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A KEY TO THE EUROPEAN BLENNOIDEA

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ABSTRACT

A key to the European Blennioidea (Tripterygiidae, Clinidae, Blennidae) is given. Most of the 26 species are represented by a photograph.

INTRODUCTION

Four tripterygiids (genus *Tripterygion*), one clinid (genus *Clinitrachus*), and 21 blenniids (genera *Blennius*, *Coryphoblennius*, *Hypleurochilus*) occur around the European coasts. One of the blenniids (*Blennius fluviatilis*) occurs in European freshwater.

There already exist several keys to European Blennioidea (SLASTENENKO, 1934 ; ALBUQUERQUE, 1954-1956 ; SOLJAN, 1965 ; SEGANTIN, 1968 ; WHEELER, 1969), but all of these are restricted to comparatively small areas and do not contain species which have only recently been described (e.g. *Tripterygion xanthosoma* Zander and Heymer 1970) or which have only recently been detected in the area (e.g. *Hypleurochilus bananensis* (Poll, 1959)).

Synonyms, references to a more detailed description, to the distribution and to the ecology are given in the "Check-List of the Fishes of the North-eastern Atlantic and of the Mediterranean" (HUREAU and MONOD, 1973). They are therefore omitted here.

The key presented is an artificial one, i.e. species keying out together are not necessarily related more closely. For the intrage-

neric relationship of the genus *Blennius* see NORMAN (1943) and ZANDER (1972).

KEY

1. a) Three dorsal fins ; large ctenoid scales 2
- b) Two dorsal fins, the first consisting of three spines only ;
 small cycloid scales 5
- c) One dorsal fin, often notched between the spinous and the
 soft part (if so, the first part consists of a least eleven
 rays) ; no scales 6
2. FAMILY TRIPTERYGIIDAE.
- a) The body of males and females is permanently red ; head
 black (males during spawning season) or black-spotted ;
 no dark bars across the flanks ; a dark spot on the base
 of the caudal fin may be present ; D III/XV (-XVI)/11-12 ;
 A II : 22-25 ; up to 5.7 cm 3
- b) If body red and head black (males during spawning season :
 April to end of July) usually larger than 5.7 cm and
 often with dark bars across the flanks ; juveniles, males
 outside spawning season, and females light grey with dark
 bars across the flanks ; the last bar does not form an
 extension onto the base of the caudal fin (fig. 1 a) ; D III/
 (XV-) XVI (-XVII)/11-13 ; A II : 23-26 ; up to 8 cm (Plate
 I, a) *Tripterygion tripteronotus* (Risso 1810)
- c) Males during spawning season yellow with black head ;
 juveniles, males outside spawning season, and females light
 grey with dark bars across the flanks ; the last of these
 bars forms a distinct black spot on the caudal peduncle
 with an extension onto the base of the caudal fin rays
 (fig. 1 b) 4
3. *Tripterygion melanurus* ; two subspecies :
- a) A dark spot on the caudal peduncle
 *Tripterygion melanurus melanurus* Guichenot 1850
- b) No dark spot on the caudal peduncle (Plate I, b)
 *Tripterygion melanurus minor* (Kolombatovic 1892)

4. a) The preopercular-dentary series of cephalic canal pores is complete (fig. 2 a) ; D III/(XVI-) XVII (-XVIII)/12-14 ; A II : 26-27 ; up to 8.5 cm
 *Tripterygion atlanticus* Wheeler and Dunne 1975 (1)

