like: closed capsules with the replacement teeth entering the functional row through foramina in the bone. The foramina are relatively much larger than those found in the Blenniini, however, and give the impression that the wall of the dentaries is eroding or rebuilding. This is further evidenced by *Rhabdoblennius snowi* (Figure 6), wherein the bone (capsule) of the dentaries is completely open mesially, but with large gaps and foramina in the wall laterally.

The structure of the jaws and dentition is obviously specialized in most Salariini, and is less specialized in the Blenniini. Whether the forms with apparently intermediate dentition are phylogenetically intermediate, or represent developments that parallel the less specialized blenniinine dentition, is not known.

Other diagnostic characters of the tribe Salariini can be found in Springer (1968b, pp. 63–64). Some extension in the ranges of meristic characters will be found in our Tables 2 to 6. Any blenniid with more than 80 teeth in either the upper or lower jaws belongs to the Salariini, while blenniids with less than that number may belong to this tribe. Aside from the nature of the jaws and dentition, there is no other single character we know of that sets all the Salariini apart from their closest relatives, the Blenniini.

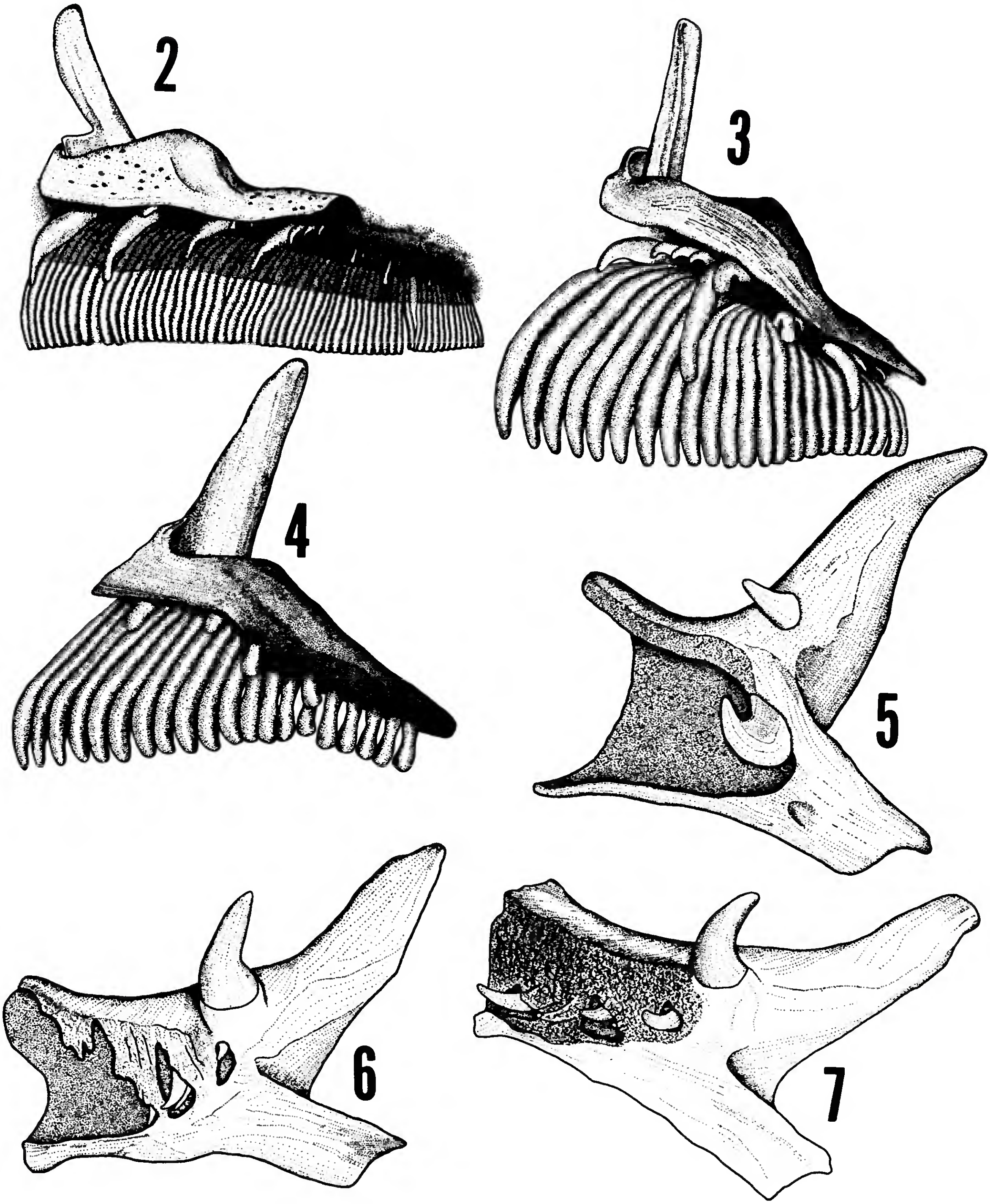
Nominal Genera and Subgenera in Salariini

The following list of generic group names in the Salariini is provided to facilitate location of discussion in the text. Each name we synonymize, or recognize as a subgenus, is followed by the genus under which we include it:

Alloblennius
Alticops = Istiblennius
Alticus
Andamia
Antennablennius
Anthiiblennius = Ecsenius
Atrosalarias
Basilisciscartes = Alticus
Blenniella = Istiblennius
Blennophis = Ophioblennius
Cirripectes
Crenalticus = Salarias
Croaltus = Antennablennius
Crossosalarias
Cynoscartes = Ophioblennius
Damania = Alticus
Ecsenius
Entomacrodus
Erpichthys = Salarias
Exallias
Fallacirripectes = Stanulus
Giffordella = Entomacrodus
Gloriella = Exallias
Glyptoparus
Halmablennius = Istiblennius
Hepatoscartes = Ophioblennius
Hirculops
Istiblennius
Labroblennius = Ophioblennius
Leoblennius = Exallias
Litanchus = Antennablennius
Litobranchus
Lophalticus = Alticus
Medusablennius
Mimoblennius
Nannosalarias
Negoscartes = Salarias
Nixiblennius = Rhabdoblennius
Ophioblennius
Pereulixia
Pescadorichthys = Ecsenius
Praealticus
Rhabdoblennius
Rupiscartes = Alticus
Salarias
Salarichthys = Entomacrodus
Scartes = Scartichthys
Scartichthys
Scartoblennius = Rhabdoblennius
Stanulus

FIGURES 2-4.—Lateral view of left premaxillary showing functional and replacement teeth: 2, *Ecsenius yaeyamaensis*, USNM 200428, male, 38.7 mm, New Britain (dark area on proximal third of teeth represents band of conective tissue beneath translucent teeth); 3, *Rhabdoblennius snowi*, USNM 142135, female, 38.0 mm, Marshall Islands; 4, *Hirculops conifer*, USNM 203123, male, 42.4 mm, Gulf of Suez, Red Sea.

FIGURES 5-7.—Anterolateral view of left dentary showing relative excavation of bone (membranous connective tissue and functional incisoriform teeth removed): 5, *Ecsenius yaeyamaensis*, USNM 200428, male, 38.7 mm, New Britain (see Springer, 1968b, plate 9, for illustration of intact dentary); 6, *Rhabdablennius snowi*, USNM 198715, female, 44.2 mm, Howland Island; 7, *Rhabdoblennius rhabdotrachelus*, USNM 115509, male, 35.3 mm, Phoenix Island.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Key to Genera of the Tribe Salariini

1. Elongate, transverse series of cirri continuous across nape or interrupted at midline of nape by a narrow hiatus no greater than 25 percent of length of base of either patch of cirri; lateral line complete, extending to or almost to caudal base 2

   Nape cirri, when present, restricted to a single cirrus or a patch of cirri on each side of nape separated by a wide hiatus nearly equal to or greater than length of base of either patch of cirri; lateral line complete or incomplete 4

2. Segmented dorsal rays 14 to 16; segmented anal rays 14 to 17 (rarely 14); both upper and lower jaw teeth freely movable, subequal in breadth; about one-half as many teeth in lower jaw as in upper; teeth in lower jaw 85 to 135; vomerine teeth absent; one or two canines present posteriorly on each dentary ....***Cirripectes*** Swainson, 1839

   Segmented dorsal rays 11 to 13; segmented anal rays 12 to 14; upper jaw teeth freely movable, lower jaw teeth scarcely movable, nearly twice as broad as upper jaw teeth; about one-third as many teeth in lower jaw as in upper; teeth in lower jaw less than 65; vomerine teeth present or absent; canines present or absent posteriorly on each dentary 3

3. Upper lip with 18 to 24 well-developed crenulae; supraorbital cirrus multifid, with 5 to 10 branches; lateral line with numerous short side branches anteriorly (Figure 30); no imbricate scalelike flaps covering anterior lateral-line pores; pair of barbels present on each side of chin just behind lower lip; dentary canines absent; vomerine teeth absent ....***Exallias*** Jordan and Evermann, 1905

   Upper lip entire; supraorbital cirrus simple, long and tapering; lateral line consists of short, separate, longitudinally bipored tube anteriorly; imbricate scalelike flaps covering at least anterior lateral-line pores (Figure 29); no barbels on chin; dentary canines present; vomerine teeth present ....***Pereulixia*** Smith, 1959

4. Nuchal and supraorbital cirri absent; all caudal rays unbranched; lateralmost tooth on each dentary occasionally canine-like, slightly broader (in frontal view) and more robust than adjacent teeth; lateral extrascapulars fused indistinguishably to pterotic; median ethmoid unossified; circumorbital bones 4 ....***Ecsenius*** McCulloch, 1923

   Either nuchal or supraorbital cirri may be absent, but never both (both may be present); caudal rays branched or unbranched; lateralmost tooth on each dentary similar to adjacent teeth; lateral extrascapular distinct and separate from pterotic; median ethmoid ossified; circumorbital bones 5 (except *Nannosalarias* and *Alloblennius*, which have 4, and *Medusablennius*, which has 2) 5

5. Dorsal spines 9 to 11; all caudal rays unbranched; pectoral rays 15 to 18 (usually 16); segmented pelvic rays 2; color of head and body almost uniformly dark ***Atrosalarias*** Whitley, 1933

   Dorsal spines 12 to 17 (rarely 11); caudal rays branched or unbranched; pectoral rays 13 to 16 (rarely 16); segmented pelvic rays 2 to 4; color of head and body variable......6

6. Total dorsal fin elements 21 to 23; segmented dorsal rays 9 to 12; segmented anal rays 10 to 13; minute, imbricate, scalelike flaps covering anterior lateral-line pores ***Stanulus*** Smith, 1959

   Total dorsal fin elements 26 to 38; segmented dorsal rays 13 to 24; segmented anal rays 14 to 28; no minute, imbricate, scalelike flaps covering lateral-line pores............7

7. Teeth in upper jaw freely movable, in adults usually exceeding 120 (110 to 380) 8

   Teeth in upper jaw immovable or nearly so, 18 to 80 17

8. All caudal rays unbranched; segmented anal rays 23 to 28 9

   Some caudal rays branched near tips, at least in adults; segmented anal rays 17 to 25....10

9. A prominent cup-shaped fleshy disk or appendage behind lower lip (Figure 10) ***Andamia*** Blyth, 1858

   No fleshy disk or appendage behind lower lip ....***Alticus*** Lacépède, 1880

10. Following combination of characters present: occipital crest, no nuchal cirri, nasal cirri simple (rarely with single, short side branch), supraorbital cirri pinnately branched (at least in adults), and single pore present in mid-dorsal area of supratemporal canal (Figure 21) ....***Praealticus*** Schultz and Chapman, 1960

    Above characters never present in combination 11

11. Segmented pelvic rays 2 or 3 (each fin) 12
Segmented pelvic rays 4 14

12. Gill membranes bound to isthmus at about, or slightly below, level of ventralmost pectoral ray; gill membranes occasionally forming a narrow free fold across isthmus; cirri associated with 2 to 4 preoperculomandibular pores on each side; a fleshy flap at base of first dorsal spine ....***Crossosalarias*** Smith-Vaniz and Springer
Gill membranes unrestricted laterally and posteriorly; gill membranes forming a deep, free fold across isthmus; no cirri associated with preoperculomandibular pores; no fleshy flap at base of first dorsal spine 13

13. Terminal anal ray completely free from caudal peduncle; dorsal spines 13 or 14; segmented pelvic rays 3; anterior anal rays not elongated ......***Istiblennius*** Whitley, 1943
Terminal anal ray partially bound to caudal peduncle by membrane; dorsal spines 12 or 13, typically 12; segmented pelvic rays 2; anterior anal rays frequently elongated in mature males ....***Salarias*** Cuvier, 1817

14. Dorsal fin without notch between spinous and segmented rays (but notched somewhat in larvae); segmented dorsal rays 19 to 24; segmented anal rays 20 to 22; pectoral rays typically 15 ....***Ophioblennius*** Gill, 1860
Dorsal fin with notch between spinous and segmented rays; segmented dorsal rays 13 to 18; segmented anal rays 14 to 19; pectoral rays typically 14 15

15. Dorsal spines typically 13 (last spine often greatly reduced); vomerine teeth present or absent, frequently broken off; cirrus on each side of nape usually simple, varying from no cirri to a small patch (circumtropical, but eastern Pacific species with a single cirrus) 16
Dorsal spines typically 12; vomerine teeth absent; a patch of cirri on each side of nape (restricted to the eastern Pacific) ....***Scartichthys*** Jordan and Evermann, 1898

16. High, thin, fleshy occipital crest present (at least in males); canine tooth absent on dentary posteriorly; vomerine teeth absent ....***Istiblennius***[1] Whitley, 1943
Occipital crest absent or present only as a low fold; canine tooth present on dentary posteriorly; vomerine teeth present in most specimens............***Entomacrodus*** Gill, 1859

17. Segmented dorsal rays 14 to 16; upper jaw teeth 74 to 80; lower jaw teeth 42 to 58......18
Segmented dorsal rays 17 to 21; upper jaw teeth 18 to 50; lower jaw teeth 16 to 38......19

18. Fleshy crest on midline of nape (low and poorly developed in females); pectoral rays 12 to 14; segmented pelvic rays 2; no vomerine teeth; circumorbital bones 5.
Glyptoparus Smith, 1959
No fleshy crest on midline of nape; pectoral rays 15; segmented pelvic rays 3; vomerine teeth present; circumorbital bones 4 ....***Nannosalarias*** Smith-Vaniz and Springer

19. All caudal rays unbranched 20
Central caudal rays branched near tips 21

20. Cirri on interorbital region, rims of anterior and posterior nostrils, and over eye; nuchal cirri absent; upper jaw teeth 18 or 19; circumorbital bones 2.
Medusablennius Springer, 1966
No cirri on interorbital region, simple cirrus on anterior nostril and over eye; minute nuchal cirri present; upper jaw teeth 36 to 42; circumorbital bones 5.
Litobranchus Smith-Vaniz and Springer

21. Dorsal spines typically 13; nasal and nuchal cirri palmate, multifid; supraorbital cirri over each eye 2 or multifid ....***Mimoblennius*** Smith-Vaniz and Springer
Dorsal spines 11 to 13, usually 12; nasal and nuchal cirri, if present, slender and simple; supraorbital cirri, if present, simple 22

22. Posterior dentary canines well developed; vomer with small conical teeth; last POP position consisting of a pair of vertical pores (Figures 43, 45, and 46); epipleural ribs 19 to 27..23
Posterior dentary canines absent or minute; vomerine teeth absent; last POP position consisting of a single pore (Figures 47–50); epipleural ribs 11 to 16 24

23. Nuchal cirri present; diameter of eye into length of supraorbital cirrus 1.7 to 2.5; precaudal vertebrae 11 (western Indian Ocean and Red Sea) ....***Hirculops*** Smith, 1959
Nuchal cirri absent; diameter of eye into length of supraorbital cirrus 1.0 to 1.5; precaudal vertebrae 10 (western Pacific and eastern Indian oceans) ..***Rhabdoblennius*** Whitley, 1930

24. Supraorbital cirri present; nuchal cirri present (minute) or absent; circumorbital bones 4 (Red Sea) .... *Alloblennius* Smith-Vaniz and Springer
Supraorbital cirri absent; nuchal cirri present; circumorbital bones 5 (Indian Ocean and Red Sea) .... *Antennablennius* Fowler, 1931

[1] *Istiblennius* will key out in two places in the key. While most species of *Istiblennius* have I,3 pelvic rays, *I. unicolor* has I,4 and it alone keys out here.

Alloblennius, new genus

Diagnosis.—Dentary a closed capsule with replacement teeth entering functional series through foramina in jawbone. Anterior and posterior dentary canines absent. Premaxillary and dentary teeth immovable or nearly so, numbering 30 to 38 in upper jaw and 30 to 36 in lower jaw. Vomer toothless. Dorsal rays XI to XIII, usually XII, 16 to 20; anal rays II, 19 to 22; segmented caudal rays 13, middle 9 branched; pectoral rays 13 to 15 (usually 14); pelvic rays I,3 (the innermost pelvic ray in one species considerably reduced, closely applied to base of second ray, and visible only in cleared and stained specimens or upon careful dissection). Terminal anal ray bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores 2–8. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal cirri present (minute) or absent; supraorbital and nasal cirri simple. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 4. Type-species: *Rhabdoblennius pictus* Lotan.

Relationships are discussed under section titled, "Recognition of Genera."

Etymology.—A combination of the Greek *allos*, different or strange, and *blennos*, the name of a fish, alluding to the unusual discovery of a genus of blenniid fishes known only from the Red Sea.

From a zoogeographic standpoint *Alloblennius* is of interest because it is the only blenniid genus restricted to the Red Sea. This may not be surprising as a large number of Red Sea fish species are apparently endemic (Marshall, 1952). *Alloblennius* appears to be derived from an *Antennablennius*-like ancestor that invaded the Red Sea, became isolated, and evolved to its present level of differentiation.

The genus comprises two species, *A. pictus* and *A. jugularis*. *A. pictus* differs most notably from *A. jugularis* in having the innermost pelvic ray not obvious, the ventral hypural plate fused proximally with the urostylar centrum and dorsal hypural plate, and in lacking nuchal cirri (minute nuchal cirri are usually present in *jugularis*). Both species are described in detail below.

Alloblennius jugularis (Klunzinger)

Figures 8*a*, 50

Blennius jugularis Klunzinger, 1871, p. 493 [original description; type-locality: Red Sea, Kosseir].

Material examined.—ISZZ 10496 (male, 29.5 mm SL), lectotype and ZIAS 2617 (female, 22.7 mm SL), paralectotype, both from Kosseir, Red Sea; USNM 204695 (6, 30.5-42.8) Kosseir, lat. 26°08′N, long. 34°16′E; USNM 204528 (3, 30.7-36.2), USNM 204531 (2, 23.3-29.9) and USNM 204532 (1, 27.8), Gulf of Aqaba near Ras Burqa; USNM 204529 (1, 26.6), Gulf of Aqaba near Marsa Muqabila; USNM 204530 (5, 21.3-31.5), S end of Sinai Peninsula at Ras Muhammad; USNM 204612 (1, 19.1), Ethiopia, SW shore of Sciumma Island, lat. 15°32′31″N, long. 40°00′E; USNM 204488 (26, 16.4-31.0), Ethiopia, Difnein Island, lat. 16°36′N, long. 39°20′E; HUI E62/417g, (6, 27.6-33.3), Ethiopia, Dahlak Archipelago, Cundabilu.

Description (characters for lectotype in parentheses).—Nature of dentary and replacement teeth not investigated. Dentary canines absent. Premaxillary and dentary teeth relatively immovable; premaxillary teeth 30 to 36 (35); dentary teeth 30 to 34 (32). Vomerine teeth absent. Terminal vertebra with two epurals and autogenous hypural 5 and

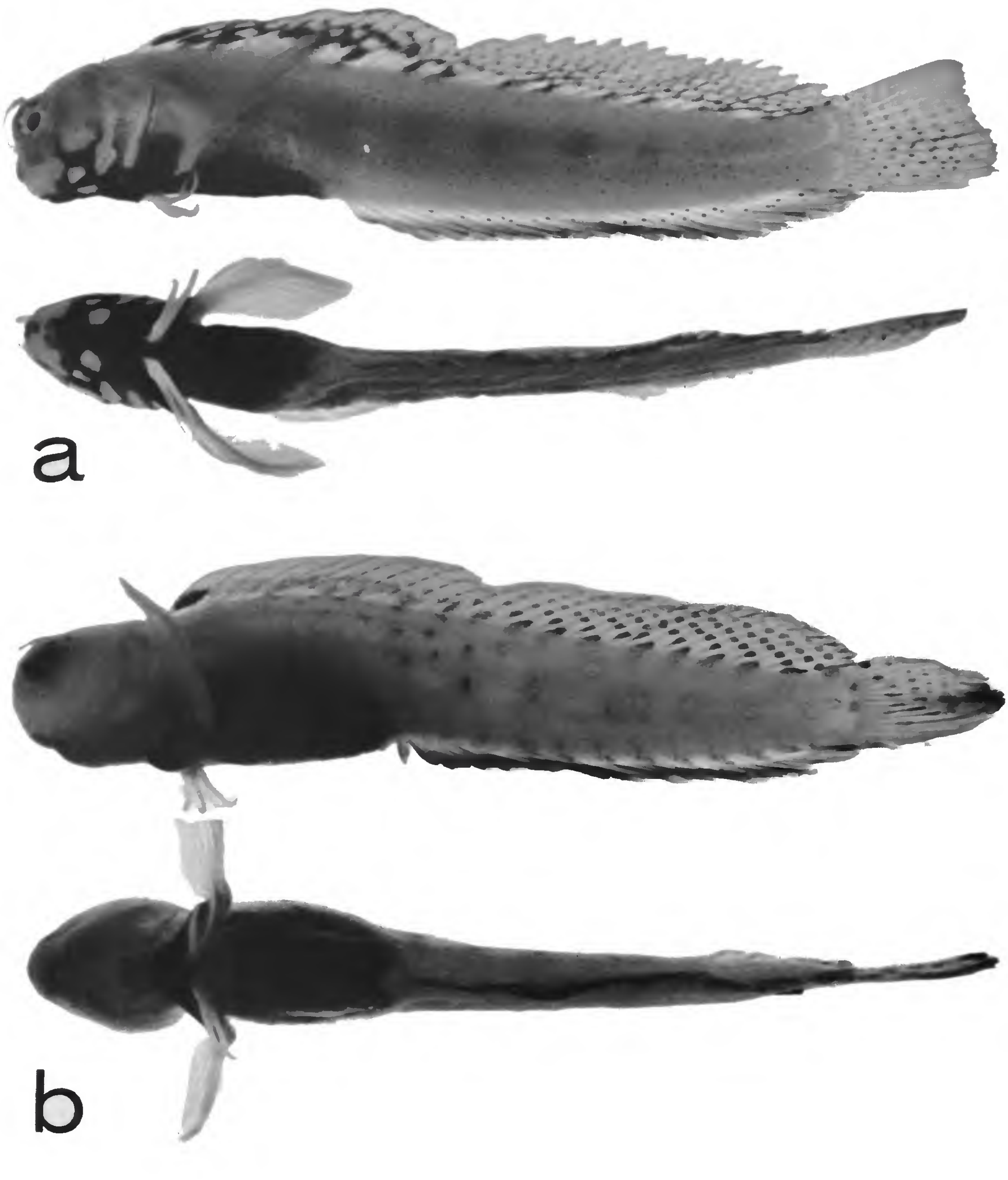


FIGURE 8.—*Alloblennius* (lateral and ventral views): *a*, *A. jugularis*, HUI E62/417g, male, 33.4 mm. Cundabilu, Dahlak Arquipelago; *b*, *A. pictus*, USNM 204524, male, 25.8 mm, Gulf of Aqaba.

ventral hypural plate. Vertebrae 10 + 27 to 29 = 37 to 39 (38); epipleural ribs 12 to 16 (14); last pleural rib on vertebra 10. Circumorbital bones 4.

Dorsal spines 11 to 13, usually (12); last spine noticeably reduced; segmented rays 17 to 20 (19); at least basal two-thirds of terminal dorsal ray bound by membrane to caudal peduncle and dorsal procurrent rays; dorsal fin moderately incised between spinous and rayed portions. Anal spines 2; segmented anal rays 20 to 22 (21); at least basal two-thirds of terminal anal ray bound by a membrane to caudal peduncle. Caudal fin with 13 segmented rays, middle 8 (9) each branched once; dorsal procurrent rays 6 or 7; ventral rays 5 to 7 (7). Pelvic rays I,3, all rays well developed. Pectoral rays 14. Gill-rakers 10 (lectotype only). Pseudobranchial filaments 5. Nuchal cirri present or absent (absent); supraorbital and nasal cirri short and simple. Upper and lower lips entire. Lateral line of simple pores, considerably reduced, ending at level of fourth dorsal spine.

Color pattern.—Mature males: The snout is dusky. There is a broad band of melanophores behind the eye that becomes diffuse as it extends on top of the head, but is distinct as it continues ventrally around the eye, and is continuous with a black area on the underside of the head. The black area covers the ventral sides of the head but is interrupted by two large, pale spots, one on each side. Other pale spots may occur on each side lateral to the ventral spots, just anteroventral to the ventral end of the opercle, or at the ventral end of the preopercular area. The ventral end of the opercle is covered by melanophores; the dorsal end is dusky. The prepelvic area is dark dusky to black above the level of the pelvic fin base; the dark area extends onto the ventral half of the fleshy pectoral base. The venter is black. The body bears six to eight dusky, bandlike spots at its midlevel. There may also be a fine stippling of spots over the body. The spinous dorsal bears a black spot between the first two dorsal spines; the remainder of the fin is irregularly marked with dark spots. The rayed portion of the dorsal fin bears a regular pattern of dark melanophores and pale areas for its entire length. The tips of the rays and the base of the anal fin are pale to pale dusky with or without fine dark spots basally. The remainder of the fin is dark dusky. The caudal fin bears a pattern of up to six irregularly vertical rows of dark spots. The pectoral fins are faintly dusky, and the pelvic fins are unmarked.

Immature males have very little black pigment, but may show the same pattern as mature males, only much less intense. Females are very pale. They exhibit some pale dusky marks on the sides of the head and body and a regular pattern of dusky spots on the dorsal and caudal fins.

Remarks.—The key and description given by Klunzinger (1871, p. 493) to distinguish his new species, *Blennius jugularis*, contain features indicative of two different genera. In the Berlin Museum (Klunzinger, whose collections originally resided in Stuttgart, sold all the specimens reported in his 1871 paper to other museums, see Klausewitz, 1964, p. xii) there are two specimens, catalog numbers 8025, a 28 mm female, and 10496, a 29.5 mm male, and in the Leningrad Museum there is a single specimen, catalog number 2617, a 22.7 mm female, that were identified as *Blennius jugularis* by Klunzinger and which were purchased from him. As all three specimens are from Kosseir, they apparently were included in his 1871 study. While the fin-ray counts given by Klunzinger agree with both females, the description of the cirri excludes the Berlin female, 8025. The description of the cirri in the key agrees with none of the specimens, but appears to be a composite from all. The Berlin female is a species of *Antennablennius*, possibly undescribed, and the Berlin male and Leningrad female represent the species treated here as *Alloblennius jugularis*. We consider the three specimens as syntypes of *B. jugularis* and here designate the Berlin male, 10496, as lectotype.

Alloblennius pictus (Lotan)

Figures 1*b*, 8*b*, and 49

Rhabdoblennius pictus Lotan, 1970, p. 376 [original description; type-locality; Eilat, Gulf of Aqaba].

Material examined.—HUI E63/37,1 (male, 25.6 mm SL), holotype, Eilat, Gulf of Aqaba, Red Sea, 4 July 1963, A. Ben-Tuvia; USNM 204523 (3, 14.0-35.4) and USNM 204525 (35, 13.5-27.9), Gulf of Aqaba near Marsa Muqabila; USNM 204524 (10, 20.2-31.3) and USNM 204527 (2, 14.8-19.8), Gulf of Aqaba just N of Ras Burqa; USNM 204522 (1, 19.5), Gulf of Aqaba, bay between Marsa Mokrakh and El Himeira; USNM 204526 (8, 13.6-25.2), Gulf of Aqaba between Marset Mahash el Ala and Marset Abu Samra; USNM 203766 (19, including 2 cleared and stained, 16.8-32.6), Red Sea, Strait of Jubal, lat. 27°14′34″N, long. 33°53′55″E; USNM 204508 (8, 16.8-21.5), Ethiopia, Sciumma Island, lat. 15°32′31″N, long. 40°40′E; USNM 204498 (9, 18.0-26.1), Ethiopia, Massawa; USNM 204501 (83, 13.8-28.5), Ethiopia, Difnein Island, lat. 16°36′N, long. 39°20′E; USNM 204510 (1, 17.9), Ethiopia, Melita Bay, lat. 15°15′N, long. 39°49′E; USNM 204504 (4, 18.6-22.6), Ethiopia, near Harat Island, lat. 16°08′N, long. 39°26.5′E; USNM 204502 (1, 18.6), Ethiopia, north end Isola Delemme, lat. 15°30.5′N, long. 39°54′E.

Description (characters for holotype in parentheses).—Dentary a closed capsule with replacement teeth entering functional series through foramina in jawbone. Dentary canines absent. Premaxillary and dentary teeth relatively immovable; premaxillary teeth 34 to 38 (34); dentary teeth 32 to 36 (32). Vomerine teeth absent. Terminal vertebra with two epurals and autogenous hypural 5; ventral hypural plate fused proximally with urostylar centrum and dorsal hypural plate. Vertebrae 10 + 26 to 28=36 to 38 (10+27); epipleural ribs 11 to 14 (12); last pleural rib on vertebra 10. Circumorbital bones 4.

Dorsal spines 11 to 13, usually 12 (12); last spine noticeably reduced; segmented rays 16 to 20 (19); basal two-thirds of terminal dorsal ray bound by membrane to caudal peduncle and upper procurrent rays; dorsal fin moderately incised between spinous and rayed portions. Anal spines 2; segmented rays 19 to 22 (22); basal two-thirds of terminal anal ray bound by a membrane to caudal peduncle. Caudal fin with 13 segmented rays, middle 9 each branched once; dorsal procurrent rays 6 or 7; ventral rays 5 or 6. Pelvic fin I,3 (innermost pelvic ray considerably reduced, closely applied to base of second ray, and visible only in cleared and stained specimens or upon careful dissection, Figure 1*b*). Pectoral rays 13 to 15, usually 14 (14). Pectoral radial formula 2–0–2. Gill-rakers 8 to 11. Pseudobranchial filaments 5. Nuchal cirri absent; supraorbital and nasal cirri short and simple. Upper and lower lips entire. Lateral line of simple pores, considerably reduced, ending at level of second to fourth dorsal spine.

Pigmentation.—In most specimens the head and body are pale with loose concentrations of melanophores variously distributed. Groups of melanophores may occur in the mid-predorsal region of the head, on the snout, and around the orbit, with an extension from the orbit across the top of the cheek and another diagonally downward past the corner of the mouth. The latter extension may be continuous with the generally dusky to heavily pigmented underside of the head in males. In females the underside of the head bears only a sparse sprinkling of melanophores. The breast and a variable portion of the ventral half of the pectoral base are dusky with melanophores in males, almost unmarked in females. The venter is unmarked in all specimens but the dark peritoneum shows through the skin in most specimens. The sides of the body may bear a midlateral row of somewhat vertical groups of melanophores and/or scattered ocelli as shown by the specimen in Figure 8*b*. Occasionally there is a large, concentrated group of melanophores in the humeral region. There is usually a row of clusters of melanophores along the dorsal body contour at the base of approximately every other dorsal fin element. Usually there is an indication of a dark spot between the first two dorsal spines (both sexes) and various other groups of melanophores overlying the dorsal spines. There are about four clusters of melanophores overlying each dorsal ray, forming diagonal rows of spots across the length of the fin. The anal fin usually bears spots at the base of approximately every other ray, and most of the distal one-fourth to one-half of the fin is evenly dusky, except for the pale tips of the rays. The caudal bears scattered spots, sometimes arranged in up to five vertical rows. The pectoral and pelvic fins are unmarked.

Remarks.—Segmented dorsal and anal ray and caudal vertebral counts, probably correlated meristic characters, indicate significant population differences between Ethiopian and northern Gulf of Aqaba Israeli specimens, and sexual differences between Ethiopian males and females. Israeli specimens do not exhibit significant meristic sexual dimorphism:

	Segmented dorsal rays						*Segmented anal rays*						*Caudal vertebrae*			
	16	17	18	19	20	Av	19	20	21	22	Av	26	27	28	Av
Israel															
males	–	–	13	21	3	18.7	–	2	26	10	21.2	–	13	19	27.6
females	–	–	4	15	–	18.8	–	2	12	5	21.2	1	4	12	27.6
Ethiopia															
males	–	2	39	23	–	18.3	1	16	46	1	20.7	5	41	16	27.2
females	1	5	30	3	–	17.9	3	23	14	–	20.3	6	24	2	26.9

The data were tested for significance, using Student's *t*-test, and the following *t*-values and *p*-values were obtained. (The values are based on a two-sided test, Simpson, Roe, and Lewontin, 1960.) It was decided beforehand that a *p*-value of .01 or less would be considered significant:

Israeli males vs Israeli females for dorsal rays: $t = -.383, p = .7\text{–}.8$
Ethiopian males vs Ethiopian females for dorsal rays: $t = 3.909, p = <.001$
Israeli males vs Ethiopian males for dorsal rays: $t = 3.452, p = <.001$
Israeli females vs Ethiopian females for dorsal rays: $t = 6.213, p = <.001$
Israeli males vs Israeli females for anal rays: $t = .338, p = .7\text{–}.8$
Ethiopian males vs Ethiopian females for anal rays: $t = 4.170, p = <.001$
Israeli males vs Ethiopian males for anal rays: $t = 4.491, p = <.001$
Israeli females vs Ethiopian females for anal rays: $t = 5.284, p = <.001$
Israeli males vs Israeli females for vertebrae: $t = -.330, p = .7\text{–}.8$
Ethiopian males vs Ethiopian females for vertebrae: $t = 2.586, p = .01$
Israeli males vs Ethiopian males for vertebrae: $t = 3.546, p = <.001$
Israeli females vs Ethiopian females for vertebrae: $t = 4.821, p = <.001$

Israeli specimens have higher mean numbers of dorsal and anal rays and caudal vertebrae than Ethiopian specimens, and Ethiopian males have higher mean numbers of dorsal and anal rays and caudal vertebrae than Ethiopian females. Sexual dimorphism similar to that found in Ethiopian specimens was noted by Springer (1967) for some species of *Entomacrodus* and by Springer (1971) for some species of *Ecsenius*.

We have no explanation of why one population should exhibit meristic sexual dimorphism and the other not. The higher numbers of fin rays and vertebrae of the Israeli specimens, however, may well represent the effect of the cooler surface water temperature of the Gulf of Aqaba as compared with those of the Red Sea coast of Ethiopia. Oren (1962) reported monthly average surface temperatures of 1.8–5.5°C less for the Gulf of Aqaba as compared with those of the Red Sea coast of Ethiopia.

Seventeen additional males (and two females) from the Strait of Jubal, Egypt, about 300 km south of the Israeli localities from which we had specimens, were not included in the above analyses. These males had means of 18.9 dorsal rays, 21.2 anal rays, and 27.6 caudal vertebrae, indicating no differences from the Israeli males. Temperature data for the Red Sea coast of Egypt, where these specimens were collected, are not available, but water temperatures generally decrease toward the north in the Red Sea.

While a large sample of specimens of the related *Alloblennius jugularis* was available from the coast of Ethiopia, only relatively few specimens were available from the coast of Israel. We noted no sexual dimorphism or geographic variation in meristic characters such as occurs in *A. pictus*.

Alticus Commerson

FIGURES 9, 15*c*, 19

Alticus Commerson in Lacépède, 1800, p. 479 [type-species: *A. saltatorius* Commerson in Lacépède, = *Blennius saliens* Forster, 1788, by monotypy].

Rupiscartes Swainson, 1839, pp. 79, 182 275 [type-species: *Salarias alticus* Valenciennes in Cuvier and Valenciennes, 1836, = *Blennius saliens* Forster, 1788, by monotypy].

Basilisciscartes Fowler, 1939, p. 2 [type-species: *Blennius saliens* Forster, 1788, by original designation].

Lophalticus Smith, 1957, p. 889 [type-species: *Salarias kirki* Günther, 1868, by original designation].

Damania Smith, 1959, p. 239 [type-species: *Andamia anjouanae* Fourmanoir, 1954, by original designation].

Diagnosis.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Anterior dentary canines absent; posterior dentary canines present or absent, only in males when present. Premaxillary and dentary teeth freely movable, numbering 215 to 340 in upper jaw and 170 to 290 in lower jaw. Vomer with or without teeth. Dorsal rays XIII to XVII, 21 to 23; anal rays II, 24 to 28; segmented caudal rays 12 or 13, none branched; pectoral rays 14 or 15; pelvic rays I,3 or I,4. Terminal anal ray not bound to caudal peduncle by membrane. Lateral line not consisting of two overlapping, disconnected portions; no scalelike flaps covering lateral-line pores. Peroperculomandibular pores without cirri. A single mid-dorsal supratemporal pore. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest present. Nuchal cirri absent; supraorbital and nasal cirri simple or multifid. Postcleithra consisting of 1–3 small, fragile, well-separated bones on each side. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera." See also discussion and Table 1 under *Praealticus.*

Smith (1957, p. 887) proposed the monotypic genus *Lophalticus* for *Alticus kirki* (Günther), which was said to differ from other species of *Alticus* in having vomerine teeth, 14 pectoral rays, and 3 segmented pelvic rays. In the initial stages of our study we were undecided on whether to recognize *Lophalticus* as a genus or a subgenus of *Alticus.* It was apparent that the two taxa were closely related, yet they appeared to differ in a surprisingly large number of characters. Later, we examined specimens of an *Alticus* species, which we here describe as new, that led us to believe that *Lophalticus* should be afforded only subgeneric status. *A. kirki* differs from the other species of *Alticus* in having 16 or 17 dorsal spines, as opposed to 13 to 15; 11 precaudal vertebrae, as opposed to 10; the last pair of pleural ribs on the twelfth vertebra, as opposed to the tenth or eleventh; 25 to 32 epipleural ribs, as opposed to 13 to 22; the upper lip entire, as opposed to crenulate; and teeth on the vomer, as opposed to absent. Several of the meristic characters used to distinguish the species of *Alticus* are correlated and appear to show a trend with *kirki* merely the extreme. The presence or absence of vomerine teeth and lip crenulae are only of specific significance in several genera of Salariini, including the closely related *Praealticus.*

The genus *Damania* was proposed by Smith (1959, p. 239) for *Alticus anjouanae* (Fourmanoir), which was said to differ from *Alticus* in having the dorsal spines filiform and a fleshy knob on each side of the chin. The "fleshy knob" mentioned by Smith is only slightly, if at all, less well developed in *A. saliens* (Forster). The presence of filiform dorsal spines in males of *anjouanae* will separate that species from other members of the genus, but we consider the character of only specific importance. Species of the closely related *Andamia* also possess filiform dorsal spines and the degree of elongation varies greatly between species. Chapman (1951, p. 257) commented on the close relationship of the two genera, and considered *Andamia* merely a specialized extension of *Alticus* both in structure and habits. To erect another genus for species of *Alticus* with filamentous spines serves no useful purpose and only obscures the close relationship of *Alticus* and *Andamia.*

As noted by Smith (1959, p. 240) *A. anjouanae* may eventually prove identical with *A. monochrus* Bleeker, a species that he did not examine. According to Smith, *anjouanae* differed from *monochrus* in having the first, instead of the second, dorsal spine of males longest, and in lacking canines in the lower jaw. The presence or absence of canines, while a valid character, must be used with caution. The literature is unreliable because most workers have failed to realize that in those species that have canines, they are present only in the males. In a single large collection of *Alticus saliens* from Samoa (USNM 115446), dentary canines were present in all males (27) and absent in all females (75).

Distribution.—Red Sea; Indian Ocean; central and western Pacific Ocean.

Alticus simplicirrus, new species

Figure 9

Holotype.—BMNH 1926.7.12.40 (adult male, 46.8 mm SL), Marquesas Islands, Fatu Hiva, lat. 10°26′S, long. 138°39′W, (presented to the British

Museum by the Scientific Expeditionary Research Association, S. Y. "St. George").

PARATYPES.—BMNH 1912.7.12.41 (male, 29.2) and USNM 203829 (female, 31.8), collected with the holotype.

DESCRIPTION.— (Meristic and proportional characters for holotype are given first, followed in parentheses by those of the male and then female paratypes when at least one specimen differed from the others). Dentary an open capsule with replacement teeth entering functional series through adjacent excavated area in jaw bone. Dentary canines absent. Premaxillary and dentary teeth freely movable; premaxillary teeth ca. 300; dentary teeth ca. 250. Vomerine teeth absent. Terminal vertebra with two epurals and autogenous hypural 5. Vertebrae 10 + 31; epipleural ribs ca. 22; last pleural rib on vertebra 11. Circumorbital bones 5.

Dorsal spines 13; last spine moderately reduced (see proportional measurements); segmented rays 23 (23;24); basal three-fourths of terminal dorsal ray bound by membrane to caudal peduncle; dorsal fin strongly incised between spinous and rayed portions. Anal spines 2; segmented rays 26; terminal anal ray not bound by membrane to caudal peduncle; interradial membranes of anal fin deeply incised. Caudal fin with 13 segmented rays, none branched; dorsal procurrent rays 7, ventral procurrent rays 6 (6;5). Pelvic rays I,3. Pectoral rays 14. Gill-rakers 18 (—;16). Pseudobranchial filaments 8 (5;6). Nuchal cirri absent; supraorbital cirri shorter than one-third diameter of orbit, simple (except on left side of holotype, where cirrus bears a minute branch at its tip); nasal cirri palmate, irregularly branched, left with 6 (4;2) and right with 5 (2;1) branches. Fleshy occipital crest moderately well developed in males. Upper lip crenulae 30 (28;29); crenulae present on lower lip, except laterally (difficult to count).

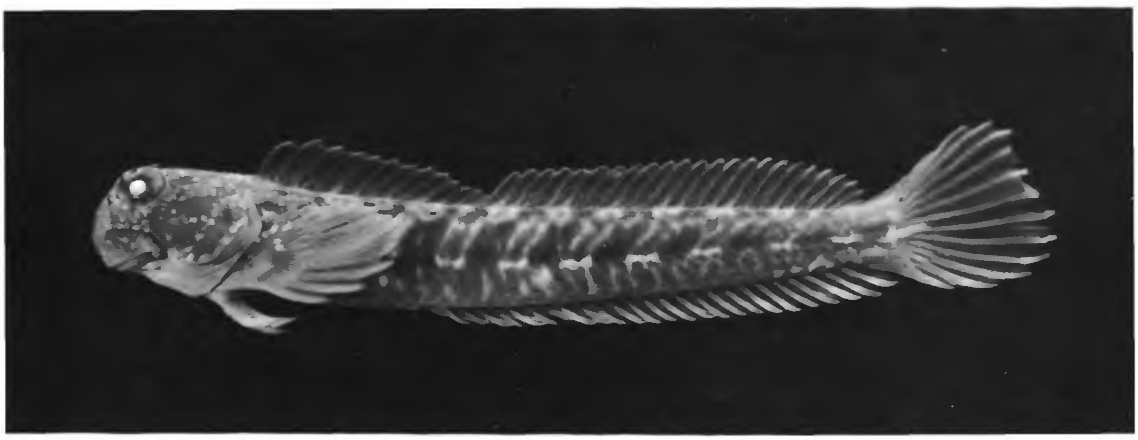


FIGURE 9.—*Alticus simplicirrus*, paratype, USNM 203829, female, 31.8 mm, Marquesas Islands.

PROPORTIONAL MEASUREMENTS (as percent SL).—Greatest distance from snout tip to posterior margin of opercle 18.8 (21.6;18.8); horizontal fleshy orbital diameter 6.6 (6.8;6.6); fleshy interorbital width 1.5(2.6;2.7); orbital cirrus length 1.7(1.7;2.2); nasal cirrus length 1.3 (1.0;1.3); insertion of last dorsal spine to mid-caudal base 7.3 (7.8;7.5); first dorsal spine length 11.0 (7.5;6.6); second 13.3 (8.5;7.8); third 13.9 (9.2;8.1); fifth 12.0 (8.9;7.5); tenth 8.3 (5.8;5.0); thirteenth 3.2 (2.0;2.2); none filamentous; first dorsal ray length 9.0 (6.8;6.0); fifth 10.9 (7.5;7.2); tenth 11.8 (8.2;7.8); last 6.8 (4.1;3.5); longest caudal ray length 25.9 (23.6;22.6).

PIGMENTATION OF HOLOTYPE.—Lateral and anterior portions of head with numerous fine, pale spots against dusky background. Indication of large pale spot on side of head posterior and ventral to eye with less distinct pale area extending dorsoposteriorly from anterior end of large pale spot to origin of dorsal fin. Dorsal surface of head and eyes dusky with pale spots in interorbital region. Ventral surface of head pale. Sides of body with numerous irregularly vertical, dusky bands separated by narrow, white interspaces. Bands becoming indistinct on caudal peduncle. A row of indistinct white spots along mid-portion of body. Venter pale. Dorsal fin evenly dusky with narrow, clear areas basally outlining posterior margins of some spines and rays; distal tips of most fin elements pale, giving appearance of narrow, pale margin to fin. Anal fin similarly marked as dorsal, but with distal third of rays pale. Caudal fin dusky basally, membrane otherwise mostly clear with dusky areas extending length of each ray. Pectoral fin similarly marked as caudal, but fleshy base dusky with pale spots extending onto upper fin rays. Pelvic fins pale dusky.

The female paratype differs most noticeably from the holotype in having the anal fin completely clear. In the male paratype the anal fin is marked with irregular dusky spots.

REMARKS.—*Alticus simplicirrus* differs from all previously described species of *Alticus* in having simple orbital cirri, as opposed to pinnately branched cirri; in having 13 segmented caudal rays, as opposed to 12; and in having the last pair of pleural ribs on the eleventh vertebra, as opposed to the tenth or twelfth. It differs from *Alticus kirki* most noticeably in having 13 dorsal spines, as opposed to 16 or 17, and in having the lower lip crenulate as opposed to entire. From all other species of *Alticus* it differs in having three segmented pelvic rays, as opposed to four, and in having 14 pectoral rays, as opposed to 15.

ETYMOLOGY.—From the Latin meaning simple cirrus, referring to the simple nature of the orbital cirri.

Andamia Blyth

FIGURES 10, 20

Andamia Blyth, 1858, p. 270 [type-species: *A. expansa* Blyth, 1858, = *Salarias heteropterus* Bleeker, 1857a, by monotypy].

DIAGNOSIS.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Anterior and posterior dentary canines absent. Premaxillary and dentary teeth freely movable, numbering ca. 350 to 380 in upper jaw and ca. 275 to 300 in lower jaw. Vomer toothless. Dorsal rays XIV to XVII, 17 to 21; anal rays II, 23 to 25; segmented caudal rays 11 or 12, none branched; pectoral rays 15; pelvic rays I,4. Terminal anal ray bound to caudal peduncle by membrane (except in *A. reyi*). Lateral line not consisting of two overlapping, disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. A single mid-dorsal supratemporal pore. Upper lip without free dorsal margin. A cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest present or absent. Nuchal cirri absent; supraorbital cirri pinnately branched; nasal cirri simple. Postcleithra consisting of 1–3 small, fragile, well-separated bones on each side. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

Alticus and *Andamia* are quite closely related. One might unite these two genera and recognize them as only subgenera. We maintain the separation because of the unique cup-shaped labial disk present in *Andamia* (Figure 10) and because both genera are well entrenched in the literature.

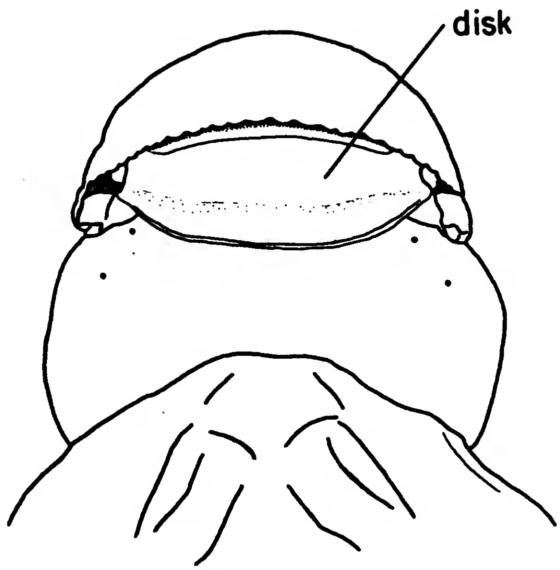


FIGURE 10.—Ventral view of head showing labial disk of *Andamia heteroptera*, USNM 137867, male, 53.5 mm, Porong-pong Island, Philippines (see also Figure 20).

Andamia reyi, the least specialized member of the genus, differs from its congeners and agrees with the closely related *Alticus* in having the last anal ray not bound to the caudal peduncle and in having an occipital crest in males (less well developed than in *Alticus,* however). As noted by Roa and Hora (1938, p. 400), *Andamia roai* (= *reyi*) is more aquatic in its habits than *A. heteroptera.*

DISTRIBUTION.—Eastern Indian Ocean; central Pacific Ocean.

Antennablennius Fowler

FIGURES 1*a*, 47, 48

Antennablennius Fowler, 1931, p. 248 [type-species: *Blennius hypenetes* Klunzinger, 1871, by original designation].

Croaltus Smith, 1959, p. 247 [type-species: *Blennius bifilum* Günther, 1861, by original designation].

Litanchus Smith, 1959, p. 248 [as a subgenus of *Antennablennius;* type-species: *Antennablennius velifer* Smith, 1959, by original designation].

DIAGNOSIS.—Dentary a closed capsule with replacement teeth entering functional series through foramina in jawbone. Anterior dentary canines absent; posterior dentary canines present (minute) or absent. Premaxillary and dentary teeth immovable or nearly so, numbering 32 to 42 in upper jaw and 26 to 34 in lower jaw. Vomer toothless. Dorsal rays XII or XIII, 17 to 21; anal rays II, 19 to 23; segmented caudal rays 13, middle 9 branched; pectoral rays 14; pelvic rays I, 3. Terminal anal ray bound to caudal peduncle by membrane. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores 1–4 (typically 3 in subgenus *Antennablennius* and usually 2 in subgenus *Croaltus*). Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest present or absent. Nuchal and nasal cirri simple; supraorbital cirri absent. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

Fraser-Brunner (1951) described several new species of *Antennablennius* and included a key to the species. Subsequently, Smith (1959) described one additional new species and revised the work of Fraser-Brunner.

Antennablennius bifilum (Günther) differs from other members of the genus in possessing nuchal cirri that are set close together, their bases nearly touching, and in usually having 2 instead of 3 pores at the mid-dorsal point of the supratemporal sensory canal (Figure 48). In 54 specimens examined 1 had one, 34 had two, 18 had three, and 1 had four pores in this position. The nuchal cirri are greatly elongated in males of *A. bifilum.* Smith (1959, p. 247) proposed the monotypic genus *Croaltus* for *bifilum,* based only on the relative lengths of the nuchal cirri. In view of the close relationship of *Antennablennius* to *Alloblennius,* we feel that *Croaltus* should be afforded only subgeneric status.

At least in the males of some species of *Antennablennius* a cutaneous flap is present anteriorly on the first dorsal spine. For those species Smith (1959) erected the subgenus *Litanchus. A. bifilum* also possesses a cutaneous flap on the first dorsal spine. The degree of development is variable in those species that have the flap, being well developed in an apparently undescribed species (USNM 201-868) that we have examined, and only slightly developed in *A. velifer* Smith. In at least the males of some species a well-developed fleshy occipital crest is present, while in other species both sexes are without a crest. We question the significance attributed to the cutaneous flap on the first dorsal spine, while ignoring the presence or absence of an occipital crest as a generic group character.

DISTRIBUTION.—Restricted to the Red Sea and Indian Ocean.

Atrosalarias Whitley

FIGURE 27

Atrosalarias Whitley, 1933, p. 93 [type-species: *Salarias phaiosoma* Bleeker, 1855b, = *Salarias fuscus* Rüppell, 1838, by original designation].

DIAGNOSIS.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary and dentary teeth freely movable, numbering 185 to 226 in upper jaw and 120 to 147 in lower jaw. Vomer toothless. Dorsal rays IX to XI, 18 to 22; anal rays II, 18 to 21; segmented caudal rays 10 to 14 (usually 12 or 13), none branched; pectoral rays 15 to 18 (usually 16); pelvic rays I,3 (innermost pelvic ray minute, visible only in cleared and stained material). Terminal anal ray bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. A single mid-dorsal supratemporal pore. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal, supraorbital, and nasal cirri simple. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section title "Recognition of Genera."

The systematics and distribution of this monotypic genus have recently been reported by Springer and Smith-Vaniz (1968). We used *Salarias fuscus* Rüppell, 1838, as the senior specific synonym for the genus, but gave the date as 1835 (the same as that given on the title page of the article and the same to which it has almost always been referred). We now note that Rüppell referred to Cuvier and Valenciennes (1836) in the paper in which he described *S. fuscus*. Thus, *Salarias ruficaudus* Valenciennes, in Cuvier and Valenciennes, 1836, which we tentatively placed in junior synonymy under *S. fuscus*, predates *S. fuscus*. We have since examined the holotype of *S. ruficaudus* and can verify that it and *S. fuscus* are the same species (and subspecies, both described from the Red Sea). Sawyer (1952) established the date of publication of that portion of Rüppell's work referring to blenniids as 1838. (Note: the Rüppell paper that we refer to as 1830 is, as far as we know, usually referred to as 1828. In the Division of Fishes, USNM, however, there is a copy of this study in the original dated wrappers. These wrappers show that this study appeared in parts with dates of 1828, 1829, and 1830. All the blenniid accounts appeared in a part dated 1830.)

In view of this, the two subspecies we (1968) recognized in *Atrosalarias* might be referred to as *A. r. ruficaudus* and *A. r. holomelas*. We had called the latter subspecies *A. fuscus holomelas*, but because *S. fuscus* has always been used as a synonym senior to *S. ruficaudus* in all studies where both species names have been included, because we know of no study using *S. ruficaudus* as other than a listed name referring back to Cuvier and Valenciennes (1836)—and the most recent of these is Günther (1861)—because the species is a common one that for many years has been recognized as *fuscus*, because the genus has been revised recently, and because we believe only confusion would result if the name we accepted as a senior synonym were changed, we retain the name *Salarias fuscus* Rüppell for the monotypic genus *Atrosalarias*. In doing this we comply with the spirit of Rule 23b of the International Code of Zoological Nomenclature.

Since publication of our revision we have examined specimens of *A. fuscus holomelas* in the California Academy of Sciences that extend the known distribution of the subspecies. These specimens are reported here under their George Vanderbilt Foundation register numbers (localities abbreviated): South Viet Nam, numbers 2116, 2789, 2790; Jokaj Island, off Ponape Island, number 497; Palaus, Koror Island, number 1412. The last two localities refute our postulation that the specimens from Boston Island, Marshall Islands, might be an erroneous locality record.

In addition to the distinguishing characters listed in the Key and Tables 2 to 6, mature males of *Atrosalarias* differ from *Salarias* in having the spines and anterior rays of the anal fin frequently rugose, and the anterior anal rays never elongated.

DISTRIBUTION.—Red Sea; Indian Ocean; western and central Pacific Ocean.

Cirripectes Swainson

FIGURES 31, 32

Cirripectes Swainson, 1839, pp. 79, 80, 182, 275 [type-species: *Salarias variolosus* Valenciennes in Cuvier and Valenciennes, 1836, by monotypy].

DIAGNOSIS.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary and dentary teeth freely movable, numbering 180 to 270 in upper jaw and 85 to 134 in lower jaw.

Vomer toothless. Dorsal rays XII, 14 to 16; anal rays II, 14 to 16 (rarely 14); segmented caudal rays 13, middle 9 branched; pectoral rays 14 to 16 (usually 15); pelvic rays I,3 or I,4. Terminal anal ray not bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores numerous, relatively small, and difficult to count. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal cirri consisting of an elongate, transverse series of cirri continuous across nape or interrupted at midline of nape by a narrow hiatus no greater than 25 percent length of base of either patch of cirri; supraorbital cirri simple or multifid; nasal cirri multifid. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

Schultz and Chapman (1960, p. 307) discussed the problem of the valid spelling of this genus and showed that the correct spelling is *Cirripectes*, not *Cirripectus*.

Schultz and Strasburg (1953) discussed the Indo-Pacific species of *Cirripectes*, Strasburg (1956) reported on the Hawaiian species, and Smith (1959) treated the western Indian Ocean species. Our examination of recent collections of *Cirripectes* housed in the National Museum of Natural History indicates that this genus needs additional study.

The only characters that we know of that will distinguish the eastern Pacific genus *Scartichthys* from *Cirripectes* are the number of rays in the median fins (see Table 4) and the position and development of the nuchal cirri. In *Cirripectes* the elongate, transverse series of cirri is continuous across the nape or is interrupted at the midline of the nape by a narrow hiatus no greater than 25 percent of the length of the base of either patch of cirri, and the individual cirri are usually unbranched and arranged in a linear series. In *Scartichthys* the patch of cirri on each side of the nape is separated by a wide hiatus equal to or greater than the length of the base of either patch of cirri and the individual cirri are frequently branched, and their arrangement is often irregular.

The data at hand suggest that *Scartichthys* and *Cirripectes* may be combined when the species are better known. We prefer to maintain the status quo until the group can be studied in greater detail.

DISTRIBUTION.—Red Sea; Indian Ocean; western and central Pacific Ocean to Easter Island.

Crossosalarias, new genus

DIAGNOSIS.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary and dentary teeth freely movable, numbering about 150 in upper jaw and 85 to 100 in lower jaw. Vomer toothless. Dorsal rays XII, 16 to 18; anal rays II, 18 to 20; segmented caudal rays 13, middle 9 branched; pectoral rays 15; pelvic rays I, 3. Terminal anal ray bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Cirri associated with 2 to 4 preoperculomandibular pores on each side. Mid-dorsal supratemporal pores 3. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes joined to isthmus at about, or slightly below, level of ventralmost pectoral ray (posterior edge of gill membrane occasionally with a narrow free fold, depth no greater than diameter of pupil, extending across isthmus). Occipital crest absent. Nuchal cirri palmate, with short side branches; supraorbital and nasal cirri multifid. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5. Type-species: *Crossosalarias macrospilus*, new species.

Relationships are discussed under section titled "Recognition of Genera."

ETYMOLOGY.—A combination of the Greek *krosso*, fringe or tassel, referring to the cirri associated with the preoperculomandibular pores, and *Salarias*, the genus that *Crossosalarias* most closely resembles.