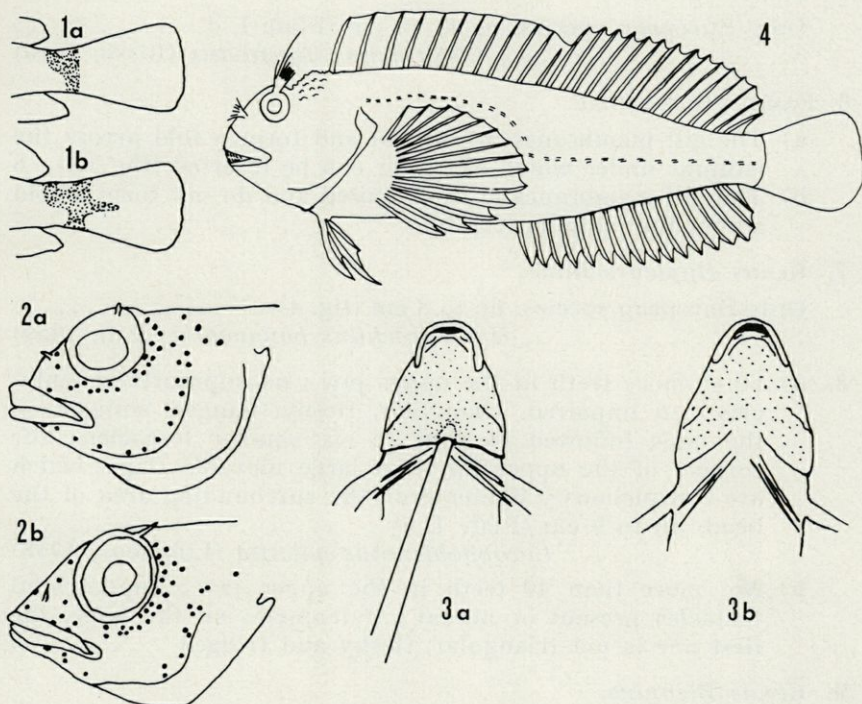


FIG. 1. — Tailspot of a) *Tripterygion tripteronotus* ; b) *T. atlanticus* and *T. xanthosoma*.

FIG. 2. — Cephalic canal pores : a) *Tripterygion xanthosoma* (redrawn after Zander and Heymer 1970) ; b) *T. atlanticus* (redrawn after Wheeler and Dunne 1975).

FIG. 3. — a) Gill membranes forming a fold across the isthmus ; b) Gill membranes not united.

FIG. 4. — *Hypleurochilus bananensis* (redrawn after Poll 1959).

(1) This is probably only a subspecies of *T. xanthosoma*. BATH (1973, fig. 10) figures *T. xanthosoma* from Elba with an uninterrupted preopercular-dentary series. ZANDER (ZANDER and HEYMER, 1976) found *T. xanthosoma* (but not *T. tripteronotus*) in the Atlantic Sea and expresses the opinion that the reports of *T. tripteronotus* from the Atlantic are based on specimens of *T. xanthosoma*. If this is true, another reason for giving *T. atlanticus* specific status, i.e. geographic isolation from the mediterranean *T. xanthosoma*, is no longer valid. Ecological and morphometrical differences between *T. xanthosoma* from the Mediterranean and *T. atlanticus* from the English Channel perhaps justify subspecific rank.

- b) The preopercular-dentary series of cephalic canal pores is interrupted (fig. 2 b) ; D III/(XVI)- XVII (-XVIII)/11-14 ; A II : 24-28 ; up to 8 cm (Plate I, c)
 *Tripterygion xanthosoma* Zander and Heymer 1970
5. FAMILY CLINIDAE.
 Only European species, up to 10 cm (Plate I, d)
 *Clinitrachus argentatus* (Risso, 1810)
6. FAMILY BLENNIIDAE.
 a) The gill membranes are united and form a fold across the isthmus under which a pointer can be inserted (fig. 3 a) 8
 b) The gill membranes are not united and do not form a fold across the isthmus (fig. 3 b) 7
7. Genus *Hypleurochilus*.
 Only European species, up to 8 cm (fig. 4)
 *Hypleurochilus bananensis* (Poll, 1959)
8. a) 50 or more teeth in the upper jaw ; no supraorbital tentacles ; an unpaired, triangular, fleshy, fringed tentacle on the nape followed by four to six smaller tentacles ; the corners of the upper lip form large movable flaps, which are conspicuously lighter than the surrounding area of the head, up to 9 cm (Plate I, e)
 *Coryphoblennius galerita* (Linnaeus, 1758)
 b) Not more than 40 teeth in the upper jaw ; supraorbital tentacles present or absent ; if tentacles on the nape, the first one is not triangular, fleshy and fringed 9
9. Genus *Blennius*.
 a) Supraorbital tentacles absent ; nuchal tentacles (i.e. tentacles on the nape) absent 10
 b) Supraorbital tentacles present ; nuchal tentacles may be present 16
10. a) Lower nasal openings extended to a small tube, which bears one or more small tentacles ; dorsal fin usually notched between spinous and soft part 11
 b) Lower nasal openings not extended to a small tentacle bearing tube ; dorsal fin not notched ; usually a large maze-shaped dark spot with a light margin on the cheeks ; males with a crested head ; up to 18 cm (Plate I, f)
 *Blennius basiliscus* Valenciennes 1836
11. a) The extension of the lower nasal openings bears at least nine small tentacles ; P 13 12