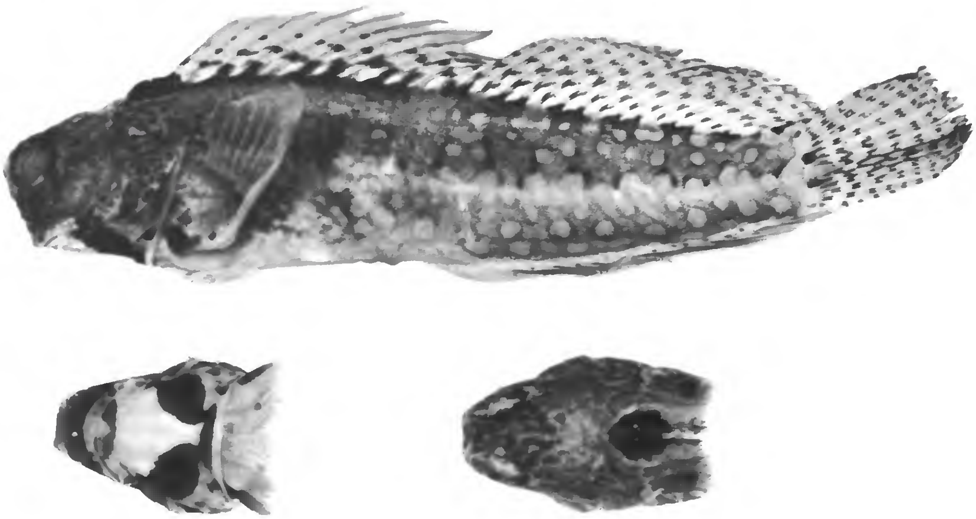


FIGURE 11.—*Crossosalarias macrospilus*, holotype, USNM 203096, male, 51.0 mm, Solomon Islands; lower left insert is ventral view of head, lower right insert, dorsal view of head.

***Crossosalarias macrospilus*, new species**

FIGURES 11, 26

HOLOTYPE.—USNM 203096 (adult male, 51.0 mm SL), Te Vega Cruise 6, sta. 247, Solomon Islands, Bougainville, Tautsina Island, east of Kieta Peninsula, north end of island, lat. 6°12′S, long. 155°40′E, depth ca. 1–8 meters, 11 March 1965, Daniel M. Cohen.

PARATYPES.—USNM 203764 (2, 54.0–61.1), Te Vega Cruise 7, sta. 301, Tonga Islands, Nivatobutabu Island, lat. 16°00′S, long. 175°53′W, depth 0–7 meters, 31 May 1965, Rolf L. Bolin; CAS 24154 (1, 55.1), original no. GVF 1750 sta. HK 73, South China Sea, Pratas Reef, south channel, lat. 20°38′N, long. 116°45′E, 25 May 1958, Rolf L. Bolin; BPBM 7460 (1, 53.9), Ryukyu Islands, Taketomi, Ishigaki, coral reef, depth ca. 6 meters, 24 May 1968, John E. Randall; ANSP 109689 (1, 341), Australia, Queensland, Endeavor Reef, depth 7.6–18.3 meters, 4 January 1969, J. C. Tyler and C. L. Smith, TS,A–3.

DESCRIPTION.— (Meristic characters for holotype in parentheses.) Dentary an open capsule with replacement teeth entering functional series through excavated area of jaw bone. Posterior dentary canines present. Premaxillary and dentary teeth freely movable; premaxillary teeth 140 to 158 (158); dentary teeth 85 to 97 (91). Vomerine teeth absent. Terminal vertebra with two epurals and autogenous hypural 5 and ventral hypural plate. Vertebrae 10 or 11 (10) + 24 to 26 (24) = 34 to 37 (34); epipleural ribs 13 to 15; last pleural rib on vertebra 11. Circumorbital bones 5.

Dorsal spines 12; last spine noticeably reduced; fleshy flap on anterior border of first spine; segmented rays 16 to 19 (16); basal three-fourths of terminal dorsal ray bound by membrane to procurrent caudal rays; dorsal fin deeply incised between spinous and rayed portions. Anal spines 2; segmented rays 18 to 20 (18); basal two-thirds of terminal anal ray bound by membrane to caudal peduncle; interradial membranes of anal fin deeply incised. Caudal fin with 13 segmented rays, middle 9 each branched; dorsal procurrent rays 7, ventral procurrent rays 6 or 7. Pelvic rays I,3, innermost closely bound for entire length to middle ray. Pectoral rays 15. Pectoral radial formula 2–0–2 (as determined from radiographs). Gill-rakers 19 to 22 (19). Pseudobranchial filaments 7 to 9 (7). Gill membranes joined to isthmus at about, or slightly below, level of ventralmost pectoral rays (posterior edge of gill membrane occasionally with a narrow free fold, depth no greater than diameter of pupil, extending across isthmus). Nuchal cirri palmate, with 4 to 13 short branches; supraorbital cirri conspicuous, with 4 to 8 short branches; nasal cirri short, with 2 to 5 branches. Upper and lower lips entire; corner of lower lip with a fleshy barbel about one-half diameter of pupil. Some pores of infraorbital series in horizontal pairs; cirri associated with 2 to 4 preoperculomandibular pores on each side. Lateral line of simple pores, continuous to point below penultimate dorsal spine.

PROPORTIONAL MEASUREMENTS.—(Expressed as percent of SL; figures in parentheses are for the paratypes, except smallest, in order of size, the largest paratype first). Longest caudal ray 23.7 (20.8;25.0; 25.0;23.0); head length 23.7 (21.8;22.7;21.5;23.3); horizontal bony orbital diameter 7.1(6.5;6.8;6.3;7.4); bony interorbital width 1.9 (1.3;1.5;1.2;1.6); supraorbital cirrus length 2.9 (3.9;2.7;2.6;3.3); penultimate dorsal spine length 11.0 (9.7;9.6;11.5;9.7); ultimate spine 3.9 (2.8;3.4;4.6;4.1); first dorsal ray length 16.9 (12.1;14.2;13.9;12.1); height of interradial membrane between ultimate spine and first dorsal ray 3.1 (3.0;3.1;3.5;2.6).

PIGMENTATION.—The following description is based on the holotype. Body and head peppered with fine melanophores, becoming concentrated anteriorly as dark reticulations, especially beneath appressed pectoral fin, and on opercle and interorbital region. Sides posteriorly with pale spots (ocelli ?) approximately equal to diameter of pupil. Nape with a conspicuous black spot, approximately equal to eye diameter, extending from anterior margin of fleshy flap on first dorsal spine to base of second dorsal spine. Base of each pectoral fin with heavy concentration of melanophores. Background color of throat and venter white. Posterior half of throat with two conspicuous black gular patches united at their bases. Band of melanophores behind median half of lower lip with pale area at symphysis of lower jaw. All fin rays with dark, somewhat regularly spaced, cross bands; dorsal and caudal fins with melanophores extending onto interradial membranes adjacent to markings on rays. Interradial membranes of anal fin almost uniformly dusky.

In most features of pigmentation the paratypes of *Crossosalarias macrospilus* agree with the holotype. In the two Tonga specimens the gular markings are less distinct and the predorsal spot is smaller. The latter difference is perhaps correlated with the less developed fleshy flap on the first dorsal spine in these specimens. In the male Tonga specimen the distal margin of the anal fin is noticeably more heavily pigmented than in the female.

RELATIONSHIPS.—Relationships are discussed under "Recognition of Genera" section. Superficially *C. macrospilus* most closely resembles *Salarias fasciatus*. In addition to the distinguishing characters given in the diagnosis and key, *S. fasciatus* differs in lacking a conspicuous predorsal spot and in having a poorly developed notch in the dorsal fin.

ETYMOLOGY.—The specific name, *macrospilus*, is derived from the Greek *makros*, large, and *spilos*, a spot, referring to the conspicuous, black, predorsal spot characteristic of the species. It is to be treated as an appositional noun.

Ecsenius McCulloch

FIGURES 17, 18

Ecsenius McCulloch, 1923, p. 121 [type-species: *E. mandibularis* McCulloch, 1923, by original designation].

Pescadorichthys Tomiyama, 1955, p. 8 [type-species: *Salarias namiyei* Jordan and Evermann, 1903, by original designation].

Anthiiblennius Starck, 1969, p. 1 [as a subgenus of *Ecsenius;* type-species; *Ecsenius* (*Anthiiblennius*) *midas* Starck, 1969, by original designation].

DIAGONSIS.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Anterior and posterior dentary canines present (anterior canines slightly broader and more robust than adjacent incisors). Premaxillary and dentary teeth freely movable to nearly immovable, numbering 26 to 148 in upper jaw and 13 to 64 in lower jaw. Vomer toothless. Dorsal rays XI to XIV, 13 to 21; anal rays II, 13 to 23; segmented caudal rays 13 to 15, none branched; pectoral rays 12 to 15 (rarely 12); pelvic rays I,3 (innermost ray well developed to minute, usually visible only in cleared and stained material). Terminal anal ray bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. A single mid-dorsal supratemporal pore. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal and supraorbital cirri absent; nasal cirri simple or paired. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element (subgenus *Ecsenius*) or postcleithra consisting of 2 small, fragile, well-separated bones on each side (subgenus *Anthiiblennius*). Lateral extrascapular fused with pterotic. Median ethmoid unossified. Circumorbital bones 4.

Relationships are discussed under section titled "Recognition of Genera."

The most recent revision of *Ecsenius* is that of Springer (1971). An interesting new subgenus and species, *Ecsenius* (*Anthiiblennius*) midas, was recently described by Starck (1969). *Anthiiblennius* differs from all other species of *Ecsenius* primarily in having fewer incisoriform teeth, 26 to 34 in the upper jaw, as opposed to 105 to 148; and 13 to 18 in the lower jaw, as opposed to 30 to 64.

Distribution.—Red Sea; Indian Ocean; central and western Pacific Ocean.

Entomacrodus Gill

Figures 35, 36

Entomacrodus Gill, 1859, p. 168 [type-species: *E. nigricans* Gill, 1859, by monotypy].
Salarichthys Guichenot, 1867, p. 96 [type-species: *Salarias vomerinus* Valenciennes in Cuvier and Valenciennes, 1836, by original designation].
Giffordella Fowler, 1932a, p. 14 [type-species: G. *corneliae* Fowler, 1932, by original designation].

Diagnosis.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary and dentary canines freely movable, numbering 116 to 224 in upper jaw and 92 to 170 in lower jaw. Vomer with small conical teeth. Dorsal rays XII to XIV, 13 to 18; anal rays II, 14 to 19; segmented caudal rays 13, middle 9 branched. Pectoral rays 12 to 15 (usually 14); pelvic rays I,4. Terminal anal ray not bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores 3 to more than 50. Upper lip with free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal cirri present or absent; supraorbital and nasal cirri simple to multifid. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

The genus *Entomacrodus* has recently been revised by Springer (1967). This genus appears to be most closely related to *Stanulus*, but is easily distinguished by the characters given in the key. Two nominal forms, missed by Springer, and their proper allocation are given in the list of nominal species of the Salariini.

Distribution.—Circumtropical.

Exallias Jordan and Evermann

Figure 30

Exallias Jordan and Evermann, 1905, p. 503 [type-species: *Salarias brevis* Kner, 1868, by original designation].
Gloriella Schultz, 1941, p. 17 [type-species: *Cirripectes caninus* Herre, 1936 = *Salarias brevis* Kner, 1868a and b, by original designation].
Leoblennius Reid, 1943, p. 282 [type-species: *L. schultzi* Reid, 1943 = *Salarias brevis* Kner, 1868, by original designation].

Diagnosis.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Anterior and posterior dentary canines absent. Premaxillary teeth freely movable, numbering 194 to 210; dentary teeth fairly rigid numbering 52 to 62. Vomer toothless. Dorsal rays XII, 12 or 13; anal rays II, 14; segmented caudal rays 13; middle 9 branched; pectoral rays 15; pelvic rays I,4. Terminal anal ray not bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores numerous, relatively small and difficult to count. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal cirri consisting of an elongate, transverse series of cirri interrupted at midline of nape by a narrow hiatus; supraorbital and nasal cirri multifid. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

This apparently monotypic genus appears to be most closely related to *Cirripectes.*

DISTRIBUTION.—Red Sea; Indian Ocean; central and western Pacific Ocean.

Glyptoparus Smith

FIGURE 41

Glyptoparus Smith, 1959, p. 249 [type-species: *G. delicatulus* Smith, 1959, by original designation].

DIAGNOSIS.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jawbone. Anterior dentary canines absent; posterior dentary canines present, usually 2 or 3 posterior canines on each dentary. Premaxillary and dentary teeth fairly rigid, 74 to 80 in upper jaw and 50 to 58 in lower jaw. Vomer toothless. Dorsal rays XII or XIII, 15 or 16; anal rays II, 18; segmented caudal rays 13, middle 9 branched; pectoral rays 13; pelvic rays I,3 (the innermost pelvic ray reduced to a few fragments of bone visible only in cleared and stained material). Terminal anal ray bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores 1 or 2. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest present. Nuchal and nasal cirri simple; supraorbital cirri simple (minute) or absent. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

The description of *Glyptoparus* was based only on specimens from the western Indian Ocean. We find that *Glyptoparus* is also generally distributed throughout the central Pacific.

The characteristic color pattern of *Glyptoparus* easily distinguishes it from all other species of blenniids that we have examined. Especially diagnostic is the narrow, dusky crescent extending across the throat to the corners of the mouth, and the dark spot on each side of the gill membranes just anterior to the base of the pelvic fins.

DISTRIBUTION.—Indian Ocean; central and western Pacific Ocean.

Hirculops Smith

FIGURE 46

Hirculops Smith, 1959, p. 247 [type-species: *Blennius cornifer* Rüppell, 1829, by original designation].

DIAGNOSIS.—Dentary a closed capsule with replacement teeth entering functional series through foramina in jaw bone. Premaxillary open mesially, but closed laterally with replacement teeth entering functional row through foramina in the bone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary and dentary teeth immovable or nearly so, numbering 34 to 44 in upper jaw and 22 to 26 in lower jaw. Vomer with small conical teeth. Dorsal rays XII, 20 or 21; anal rays II, 20 to 23; segmented caudal rays 13, middle 9 branched; pectoral rays 14; pelvic rays I, 3. Terminal anal ray bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores 8–15. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal, supraorbital, and nasal cirri simple. Postcleithra of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

The genus *Hirculops* appears to be most closely related to *Rhabdoblennius,* but it is easily distinguished by the characters given in the key. Smith (1959) recognized a single species with two subspecies: one in the Red Sea and one in the western Indian Ocean. He did not specify the differences between the subspecies except to say that they differed "in certain markings from Klunzinger's detailed notes, and as Red Sea forms are quite often unique, the African form here kept subspecifically distinct."

DISTRIBUTION.—Restricted to the Red Sea and western Indian Ocean.

Istiblennius Whitley

FIGURES 15*d*, 22–25

Istiblennius Whitley, 1943, p. 185 [type-species: *Salarias muelleri* Klunzinger, 1880, by original designation].

Blenniella Reid, 1943, p. 383 [type-species: *B. rhessodon* Reid, 1943 = *Salarias gibbifrons* Quoy and Gaimard, 1824, by original designation].

Halmablennius Smith, 1948, p. 340 [type-species: *Salarias unicolor* Rüppell, 1838, by original designation].

Alticops Smith, 1948, p. 340 [type-species: *Salarias periophthalmus* Valenciennes in Cuvier and Valenciennes, 1836, by original designation].

DIAGNOSIS.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Anterior dentary canines absent; posterior dentary canines present or absent. Premaxillary and dentary teeth freely movable, numbering 205 to 225 in upper jaw and 165 to 195 in lower jaw. Vomer toothless. Dorsal rays XIII or XIV, 18 to 24; anal rays II, 17 to 25; segmented caudal rays 13, middle 9 branched; pectoral rays 12 to 15 (rarely 15); pelvic rays I,3 or I,4. Terminal anal ray not bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Three (0–2 in only one species) or more mid-dorsal supratemporal pores. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest present or absent. Nuchal cirri present or absent; supraorbital and nasal cirri simple to multifid. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

In his treatment of the western Indian Ocean Blenniidae, Smith (1959) distinguished *Halmablennius* from *Istiblennius* solely on the type of supraorbital cirri present in the two groups. In *Halmablennius* the supraorbital cirri were described as being "bushy," while in *Istiblennius* the cirri were described as being simple or very weakly branched. In light of the variation frequently encountered in other genera (for instance *Entomacrodus*), we do not believe that this difference is sufficient for generic recognition. The type-species of *Halmablennus, I. unicolor,* however, does differ from all other species of *Istiblennius* (including those with bushy supraorbital cirri) that we examined in having I,4 pelvic rays rather than I,3. Whether this difference will merit recognition as a valid generic group character when *Istiblennius* is revised is open to question.

In our examination of the material available for this study we find that *Istiblennius gibbifrons* is one of the most distinctive members of the genus. In the type collection of the National Museum of Natural History alone this species is represented by the following junior synonyms: *Salarias rutilus, Istiblennius afilinuchalis,* and *Istiblennius rodenbaughi.* If *Istiblennius gibbifrons* is indicative of the amount of synonymy that occurs in *Istiblennius* (and we believe it is), then the actual size of the genus is considerably smaller than the list of 102 nominal species (see list) would suggest.

Istiblennius gibbifrons is readily distinguished from all other species in the genus by the following combination of characters: 12 precaudal vertebrae, no nuchal cirri, no fleshy occipital crest, simple supraorbital cirri, mid-dorsal area of supratemporal canal with 6 to 12 or more pores, and the lateral line with numerous, regularly spaced side branches. *Istiblennius coronatus* differs from *gibbifrons* primarily in having the supraorbital cirri usually branched, 3 to 8 pores in the corresponding position of the supratemporal canal, and the side branches of the lateral line less numerous and more irregularly spaced. Specimens (USNM 142204) that we tentatively identify as *I. paulus,* also with 12 precaudal vertebrae (most species have 10 or 11), have small nuchal cirri, consistently 3 pores in the mid-dorsal area of the supratemporal canal, and the lateral line with reduced side branches. In view of the overlapping combinations of characters shown by species in *Istiblennius,* we hesitate to assess their importance as generic characters.

Several species of *Istiblennius,* as here defined, show a remarkable resemblance to species of *Praealticus,* and there appears to be no single character (except, perhaps, the nature of the supratemporal pores) that will distinguish all species of either genus (see discussion and Table 1 under *Praealticus*). We urge future workers to consider carefully all the nominal species in both genera before describing additional species of either *Istiblennius* or *Praealticus.*

DISTRIBUTION.—Red Sea; Indian Ocean; central and western Pacific Ocean.

***Litobranchus,* new genus**

DIAGNOSIS.—Dentary a closed capsule with replacement teeth entering functional series through foramina in jawbone. Anterior dentary canines absent; posterior dentary canines present (frequently absent in females). Premaxillary and dentary teeth immovable or nearly so, numbering 36 to 42 in upper jaw and 23 to 30 in lower jaw. Vomer toothless. Dorsal rays XII, 18 to 20; anal rays II, 20 to 22; segmented caudal rays 12, none branched; pectoral rays 14; pelvic rays I,3. Terminal anal ray bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Middorsal supratemporal pores 2–4, usually 2. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal, supraorbital, and nasal cirri simple. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5. Type-species: *Salarias fowleri* Herre.

Relationships are discussed under section titled "Recognition of Genera."

ETYMOLOGY.—A combination of the Greek *litos,* simple, and *branchos,* fin, referring to the unbranched rays characteristic of the genus.

An interesting parallel is offered by the relationship of the caudal fin structure and branching of principal caudal rays in *Litobranchus* and *Medusablennius* and the unrelated *Atrosalarias* to their respective relatives. *Litobranchus* and *Medusablennius* agree with their closest allies in having a generalized caudal fin containing an autogenous hypural 5, but differ in having all the caudal rays unbranched. *Atrosalarias* also differs from its nearest allies in having all simple caudal rays, but agrees with most members of the closely related *Salarias* in having a specialized caudal fin that lacks an autogenous hypural 5.

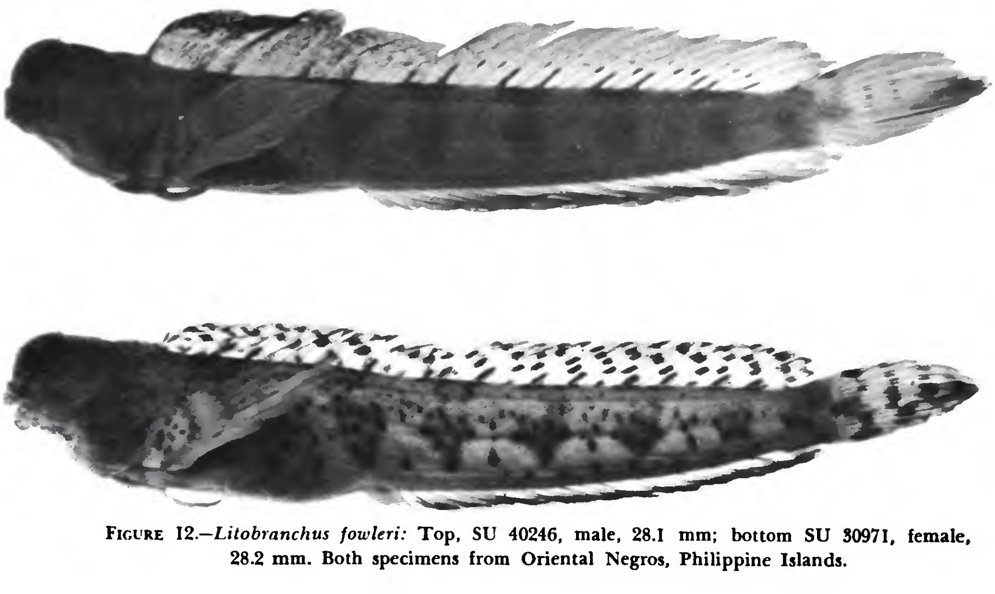


FIGURE 12.—*Litobranchus fowleri:* Top, SU 40246, male, 28.1 mm; bottom SU 30971, female, 28.2 mm. Both specimens from Oriental Negros, Philippine Islands.

Litobranchus fowleri (Herre)

FIGURES 12, 42

Salarias fowleri Herre, 1936, p. 364, pl. 2, fig. 7 [original description; type-locality: Philippine Islands, Oriental Negros, tide pool at Dumaquete].

MATERIAL EXAMINED.—SU 30971 (adult female, 29.9 mm SL), holotype of *Salarias fowleri* and paratypes (6 [2 not seen], 16.0–28.2) in same bottle, Philippine Islands, Oriental Negros, tide pool at Dumaquete, lat. 9°18′N, long. 123°18′E, 23 April 1936, A. W. C. T. Herre; USNM 203763 (1, cleared and stained, 27.4), paratype originally with SU 30971; data for following collections same as SU 30971, except for date of collection: SU 29582 (11 [3 not seen], 23.7–34.4), SU 32295 (1, 28.8), SU 40244 (1, 26.4), SU 40246 (1, 28.1), USNM 203768 (1, 30.9), and USNM 203769 (2, including 1 cleared and stained, 31.0–32.0). ZMA 109.098 (1, 31.0), original no. Siboga Expedition sta. 33, Indonesia, Lombok, Pijut Bay, lat. 8°47′S, long. 116°31′E, depth 9–22 meters, 24/26 March 1899, M. Weber; ZMA 109.097 (1, 24.8) and 109.099 (2, 25.1–30.2), New Guinea, Waigeo Island, Saonek Anchorage, lat. 0°21′S, long. 130°56′E, December 1909, L. F. de Beaufort; CAS 24687 (3, 18.7–23.6), GVF Reg. #881, sta. 95, Palau Islands, tide pool on reef off SW point of Nardueis Island, lat. 7°20′44″N, long. 134°35′08″E, 4 September 1956, H. A. Fehlmann and A. W. Scott; CAS 24688 (1, 22.0), GVF Reg. #901, sta. 115, Palau Islands, Peleliu, south side of channel between Ngurungor Point and Ngusuwal Island, east side of Peleliu, lat. 7°00′36″N, long. 134°16′26″E, depth 0–0.5m, tide pool, rock, and sand bottom, 19 September 1956, H. A. Fehlmann, et al.; CAS 24689 (2, 23.9–34.5), GVF Reg. #1600, sta. 20, Philippine Islands, tide pools at Ayuguiton, 14 km south of Dumaquete City, Oriental Negros, 19 April 1958, W. C. Brown, et al.

DESCRIPTION.—(Meristic characters for holotype in parentheses). Dentary a closed capsule with replacement teeth entering functional series through foramina in jawbone. Posterior dentary canines present (frequently absent in females). Premaxillary and dentary teeth immovable or nearly so; premaxillary teeth 36 to 42; dentary teeth 28 to 30. Vomerine teeth absent. Terminal vertebra with two epurals and autogenous hypural 5 and ventral hypural plate. Vertebrae 10 + 27 or 28 (usually 28) = 37 or 38; epipleural ribs 13 or 14; last pleural rib on vertebra 10. Circumorbital bones 5.

Dorsal spines 12; last spine moderately reduced; segmented rays 18 to 20 (19); basal two-thirds of terminal dorsal ray bound by membrane to caudal peduncle; dorsal fin moderately incised between spinous and rayed portions. Anal spines 2; segmented rays 20 to 22 (21); basal two-thirds of terminal anal ray bound by membrane to caudal peduncle. Caudal fin with 12 segmented rays, none branched; dorsal procurrent rays 5 to 8 (usually 6), ventral rays 4 or 5. Pelvic rays I,3. Pectoral rays 14. Pectoral radial formula 2–0–2. Gill-rakers 6 to 8(7). Pseudobranchial filaments 5. Nuchal, supraorbital, and nasal cirri simple. Upper and lower lips entire. Pores of infraorbital series simple. Lateral line short, continuous to point below 4th to 6th dorsal spine, pores simple.

PIGMENTATION.—The pigmentation of the sexes closely approaches that shown in Figure 12. Males are characterized by 7 dark lateral bands that extend across the dorsum, several rows of pale, horizontally elongated spots on sides, and the fins not heavily pigmented, except distally on the interradial membranes of the anterior 4 or 5 dorsal spines. In several of the largest (presumably nuptial) males the head is very dark. In the females there are no rows of pale spots and the lateral bands are less well defined. In contrast to the males, the body and the dorsal fin are characterized by numerous dark spots.

GEOGRAPHIC VARIATION.—The three New Guinea specimens differ in several respects from the other material and were not used in preparing the above description. We provisionally assign these specimens to *Litobranchus fowleri*.

In specimens from the Palaus, Philippines, and Indonesia, the supraorbital cirri are minute and there is no apparent sexual dimorphism associated with these structures. In 7 females (21.8–31.0 mm SL) the ratio of the cirrus length into the orbital diameter was 4.3 to 8.5, average 5.6; in 10 males (22.4–34.0) the ratio was 4.0 to 8.0, average 5.4. The New Guinean specimens have longer cirri that clearly reflect sexual dimorphism. In the single female specimen the cirri/orbital ratio is 1.8; in both males it is 0.65. In all three specimens the number of dentary teeth is low, 23 (versus 28 to 30). The number of premaxillary teeth is within the range of those shown by the other specimens.

The interradial membranes of the anal fin are more deeply incised and the anal segmented rays approximately one-third longer in New Guinean males than in Philippine males of nearly equal size. The New Guinean males also differ in having the body almost completely devoid of pigment, but this may be the result of fading.

REMARKS.—Chapman (1951, p. 349) reported *Blennius jugularis* Klunzinger from the Indo-Australian Archipelago, an area from which we have no other record of this species. His record was based on a single female 32 mm long, taken at Siboga Station 149 (Insel Fau bei Gebe), in the Amsterdam Museum. The description of the specimen is sufficient to exclude all species of Blenniidae known to us except *Litobranchus fowleri*, and the color description is indicative of females of that species.

Under the synonymy of *B. jugularis*, Chapman recorded "*Salarias* spec. M. Weber, Siboga Exped. Fische, 1913, p. 537." Several unidentified species of *Salarias* are listed (Weber, 1913, p. 537). No. 22, *Salarias* spec., of Weber, is a 16 mm specimen from Siboga sta. 149, and no. 23, *Salarias* spec., is recorded as a juvenile [no length given] from sta. 33. The only Siboga specimen of *Litobranchus fowleri* presently housed in the Amsterdam Museum is ZMA 109.098, a 31 mm female from sta. 33 (see material examined). We suspect that this is the specimen reported by Chapman and that the discrepancy in locality data was due to a recording error. Chapman (1951, p. 350) noted that the specimen he identified as *B. jugularis* was closely related to *fowleri* but differed in lacking dentary canines. Although dentary canines are typically well developed in males of *Litobranchus fowleri*, they are frequently absent in females.

Medusablennius Springer

FIGURE 44

Medusablennius Springer, 1966a, p. 56 [type-species: *M. chani* Springer, by original designation].

DIAGNOSIS.—Dentary a closed capsule with replacement teeth entering functional series through foramina in jawbone. Anterior and posterior dentary canines absent. Premaxillary and dentary teeth immovable or nearly so, numbering 17 to 19 in upper jaw and 16 to 18 in lower jaw. Vomer toothless. Dorsal rays XI to XIII, usually XII, 17 or 18; anal rays II, 18 or 19; segmented caudal rays 13, none branched; pectoral rays 13; pelvic rays I,3. Terminal anal ray bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores 2. Upper lip with a free dorsal margin extending across snout. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal cirri absent; supraorbital cirri simple; complex cirri on rims of anterior and posterior nostrils and on interorbital region. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 2.

Relationships are discussed under section titled "Recognition of Genera."

Springer (1968b) included *Medusablennius* in his tribe Blenniini. We now find that this action was erroneous, as even the information on the jaws contained in the original description was sufficient to have indicated that *Medusablennius* is allied to the *Salariini*. The removal of *Medusablennius* from the Blenniini makes that group more uniform in anatomical composition: all Blenniini have 5 circumorbital bones and several branched caudal rays. *Medusablennius*, unique in the Blenniidae in having only 2 circumorbital bones, has unbranched caudal rays, as do several other genera of Salariini (as well as all genera of Omobranchini and Nemophidinae). Springer (1968b, p. 56) erroneously stated that *Medusablennius* had branched caudal rays and an autogenous ventral hypural plate. The original description (Springer, 1966a), which is correct, indicates that the caudal rays are all simple and that the ventral hypural plate is fused with the urostylar centrum and upper hypural plate.

Springer (1966a) had only two specimens of *Medusablennius* at the time of his description. Two additional collections, from near the type locality, of this monotypic genus have since been discovered: CAS 24741 (2, 12.0–13.5), original no. GVF 80, sta. 26, Tuamotu Archipelago, Raroia Atoll, outer reef channel next to *Lithothamnion* ridge opposite Ngarumaoa Village, lat. 16°1'S, long. 142°26'W, 21 July 1952, R. R. Harry (Rofen) et al. and CAS 24742 (6, 12.1–12.9), original no. GVF 113, sta. 59, collection data same as preceding except date 17 August 1952.

The holotype and largest known specimen of *Medusablennius* is a male, 15.4 mm standard length. CAS 24742 contains a 12.1 mm female with well-developed ova. All specimens of *Medusablennius* examined have well-developed cirri (Figure 44) at a size when the cirri of other salariinine species has scarcely begun to develop. The above leads us to believe that these specimens of *Medusablennius* are mature individuals and that the species easily ranks as the smallest member of the family Blenniidae.

Mimoblennius, new genus

Undescribed genus (B) Springer, 1968b, p. 10.

DIAGNOSIS.—Dentary a closed capsule with replacement teeth entering functional series through foramina in bone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary and dentary teeth immovable or nearly so, numbering 30 to 34 in upper jaw and 25 to 30 in lower jaw. Vomer toothless. Dorsal rays XIII, 16 to 19; anal rays II, 19 to 22; segmented caudal rays 13, middle 9 branched; pectoral rays 14 to 15 (usually 14); pelvic rays I,3 (the innermost pelvic ray is considerably reduced, closely applied to the base of the second ray, and visible only in cleared and stained specimens or upon careful dissection). Terminal anal ray bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores 3. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal cirri palmate; supraorbital cirri over each eye 2 or multifid; nasal cirri palmate, multifid. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5. Type-species: *Blennius atrocinctus* Regan.

Relationships are discussed under section titled "Recognition of Genera."

ETYMOLOGY.—A combination of the Greek *mimos*, a mimic, and *Blennius*, the nominal genus for which it was originally mistaken and shows the greatest superficial resemblance.

In general physiognomy *Mimoblennius* strongly resembles the genus *Blennius* (tribe Blenniini), but differs in the typically salariinine nature of the premaxillaries. In having two discrete nuchal cirri the genus differs from all species of *Blennius* known to us except *B. riodourensis*, an eastern Atlantic species described from Rio d'Ouro, Spanish West Africa (Metzelaar, 1919, p. 291). In the few other species of *Blennius* that have nuchal cirri, the cirri are numerous and arranged in a median predorsal row or patch.

The genus is comprised of two species, *M. atrocinctus* and *M. cirrosus*. They differ most notably in the development of their supraorbital and posterior nasal cirri and robustness of head and body (difficult to define quantitatively but readily apparent when specimens of the same size are compared). In *M. atrocinctus* each supraorbital cirrus consists of two cirri that arise from a short base and the posterior nasal cirri are minute or absent. In *M. cirrosus* each supraorbital cirrus typically consists of 3 or more cirri that arise from a relatively longer common base and the posterior nasal cirri are prominent palmate flaps with 2 to 5 short branches. In the former species the head and body is more robust, tapering posteriorly (Figure 13). Both species are described in detail below. *M. atrocinctus* is known only from Hong Kong, Christmas Island (eastern Indian Ocean), and Ceylon. *M. cirrosus* is apparently restricted to the Red Sea.

Mimoblennius atrocinctus (Regan)

FIGURES 13*a*, 40

Blennius atrocinctus Regan, 1909, pp. 404–405, pl. LXVI, fig. 1 [original description; type-locality: Christmas Island].

MATERIAL EXAMINED.—BMNH 1909.3.4.70 (juvenile, 21.5 mm SL), holotype of *Blennius atrocinctus*, Christmas Island, lat. 10°30'S, long. 105°40'E, 1909, C. W. Andrews; USNM 203095 (1, 44.2), original no. GVF 1731, sta. HK 54, Hong Kong, New Territories, north end of Shelter Island, entrance to Port

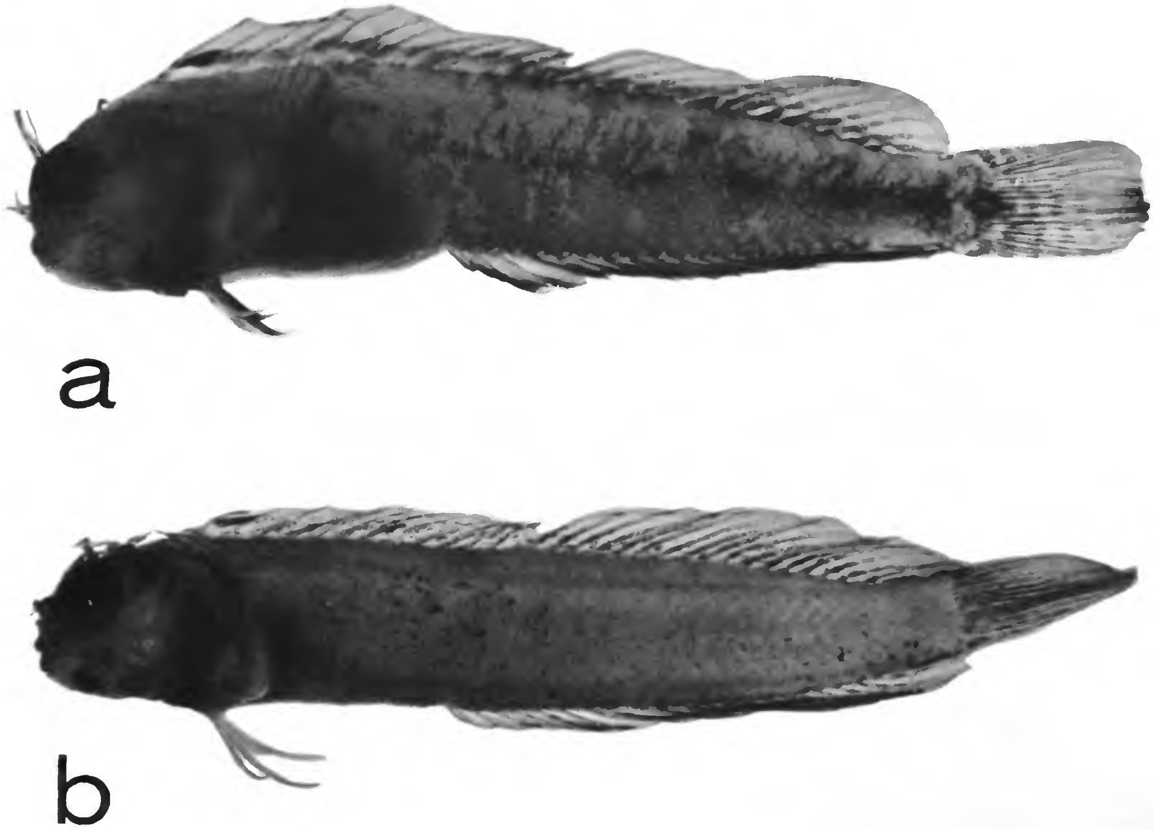


FIGURE 13.—*Mimoblennius: a, M. atrocinctus*, USNM 204624, male, 36.3 mm, Trincomalee, Ceylon; *b, M. cirrosus*, holotype, USNM 204491, male, 35.2 mm, Sheikh el Abu, Harat Island, Ethiopia.

Shelter, lat. 22°20′00″N, long. 114°17′42″E, depth ca. 1–4 meters, 24 April 1958, Rolph L. Bolin; USNM 197980 (3, including 1 cleared and stained, 20.1–23.4) and CAS 24155 (2, 24.3–32.4), locality data same as USNM 203095, 20 August 1963, W. L. Y. Chan; USNM 204624 (7, 14.5–40.7), Ceylon, Trincomalee, small cove north of harbor, lat. 8°34′N, long. 81°13′E, large rock outcrop devoid of coral, approx. 50 meters off shore, depth 0–4 meters, 26 June 1969, W. F. Smith-Vaniz, S–V 69–119.

DESCRIPTION.—(Meristic characters for holotype in parentheses.) Dentary a closed capsule with replacement teeth entering functional series through foramina in bone. Canine on each dentary posteriorly. Premaxillary and dentary teeth immovable or nearly so; premaxillary teeth 30 to 34 (32); dentary teeth 25 to 30 (26). Vomerine teeth absent. Terminal vertebrae with two epurals and autogenous hypural 5 and ventral hypural plate. Vertebrae $10 + 25$ to $28 = 35$ to 38 (38); epipleural ribs 15 to 19; last pleural rib on vertebra 10. Circumorbital bones 5.

Dorsal spines 13; last spine noticeably reduced; segmented rays 16 to 19 (17); basal two-thirds of terminal dorsal ray bound by membrane to caudal peduncle; dorsal fin moderately incised between spinous and rayed portions. Anal spines 2; segmented rays 19 to 21 (20); basal two-thirds of terminal anal ray bound by membrane to caudal peduncle. Caudal fin with 13 segmented rays, middle 9 each branched; dorsal and ventral procurrent rays 7. Pelvic rays I,3. Pectoral rays 14 or 15 (14). Pectoral radial formula 2–0–2 (based on 1 cleared and stained specimen). Gill-rakers 10 to 11. Pseudobranchial filaments 5. Nuchal cirri palmate, with 4 or 5 short, rounded branches; supraorbital cirri consisting of 2 long, slender cirri over each eye; anterior nasal cirri palmate, with 3 to 5 branches, posterior nasal cirri absent or minute. Upper and lower lips entire. Lateral line of simple pores ending beneath 4th or 6th dorsal spine or continuous to point below level of 4th dorsal spine, thence curving downward and continuous as short, separate, longitudinally bipored tubes to point opposite tip of median rays of appressed pectoral fin (at level of 11th dorsal spine).

In most specimens the head and body have a pale ground color. The pattern of melanophores is considerably variable. Most specimens bear a dusky mark along the posterior border of the orbit and irregular dusky marks over the opercle. The underside of the head and prepelvic region are dusky to black with occasional evidence of bands under the head. The side of the body may be irregularly dusky, darker on the ventral half, with dark spots at midlevel, or with about 7 vertical dark bands. The dorsal fin usually bears a dark spot between the first two rays, usually paler than in *M. cirrosus.* There may be dark extensions of the body bands on to the basal portion of the dorsal fin and sundry other dusky marks over the fin. The anal fin may be pale dusky, darker at the ray tips, or almost uniformly black. The caudal fin rays bear dusky spots aligned in irregular vertical rows. The pectoral fin rays are dusky and the pelvic fin rays are dusky to almost black.

The life colors were given by Regan (1909, p. 405) as "reddish, with 6 blackish cross-bars continued on the basal part of the dorsal fin; anal blackish."

Geographical variation.—See comments under *Mimoblennius cirrosus.*

Mimoblennius cirrosus, new species

Figures 13*b*, 39

Holotype.—USNM 204491 (adult male, 35.2 mm SL), Ethiopia, Sheikh el Abu, off lighthouse just west of south end of Harat Island, lat. 16°08'N, long. 39°26.5'E, depth to 4 meters, 14 August 1969, Victor G. Springer, E. Clark, and Z. Zelleke, VGS 69–14.

Paratypes.—USNM 204645 (14, 21.8–37.0), taken with the holotype; HUI SLR–270d (4, 25.0–31.7), Israel, Ophir Bay, 29 August 1967; USNM 204563 (1, 23.9), northwest coast of Gulf of Aqaba, bay between Marsa Mokrakh and El Himeira, depth 0–3 meters, 15 July 1969, V. G. Springer, et al., VGS 69–1; USNM 204564 (1, 29.0), northwest coast Gulf of Aqaba, bay at El Himeira, depth to 18 meters, 16 July 1969, V. G. Springer, et al., VGS 69–2; USNM 204565 (2, 15.9–19.2), depth to 16 meters, 19 July 1969, V. G. Springer, et al., VGS 69–4; USNM 204566 (1, 23.0), depth 21.3 to 24.4 meters, 9 September 1969, V. G. Springer, et al., VGS 69–24; USNM 204569 (6, 26.1–32.5), Red Sea, Strait of Jubal, southern end of Sinai Peninsula at Ras Muhammad, depth to 9.2 meters, V. G. Springer, et al., VGS 69–28.

Description.—(Meristic characters for holotype in parentheses.) Dentary a closed capsule with replacement teeth entering functional series through foramina in bone. Canine on each dentary posteriorly. Premaxillary and dentary teeth immovable or nearly so; premaxillary teeth 30 to 34 (30); dentary teeth 24 to 30 (28). Vomerine teeth absent. Terminal vertebra with two epurals and autogenous hypural 5 and ventral hypural plate. Vertebrae 10 + 27 or 28 = 37 or 38 (38); epipleural ribs 13 to 16; last pleural rib on vertebra 10. Circumorbital bones 5.

Dorsal spines 12 or 13 (13); last spine noticeably reduced; segmented rays 17 to 19 (18); basal two-thirds of terminal dorsal ray bound by membrane to caudal peduncle; dorsal fin moderately incised between spinous and rayed portions. Anal spines 2; segmented rays 20 to 22 (21); basal two-thirds of terminal anal ray bound by membrane to caudal peduncle. Caudal fin with 13 segmented rays, middle 9 each branched; dorsal procurrent rays 5 to 8 (6); ventral procurrent rays 5 to 7 (6). Pelvic rays I, 3. Pectoral rays 14. Pectoral radial formula 2–0–2 (based on 1 cleared and stained specimen). Gill-rakers 10 to 12. Pseudobranchial filaments 5 or 6. Nuchal cirri palmate, with 3 or 4 broadly rounded lobes (best developed in large individuals); each supraorbital cirrus consisting of 1 to 6, typically

3 or more, well-defined cirri; nasal cirri present on both anterior and posterior nostrils, posterior cirri consisting of palmate flaps with 2 to 5 short branches and anterior cirri consisting of a short raised tube with 1 or 2 narrow elongate flaps on posterior margin. Upper and lower lip entire. Lateral line consisting of simple, short, separate, longitudinally bipored tubes that end beneath 4th to 6th dorsal spine.

PIGMENTATION.—Color pattern is extremely variable; most specimens, however, tend to exhibit a network of dusky melanophores surrounding a few irregular, pale spots on the head and numerous small, round, pale spots on the body. The pale spots in life are red, and on the body form numerous regular vertical bands. The diameters of the spots decrease gradually posteriorly on the body. The bandlike pattern is not always obvious in preserved specimens. Small specimens may appear to have the body covered with dusky spots while large specimens may have some flecklike dark spots on the sides, and a few specimens, including the holotype, have dusky spots on the ventral body contour paralleling the anal fin base. The ventral side of the head may bear an adumbration of a dusky transverse band or two bands separated by a pale area. The prepelvic area and adjacent ventral portion of the head may appear dusky or unmarked.

The dorsal fin may bear diffuse pale to dark dusky spots densely to loosely distributed over its surface. Some specimens exhibit a dark spot between the first two dorsal spines. The caudal and anal fins are similarly marked to the dorsal, but never have a distinct dark spot. The anal fin is frequently darker than the other fins. The pectoral fins bear fine melanophores along the lengths of the rays. The pelvic fins are unmarked.

ETYMOLOGY.—The Latin word *cirrosus* means bearing cirri.

GEOGRAPHICAL VARIATION.—Frequency distributions for numbers of segmented dorsal and anal rays and caudal vertebrae were tabulated for specimens of *Mimoblennius cirrosus* and *M. atrocinctus*:

	segmented dorsal rays				segmented anal rays				caudal vertebrae			
	16	17	18	19	19	20	21	22	25	26	27	28
M. cirrosus												
Israel												
males			2	3			2	3			1	4
females		2	5	3		2	7	1			5	5
Ethiopia												
males		1	6			1	5				1	5
females		2	6			2	6				5	3
M. atrocinctus												
Ceylon												
males	1	3	1			5			1	1	3	
females	2				2					1	1	
Christmas Island												
female		1				1						
Hong Kong												
males			1	1			2					2
females		2	2			2	1	1				4

These data indicate that there are mean differences in number of segmented dorsal and anal rays between Israeli and Ethiopian specimens of *M. cirrosus* similar to those found between Israeli and Ethiopian specimens of *Alloblennius pictus* (*q.v.*). There is also a suggestion that differences exist between Hong Kong (South China Sea) and Indian Ocean specimens of *M. atrocinctus,* and that males tend to have higher meristic values than females. Springer (1967) reported differences between South China Sea and non-South China Sea populations of two species of *Entomacrodus.*

Nannosalarias, new genus

Undescribed genus (A) Springer, 1968b, p. 10.

DIAGNOSIS.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jawbone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary and dentary teeth fairly rigid, 76 to 80 in upper jaw and 42 to 52 in lower jaw. Vomer with small conical teeth. Dorsal rays XII, 15 or 16; anal rays II, 16 to 18; segmented caudal rays 13, middle 9 branched; pectoral rays 14 or 15 (usually 15); pelvic rays I, 3. Terminal anal ray bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Middorsal supratemporal pores typically 3. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal, supraorbital, and nasal cirri simple. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 4. Type-species: *Blennius nativitatus* Regan.

Relationships are discussed under section titled "Recognition of Genera."

Etymology: A combination of the Greek *nannos*, a dwarf (mature adults range from 22.5–34.8 mm SL), and *Salarias*, the type-genus of the Salariini.

Nannosalarias nativitatus (Regan)

FIGURES 14, 38

Blennius nativitatus Regan, 1909, pp. 404–405, pl. LXVI, fig. 2 [original description; type-locality: Christmas Island].

MATERIAL EXAMINED.—BNNH 1909.3.4.42 (adult male, 30.1 mm SL), lectotype of *Blennius nativitatus*, Christmas Island, lat. 10°30′S, long. 105°40′E, 1909, C. W. Andrews; BMNH 1909.3.4.43-52 (5 of 15 paratopotypes, examined, 25.2–33.7); USNM 157372 (2 paratopotypes, 22.2–33.0); USNM 203098 (10, 24.9–33.0); Australia, Queensland, Capricorn group, One Tree Island, south reef face about 1.6 km from island, lat. 23°30′S, long. 153°08′E, depth 0–4.6 meters, 22 November 1966, Victor G. Springer, VGS 66–7; AMS IB 8207 (5, 26.6–30.4), same data as USNM 203098; USNM 201369 (9, including 1 cleared and stained, 22.5–34.8), One Tree Island, off reef crest on west side of island just above drop off, depth 7.1–12.2 meters, 7 December 1966, Victor G. Springer, VGS 66–16; AMS uncat. (1, 22.7), sta. FT 96, Australia, One Tree Island, south face, depth 10 meters, 26 November 1966, F. Talbot, et al.; AMS uncat. (4, 26.3–34.3), sta. FT 204, Australia, One Tree Island, reef slope on south face, depth 8 meters, 22 September 1967, F. Talbot and B. Goldman; ANSP 109688 (2, 23.5–26.3), Australia, Queensland, Endeavour Reef, depth 1.3–2.4 meters, 13 January 1969, J. C. Tyler and C. L. Smith, TS,A–13; ANSP 109687 (8, 15.7–27.7), Australia, Queensland, Endeavour Reef, depth 1.5–4.6 meters, 16 January 1969, J. C. Tyler and C. L. Smith, TS,A–17; USNM 195700 (1, 25.5), presumably Dutch East Indies; CAS 24156 (5, 25.4–30.1), same data as USNM 201369; USNM 203097 (2, 28.5–32.3), original no. GVF 1737, sta. HK 60, South China Sea, Pratas Reef, about 0.6 km west by north of Southwest Horn Island, lat. 20°36′40″N, long. 116°43′50″E, 21 May 1958, Rolph L. Bolin; USNM 203767 (2, 19.3–23.8), Te Vega Cruise 7, sta. 301, Tonga Islands, Nivatobutabu Island, lat. 16°00′S, long. 175°53′W, depth 0–7 meters, 31 May 1965, Rolph L. Bolin.

DESCRIPTION.—(Characters for holotype in parentheses.) Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Canine on each dentary posteriorly. Premaxillary and dentary teeth movable, but fairly rigid; premaxillary teeth 76 to 80 (80); dentary teeth 42 to 52 (42). Vomer with 5 or 6 small, conical teeth. Terminal vertebra with two epurals and autogenous hypural 5 and ventral hypural plate. Vertebrae 10 + 24 or 25 = 34 or 35; epipleural ribs 14 to 16; last pleural rib on vertebra 10. Circumorbital bones 4.

Dorsal spines 12 (rarely 13); last spine noticeably reduced; segmented rays 15 to 16 (16) [18 in one specimen]; basal two-thirds of terminal dorsal ray bound by membrane to caudal peduncle; dorsal fin moderately incised between spinous and rayed portions. Anal spines 2; anal fin rays 16 to 18 (17); basal two-thirds of terminal anal ray bound by membrane to caudal peduncle. Caudal fin with 13 segmented rays, middle 9 each branched once; dorsal procurrent rays 6 to 8 (7), ventral rays 5 to 7 (6). Pelvic rays I, 3. Pectoral rays 15, rarely 14. Pectoral radial formula 2–1–1 (based on 1 cleared and stained specimen). Gill-rakers 12 to 14. Pseudobranchial filaments 5. Nuchal, supraorbital, and

FIGURE 14.—*Nannosalarias nativitatus*, from top to bottom: USNM 203097, male, 28.5 mm and female, 32.3 mm, South China Sea; USNM 203098, male, 29.5 mm and USNM 201369, female, 26.7 mm, Queensland, Australia. Inserts are ventral side of head of males.

nasal cirri short and simple. Upper and lower lips entire. Some pores of infraorbital series in pairs. Lateral line of simple pores, incomplete, continuous to point below 7th or 8th dorsal spine.

PIGMENTATION.—The following description is a composite based on Australian specimens. Background color of head and body pale. Sides with concentrations of melanophores tending to form bands. Melanophores becoming more numerous on dorsum and head, especially beneath eye and at corners of mouth. Throat with two large, dark gular spots extending posteriorly from lower lip. (In the Tonga specimens the gular spots have become united as a single large spot.) Gular spots well defined and intensified in some males, coalesced and diffuse in others, and even less well defined in females. Spinous dorsal fin of some specimens heavily pigmented on basal one-fifth, otherwise unmarked. Soft dorsal with a heavy concentration of pigment on basal one-fifth and on distal margin of fin, rays otherwise largely unmarked. Anal fin with interradial membranes heavily pigmented, especially distally. Caudal fin rays faintly outlined with melanophores; interradial membranes of unbranched rays heavily pigmented in some males. Paired fins unmarked. Females are usually paler than males, and in some specimens the fins are completely devoid of pigment.

Regan (1909, p. 405) gives the life colors as follows: "color reddish, with about 8 darker crossbars, sometimes appearing only as a series of oblong blotches along the middle of the sides; fins pale."

GEOGRAPHIC VARIATION.—The two South China Sea specimens of *Nannosalarias* differ in several respects from the Australian and Tongan material, especially in pigmentation. In the male the leading edge of the first dorsal spine is intensely pigmented, and the basal half of the spinous dorsal fin has a heavy concentration of melanophores. The head is uniformly dark and the two gular spots (not apparent in the photograph) are smaller, located farther posteriad, and more widely separated. The female differs in having well-defined concentrations of pigment in approximately the position of several of the preoperculomandibular pores. The gular spots, although not as well defined, are in the same position as those of the male.

The two South China Sea specimens also differ from the other material in having longer supraorbital cirri. In the male (28.5) the ratio of the cirri length into the orbital diameter is 1.0; in 8 Australian males (22.5–34.8) this ratio is 1.6 to 2.7, average 2.0. In the female (32.3) the cirri/orbital ratio is 1.8; in 6 Australian females (25.5–29.5) it is 2.0 to 5.3, average 3.0.

We do not believe that the differences exhibited by the two South China Sea specimens warrant description as a taxon separate from that of the Australian and Tongan specimens. Springer (1967) did recognize a separate subspecies for the South China Sea populations of *Entomacrodus thalassinus*, based mainly on relative length of the supraorbital cirrus, and the South China Sea population of *E. stellifer*, based primarily on color pattern. In both instances, however, considerable material was available.

Ophioblennius Gill

FIGURE 34

Blennophis Valenciennes in Webb and Berthelot, 1843, p. 60 [type-species: *B. webbi* Valenciennes in Webb and Berthelot, 1843, = *Salarias atlanticus* Valenciennes in Cuvier and Valenciennes, 1836, by original designation; a junior homonym of *Blennophis* Swainson, 1839, Clinidae].

Ophioblennius Gill, 1860, p. 103 [a substitute name for *Blennophis* Valenciennes in Webb and Berthelot, 1843, taking the same type-species: *Blennophis webbi* Valenciennes in Webb and Berthelot, 1843].

Labroblennius Borodin, 1928, p. 31 [type-species: *L. nicholsi* Borodin, 1928, = *Ophioblennius steindachneri* Jordan and Everman, 1896, by monotypy].

Cynoscartes Norman, 1943, p. 31 [type-species: *Salarias atlanticus* Valenciennes in Cuvier and Valenciennes, 1836, by original designation].

Hepatoscartes Fowler, 1944, p. 230 [type-species: *H. unbrifasciatus* Fowler, 1944, = *Ophioblennius steindachneri* Jordan and Evermann, 1896, by original designation].

DIAGNOSIS.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary and dentary teeth freely movable, numbering 184 to 224 in upper jaw and 102 to 108 in lower jaw. Vomer toothless. Dorsal rays XI to XIII, 19 to 24; anal rays II, 20 to 25; segmented caudal rays 13, middle 9 branched; pectoral rays 14 or 15 (usually 15); pelvic rays I, 4. Terminal anal ray not bound by membrane to caudal peduncle. Lateral line consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores 5 to more than 50. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal cirri consisting of a pair of cirri or a patch of 3 to 15 or more cirri on each side of nape; supraorbital cirri simple; nasal cirri multifid. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

The genus *Ophioblennius* was revised by Springer (1962). *Ophioblennius* appears to be most closely related to *Scartichthys*. In addition to the characters given in the key to distinguish these two genera, *Ophioblennius* differs in having dentary canines that are equal to or greater than the diameter of the pupil, instead of having canines less than one-half the pupil diameter (exclusive of larvae), and the lateral line consisting of two overlapping disconnected portions instead of being continuous.

Distribution.—Restricted to the Atlantic Ocean and eastern Pacific Ocean.

Pereulixia Smith

Figure 29

Pereulixia Smith, 1959, p. 238 [type-species: *Salarias kosiensis* Regan, 1908, by original designation].

Diagnosis.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary teeth freely movable, numbering 155 to 157; dentary teeth fairly rigid, numbering 43 to 53. Vomer with small conical teeth. Dorsal rays XI or XII, 11 or 12; anal rays II, 12 to 14; segmented caudal rays 13, middle 9 branched; pectoral rays 15 or 16 (usually 15); pelvic rays I, 4. Terminal anal ray not bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; imbricate scalelike flaps covering at least anterior lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores numerous, relatively small and difficult to count. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal cirri consisting of a series of 4 elongate, transverse, contiguous or slightly overlapping patches of cirri interrupted at midline by a narrow hiatus; supraorbital cirri simple, long, and tapering; nasal cirri multifid. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

Pereulixia is apparently monotypic and rare in museum collections; we know of fewer than 10 specimens.

Distribution.—Known only from the western Indian Ocean.

Praealticus Schultz and Chapman

Figures 15*a*, *b*; 21

Praealticus Schultz and Chapman, 1960, p. 368 [type-species: *Salarias natalis* Regan, 1909, by original designation].

Diagnosis.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jaw bone. Anterior dentary canines absent; posterior dentary canines present or absent. Premaxillary and dentary teeth freely movable, numbering 190 to 280 in upper jaw and 128 to 214 in lower jaw. Vomer with or without teeth. Dorsal rays XII to XIV, 18 to 20; anal rays II, 18 to 23; segmented caudal rays 12 or 13, branched rays 0 to 9 (usually 4 to 8); pectoral rays 14 or 15; pelvic rays I, 3 or I, 4. Terminal anal ray not bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. A single mid-dorsal supratemporal pore. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest present.

Nuchal cirri absent; supraorbital cirri pinnately branched; nasal cirri simple, occasionally with weak points. Postcleithra consisting of 1–3 small, fragile, well-separated bones on each side (except *P. schmidti* in which postcleithra consist of two elongate bones, head of ventral element overlapping ventral end of dorsal element). Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

The fact that this genus, which is widely distributed throughout much of the Indo-Pacific, was not recognized until 1960 attests to its remarkable resemblance to two other (though not necessarily closely related) genera. *Praealticus* is well named, for it has frequently been confused with species of *Alticus*. The close superficial similarity of the two genera is well illustrated by the drawing of the holotype of *Alticus semicrenatus* Chapman, which was published in the same work as the original description of *Praealticus* and was not recognized by Schultz and Chapman as being a species of their new genus.

Although we consider *Praealticus* more closely related to *Alticus* than to *Istiblennius*, species of *Istiblennius* are most often confused with *Praealticus* and are the most difficult to distinguish from it. A comparison of the characters most useful in distinguishing these three genera is given in Table 1.

Distribution.—Eastern Indian Ocean; central and western Pacific Ocean.

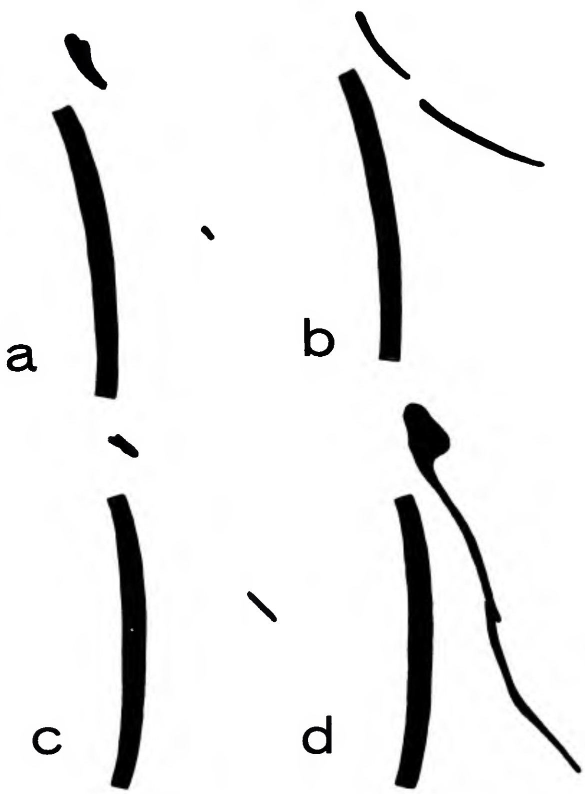


Figure 15.—Postcleithra of selected species of Salariini showing relative development (gray bar to left of postcleithra represents pectoral fin base): *a, Praealticus tanegasimae,* USNM 123398, male, 61.0 mm. Okinawa, *b, Praealticus margaritatus,* USNM 115481, female, 49.7 mm, Samoa Islands; *c, Alticus saliens,* USNM 115446, male, 61.9 mm, Samoa Island; *d, Istiblennius coronatus,* USNM 200611, female, 56.6 mm, Marshall Islands.

Rhabdoblennius Whitley

Figures 43, 45

Rhabdoblennius Whitley, 1930, p. 20 [type-species: *Blennius rhabdotrachelus* Fowler and Ball, 1924, by original designation].

Nixiblennius Whitley, 1930, p. 20 [type-species: *Blennius snowi* Fowler, 1928, by original designation].

Scartoblennius Fowler, 1946, p. 174 [type-species: *Blennius ellipes* Jordan and Starks, 1906, by original designation].

Diagnosis.—Dentary a closed capsule (open mesially in *R. snowi*, but with large gaps and foramina in the wall laterally) with replacement teeth entering functional series through foramina in jaw bone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary and dentary teeth immovable or nearly so, numbering 44 to 50 in upper jaw and 28 to 38 in lower jaw. Vomer with small conical teeth. Dorsal rays XII, 18 to 21; anal rays II, 20 to 22; segmented caudal rays 13, middle 9 branched; pectoral rays 13 or 14 (usually 14); pelvic rays I,3. Terminal anal ray bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores 3–10. Upper lip without free dorsal margin. No cup-shaped fleshy disk or ap-

TABLE 1.—*Comparison of three genera of Salariini*

Character	*Praealticus*	*Alticus*	*Istiblennius*
Pores in middorsal area of supratemporal canal	1 (Figure 21)	1 (Figure 19)	0-12 (3 in most species; 0-2 in only one species; Figures 22-25).
Nature of postcleithra (figure 15)	1-3 small, fragile, well-separated bones on each side (figures 15*a-b*) [except *schmidti* Fowler (♂) =biorni Fowler (♀)]	1-3 small, fragile, well-separated bones on each side (Figure 15*c*)	Two elongate bones, head of ventral element overlapping ventral end of dorsal element (Figure 15*d*).
Branched caudal rays[1]	0-9 (usually 4-8)	0	8-9 (usually 9)
Fleshy occipital crest in adult males[2]	always present	always present	present or absent
Nasal cirri	simple or weakly, pinnately fringed	simple to multifid	simple to multifid, deeply split except in very young (simple in only two species).
Nuchal cirri	absent	absent	present or absent
Total dorsal rays	31-33	35-38	31-37
Segmented anal rays	18-23	24-28	17-25

[1] The caudal rays are frequently unbranched in very young individuals, even in genera that typically have branched caudal rays. In *Praealticus* the caudal rays are frequently branched only at their tips and the branching may be missed easily.

[2] Even in species that typically have a fleshy occipital crest, it is always much better developed in males than in females and is frequently absent in young of both sexes.

pendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal cirri absent; supraorbital and nasal cirri simple. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

Norman (1943) first placed *Nixiblennius* in synonymy with *Rhabdoblennius*. Schultz and Chapman (1960) first synonymized *Scartoblennius*. Whitley (1930) proposed the genus *Nixiblennius* for *Blennius snowi* on the same page that he erected the genus *Rhabdoblennius* for *B. rhabdotrachelus*, but gave no reasons for erecting the genera and no characters to separate them. Later, Fowler (1946) proposed the genus *Scartoblennius* for *Blennius ellipes*, but did not compare it with either *Rhabdoblennius* or *Nixiblennius*. *Rhabdoblennius rhabdotrachelus* does differ from the previously mentioned species in possessing a "pseudobasisphenoid" (Springer, 1968, p. 44), but we do not believe that this difference warrants *rhabdotrachelus* being placed in its own monotypic genus. The species comprising *Rhabdoblennius* are few in number (probably only 6 or 7) and, except for the presence of a pseudobasisphenoid in *rhabdotrachelus*, are quite close osteologically.

DISTRIBUTION.—Central and western Pacific Ocean.

Salarias Cuvier

FIGURES 16, 28

Salarias Cuvier, 1817, p. 251 [type-species: *S. quadripennis* Cuvier, 1817, = *Blennius fasciatus* Bloch, 1786, by monotypy].

Erpichthys Swainson, 1839, p. 275 [type-species: *Salarias quadripennis* Cuvier, 1817, = *Blennius fasciatus* Bloch, 1786, by subsequent designation].

Negoscartes Whitley, 1930, p. 20 [type-species: *Salarias irroratus* Alleyne and Macleay, 1877, by original designation].

Crenalticus Whitley, 1930, p. 21 [type-species: *Salarias crenulatus pallidus* Whitley, 1926, = *Salarias sinuosus* Snyder, 1908, by original designation].

DIAGNOSIS.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jawbone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary and dentary teeth freely movable, numbering 110 to 168 in upper jaw and 72 to 134 in lower jaw. Vomer toothless. Dorsal rays XII or XIII, 16 to 20; anal rays II, 18 to 21; segmented caudal rays 13, middle 9 branched; pectoral rays 13 to 15 (rarely 15); pelvic rays I, 3 (innermost pelvic ray minute, visible only in cleared and stained material). Terminal anal ray bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores 1–3. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest present or absent. Nuchal cirri simple or palmate; supraorbital and nasal cirri simple to multifid. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

Whitley (1930, p. 20) erected the genus *Negoscartes* to include those species of *Salarias* that have a well-developed notch in the dorsal fin and large mandibular canines. *Salarias fasciatus* was erroneously thought to lack canines. The degree of notching in the dorsal fin varies from well developed to absent in the species of *Salarias* and in other genera of Salariini (for example *Ecsenius*). Norman (1943) also recognized *Negoscartes*, but the defining characters he used are without substance. *Salarias fasciatus* and *S. ceramensis* do differ from the other species of *Salarias* in attaining a greater size as adults, having more teeth in the upper jaw, and nuchal and supraorbital cirri that are broad and multifid. Several of these characters, however, appear to show a trend, with *fasciatus* and *ceramensis* merely the extremes. We believe that the characters used in the key and diagnosis to define the genus are of much greater importance than the differences noted above.

The genus *Crenalticus* (Whitley, 1930, p. 21) was proposed for *Salarias crenulatus* (Weber) [= *S. sinuosus* Snyder], which differs from the other species of *Salarias* in possessing a crenulate upper lip. We consider this character to be of only specific significance. Springer (1967) found that the degree or presence of crenulation of the upper lip was only of specific importance in the salariinine genus *Entomacrodus*.

Distribution.—Red Sea; Indian Ocean; central and western Pacific Ocean.

Scartichthys Jordan and Evermann

Figure 3

Scartes Jordan and Evermann, 1896, p. 471 [type-species: *Salarias rubropunctatus* Valenciennes in Cuvier and Valenciennes, 1836, by original designation; a junior homonym of *Scartes* Swainson, 1835, Mammalia].

Scartichthys Jordan and Evermann, 1898, p. 2395 [type-species: *Salarias rubropunctatus* Valenciennes in Cuvier and Valenciennes, 1836, by original designation].

Diagnosis.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jawbone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary and dentary teeth freely movable, numbering 144 to 256 in upper jaw and 67 to 123 in lower jaw. Vomer toothless. Dorsal rays XII, 17 or 18; anal rays II, 18 to 20; segmented caudal rays 13, middle 9 branched; pectoral rays 14; pelvic rays I,4. Terminal anal ray not bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; no scalelike flaps covering lateral-line pores. Preoperculamandibular pores without cirri. Mid-dorsal supratemporal pores 5–12. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal cirri consisting of a patch of cirri on each side of nape separated by a wide hiatus equal to or greater than length of base of either patch of cirri; supraorbital and nasal cirri multifid. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

Specimens housed in the National Museum of Natural History that we have examined indicate that the genus consists of at least two well-defined species (also see discussion under *Cirripectes*).

The species of *Scartichthys* constitute the largest members of the family Blenniidae, although not the longest. (*Xiphasia* Swainson, of the Nemophidinae, is eel-like and attains a length over 500 mm SL.) Adults frequently exceed 175 mm in standard length.

DISTRIBUTION.—Restricted to the eastern Pacific Ocean.

Stanulus Smith

FIGURE 7

Stanulus Smith, 1959, p. 246 [type-species: *S. seychellensis* Smith, 1959, by original designation].

Fallacirripectes Schultz and Chapman, 1960, p. 362 [type-species: *F. minutus* Schultz and Chapman, 1960, = *Stanulus seychellensis* Smith, 1959, by original designation].

DIAGNOSIS.—Dentary an open capsule with replacement teeth entering functional series through excavated area in jawbone. Anterior dentary canines absent; posterior dentary canines present. Premaxillary and dentary canines freely movable, numbering 118 to 138 in upper jaw and 62 to 82 in lower jaw. Vomer with or without teeth. Dorsal rays XII, 9 to 12; anal rays II, 10 to 13; segmented caudal rays 13, middle 9 branched; pectoral rays 14 to 16 (usually 15); pelvic rays I, 4. Terminal anal ray not bound by membrane to caudal peduncle. Lateral line not consisting of two overlapping disconnected portions; minute, imbricate, scalelike flaps covering anterior lateral-line pores. Preoperculomandibular pores without cirri. Mid-dorsal supratemporal pores 3–22. Upper lip without free dorsal margin. No cup-shaped fleshy disk or appendage behind lower lip. Gill membranes free. Occipital crest absent. Nuchal, supraorbital, and nasal cirri simple. Postcleithra consisting of two elongate bones, head of ventral element overlapping ventral end of dorsal element. Lateral extrascapular not fused with pterotic. Median ethmoid ossified. Circumorbital bones 5.

Relationships are discussed under section titled "Recognition of Genera."

This genus, consisting of two species, has been revised recently by Springer (1968).

DISTRIBUTION.—Indian Ocean; central and western Pacific Ocean.

Comparison of Cephalic Sensory Pores

Although the sensory canal system has generally been neglected in the classification of blenniid fishes, Springer (1967) used the nature of the sensory pores as a specific character to distinguish certain species of the salariinine genus *Entomacrodus*. In our study we find that the cephalic sensory pores have utility as generic characters and may indicate phyletic relationships. We have illustrated the pore patterns of representative species of each genus and subgenus of Salariini (Figures 17–50) as an adjunct to our generic discussions and to encourage future students of the Blenniidae to survey the character more fully.

Correlation between development of cephalic pores and the ecology and/or behavior of blenniid fishes is not readily apparent. *Blennius ocellaris* (subfamily Blenniinae), the deepest dwelling (to at least 400 meters) member of the family, has simple pores, as do species of the salariinine genera *Alticus* and *Andamia*, which spend much of their existence out of water. Unlike the previously mentioned genera, all species of the subfamily Nemophidinae spend most of their time actively swimming, yet they share in common a reduced sensory pore system. The only general observation that we can make regarding sensory pores is that there seems to be a strong trend for the pores to be reduced in number in the more specialized forms.

The cephalic sensory canals in the tribe Salariini agree with the typical perciform pattern described by Branson and Moore (1962). Some of the major sensory canals and associated pores of a representative salariinine genus are shown in Figure 16. The sensory pore series of the head that we found of importance are defined below.

Infraorbital (IFO) and supraorbital (SO) series: Pores in the positions occupied by these canals.

Supratemporal series (ST): Only pores in the region anterior to the first dorsal spine and between the bases of the nuchal cirri (if present), extending anteriorly across the top of the head, are discussed below. In some genera, for instance *Entomacrodus*, pores anterior to the level of the nuchal cirri frequently spread laterally and cover an expanse broader than the distance between the nuchal cirri; all pores anterior to the nuchal cirri in this mid-region are inclúded in our counts. In some specimens this count may be difficult to make. Springer (1967, p. 6) termed pores in this series "predorsal commissural pores."

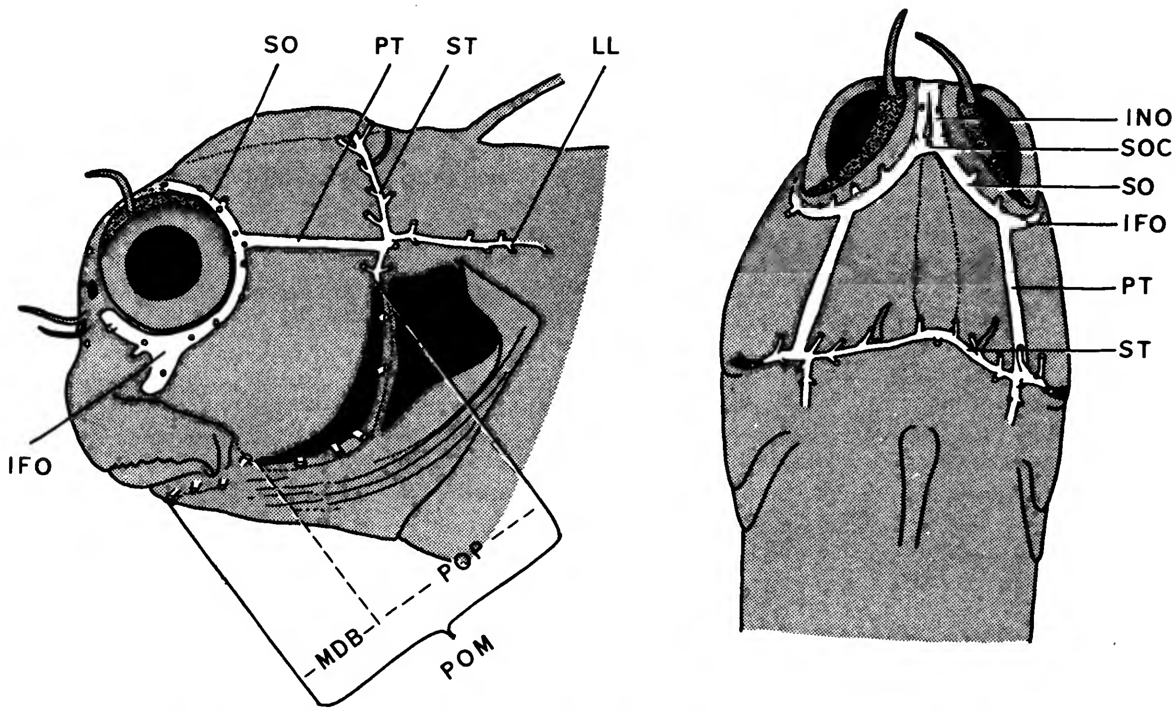


FIGURE 16.—Semidiagramatic illustration of cephalic sensory canals and pores in *Salarias sinuosus* based on several specimens from Queensland, Australia, with abbreviations as follows: MDB, mandibular series; POP, preopercular series; POM, preoperculomandibular series; IFO, infraorbital canal; SO, supraorbital canal; SOC, supraorbital commissural canal; INO, interorbital canal; PT, pterotic canal; ST, supratemporal canal; LI, lateralis. Positions of preopercle, opercle, and subopercle are shown in dark gray.

Mandibular series (MDB): The number of mandibular pores on each side of the head beginning with the pore nearest the symphysis of the lower jaw and terminating posteriorly with the pore immediately behind or slightly dorsal to the membranous corner of the mouth. In some genera it is difficult to determine by external examination alone where the break occurs between the MDB series and the POP series. In the following discussion of pore patterns the reader should experience little difficulty determining which pores we include in either series if reference is made to the illustrations.

Preopercular series (POP): In this series we consider the first pore position (depending on the genus or species, a position may be occupied by one or more pores, all connected by a common canal with a single opening in the preopercular bone) as the dorsalmost, which occurs slightly above the level of the greatest distance between the posterior margins of the preopercle and opercle, excluding the branchiostegal membrane.

In the Salariini there may be either five or six positions in the POP series, depending on the genus, describing an arc between the first and last positions. The last pore position is the ventralmost of the series and is posterior to the last MDB pore. In some genera the last POP position is always occupied by a vertical pair of pores, in other genera by a single pore. On the figures we have placed an "x" below the last POP position.

In the following account of pore patterns the reader should refer to Figures 17–50. Unless stated otherwise, the species illustrated is considered typical for all species of the genus. To facilitate comparison of genera the sequence of presentation follows that of Figure 51 (from top to bottom). In many species the pores are difficult to see and are easily overlooked. Overlying mucus must be carefully removed and drying of the area in which pores occur greatly facilitates examination.

Ecsenius (Figures 17–18). All pore positions occupied by simple pores. MDB pores 4. While the basic pore pattern is the same for both subgenera, there has been a posterior displacement of the mandibular pores in *Anthiiblennius*, perhaps correlated with changes in the structure of the lower jaw. *Anthiiblennius* also differs in having a more anterior placement of the mid-dorsal ST pore. This shift in position is apparently the result of the more anterior placement of the first dorsal spine and its pterygiophore.

Andamia (Figure 20). All pore positions occupied by simple pores. A single MBD pore. Reduction of MDB pores is probably correlated with the presence of a prominent cup-shaped fleshy disk behind the lower lip (Figure 10). A single mid-dorsal ST pore present.

Alticus (Figure 19). All pore positions occupied by simple pores. MDB pores 2 or 3. Reduction of MDB pores in *Alticus* and *Andamia* (4 or more in other salariinine genera except group 21 of Figure 51) is another reason for placing *Alticus* as we do in Figure 51. A single mid-dorsal ST pore present.

Praealticus (Figure 21). All pore position occupied by simple pores. MDB pores 4. Distribution of ST pores is identical to that found in the related *Alticus* and *Andamia*, and is characterized primarily by the presence of a single mid-dorsal ST pore.

Istiblennius (Figures 22–25). This large assemblage of species, which shows the greatest range of variation in its other characters, likewise exhibits much variation in pore development. IFO positions occupied by multiple or simple pores, simple in most species. MDB pores 5 or 6, 5 in most species. POP positions consisting of simple pores in all species except *I. gibbifrons* in which the pores at each position are double. Also, since an ophioblennius larval stage is known only for *gibbifrons* among the *Istiblennius* species, placement of *gibbifrons* in a separate genus may be indicated (see discussion under general synoptic account). Mid-dorsal ST pores 0–12 or more, 3 or more in all except *I. steinitzi*.

The genera illustrated in Figures 29–34 (group 7 of Figure 51) are very difficult to characterize individually because of the complex nature of their sensory pores. In *Pereulixia* (Figure 29), *Exallias* (Figure 30), and *Cirripectes* (Figures 31–32) most or all of the pore positions are occupied by relatively small and numerous pores arranged in clusters. Each pore in a cluster at a given position is united by a minute branch to a common canal. In most species of *Cirripectes* these pores are very minute and easily overlooked. In *Scartichthys* (Figure 33) and *Ophioblennius* (Figure 34) the pores are larger and less numerous. In all of these genera there tends to be an increase in the number of pores with increase in standard length.

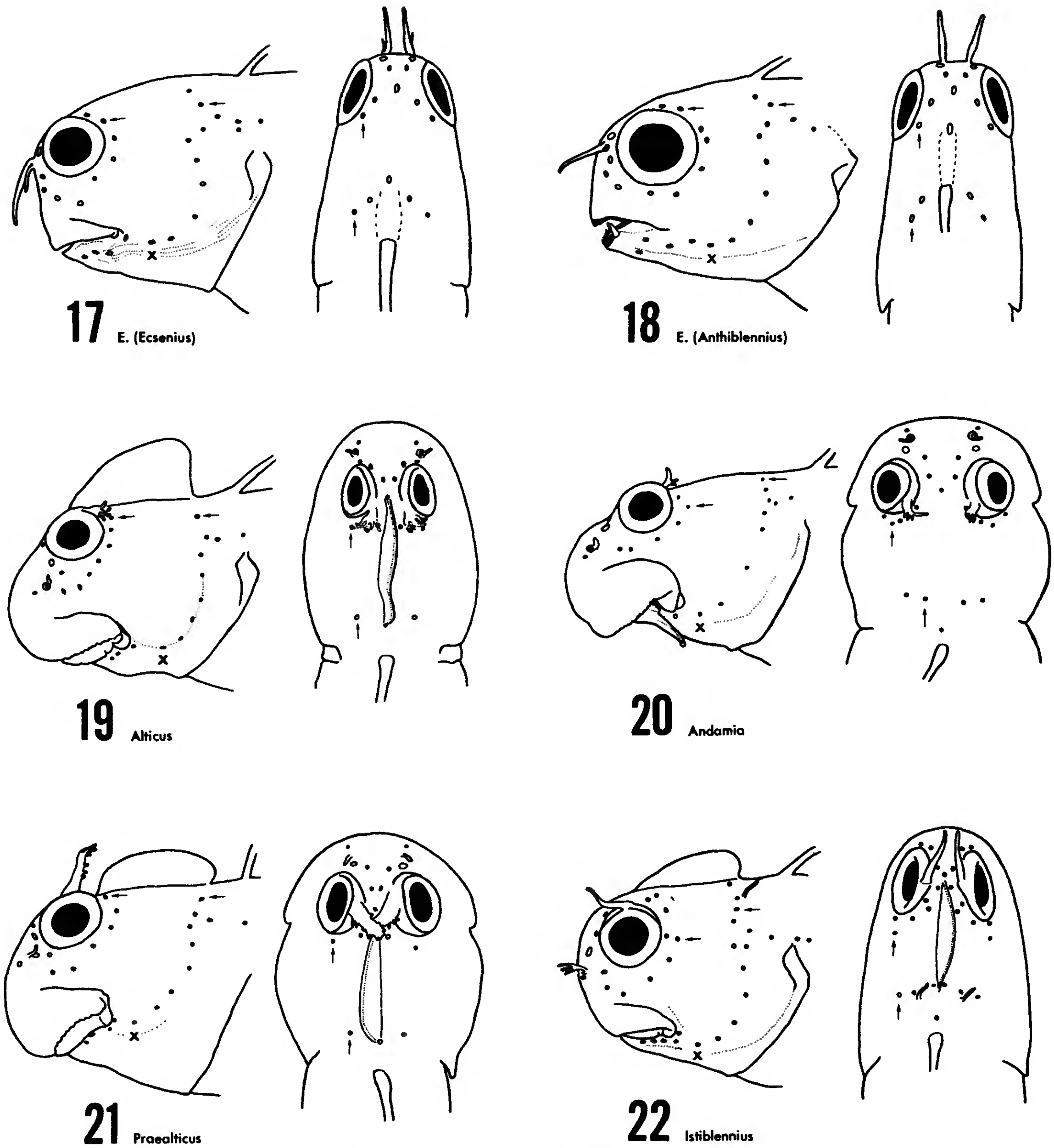
Stanulus (Figure 37). IFO typically containing positions with some multiple pores. POP positions typically with simple pores. MDB pores 4 or 5. Mid-dorsal ST pores 3–22, the number increases with increase in standard length (Springer, 1968a).

Entomacrodus (Figures 35–36). IFO typically containing several positions with multiple pores. POP positions variable, consisting of simple, paired or mulitple pores. MDB pore positions (some positions may have multiple pores) 4–6. ST pores in mid-dorsal region 3 to more than 50. In those species that have a relatively high number of ST pores, the number increases with increase in standard length.

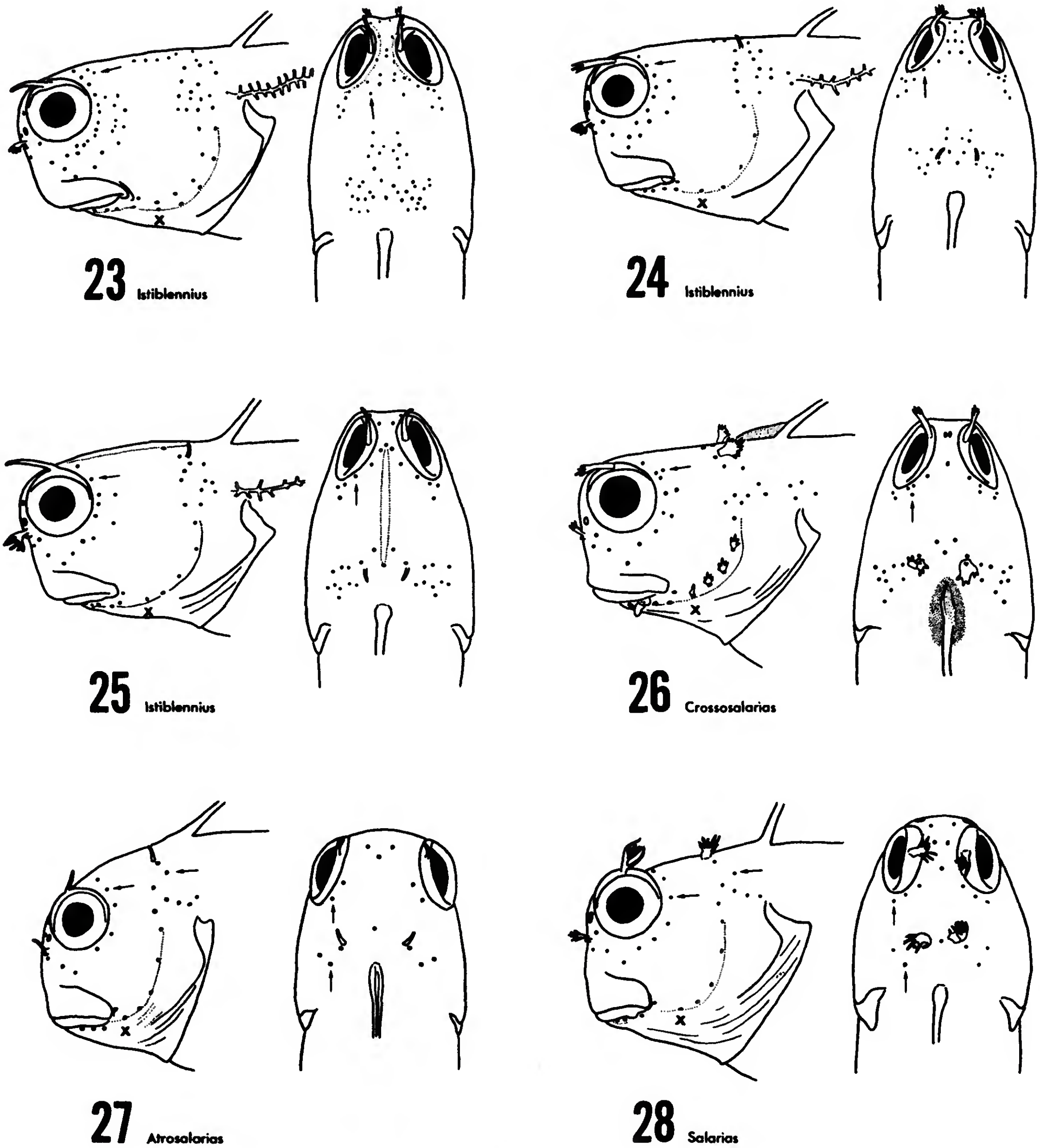
Nannosalarias (Figure 38). IFO positions occupied by multiple pores. POP positions with simple pores. MDB pores usually 5, occasionally 4. Mid-dorsal ST pores typically 3.

Crossosalarias (Figure 26). Some IFO positions typically with multiple pores. POP positions with simple pores. MDB pores 5. Mid-dorsal ST pores 3.

Atrosalarias (Figure 27). All pore positions occupied by simple pores. MDB pores 4. A single mid-dorsal ST pore present.

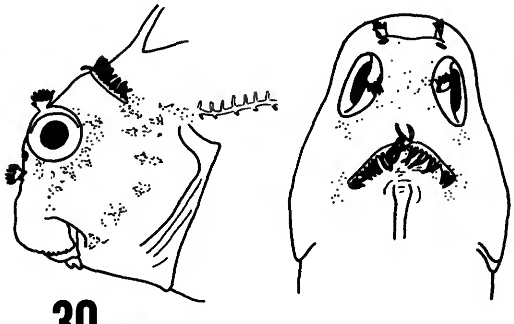


FIGURES 17-22.—Comparison of cephalic sensory pores in selected species of Salariini: 17, *Ecsenius (E.) bicolor,* USNM 201823, male, 61.5 mm, Queensland, Australia; 18, *Ecsenius (Anthiiblennius) midas,* paratype, USNM 202422, female, 56.0 mm, Amirante Islands; 19, *Alticus saliens,* USNM 115447, male, 69.5 mm, Tutuila Island, Samoa; 20, *Andamia heteroptera,* USNM 137867, male, 53.5 mm, Porongpong Island, Philippines; 21, *Praealticus tanegasimae,* USNM 123398, male, 58.5 mm, Okinawa; 22, *Istiblennius edentulus,* USNM 142201, male, 59.2 mm, Marshall Islands.

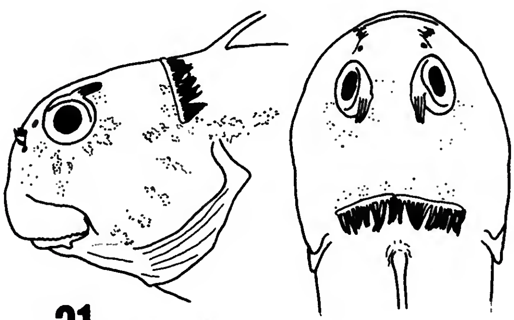


FIGURES 23-28.—Comparison of cephalic sensory pores in selected species of Salariini: 23, *Istiblennius gibbifrons*, USNM 200545, male, 65.0 mm, Marshall Islands; 24, *Istiblennius coronatus*, USNM 142088, female, 75.5 mm, Marshall Islands; 25, *Istiblennius paulus*, USNM 142202, male, 66.0 mm, Marshall Islands; 26, *Crossosalarias macrospilus*, holotype, USNM 203096, male, 51.0 mm, Solomon Islands; 27, *Atrosalarias fuscus holomelas*, USNM 201255, male, 62.1 mm, Queensland, Australia; 28, *Salarias fasciatus*, USNM 203105, female, 52.0 mm, Queensland, Australia.

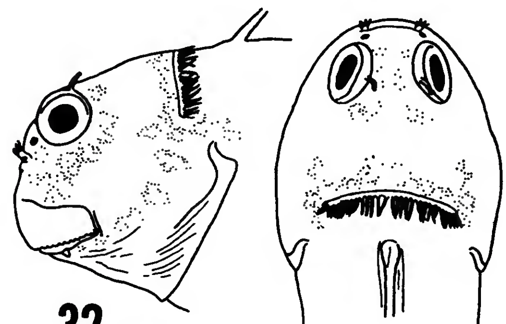
29 Pereulixia



30 Exallias

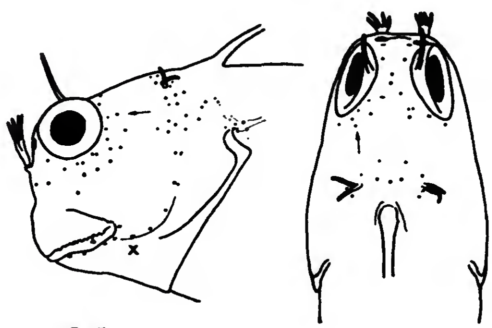


31 Cirripectes



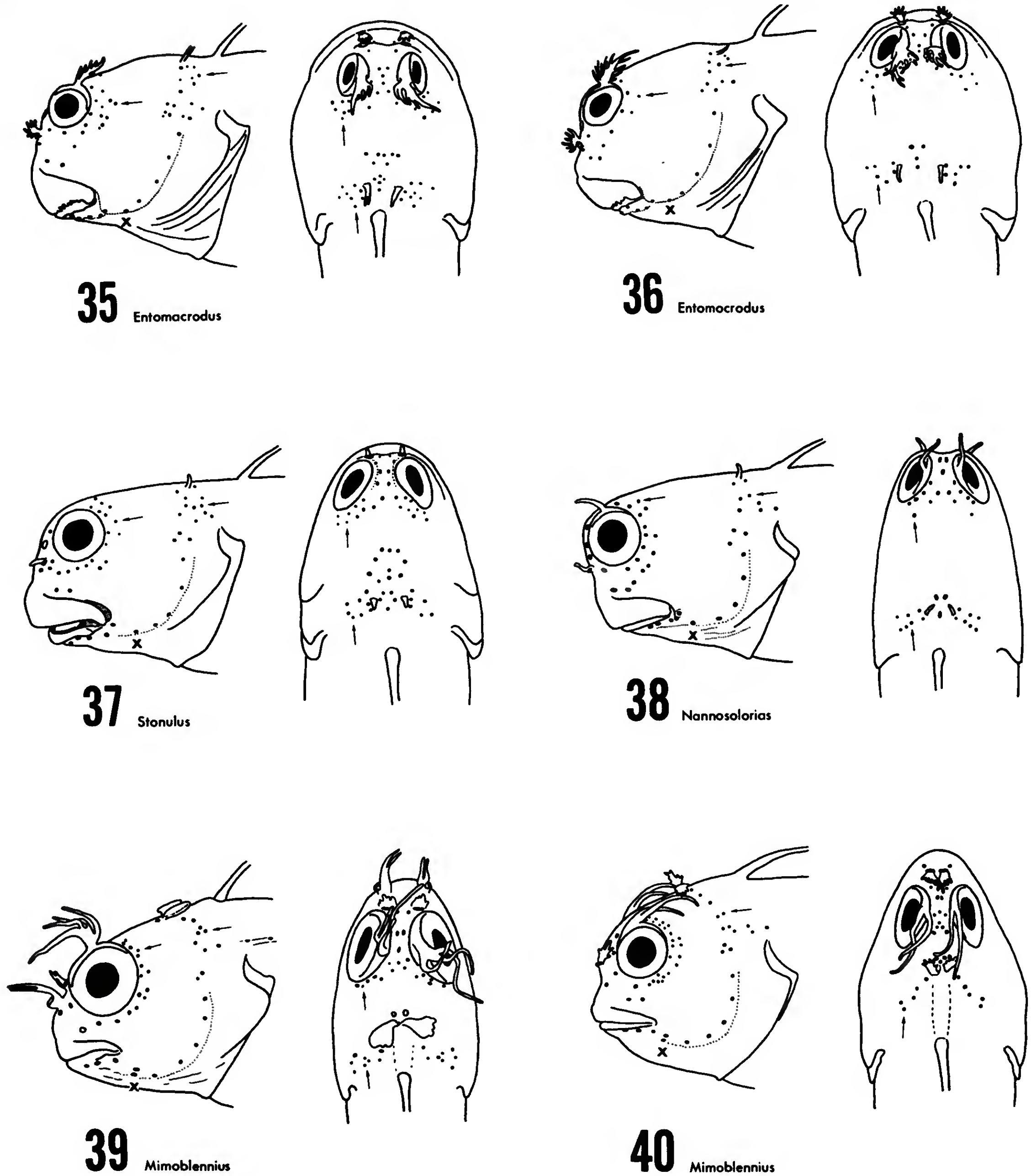
32 Cirripectes

33 Scartichthys

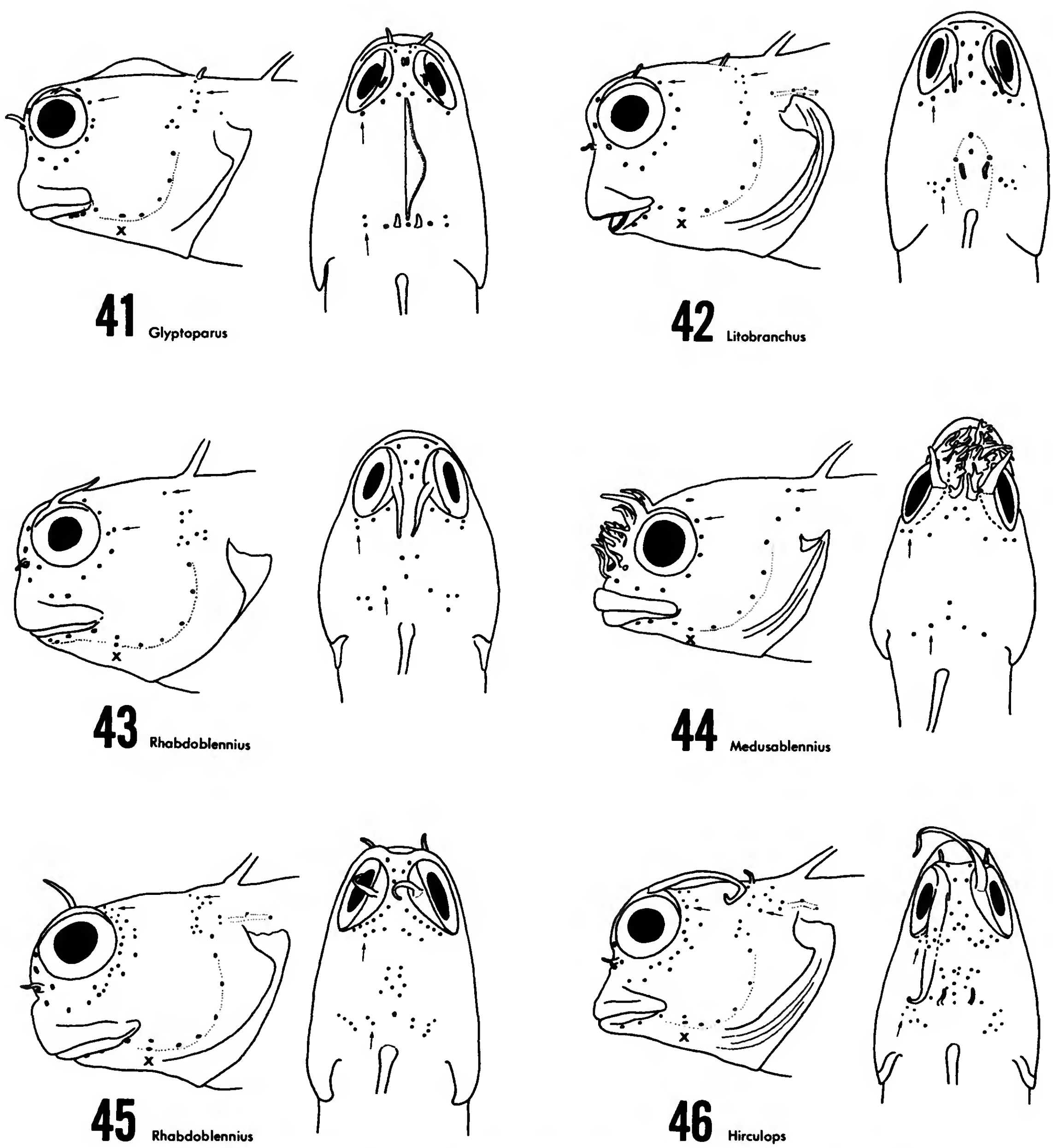


34 Ophioblennius

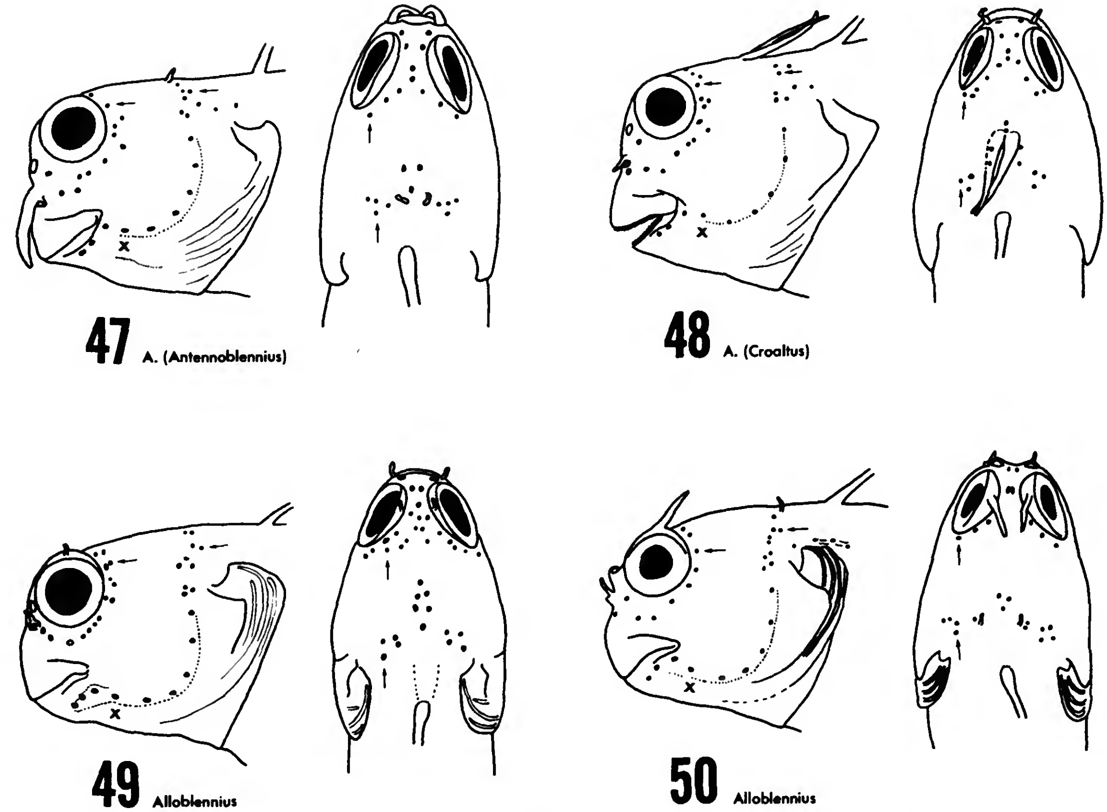
FIGURES 29-34.—Comparison of cephalic sensory pores in selected species of Salariini. In the following genera some or all of the MDB and ST pores are not shown: 29, *Pereulixia kosiensis*, USNM 204035, male, 64.9 mm, Inhaca, Mozambique; 30, *Exallias brevis*, USNM 1999420, male, 85.5 mm, Malacca Straits, Indonesia; 31, *Cirripectes obscurus*, BPBM (uncat.), male, 106 mm, Oahu, Hawaii; 32, *Cirripectes jenningsi*, USNM 200615, female, 69.6 mm, Vostok Island; 33, *Scartichthys variolatus*, USNM 176546, female, 90.3, Juan Fernandez Island, Chile (right supraorbital cirrus not illustrated); 34, *Ophioblennius atlanticus macclurei*, UMML 6523, female, 75.5 mm, Bahama Islands.



FIGURES 35-40.—Comparison of cephalic sensory pores in selected species of Salariini: 35, *Entomacrodus chiostictus*, USNM 256392-F3, male, 62.5 mm, Bahia Pinas, Panama; 36, *Entomacrodus striatus*, USNM 198141, male, 68.9 mm, Phoenix Islands; 37, *Stanulus seychellensis*, USNM 201580, male, 24.8 mm, Queensland, Australia; 38, *Nannosalarias nativitatus*, USNM 201369, male, 32.8 mm, Queensland, Australia; 39, *Mimoblennius cirrosus*, paratype, USNM 204645, female, 28.2 mm, Sheikh el Abu, Harat Island, Ethiopia; 40, *Mimoblennius atrocinctus*, USNM 201395, male, 44.2 mm, Hong Kong.



FIGURES 41-46.—Comparison of cephalic sensory pores in selected species of Salariini: 41, *Glyptoparus delicatulus*, USNM 203106, male, 30.4 mm, Aldabra Island; 42, *Litobranchus fowleri*, USNM 203769, male, 31.0 mm, Oriental Negros, Philippines; 43, *Rhabdoblennius snowi*, USNM 204634, male, 40.7 mm, Gilbert Islands; 44, *Medusablennius chani*, CAS 24741, male, 12.0 mm, Tuamotu Archipelago; 45, *Rhabdoblennius rhabdotrachelus*, USNM 200608, male, 34.0 mm, Solomon Islands; 46, *Hirculops cornifer*, USNM 200030, female, 46.5 mm, Gulf of Suez, Red Sea.



FIGURES 47-50.—Comparison of cephalic sensory pores in selected species of Salariini: 47, *Antennablennius (A.) velifer*, USNM 200205, male, 44.7 mm, Astola Island, West Pakistan; 48, *Antennablennius (Croaltus) bifilum*, USNM 200207, male, 49.5 mm, Astola Island, West Pakistan; 49, *Alloblennius pictus*, USNM 203766, male, 30.1 mm, Strait of Jubal, Red Sea; 50, *Alloblennius jugularis*, HUI E62/417g., male, 30.9 mm, Cundabilu, Dahlak Archipelago.

Salarias (Figures 16 and 28). All pore positions occupied by simple pores. MDB pores 4. Mid-dorsal ST pores 1–3.

Glyptoparus (Figure 41). All pore positions occupied by simple pores. MDB pores 4. Mid-dorsal ST pores 1 or 2, usually 2.

Medusablennius (Figure 44). All pore positions occupied by simple pores. MDB pores 3. Mid-dorsal ST pores 2.

Mimoblennius (Figures 39–40). IFO with some positions occupied by multiple pores. POP positions with simple pores except for the last position, which consists of a vertical pair of pores. MDB pores 3. Mid-dorsal ST pores 3.

Litobranchus (Figure 42). All pore positions occupied by simple pores. MDB pores 3. Mid-dorsal ST pores 2–4, usually 2.

Rhabdoblennius (Figures 43 and 45). IFO positions occupied by simple or multiple pores. POP positions with simple pores except for the last position, which consists of a vertical pair of pores. MDB pores 3 or 4. Mid-dorsal ST pores 3–10.

Hirculops (Figure 46). IFO with some positions occupied by multiple pores. POP pores simple except for last position, which consists of a vertical pair of pores. MDB pores 3. Mid-dorsal ST pores 8–15.

Antennablennius (Figures 47–48). IFO with some positions occupied by multiple pores. All POP positions occupied by simple pores. MDB pores 3.

Mid-dorsal ST pores 1–4, typically 3 in subgenus *Antennablennius* and usually 2 in subgenus *Croaltus* (see general comments under *Antennablennius*).

Alloblennius (Figures 49–50). IFO positions usually occupied by simple pores or with relatively few paired pores. All POP positions occupied by simple pores. MDB pores 3. Mid-dorsal ST pores 3–8.

Recognition of Genera

In any study embracing as many genera and species as in our study, it behooves the authors to discuss their generic concept. The only rule that can be consistently applied to the genus-group category is that the species of a particular taxon be more closely related to each other than to species in another taxon of equal rank. Recognition of monotypic taxa, above the species level, simply infers a high degree of differentiation in a single species. Obviously, the level of differentiation that one chooses to regard as meriting generic (as opposed to subgeneric) recognition will depend upon the number and stability of characters within each family of animals considered and the subjective bias of the taxonomist involved. In the final analysis the genus-subgenus system of nomenclature is subjective.

For every genus that we recognize we have spent much time in discussion and debate challenging each other to defend an action, whether it be to synonymize a genus, recognize one in synonymy, erect a new genus, or not erect a genus where one might be recognizable. We have taken special note of the

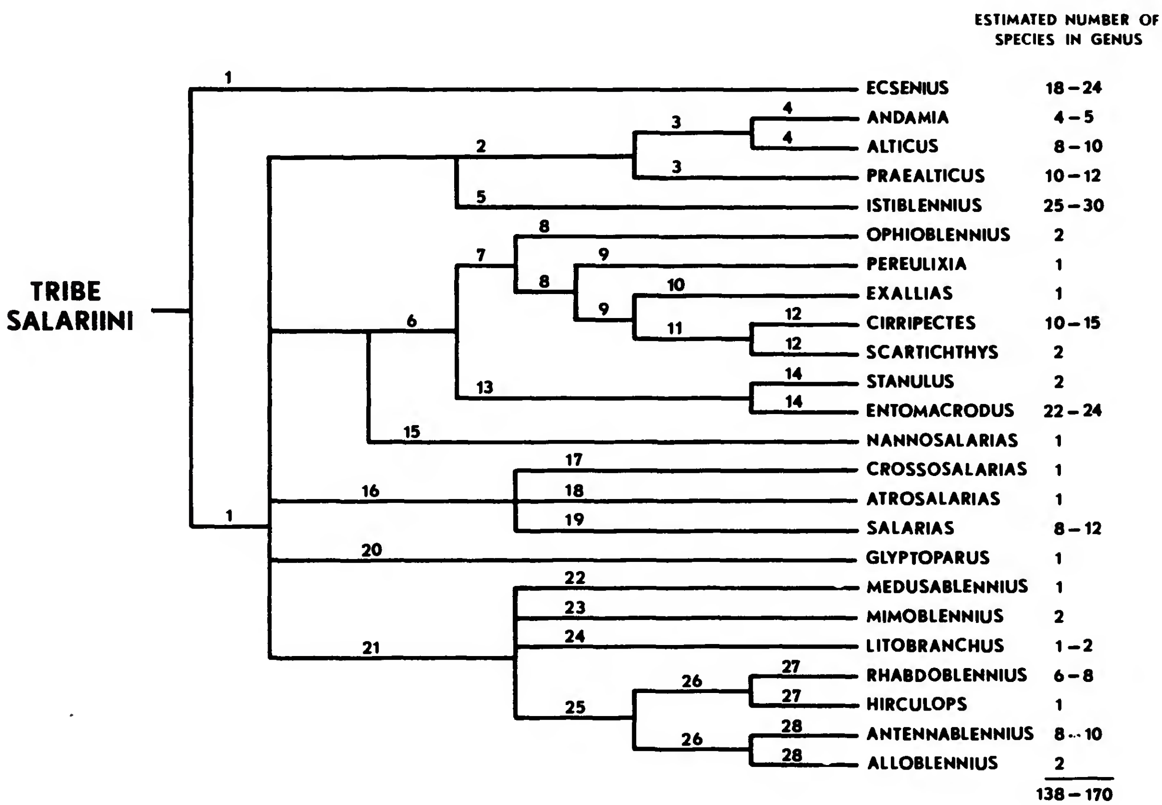


Figure 51.—Schematic representation of genera in tribe Salariini showing relationships. Numbered branches of dendrogram are discussed under section titled "Recognition of Genera."

fact that some of these genera are as yet poorly known. From these discussions has evolved the dendrogram shown in Figure 51, which is a schematic representation of our concept of the relationships of the salariinine genera that we recognize. *The dendrogram does not imply that one genus is more primitive than, or ancestral to, another.* The arrangement simply places those genera that we consider to be most closely related together in brackets. In the following discussion we attempt to explain the reasons for our arrangement of the genera of Salariini in Figure 51 and comment on why we recognize some of them. Numbers given in the following discussion correspond to those shown on the figure.

1. *Ecsenius* is the most distinct genus in the Salariini. Indeed, it occupies a unique position in the Blenniidae and perhaps merits a separate tribe. The general nature of its dentition, however, at least places *Ecsenius* as an offshoot of the Salariini. The following information is the result of a revision of the genus by Springer. *Ecsenius* differs from all other blenniids in having dorsal processes extending from the proximal portions of the epipleural ribs on at least the third through fifth vertebrae; in having both anterior and posterior canines on the dentary (the anterior canines are difficult to distinguish from the incisoriform teeth in most species, but their nature is apparent in osteological preparations); and in lacking an ossified median ethmoid. In addition to the above characters, *Ecsenius* also differs from the other salariinine genera in having the lateral extrascapular fused with the pterotic.

2. Excluding *Ecsenius*, there appear to be at least four major phyletic lines within the Salariini. Their relationships to each other, however, are not clear. *Alticus* and its allies comprise a group of slender, elongate species that closely approach each other in general physiognomy. They share in common high numbers of dentary and premaxillary teeth, a reduced pore system, a fleshy occipital crest (secondarily lost in all except one species of *Andamia*), and loss of nuchal cirri. There has been a tendency for the ventralmost rays of the caudal fin to become thickened in most species, probably in response to their habit of frequently leaving the water and using their tails to hop from one pool to another. They have either unbranched caudal rays or the number of branched rays is reduced, usually 4 to 8 (typically 9 in those Salariini with branched rays). With the exception of one species of the unrelated genus *Ecsenius* (*E. midas*) and one species of *Praealticus*, this group of genera is unique among the Salariini in having the postcleithra consisting of one to three small, fragile, well-separated bones on each side (Figures 15*a*, *b*, *c*).

3. *Alticus* and *Andamia* are clearly more closely related to each other than to *Praealticus*. In adults of *Praealticus*, unlike *Alticus* and *Andamia*, the tips of some of the caudal rays are always branched and the terminal anal pterygiophore frequently bears two rays (one in *Alticus* and *Andamia*). With the exception of *Alticus simplicirrus* (see text discussion under *Alticus*), the general nature of the supraorbital cirri is different in the two groups.

4. *Andamia* is unique among the genera of Salariini in having a cup-shaped fleshy disk or appendage behind the lower lip (Figures 10 and 20).

5. The precise placement of *Istiblennius* is uncertain, but if difficulty in distinguishing the genus is an indication, then it is closely related to *Praealticus* (see text discussion under *Praealticus*). Since an ophioblennius larval stage is known for only one species of *Istiblennius* (*gibbifrons*), for none of the presumed closest relatives of *Istiblennius* (group 2), and for most (if not all) of the unrelated genera of group 6, *Istiblennius* as here defined may be polyphyletic.

6. Included are those genera that share the following combination of characters: ophioblennius larvae, the anal spines of mature males enveloped in conspicuous fleshy rugosities, multiple pores on the head tending to increase in number with increase in standard length, I, 4 pelvic rays (except for one species of *Cirripectes*, which has I, 3), and the terminal anal ray not bound by a membrane to the caudal peduncle. Most of the species typically have the last anal pterygiophore bearing two rays.

7. Included are those genera with complete lateral lines (extending almost to the caudal base) and nuchal cirri consisting of a transverse series across the nape or a patch of cirri on each side of the nape. One species of *Entomacrodus* (*E. marmoratus*) overlaps this group.

8. *Ophioblennius* differs from its nearest relatives in having the lateral line consisting of two overlapping, disconnected portions (instead of being

continuous to the caudal base), the dorsal fin without a notch between spinous and segmented portions (but notched somewhat in larvae), and in having more segmented dorsal and anal rays. It is the only genus of the group that has become established in the Atlantic Ocean.

9. *Pereulixia* differs from its nearest allies in having small, imbricate, scalelike flaps covering at least the anterior lateral-line pores, vomerine teeth, simple supraorbital cirri that are long and tapering (simple but short in *Cirripectes jenningsi*), and the upper lip entire.

10. *Exallias* differs from both *Cirripectes* and *Scartichthys* in having about one-third as many teeth in the lower jaw as in the upper (instead of about one-half as many teeth in the lower jaw as in the upper), no dentary canines, a pair of barbels on each side of the chin just behind the lower lip, and fewer segmented dorsal and anal rays.

11. We know of no single character that alone will distinguish *Cirripectes* and *Scartichthys* from their respective relatives. This, it seems to us, is not too surprising when dealing with a relatively large number of genera and species that have evolved along similar lines.

12. As indicated by the dendrogram, *Cirripectes* and *Scartichthys* are quite closely related. We considered treating them as subgenera but believe that it would be premature to do so until the species of these genera are better known. For the present we recognize both genera because they are well entrenched in the literature (Strasburg and Schultz, 1953; Cohen, 1956), and we encountered no difficulty in assigning species to one or the other of these genera (see discussion under *Cirripectes*).

13. Both *Entomacrodus* and *Stanulus* have recently been revised by Springer (1967; 1968). There is considerable overall similarity between the two species of *Stanulus*, especially *S. talboti*, and the species of *Entomacrodus*.

14. *Stanulus* differs from *Entomacrodus* primarily in having minute, imbricate scalelike flaps covering the lateral-line pores, typically one less dorsal spine, one more pectoral ray, and fewer segmented dorsal and anal rays.

15. *Nannosalarias* does not appear to show especially close affinities to any other genus. We tentatively place it near the base of those genera centering around *Cirripectes* and *Entomacrodus* because it shares with that group a distinctive type of sexual dimorphism in which the anal spines of mature males become enveloped in conspicuous fleshy rugosities. *Nannosalarias* differs from those genera in the general nature of its head pore distribution, and in having one less circumorbital bone, one less segmented pelvic ray, and a membranous attachment of the terminal anal ray to the caudal peduncle.

16. Such a wide range of characters is shown between the species of *Crossosalarias, Atrosalarias,* and *Salarias* that it is difficult to define them collectively as a group. The various combinations of characters shared between the three genera, together with their general physiognomy, however, leads us to believe that they are more closely related to each other than to other genera of Salariini.

17. *Crossosalarias* differs from all other genera of Salariini in having restricted gill openings (the gill membranes are bound to the isthmus at about, or slightly below, the level of the ventralmost pectoral ray) and cirri associated with 3 or 4 preoperculomandibular pores on each side. It differs from *Salarias* and *Atrosalarias* in having the innermost pelvic ray well developed, as opposed to rudimentary, and a fleshy flap at the base of the first dorsal spine.

18. *Atrosalarias* differs from both *Salarias* and *Crossosalarias* in having no branched caudal rays, typically one more pectoral ray in each fin (usually 16), one to three less dorsal spines, and in having the skin of the anal spines and first several segmented anal rays rugose in mature males (see illustration in Springer and Smith-Vaniz, 1968).

19. *Salarias* differs from all other genera of Blenniidae in having the anterior anal segmented rays elongated in large, mature males.

20. We place *Glyptoparus* as we do because it does not appear to show any obvious affinities with the other groups of salariinine genera. As in one species of *Ecsenius* (*E. mandibularis*), *Glyptoparus* frequently has more than one (usually two or three) posterior canines on each dentary, arranged in linear series. It does not, however, have both anterior and posterior dentary canines or any of the other numerous distinguishing osteological characters of *Ecsenius*.

21. Included here are those genera that have relatively few premaxillary (18 to 50) and dentary

(16 to 38) teeth, and have the dentary replacement teeth generally making their appearance through foramina in the bone (Figure 7, except *Rhabdoblennius snowi*, Figure 6, in which the dentaries are moderately excavated). All of the species belonging to this group of genera are relatively small, have the terminal anal ray bound by a membrane to the caudal peduncle, and usually 14 pectoral rays (except *Medusablennius*, which has 13).

22. *Medusablennius* differs from its nearest relatives in having considerably fewer teeth, only two circumorbital bones (no other salariinine has less than 4), typically 13 pectoral rays, and attaining maturity at a size when the sex of the other species is hardly distinguishable. While its complex cirri are to some extent duplicated in *Mimoblennius cirrosus*, no salariinine species has such well-developed cirri at so small a size. Simple caudal rays are found in group 21 only in *Medusablennius* and *Litobranchus*; *Medusablennius*, however, has 13 segmented rays and *Litobranchus* has only 12. Except for *Alloblennius pictus*, *Medusablennius* is the only genus of salariinines in which the ventral hypural plate is fused to the urostylar centrum.

23. *Mimoblennius* differs from all other genera in group 21 in having 13, instead of typically 12 dorsal spines. Although *Mimoblennius* has no unique character that will separate it from all other genera, when compared with individual genera in group 21 there are numerous characters that set it apart.

24. *Litobranchus* differs from all members of group 21, except *Medusablennius*, in having simple caudal rays. It differs from all members of group 21 in having only 12 instead of 13 segmented caudal rays.

25. We believe that the genera of group 25 are more closely related to each other than to any of the other genera in group 21 because they appear to be relatively unspecialized when compared with the other genera. They exhibit none of the obvious specializations of cirri or caudal fin structure found in the other three genera. In his review of the Blenniidae, Norman (1943) regarded *Rhabdoblennius* and *Antennablennius* as the most primitive members of the subfamily Salariinae. He considered these two genera so closely related that he accorded them only subgeneric rank.

26. *Rhabdoblennius* and *Hirculops* differ from *Antennablennius* and *Alloblennius* in having vomerine teeth, well-developed canines in the lower jaw (instead of lacking canines or having them only weakly developed), and in having the last POP pore position with a vertical pair of pores (instead of with a single pore). Our concept of the relationship of these four genera to each other has been influenced by their geographic distributions (see general accounts). The members of each pair of genera are closely related and occupy adjacent geographic areas with little or only slight overlap. In each pair one genus is relatively speciose and the other is either monotypic (*Hirculops*) or known to comprise only two species (*Alloblennius*).

27. *Hirculops* differs from *Rhabdoblennius* and all other genera included in group 21 in consistently having 11 (instead of 10) precaudal vertebrae and in having the premaxillary closed laterally with replacement teeth entering the functional row through foramina in the bone (Figure 4). *Hirculops* can also be distinguished from *Rhabdoblennius* by its extremely long supraorbital cirri (Figure 46) and by its small nuchal cirri (absent in *Rhabdoblennius*). The mutually exclusive geographic distributions of these two taxa reinforces their generic separation.

28. *Antennablennius* differs from *Alloblennius* in having 5, instead of 4, circumorbitals, and in not having supraorbital cirri. *Alloblennius* is apparently restricted to the Red Sea and *Antennablennius* is known from the Red Sea and Indian Ocean.

Annotated List of Nominal Species, Tribe Salariini

The following list gives in order: (1) the scientific name in alphabetical order by species as it originally appeared (hyphens omitted and capitalized specific names in lower case, however); (2) the author or authors (Cuvier and Valenciennes, 1836, is abbreviated to C & V, 1836); (3) date of publication (some species were described as new by the same author on two occasions); (4) page reference (see literature cited section for complete reference); (5) the genus to which we currently assign the species, if such is possible; (6) one or two letters of the alphabet that indicate the basis on which generic allocation was made (or other pertinent information), as follows: A—holotype, lectotype, neotype, or syntypes examined; B—paratype examined; C—literature or other information obtained sufficient for determination; D—probably belongs in this genus, but should be verified (in some instances this is impossible); E—questionable, could belong in a different tribe of Blenniidae but probably not; F—name unavailable by reason of not having been presented properly, a nomen nudum; (7) one or more museum abbreviations (see methods section for corresponding museum name) and catalog numbers indicating holotypes, lectotypes, neotypes, or syntypes. (Parentheses around information in 7 signifies that either we are not certain of the information or have not seen the specimens in question). Occasionally, comments referring to a particular name have been included immediately below that name. Noteworthy misspellings have been included, as well as some names of questionable validity.

Following this list is a list of available names in the genus *Salarias* that refer to species belonging in blenniid tribes other than the Salariini. We know of no other species originally described in genera of the Salariini that do not belong in the Salariini.

Species, author, publication date, and page reference	*Genus*	*Generic allocation*	*Museum abbreviations and Catalog numbers*
Antennablennius adenensis Fraser-Brunner, 1951, p. 219	*Antennablennius*	A	BMNH 1954.4.26.1
Salarias aequipinnis Günther, 1861, p. 253	*Andamia*	A	BMNH 1858.4.21.424
Istiblennius afilinuchalis Schultz & Chapman, 1960, p. 356	*Istiblennius*	A	USNM 115421
Ecsenius albicaudatus Lotan, 1970, p. 372	*Ecsenius*	A	HUI HUJ–F–3540
Salarias alboapicalis Ogilby, 1899, p. 742	*Cirripectes*	A	AMS I–1860–3
Salarias alboguttatus Kner, 1867, p. 16	*Salarias*	C	
Salarias aldabraensis Regan, 1912, p. 302	*Alticus*	A	BMNH 1912.5.3.20–22
Salarias alticus Valenciennes in C & V, 1836, p. 337	*Alticus*	A	MNHN A–1793, A–1794, A–1795, A–1797, 855
Salarias amboinensis Bleeker, 1857a, p. 67	*Praealticus*	A	RMNH 4781
Praealticus amboinensis litteratus Schultz & Chapman, 1960, p. 370	*Praealticus*	A	USNM 124116
Blennius amphibius Walbaum, 1792, p. 187	*Alticus*	C	
Salarias andamanensis Day, 1878, p. 332 (misspelling of *S. andamensis*, see below)	*Istiblennius*	C	
Salarias andamensis Day, 1870b, p. 611	*Istiblennius*	C	
Salarias andersoni Jordan & Starks, 1906, p. 703	*Salarias*	A	USNM 53273
Salarias andersonii Day, 1878, p. 331	*Alticus*	A	ZSIC 274
Salarias aneitensis Günther, 1877, p. 205	*Entomacrodus*	C	
Andamia anjouanae Fourmanoir, 1954, p. 207 In his original description Fourmanoir mentioned collecting 12 specimens, but he neither designated a holotype nor indicated where he deposited his specimens. The specimen we list was collected in the Comores by Fourmanoir in 1954 and was identified by him. The total length of the specimen, 63.2 mm, agrees closely with the average size mentioned by him in the description. It seems probable that this specimen is a syntype.	*Alticus*	A	MNHN 1965–220
Salarias anomalus Regan, 1905, p. 327	*Ecsenius*	A	BMNH 1900.5.9.47–56, 1899.5.8.94–95
Salarias arenatus Bleeker, 1855a, p. 173	*Entomacrodus*	C	
Blennius arnoldorum Curtis, 1938, p. 38	*Alticus*	D	
Ecsenius aroni Springer, 1971, p. 24	*Ecsenius*	A	USNM 204468
Alticus aspilus Bleeker, 1869, p. 235	*Alticus*	A	RMNH 4481
Salarias atkinsoni Jordan & Seale, 1906, p. 428	*Entomacrodus*	A	USNM 51791
Salarias atlanticus Valenciennes *in* C & V, 1836, p. 321	*Ophioblennius*	A	MNHN A–2024
Salarias atratus Macleay, 1882, p. 361 The type material was reported as present in the Macleay Museum by Stanbury (1969:209), but neither of us was able to	*Istiblennius*	D	(MMS F–1047)

Species, author, publication date, and page reference	*Genus*	*Generic allocation*	*Museum abbreviations and Catalog numbers*
find the specimens (searched for in 1966 and 1969, after appearance of Stanbury's publication). Stanbury, personal communication, did not see the specimens. An entry in the Macleay Museum catalog indicates that two specimens in poor condition were present in 1965. The specimens were reidentified as "*rivulatus*" in the catalog. Other specimens in the Macleay Museum identified by De Vis as *atratus* belong in *Istiblennius*.			
Salarias atrimarginatus Fowler, 1946, p. 182	*Istiblennius*	A	ANSP 72052
Blennius atrocinctus Regan, 1909, p. 405	*Mimoblennius*	A	BMNH 1909.3.4.70
Salarias aureopuncticeps Fowler, 1946, p. 179	*Istiblennius*	A	ANSP 72050
Salarias auridens Alleyne & Macleay, 1877, p. 338	*Istiblennius*	A	MMS F–1051
Antennablennius australis Fraser-Brunner, 1951, p. 217	*Antennablennius*	A	BMNH 1920.12.6.24
Salarias azureus Seale, 1906, p. 87	*Istiblennius*	A	BPBM 783
Blennius baliensis Nichols, 1954, p. 1	*Salarias*	A	AMNH 16987
Ecsenius bandanus Springer, 1971, p. 38	*Ecsenius*	A	USNM 195717
Salarias barbatus Gilchrist Thompson, 1908, p. 108	*Istiblennius*	C	(SAMN)
Scartichthys basiliscus Fowler, 1904, p. 552	*Istiblennius*	C	(ANSP 27802)
Salarias beani Fowler, 1928, p. 441	*Istiblennius*	A	BPBM 1063
Salarias belemites De Vis, 1884b, p. 695	*Istiblennius*	A	QMB I–224
Salarias bellus Günther, 1861, p. 256	*Istiblennius*	A	BMNH 1855.9.19.700
Istiblennius bellus impudens Smith, 1959, p. 242	*Istiblennius*	C	(RU)
Salarias bicolor Day, 1888, p. 798	*Ecsenius*	C	based on an illustration
Blennius bifilum Günther, 1861, p. 225	*Antennablennius*	A	BMNH 1859.5.7.70
Salarias bilineatus Peters, 1868, p. 269	*Praealticus*	A	ISZZ 6707
Salarias bilitonensis Bleeker, 1858b, p. 231	*Istiblennius*	A	RMNH 4792
Ecsenius bimaculatus Springer, 1971, p. 38	*Ecsenius*	A	USNM 201817
Salarias biorni Fowler, 1946, p. 181	*Praealticus*	A	ANSP 72051
Salarias biseriatus Valenciennes *in* C & V, 1836, p. 316	*Istiblennius*	A	MNHN A–2150
Salarias bleekeri Chapman, 1953, p. 338	*Istiblennius*	A	SU 37136
Salarias brasiliensis Sauvage, 1880, p. 217	*Salarias*	A	MNHN A–2148
Salarias brevis Kner, 1868a, p. 29; 1868b, p. 334	*Exallias*	C	
Salarias brevoorti Fowler, 1946, p. 177	*Istiblennius*	C	(ANSP 72048)
Salarias bryani Jordan & Seale, 1906, p. 430	*Istiblennius*	A	USNM 51794
Salarias burmanicus Hora & Mukerji, 1936, p. 34	*Ecsenius*	A	ZSIC F–11872/1
Entomacrodus cadenati Springer, 1966b, p. 59	*Entomacrodus*	A	MNHN 1965–705
Salarias caesius Seale, 1906, p. 88	*Praealticus*	A	BPBM 785
Entomacrodus calurus Fowler, 1904, p. 555	*Istiblennius*	A	ANSP 27807
Salarias calvus De Vis, 1884b, p. 697	*Salarias*	A	QMB I-1355
Blennius canescens Garman, 1903, p. 236	*Cirripectes*	A	MCZ 28294
Cirripectes caninus Herre, 1936a, p. 284	*Exallias*	A	SU 29082
Ophioblennius capillus Reid, 1943, p. 381	*Cirripectes*	A	USNM 120032
Salarias castaneus Valenciennes *in* C & V, 1836, p. 324	*Cirripectes*	A	MNHN A-1799
Salarias caudofasciatus Regan, 1909, p. 405	*Entomacrodus*	A	BMNH 1909.3.4.68
Salarias caudolineatus Günther, 1877, p. 209	*Istiblennius*	C	
Salarias celebicus Bleeker, 1854, p. 250	*Salarias*	A	RMNH 4786
Salarias ceramensis Bleeker, 1852, p. 701	*Salarias*	A	RMNH 4783
Salarias cervus Cuvier & Valencinnes *in* Sauvage, 1880, p. 218	*Istiblennius*	A	MNHN 2208
Medusablennius chani Springer, 1966a, p. 56	*Medusablennius*	A	SU 62057
Entomacrodus chapmani Springer, 1967, p. 95	*Entomacrodus*	A	MCZ 29446
Salarias cheverti Macleay, 1881, p. 12	*Istiblennius*	A	MMS F–1051A
Salarias chiostictus Jordan & Gilbert, 1882, p. 363	*Entomacrodus*	A	USNM 28117
Salarias chrysospilos Bleeker, 1857a, p. 66	*Istiblennius*	A	RMNH 4788
Istiblennius chrysospilos insulinus Smith, 1959, p. 243	*Istiblennius*	C	(RU)
Blennius cinereus Castelnau, 1875, p. 26	*Istiblennius*	E	

Species, author, publication date, and page reference	*Genus*	*Generic allocation*	*Museum abbreviations and Catalog numbers*
Mimoblennius cirrosus Smith-Vaniz & Springer	*Mimoblennius*	A	USNM 204491
Ophioblennius clarki Reid, 1943, p. 380	*Cirripectes*	A	CAS 24686
Salarias colei Herre, 1934, p. 96	*Praealticus*	A	SU 25520
Salarias concolor Philippi, 1896, p. 380	*Scartichthys*	C	
Giffordella corneliae Fowler, 1932a, p. 14	*Entomacrodus*	A	USNM 91821
Blennius cornifer Rüppell, 1830, p. 112	*Hirculops*	A	NFIS 589
Hirculops cornifer menos Smith, 1959, p. 247	*Hirculops*	C	(RU)
Salarias coronatus Günther, 1872b, p. 424	*Istiblennius*	A	BMNH 1871.3.29.42
Salarias crenulatus Weber, 1909, p. 144	*Salarias*	A	ZMA 109.062, 109.063
Salarias crenulatus pallidus Whitley, 1926, p. 235	*Salarias*	A	AMS IA-2609, I-7104-7111
Salarias cristiceps Alleyne & Macleay, 1877, p. 338	*Istiblennius*	A	MMS F-1050B
Entomacrodus cruentatus Garman, 1899, p. 123	*Entomacrodus*	A	MCZ 28695
Salarias cruentipinnis Day, 1888, p. 797	*Cirripectes*	C	based on an illustration
Cirripectes cruentus Smith, 1959, p. 238	*Cirripectes*	C	(RU)
Rupiscartes cubensis Mowbray *in* Breder, 1927, p. 85	*Ophioblennius*	C	(BOC 376)
Salarias cuvieri Günther, 1861, p. 248	*Scartichthys*	A	BMNH 1850.6.14.19, 1850.6.14.21
In the description of *S. cuvieri* Günther listed *Salarias variolatus* C & V as a synonym. He gave no reason for erecting a new name for C & V's species. Günther based his description on material we list here, but he also cited data contained in C & V's description. Thus, there is some question as to what constitutes the type material of *S. cuvieri*: Günther's specimens, C & V's specimen, or both. Since Günther's specimens are a different species from C & V's specimen, this problem must be settled when the genus is revised.			
Salarias, cyanostigma Bleeker, 1849, p. 18	*Istiblennius*	A	RMNH 4794
Andamia cyclocheilus Weber, 1909, p. 143	*Andamia*	A	ZMA 109.061
Blennius cyclops var. *guttatus* Kossman & Räuber, 1877, p. 21	?	E	
Blennius cyclops var. *punctatus* Kossman & Räuber, 1877, p. 21	?	E	
Entomacrodus cymatobiotus Schultz & Chapman, 1960, p. 335	*Entomacrodus*	A	USNM 142183
Salarias cypho Jenkins, 1903, p. 507	*Istiblennius*	A	USNM 50697
Salarias dama Valenciennes *in* C & V, 1836, p. 336	*Istiblennius*	A	ISZZ 1957
Blennius dama Hemprich & Ehrenberg, 1899, p. 3 The nomenclatural status of this name is debatable.	*Istiblennius* and *Salarias* (?)	A	ISZZ 1957, 1946 (?)
Salarias dayi Whitley, 1929, p. 136 A substitute name for "*S. alboguttatus* Day, 1876," which is not listed above because Day was using Kner's *S. alboguttatus*. Day neglected to mention Kner in the original listing, but corrected the omission later (1888).	*Salarias*		
Salarias deani Jordan & Seale, 1905, p. 799	*Istiblennius*	A	USNM 51950
Entomacrodus decoratus Poey, 1868, p. 398	*Entomacrodus*	C	
Salarias decussatus Bleeker, 1858b, p. 230	*Entomacrodus*	A	RMNH 4778
Glyptoparus delicatulus Smith, 1959, p. 249	*Glyptoparus*	C	(RU)
Salarias diproktopterus Bleeker, 1857b, p. 69	*Istiblennius*	A	RMNH 4468
Salarias doliatus Sauvage, 1880, p. 217	*Istiblennius*	A	MNHN 2548
Salarias dussumieri Valenciennes *in* C & V, 1836, p. 310	*Istiblennius*	A	MNHN A-1740
Blennius edentulus Bloch, 1801, p. 172	*Istiblennius*	C	
Blennius ellipes Jordan & Starks, 1906, p. 702	*Rhabdoblennius*	A	USNM 53272
Scartichthys enosimae Jordan & Snyder, 1902, p. 460	*Istiblennius*	A	SU 7068
Salarias epalzeocheilus Bleeker, 1859b, p. 344	*Entomacrodus*	C	
Salarias epalzeorhynchus Bleeker, 1859c, p. 218 Misspelling of *epalzeocheilus* often accorded to Günther (1861).	*Entomacrodus*		
Salarias eques Steindachner, 1898, p. 307	*Scartichthys*	A	ISZZ 15658

Species, author, publication date, and page reference	*Genus*	*Generic allocation*	*Museum abbreviations and Catalog numbers*
Ophioblennius erythraeus Fowler, 1944, p. 251	*Ophioblennius*	A	ANSP 69997
Alticus evermanni Jordan & Seale, 1906, p. 422	*Istiblennius*	A	USNM 51789
Andamia expansa Blyth, 1858, p. 271	*Andamia*	(?)A,C	(?) BMNH 1924.3.7.3
Blennius fasciatus Bloch, 1786, p. 29	*Salarias*	C	
Ophioblennius fernandezensis Clark, 1938, p. 184	*Scartichthys*	A	CAS 5557
Ophioblennius ferox Beebe & Tee-Van, 1928, p. 242	*Ophioblennius*	A	USNM 170901
Salarias filamentosus Alleyne & Macleay, 1877, p. 337	*Cirripectes*	A	MMS F-1035
Salarias flaviumbrinus Rüppell, 1830, p. 113	*Istiblennius*	A	NFIS 1893, 8053–6
Salarias fluctatus Fowler, 1945, p. 70	*Istiblennius*	A	ANSP 71603
Salarias forsteri Valenciennes *in* C & V, 1836, p. 315	*Istiblennius*	A	ISZZ 1942
Salarias fowleri Herre, 1936b, p. 364	*Litobranchus*	A	SU 3097
Salarias fraenatus Valenciennes *in* C &V, 1836, p. 342 Also spelled "*froenatus*"	*Entomacrodus*	A	MNHN 996
Salarias frontalis Ehrenberg in C & V, 1836, p. 328	*Ecsenius*	A	ISZZ 1947
Salarias fronto Günther, 1861, p. 255	*Istiblennius*	A	BMNH 1845.6.22.196
Salarias furcatus Johnstone, 1904, p. 213 This is a homonym of *S. furcatus* De Vis, 1884b, which belongs in a different blenniid tribe.	*Ecsenius*	C	
Salarias furvus De Vis, 1884b, p. 696	*Salarias*	A	QMB I–225
Cirripectus fuscoguttatus Strasburg & Schultz, 1953, p. 130	*Cirripectes*	A	USNM 113634
Salarias fuscus Rüppell, 1838, p. 135	*Atrosalarias*	A	NFIS 1832
Salarias garmani Jordan & Seale, 1906, p. 429	*Istiblennius*	A	USNM 51792
Salarias geminatus Alleyne & Macleay, 1877, p. 336	*Istiblennius*	A	MMS F–1050
Cirripectus gibbifrons Smith, 1947, p. 815	*Cirripectes*	C	(RU)
Salarias gibbifrons Quoy & Gaimard *in* C & V, 1836, p. 312	*Istiblennius*	A	MNHN 4002
Istiblennius gibbifrons insolitus Smith, 1959, p. 242	*Istiblennius*	C	(RU)
Salarias gigas Steindachner, 1876, p. 220	*Scartichthys*	C	
Salarias gilberti Bryan & Herre, 1903, p. 135	*Istiblennius*	A	BPBM 2454
Antennablennius girad Fraser-Brunner, 1951, p. 218	*Antennablennius*	A	BMNH 1932.2.18.41–42
Blennius gobioides Forster, 1844, p. 283	*Alticus*	D	
Salarias goesii Bleeker, 1859a, p. 19	*Praealticus*	A	RMNH 4659
Salarias gravieri Pellegrin, 1906, p. 93	*Ecsenius*	A	MNHN 04–319
Salarias griseus De Vis, 1884a, p. 450	*Salarias*	A	QMB I–11/76
Salarias guttatus Valenciennes *in* C & V, 1836, p. 308	*Salarias*	A	MNHN A–2049
Salarias harmandi Sauvage, 1880, p. 218	*Salarias*	A	MNHN A–2146
Salarias hasseltii Bleeker, 1851, p. 257	*Istiblennius*	C	based on an illustration
Ecsenius hawaiiensis Chapman & Schultz, 1952, p. 526	*Ecsenius*	A	USNM 112293
Salarias hendriksii Bleeker, 1858b, p. 233	*Istiblennius*	C	
Salarias heteropterus Bleeker, 1857a, p. 65	*Andamia*	A	RMNH 4779
Salarias histrionicus Kuhl & Van Hasselt *in* C & V, 1836, p. 320	*Salarias*	F	
Salarias holomelas Günther, 1872, p. 399	*Atrosalarias*	A	BMNH 1872.10.18.108
Blennius hypenetes Klunzinger, 1871, p. 492	*Antennablennius*	A	ISZZ 8024, 10498
Entomacrodus incisolabiatus Schultz & Chapman, 1960, p. 332	*Entomacrodus*	A	USNM 142188
Cirripectes indrambaryae Smith, 1934, p. 322	*Cirripectes*	C	(KUMF 0174)
Salarias insulae Ogilby, 1899, p. 741	*Istiblennius*	D	QMB I–862
Salarias interruptus Bleeker, 1857b, p. 68	*Istiblennius*	A	RMNH 4787
Salarias irroratus Alleyne & Macleay, 1877, p. 337	*Salarias*	A	AMS 1–1042
Cirripectes jenningsi Schultz, 1943, p. 274	*Cirripectes*	A	USNM 115486
Blennius jugularis Klunzinger, 1871, p. 493	*Alloblennius*	A	ISZZ 10496
Salarias kellersi Fowler, 1932b, p. 6	*Istiblennius*	A	USNM 91944
Salarias kikaiensis Aoyagi, 1954b, p. 239 Springer (1967) omitted this species in his revision of *Entomacrodus*. The name is a junior synonym of *Entomacrodus decussatus* (Bleeker, 1858b).	*Entomacrodus*	C	
Salarias kingii Valenciennes *in* C & V, 1836, p. 334	*Istiblennius*	A	MNHN A–2048

Species, author, publication date, and page reference	*Genus*	*Generic allocation*	*Museum abbreviations and Catalog numbers*
Salarias kirkii Günther, 1868, p. 458	*Alticus*	A	BMNH 1868.2.29.48
Lophalticus kirkii magnusi Klausewitz, 1964a, p. 133	*Alticus*	A	NFIS 6444
Ecsenius klausewitzii Lotan, 1970, p. 371	*Ecsenius*	A	HUI E-62/3708
Salarias kosiensis Regan, 1908, p. 254	*Pereulixia*	A	BMNH 1906.11.9.111
Blennius kuasut Montrouzier, 1856, p. 463	?	F	
Salarias kuhlii Bleeker, 1851, p. 258	?	E	based on an illustration
Salarias lacunicola Fowler, 1946, p. 178	*Entomacrodus*	A	ANSP 72049
Ophioblennius lanieri Seale, 1940, p. 40	*Ophioblennius*	A	CAS 5743
Entomacrodus leopardus Fowler, 1904, p. 554	*Istiblennius*	A	ANSP 27805
Salarias leopardus Day, 1870a, p. 518	*Exallias*	C	
Salarias leopardus Fowler, 1938, p. 82	*Istiblennius*	A	ANSP 68305
Salarias lighti Herre, 1938, p. 65	*Entomacrodus*	A	SU 33001
Ecsenius lineatus Klausewitz, 1962, p. 145	*Ecsenius*	A	NFIS 5532
Salarias lineatus Valenciennes *in* C & V, 1836, p. 314	*Istiblennius*	A	MNHN 1396
Salarias lineolatus Alleyne & Macleay, 1877, p. 336	*Salarias*	A	MMS F-1052A
Cirripectus lineopunctatus Strasburg, 1956, p. 248	*Cirripectes*	A	USNM 164198
Ecsenius lividinalis Chapman & Shultz, 1952, p. 517	*Ecsenius*	A	USNM 144723
Salarias lividus Thiollière *in* Montrouzier, 1856, p. 463	*Istiblennius*	D	Lost, see Montrouzier (1856)
Salarias luctuosus Whitley, 1929, p. 136	*Salarias*		
This is a replacement name for *Salarias andersoni* Jordan & Starks, which is a junior homonym of *S. andersonii* Day.			
Rupiscartes macclurei Silvester, 1915, p. 217	*Ophioblennius*	C	Lost, see Springer (1962)
Alticus macclurei Silvester, 1918, p. 24	*Ophioblennius*	C	Lost, see Springer (1962)
The above two nominal species were described as new using the same specimen as holotype. The second name is, therefore, an objective synonym of the first.			
Salarias macneilli Whitley, 1928, p. 227	*Praealticus*	A	AMS I-14286
Salarias macneilli coloratus Whitley, 1928, p. 229	*Praealticus*	A	AMS IA-2943
Crossosalarias macrospilus Smith-Vaniz & Springer	*Crossosalarias*	A	USNM 203096
Entomacrodus macrospilus Springer, 1967, p. 147	*Entomacrodus*	A	USNM 200279
Ecsenius mandibularis McCulloch, 1923, p. 122	*Ecsenius*	A	AMS I-7112
Salarias marcusi Bryan & Herre, 1903, p. 137	*Istiblennius*	A	BPBM 2556
Salarias margaritaceus Poey, 1860, p. 289	*Entomacrodus*	A	MCZ 12513
Alticus margaritarius Snyder, 1908, p. 106	*Praealticus*	A	USNM 62243
Alticus margaritatus Kendall & Radcliffe, 1912, p. 157	*Praealticus*	A	USNM 65409
Blennius marmoratus Bennett, 1828, p. 35	*Entomacrodus*	C	
Salarias martini Herre, 1942, p. 2	*Istiblennius*	A	SU 38253
Ophioblennius mazorkae Hildebrand, 1946, p. 384	*Scartichthys*	A	USNM 128188
Salarias mccullochi Fowler & Bean, 1923, p. 25	*Praealticus*	A	USNM 83293
Salarias melanocephalus Bleeker, 1849, p. 18	*Istiblennius*	A	RMNH 6297
Salarias melanosoma Regan, 1909, p. 406	*Ecsenius*	A	USNM 157373, BMNH 1909.3.4.52-57
Salarias meleagris Valenciennes *in* C & V, 1836, p. 332	*Istiblennius*	A	MNHN A-1808, A-2041
Ecsenius (Anthiiblennius) midas Starck, 1969, p. 1	*Ecsenius*	A	ANSP 111149
Ecsenius minutus Klausewitz, 1963, p. 357	*Ecsenius*	A	NFIS 6367
Fallacirripectes minutus Schultz & Chapman, 1960, p. 363	*Stanulus*	A	USNM 142153
Salarias modestus Philippi, 1896, p. 381	*Scartichthys*	C	
Alticus monochrus Bleeker, 1869, p. 234	*Alticus*	A	RMNH 4474
Salarias montanoi Sauvage, 1880, p. 219	*Alticus*	A	MNHN A-2199
Salarias mülleri Klunzinger, 1880, p. 388	*Istiblennius*	A	NFIS (originally SMNS 1519)
Salarias multilineatus Fowler, 1945, p. 68	*Istiblennius*	A	ANSP 71602

Species, author, publication date, and page reference	*Genus*	*Generic allocation*	*Museum abbreviations and Catalog numbers*
Salarias muscarus Snyder, 1908, p. 109	*Istiblennius*	A	USNM 62245
Alticus musilae Jordan & Seale, 1906, p. 425	*Entomacrodus*	A	USNM 51790
Ecsenius nalolo Smith, 1959, p. 245	*Ecsenius*	A	RU BP-2127C
Salarias namiyei Jordan & Evermann, 1902, p. 362	*Ecsenius*	C	ZITU 5726
Salarias natalis Regan, 1909, p. 405	*Praealticus*	A	BMNH 1909.3.4.58-67, USNM 157374
Blennius nativitatus Regan, 1909, p. 404	*Nannosalarias*	A	BMNH 1909.3.4.42
Labroblennius nicholsi Borodin, 1928, p. 31	*Ophioblennius*	A	VMM 408
Salarias niger Ehrenberg in C & V, 1836, p. 327 Bauchot (1967) gives reference to the supposed types of this species. The specimens in question are the types of *S. niger* Kossmann & Räuber.	?	E	
Salarias niger Kossmann & Räuber, 1877, p. 21	*Atrosalarias*	A	ISZZ 9854
Entomacrodus nigricans Gill, 1859, p. 168	*Entomacrodus*	A	USNM 34625
Salarias nigripes Seale, 1901, p. 127	*Cirripectes*	A	BPBM 271
Salarias nigrovittatus Rüppell, 1838, p. 136	*Ecsenius*	A	NFIS 1680
Salarias nitidus Günther, 1861, p. 243	*Rhabdoblennius*	A	BMNH 1848.3.16.124-125
Salarias nitidus Fourmanoir, 1954, p. 207	*Salarias*	C	
Salarias niuafooensis Fowler, 1932b, p. 7	*Entomacrodus*	A	USNM 91932
Alticus novemmaculosus Snyder, 1908, p. 107	*Istiblennius*	A	USNM 62244
Exallias obscurus Borodin, 1927, p. 1	*Cirripectes*	A	AMNH 9363
Ecsenius oculus Springer, 1971, p. 35	*Ecsenius*	A	USNM 203140
Salarias olivaceus Blyth, 1858, p. 271	*Istiblennius*	D	
Salarias oortii Bleeker, 1851, p. 257	*Istiblennius*	C	based on an illustration
Ecsenius opsifrontalis Chapman & Schultz, 1952, p. 521	*Ecsenius*	A	USNM 142065
Alticus orientalis Tomiyama, 1955, p. 10	*Alticus*	C	(ZITU 48353)
Salarias ornatus Ehrenberg *in* C & V, 1836, p. 320	*Salarias*	F	
Blennius ornatus Hemprich & Ehrenberg, 1899, p. 3 The nomenclatural status of this name is debatable.	*Salarias*	C	
Salarias oryx Ehrenberg *in* C & V, 1836, p. 335	*Istiblennius*	A	MNHN A-1803, A-1804, ISZZ 1954, 1955
Andamia pacifica Tomiyama, 1955, p. 13	*Andamia*	C	(ZITU 37924)
Blennius pardalis Castelnau, 1875, p. 26	*Istiblennius*	E	
Salarias paulus Bryan & Herre, 1903, p. 136	*Istiblennius*	A	BPBM 2455
Salarias pauper De Vis, 1884b, p. 695	*Salarias*	A	QMB I-13/1344
Salarias penotus Sauvage, 1891, p. 389 Misspelling of *Salarias fraenatus* Valenciennes	*Entomacrodus*		
Salarias percophthalmus Swainson, 1839, p. 274 Misspelling of *Salarias periophthalmus* Valenciennes	*Istiblennius*		
Blennius periophthalmoides Macleay, 1883, p. 269	?	E	(MMS)
Salarias periophthalmus Valenciennes *in* C & V, 1836, p. 311	*Istiblennius*	A	MNHN 857
Salarias periophthalmus visayanus Herre, 1937, p. 97	*Istiblennius*	A	SU 28435
Blennius persicus Regan, 1905, p. 327	*Antennablennius*	A	BMNH 1900.7.25.42-44
Salarias personatus Fowler, 1945, p. 71	*Istiblennius*	A	ANSP 71604
Cirripectes perustus Smith, 1959, p. 238	*Cirripectes*	C	(RU)
Salarias petersoni Fowler, 1940, p. 189	*Scartichthys*	A	ANSP 69150
Salarias phaiosoma Bleeker, 1855b, p. 317	*Atrosalarias*	C	
Ophioblennius phalacrus Clark, 1938, p. 184	*Exallias*	A	CAS 5566
Salarias phntasticus Boulenger, 1897, p. 422 An obvious typographical error is involved and the species is usually referred to as *S. phantasticus*.	*Ecsenius*	A	BMNH 1897.9.22.20-21
Rhabdoblennius pictus Lotan, 1970, p. 376	*Alloblennius*	A	HUI HUJ-E63/37.1
Ophioblennius pinchoti Fowler, 1932a, p. 13	*Ophioblennius*	A	USNM 91819

Species, author, publication date, and page reference	*Genus*	*Generic allocation*	*Museum abbreviations and Catalog numbers*
Entomacrodus plurifilis marshallensis Schultz & Chapman, 1960, p. 341	*Entomacrodus*	A	USNM 142155
Entomacrodus plurifilis plurifilis Schultz & Chapman, 1960, p. 338	*Entomacrodus*	A	USNM 144720
Salarias (Cirripectes) polyzona Bleeker, 1868, p. 392	*Cirripectes*	A	RMNH 4797
Salarias poptae Fowler, 1925, p. 19	*Praealticus*	A	BPBM 3413
Salarias priamensis Bleeker, 1853, p. 268	*Salarias*	C	
Ecsenius prooculis Chapman & Schultz, 1952, p. 519	*Ecsenius*	A	USNM 144722
Salarias pulcher Murray, 1887, p. 47	*Ecsenius*	A	BMNH 1887.9.22.59–60
Salarias punctillatus Klunzniger, 1880, p. 389	*Salarias*	A	NFIS (orig. nos. SMNS 3660, 4035)
Salarias quadricornis Valenciennes *in* C & V, 1836, p. 329	*Istiblennius*	A	MNHN 767, A-2002, A-2003, A-2004, A-2005, A-2007
Salarias quadricornis status *coloratus* Klunzinger, 1871, p. 488	*Istiblennius*	A	ISZZ 8085
Salarias quadricornis status *hyalinus* Klunzinger, 1871, p. 487	Gobiidae	A	ISZZ 8084
Salarias quadricornis status *transiens* Klunzinger, 1871, p. 488	*Istiblennius*	A	ISZZ 8086
Salarias quadricornis status *unitus* Klunzinger, 1871, p. 488	*Istiblennius*	A	ISZZ 8087
We do not believe that the preceding four nominal forms are available nomenclaturally, but include them here for the sake of completeness.			
Salarias quadripennis Cuvier, 1817, p. 251	*Salarias*	C	(UZMK)
Spelled *quadripinnis* by Cuvier (1829) and subsequent authors.			
Rupiscartes quagga Fowler & Ball, 1924, p. 273	*Cirripectes*	A	BPBM 3420
Salarias raaltenii Bleeker, 1851, p. 257	?	E	Based on an illustration
Entomacrodus randalli Springer, 1967, p. 71	*Entomacrodus*	A	USNM 199985
Andamia raoi Hora *in* Rao & Hora, 1938, p. 398	*Andamia*	A	ZSIC F-12933/1
Salarias rarotongenis Whitley, 1965, p. 118	*Entomacrodus*	A	AMS IZ-5358
Salarias rechingeri Steindachner, 1906, p. 1411	*Istiblennius*	C	
Istiblennius rennellensis Rofen, 1958, p. 199	*Praealticus*	B,C	(UZMK)
Cirripectes reticulatus Fowler, 1946, p. 173	*Cirripectes*	C	(ANSP 72043)
Salarias reuteri Lenz, 1881, p. 506	*Entomacrodus*	E	Destroyed; see Springer (1967)
Salarias reyi Sauvage, 1880, p. 219	*Andamia*	A	MNHN A-2201
Blennius rhabdotrachelus Fowler & Ball, 1924, p. 272	*Rhabdoblennius*	A	BPBM 3419
Blenniella rhessodon Reid, 1943, p. 383	*Istiblennius*	A	USNM 118029
Salarias rivulatus Rüppell, 1830, p. 114	*Istiblennius*	A	NFIS 1843
Istiblennius rodenbaughi Schultz & Chapman, 1960, p. 358	*Istiblennius*	A	USNM 142067
Entomacrodus rofeni Springer, 1967, p. 86	*Entomacrodus*	A	SU 62035
Salarias rotundifrons Thiollière *in* Montrouzier, 1856, p. 463	*Salarias*	D	lost, see Montrouzier (1856)
Salarias rubropunctatus Valenciennes *in* C & V, 1836, p. 348	*Scartichthys*	A	MNHN A-2038
Salarias ruficaudus Ehrenberg *in* C & V, 1836, p. 328	*Atrosalarias*	A	ISZZ 1948
Salarias rutilus Jenkins, 1903, p. 509	*Istiblennius*	A	USNM 50695
Blennius saliens Lacépède, 1800, p. 479	*Alticus*	C	
Salarias saltans Jenkins, 1903, p. 508	*Istiblennius*	A	USNM 50696
Alticus saltatorius Commerson *in* Lacépède, 1800, p. 479	*Alticus*	C	
Salarias sanna Whitley, 1929, p. 137	*Praealticus*		
Replacement name for *Salarias macneilli coloratus,* Whitley, which Whitley believed was a homonym of *Salarias quadricornis coloratus Klunzinger* (see above). We do not believe Klunzinger's name is available nomenclaturally; therefore, *Salarias sanna* is a junior objective snyonym of *Salarias macneilli coloratus.*			
Salarias scandens Ehrenberg *in* C & V, 1836, p. 341	*Alticus*	F	
Salarias schmidti Fowler, 1946, p. 176	*Praealticus*	A	ANSP 72046

Species, author, publication date, and page reference	*Genus*	*Generic allocation*	*Museum abbreviations and Catalog numbers*
Salarias schultzei Bleeker, 1859b, p. 345	*Istiblennius*	C	
Leoblennius schultzi Reid, 1943, p. 382	*Exallias*	A	USNM 118037
Entomacrodus sealei Bryan & Herre, 1903, p. 138	*Entomacrodus*	A	BPBM 2458
Salarias sebae Valenciennes *in* C & V, 1836, p. 323	*Cirripectes*	A	MNHN A-2059
Alticus semicrenatus Chapman, 1953, p. 270	*Praealticus*	A	SU 17779
Blennophis semifasciatus Kner & Steindachner, 1866, p. 369	*Scartichthys*	E	
Salarias semilineatus Kner, 1867, p. 14	*Salarias*	C	
Salarias sertatus Garman, 1903, p. 236	*Alticus*	C	(MCZ)
Salarias sexfasciatus Von Bonde, 1924, p. 34	*Antennablennius*	C	
Salarias sexfilum Günther, 1861, p. 241	*Salarias*	A	BMNH 1855.9.19.835
Stanulus seychellensis Smith, 1959, p. 246	*Stanulus*	A	RU (uncataloged)
Salarias siamensis Smith, 1934, p. 320	*Istiblennius*	C	(KUMF 0177)
Blennius simus Svief, 1779, p. 198	?	E	
Salarias sindonis Jordan & Seale, 1906, p. 427	*Istiblennius*	A	USNM 51793
Salarias simonyi Steindachner, 1902, p. 148	*Antennablennius*	A	NMV (uncataloged)
Alticus simplicirrus Smith-Vaniz & Springer	*Alticus*	A	BMNH 1926.7.12.40
Salarias sinuosus Snyder, 1908, p. 109	*Salarias*	A	USNM 62246
Salarias sinuosus indicus Smith, 1959, p. 241	*Salarias*	C	(RU)
Blennius snowi Fowler, 1928, p. 431	*Rhabdoblennius*	C	(MCZ 3634)
Salarias spaldingi Macleay, 1878, p. 358	*Salarias*	A (?)	MMS F1045 (?)
Ophioblennius steindachneri Jordan & Evermann, 1898, p. 2401	*Ophioblennius*	A	NMV (uncataloged)
Ophioblennius steindachneri clippertonensis Springer, 1962, p. 431	*Ophioblennius*	A	USNM 196030
Salarias steindachnerii Pfeffer, 1893a, p. 143; 1893b, p. 15	*Istiblennius*	A	ZSZM 6791
Istiblennius steinitzi Lotan, 1970, p. 367	*Istiblennius*	A	HUI E62/4040b
Scartichthys stellifer Jordan & Snyder, 1902, p. 461	*Entomacrodus*	A	SU 7069
Scartichthys stigmatopterus Fowler, 1904, p. 553	*Istiblennius*	D	(ANSP 27803)
Cirripectes stigmaticus Strasburg & Schultz, 1953, p. 132	*Cirripectes*	A	USNM 164962
Ecsenius stigmatura Fowler *in* Chapman & Schultz, 1952, p. 514	*Ecsenius*	A	USNM 99379
Entomacrodus strasburgi Springer, 1967, p. 88	*Entomacrodus*	A	USNM 179202
Salarias striatomaculatus Kner & Steindachner, 1866, p. 368	*Istiblennius*	C	
Salarias striatus Quoy & Gaimard *in* C & V, 1836, p. 309	*Entomacrodus*	A	MNHN A-1796
Salarias striolatus Day, 1878, p. 333	*Istiblennius*	A (?)	ZSIC 2011 (?)
Salarias sublineatus De Vis, 1884b, p. 695	*Salarias*	A	QMB I-13/1367
Salarias sumatranus Bleeker, 1851, p. 256	*Istiblennius*	C	
Stanulus talboti Springer, 1968a, p. 119	*Stanulus*	A	USNM 202421
Salarias tanegasimae Jordan & Starks, 1906, p. 704	*Praealticus*	A	USNM 53274
Salarias tetradactylus Bleeker, 1858b, p. 228	*Andamia*	A	RMNH 4780
Salarias textilis Quoy & Gaimard *in* C & V, 1836, p. 307	*Entomacrodus*	A	MNHN A-2025
Alticus thalassinus Jordan & Seale, 1906, p. 425	*Entomacrodus*	A	USNM 51795
Entomacrodus thalassinus longicirrus Springer, 1967, p. 145	*Entomacrodus*	A	SU 62089
Alticus triangulus Chapman, 1953, p. 269	*Praealticus*	A	SU 17780
Blennius tridactylus Bloch, 1801, p. 176	*Alticus*	E	
This is a junior primary homonym of *Blennius tridactylus* Lacépède (1800, p. 484), which belongs in another tribe. While Bloch's description could apply to a number of different blenniids, it has consistently been applied to a species of *Alticus*.			
Ophioblennius trinitatis Ribeiro, 1919, p. 177	*Ophioblennius*	C	(MNRJ 5423)
Blennius truncatus Forster, 1844, p. 231	*Istiblennius*	E	
Blennius truncatus Poey, 1861, p. 424	*Ophioblennius*	C	
Salarias tubuensis Seale, 1906, p. 87	*Istiblennius*	A	BPBM 784
Hepatoscartes umbrifasciatus Fowler, 1944, p. 230	*Ophioblennius*	A	ANSP 70211
Salarias undecimalis Jordan & Seale, 1905, p. 801	*Salarias*	A	USNM 51942
Salarias unicolor Rüppell, 1838, p. 136	*Istiblennius*	A	NFIS 1866
Salarias unimaculatus Aoyagi, 1954a, p. 215	*Istiblennius*	C	

Species, author, publication date, and page reference	*Genus*	*Generic allocation*	*Museum abbreviations and Catalog numbers*
Ophioblennius vanderbilti Fowler, 1938, p. 242	*Cirripectes*	C	(ANSP 68432)
Salarichthys vanderbilti Fowler, 1944, p. 234	*Entomacrodus*	A	ANSP 70070
Salarias variolatus Valenciennes *in* C & V, 1836, p. 346	*Scartichthys*	A	MNHN 4410
Salarias variolosa Delfin, 1899, p. 96	?	F	
Salarias variolosus, Valenciennes *in* C & V, 1836, p. 317	*Cirripectes*	A	MNHN 4411
Cirripectes variolosus patuki De Buen, 1963, p. 58	*Cirripectes*	C	
Blennius variopunctatus Jatzow & Lenz, 1898, p. 511	*Antennablennius*	C	(NFIS, lost)
Antennablennius (*Litanchus*) *velifer* Smith, 1959, p. 249	*Antennablennius*	C	(RU)
Salarias vermicularis Swainson, 1839, p. 274 A misspelling, which Springer (1967) omitted, of *vermiculatus* Valenciennes.	*Entomacrodus*		
Salarias vermiculatoides Bleeker, 1858a, p. 40	*Entomacrodus*	A	RMNH 4777
Salarias vermiculatus, Valenciennes *in* C & V, 1836, p. 301	*Entomacrodus*	A	MNHN A-1809
Salarias viridis Valenciennes *in* C & V, 1836, p. 344	*Scartichthys*	A	MNHN A-2128
Blennius vitipinnis Castelnau, 1875, p. 25	*Istiblennius*	A	BMNH 1883.7.4.56, MNHN A-2120, A-2121
Salarias vomerinus Valenciennes *in* C & V, 1836, p. 344	*Entomacrodus*	A	MNHN 3082
Salarias walaensis Herre, 1931, p. 14	*Rhabdoblennius*	F	
Salarias walensis Herre, 1935, p. 437	*Rhabdoblennius*	C	(FMNH 17393)
Ophioblennius watsoni Reid, 1943, p. 376	*Ophioblennius*	A	USNM 89614
Blennophis webbii Valenciennes *in* Webb & Berthelot, 1843, p. 61	*Ophioblennius*	A	MNHN A-2181
Fallacirripectes wellsi Schultz & Chapman, 1960, p. 365	*Stanulus*	A	USNM 142154
Entomacrodus wolffi Rofen, 1958, p. 202	*Entomacrodus*	A	UZMK P.75354
Ophioblennius xiphiodon Clark, 1938, p. 183	*Scartichthys*	A	CAS 5543
Salarias yaeyamaensis Aoyagi, 1954a, p. 213	*Ecsenius*	C	
Salarias zamboangae Evermann & Seale, 1906, p. 512	*Istiblennius*	A	USNM 55623
Salarias zebra Varillant & Sauvage, 1875, p. 281	*Istiblennius*	A	MNHN 8917, 8918

The following names available in the genus *Salarias* pertain either to species in blenniid tribes other than the Salariini or to unidentifiable species:

Salarias cephalotes Thiolièrre in Montrouzier—unidentifiable
Salarias chilensis Clark—Blenniini
Salarias curtus Boulenger—Blenniini
Salarias cyclops Rüppell—Blenniini
Salarias decipiens De Vis—Omobranchini
Salarias furcatus De Vis—Omobranchini
Salarias furtivus De Vis—Omobranchini
Salarias galeatus De Vis—Omobranchini
Salarias helenae De Vis—Omobranchini
Salarius [sic] *lupus* De Vis—Nemophidini
Salarias neilli Day—Blenniini
Salarias opercularis Murray—Blenniini
Salarias sindensis Day—Omobranchini
Salarias symplocos Hilgendorf—Blenniini
Salarias varus Risso—Blenniini
Salarias viperidens De Vis—Nemophidini

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1852. Nieuwe bijdrage tot de kennis der ichthyologische fauna van Ceram. *Natuurkundig Tijdschrift voor Nederlandsch-Indië,* 3:689–714.
1853. Diagnostische beschrijvingen van nieuwe of weinig bekende vischsoorten van Sumatra. *Natuurkundig Tijdschrift voor Nederlandsch-Indië,* 4:243–302.
1854. Vijfde bijdrage tot de kennis der ichthyologische fauna van Celebes. *Natuurkundig Tijdschrift voor Nederlandsch-Indië,* 7:225–260.
1855a. Derde bijdrage tot de kennis der ichthyologische fauna van de Kokos-eilanden. *Natuurkundig Tijdschrift voor Nederlandsch-Indië,* 8:169–180.
1855b. Bijdrage tot de kennis der ichthyologische fauna van de Batoe-eilanden. *Natuurkundig Tijdschrift voor Nederlandsch-Indië,* 8:305–328.
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TABLE 2.—*Summary of certain characters used to define genera of Salariini* (horizontal lines enclose major groups of genera—see section on recognition of genera)

Genus	*Species*[1]	*Incisoriform teeth*[2]		*Dentary canines*	*Vomerine teeth*	*Circumorbital bones*
		Premaxillary	*Dentary*			
Ecsenius	24 (18)	148 26	64 13	present	absent	4
Andamia	5 (3)	382 358	300 276	absent	absent	5
Alticus	10 (5)	340 215	288 172	present (males only) or absent (both sexes)	present or absent	5
Praealticus	12 (8)	280 190	214 128	present or absent	present or absent	5
Istiblennius	30 (18+)	224 208	196 164	present or absent	absent	5

TABLE 2.—Continued

Genus	*Species*[1]	*Incisoriform teeth*[2] *Premaxillary*	*Incisoriform teeth*[2] *Dentary*	*Dentary canines*	*Vomerine teeth*	*Circumorbital bones*
Ophioblennius	2 (2)	224 184	108 102	present	absent	5
Pereulixia	1 (1)	155 157	53 43	present	present	5
Exallias	1 (1)	210 194	62 52	absent	absent	5
Cirripectes	15 (8)	270 180	134 85	present	absent	5
Scartichthys	2 (2)	256 144	123 67	present	absent	5
Stanulus	2 (2)	138 118	82 62	present	present or absent	5
Entomacrodus	24 (22)	224 116	170 92	present	present	5
Nannosalarias	1 (1)	80 76	52 46	present	present	4
Crossosalarias	1 (1)	157 140	97 85	present	absent	5
Atrosalarias	1 (1)	226 185	147 120	present	absent	5
Salarias	12 (7)	168 110	134 72	present	absent	5
Glyptoparus	1 (1)	80 74	58 50	present	absent	5
Medusablennius	1 (1)	19 17	18 16	absent	absent	2
Mimoblennius	2 (2)	34 32	30 24	present	absent	5
Litobranchus	2 (1)	42 40	30 23	present (frequently absent in females)	absent	5
Rhabdoblennius	8 (6)	50 44	38 28	present	present	5
Hirculops	1 (1)	44 34	26 22	present	present	5
Antennablennius	10 (5)	42 31	34 26	present or absent (minute when present)	absent	5
Alloblennius	2 (2)	38 34	36 30	absent	absent	4

[1] Estimated maximum number of species in genus followed, in parentheses, by number examined in our study.

[2] Counts are of adults; when more than one species was available, counts are of species with the most (upper pair of figures) and least (lower pair of figures) number of teeth. When only one species was available, the upper pair of figures represents the maximum counts recorded and the lower pair of figures represents the minimum counts recorded for adults.

TABLE 3.—*Summary of certain characters used to define genera of Salariini* (horizontal lines enclose major groups of genera—see section on recognition of genera)

Genus	Epipleural ribs	Terminal pleural ribs on vertebra number	Precaudal vertebrae	Caudal vertebrae	Total vertebrae
Ecsenius	11 to 25	10 or 11	10 to 12	19 to 29	29 to 40
Andamia[1]	14 to 19	10	10	28 to 30	38 to 40
Alticus	13 to 32	10 to 12	10 or 11 (11 in *A. kirki* only)	31 to 33	41 to 44
Praealticus	11 to 13	10	10	26 to 28	36 to 38
Istiblennius	12 to 25	10 to 13	10 to 12	24 to 31	35 to 42
Ophioblennius	17 to 19	11	10	22 to 26	32 to 36
Pereulixia	13 or 14	10	10	20	30
Exallias	19 to 21	11	10	20	30
Cirripectes	17 to 22	10 to 12	10	19 to 22	29 to 32
Scartichthys	15 to 18	11	10	24	34
Stanulus	11 to 14	10 (rarely 11)	10	18 to 21	28 to 31
Entomacrodus	13 to 16	11	10	23 to 26	33 to 36
Nannosalarias	14 to 16	10	10	24 to 25	34 or 35
Crossosalarias	13 to 15	11	10 or 11 (11 in 4 of 5)	24 to 26	34 to 37
Atrosalarias	13 to 15	10 or 11	10	22 to 26	32 to 36
Salarias	12 to 16	10 or 11	10	24 to 27	34 to 37
Glyptoparus	12 or 13	10	10	24 or 25	34 or 35
Medusablennius	?	?	10	26 or 27	36 or 37
Mimoblennius	13 to 19	10	10	25 to 28	35 to 38
Litobranchus	13 to 15	10	10	27 or 28	37 or 38
Rhabdoblennius	19 to 22	10	10	27 to 29	37 to 39
Hirculops	25 to 27	11	11	27 to 29	38 to 40
Antennablennius	12 to 15	10	10	27 to 29	37 to 39
Alloblennius	11 to 16	10	10	26 to 29	36 to 39

[1] Fin ray counts for *Andamia* based in part on those reported in Chapman (1951).

TABLE 4.—*Summary of certain characters used to define genera of Salariini* (horizontal lines enclose major groups of genera—see section on recognition of genera)

Genus	*Dorsal rays* *spinous*	*segmented*	*total*	*Anal rays* *segmented*	*Caudal rays* *branched*	*segmented*
Ecsenius	11 to 14 (rarely 11)	13 to 21	25 to 34	13 to 23	0	13 to 15 (rarely 15)
Andamia	14 to 17	17 to 21	33 or 34	23 to 25	0	11 or 12
Alticus	13 to 17	21 to 23	35 to 38	24 to 28	0	12 or 13 (13 in *A. simplicirrus* only)
Praealticus	12 to 14	18 to 20	31 to 33	18 to 23	0 to 9 (usually 4 to 8)	12 or 13
Istiblennius	13 or 14	18 to 24	31 to 37	17 to 25	9	13
Ophioblennius	11 to 13 (12 in over 99% of specimens)	19 to 24	31 to 34	20 to 25	9	13
Pereulixia	11 or 12 (usually 12)	11 or 12	23 or 24	12 to 14	9	13
Exallias	12	12 or 13	24 or 25	14	9	13
Cirripectes	12	14 to 16	26 to 28	14 to 16 (rarely 14)	9	13
Scartichthys	12	17 or 18	29 or 30	18 to 20	9	13
Stanulus	12	9 to 12 (rarely 9)	21 to 23	10 to 13	9	13
Entomacrodus	12 to 14 (usually 13)	13 to 18	26 to 31	14 to 19	9	13
Nannosalarias	12 or 13 (usually 12)	14 to 16	26 to 28	16 to 18	9	13
Crossosalarias	12	16 to 19	28 to 31	18 to 20	9	13
Atrosalarias	9 to 11 (rarely 9)	18 to 22	28 to 32	18 to 21	0	10 to 14 (usually 12 or 13)
Salarias	12 or 13 (usually 12)	16 to 20	29 to 32	18 to 21	9	13
Glyptoparus	12 or 13 (usually 12)	15 or 16	27 or 28	18	9	13
Medusablennius	11 to 13 (usually 12)	17 or 18	28 to 30	19 or 19	0	13
Mimoblennius	12 to 14 (typically 13)	16 to 19	29 to 32	19 to 22	9	13
Litobranchus	12	18 to 20	30 to 32	20 to 22	0	12
Rhabdoblennius	12	18 to 21	30 to 33	20 to 22	9	13
Hirculops	12	20 or 21	32 or 33	20 to 23	9	13
Antennablennius	12 or 13 (usually 12)	17 to 21	29 to 33	19 to 23	9	13
Alloblennius	11 to 13 (usually 12)	16 to 20	28 to 32	19 to 22	9	13

TABLE 5.—*Summary of certain characters used to define genera of Salariini* (horizontal lines enclose major groups of genera—see section on recognition of genera)

Genus	Pectoral rays	Apparent segmented pelvic rays[1]	Terminal anal ray bound by membrane to caudal peduncle	Terminal anal ray divided to base	Fleshy occipital crest[2]
Ecsenius	12 to 15 (rarely 12)	2 or 3	yes	no	absent
Andamia	15	4	yes (except *A. reyi*)	no	present or absent
Alticus	14 or 15	3 or 4	no	no	present
Praealticus	14 or 15	3 or 4	no	frequently	present
Istiblennius	12 to 15 (rarely 15)	3 or 4 (3 in most species)	no	frequently	present or absent
Ophioblennius	14 or 15 (usaully 15)	4	no	frequently	absent
Pereulixia	15 or 16 (usually 15)	4	no	frequently	absent
Exallias	15	4	no	frequently	absent
Cirripectes	14 to 16 (usually 15)	3 or 4 (4 in most species)	no	frequently	absent
Scartichthys	14	4	no	frequently	absent
Stanulus	14 to 16 (usually 15)	4	no	frequently	absent
Entomacrodus	12 to 15 (usually 14)	4	no	frequently	absent
Nannosalarias	14 or 15 (usually 15)	3	yes	no	absent
Crossosalarias	15	3	yes	no	absent
Atrosalarias	15 to 18 (usually 16)	2	yes	no	absent
Salarias	13 to 15 (rarely 13)	2	yes	no	present or absent
Glyptoparus	13	2	yes	no	present
Medusablennius	13	3	yes	no	absent
Mimoblennius	14 or 15 (usually 14)	2	yes	no	absent
Litobranchus	14	3	yes	no	absent
Rhabdoblennius	13 or 14 (usually 14)	3	yes	no	absent
Hirculops	14	3	yes	no	absent
Antennablennius	14	3	yes	no	present or absent
Alloblennius	13 to 15 (usually 14)	2 or 3	yes	no	absent

[1] Refer to methods and material section for discussion of pelvic-fin rays.

[2] In species that have a fleshy occipital crest, it is always much better developed in males than in females and is frequently absent in young of both sexes.

TABLE 6.—*Summary of certain characters used to define genera of Salariini* (horizontal lines enclose major groups of genera—see section on recognition of genera)

Genus	*Nuchal cirri*	*Supraorbital cirri*	*Nasal cirri*
Ecsenius	absent	absent	simple or paired
Andamia	absent	present (multifid)	simple
Alticus	absent	present (simple or multifid)	simple or multifid
Praealticus	absent	present (pinnated branched)	simple (occasionally with weak lateral points)
Istiblennius	present or absent	present (highly variable)	simple to multifid (usually multifid)
Ophioblennius	present	present (simple)	multifid
Pereulixia	present	present (long and simple)	multifid
Exallias	present	present (multifid)	multifid
Cirripectes	present	present (simple or multifid)	multifid
Scartichthys	present	present (multifid)	multifid
Stanulus	present (small)	present (simple)	simple
Entomacrodus	present or absent (present in most species)	present (simple to multifid)	simple to multifid
Nannosalarias	present	present (simple)	simple
Crossosalarias	present	present (multifid)	multifid
Atrosalarias	present	present (simple)	simple
Salarias	present	present (simple or multifid)	simple to multifid
Glyptoparus	present	present or absent (simple; minute)	simple
Medusablennius	absent	present (variable)	complex, multifid
Mimoblennius	present	present (pair over each eye or multifid)	simple to multifid
Litobranchus	present (minute)	present (simple; minute to well developed)	simple
Rhabdoblennius	absent	present (simple)	simple
Hirculops	present	present (simple; well developed)	simple
Antennablennius	present	absent	simple
Alloblennius	present (minute) or absent	present (simple; minute to well developed)	simple

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