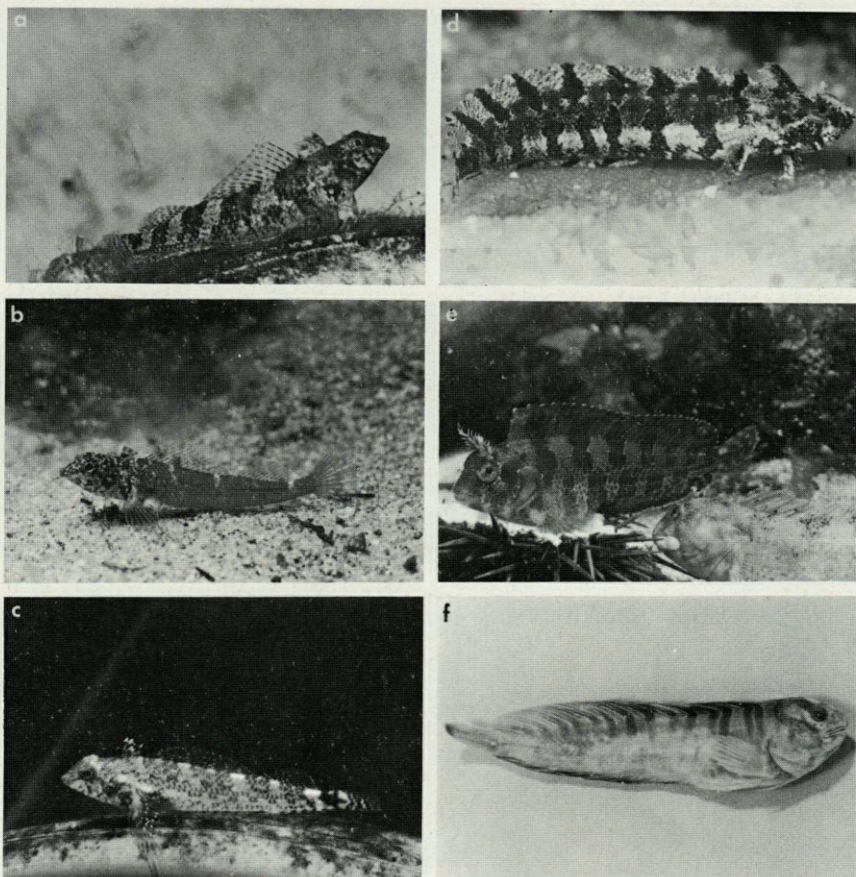


PLATE I

a) *Tripterygion tripteronotus* ♀ (photo Wirtz) ; b) *Tripterygion melanurus minor* (photo Wirtz) ; c) *Tripterygion xanthosoma* ♀ (photo Wirtz) ; d) *Clinitrachus argentatus* (photo Kacher) ; e) *Blennius gattorugine*, juvenile (left) and *Coryphoblennius galerita* (right) (photo Wirtz) ; f) *Blennius basiliscus* ♀, preserved specimen (photo Kacher).

- b) The extension of the lower nasal openings bears not more than three small tentacles ; P 12 13
12. a) Upper edges of eyes higher than head profile : there is a distinct groove between the eyes ; D XII : 16-17; up to 13 cm (Plate II, a) *Blennius trigloides* Valenciennes 1836
- b) Upper edges of eyes not higher than head profile : there is no groove between the eyes ; D XII : 18-20 ; up to 17 cm (Plate II, b) *Blennius pholis* Linnaeus 1758

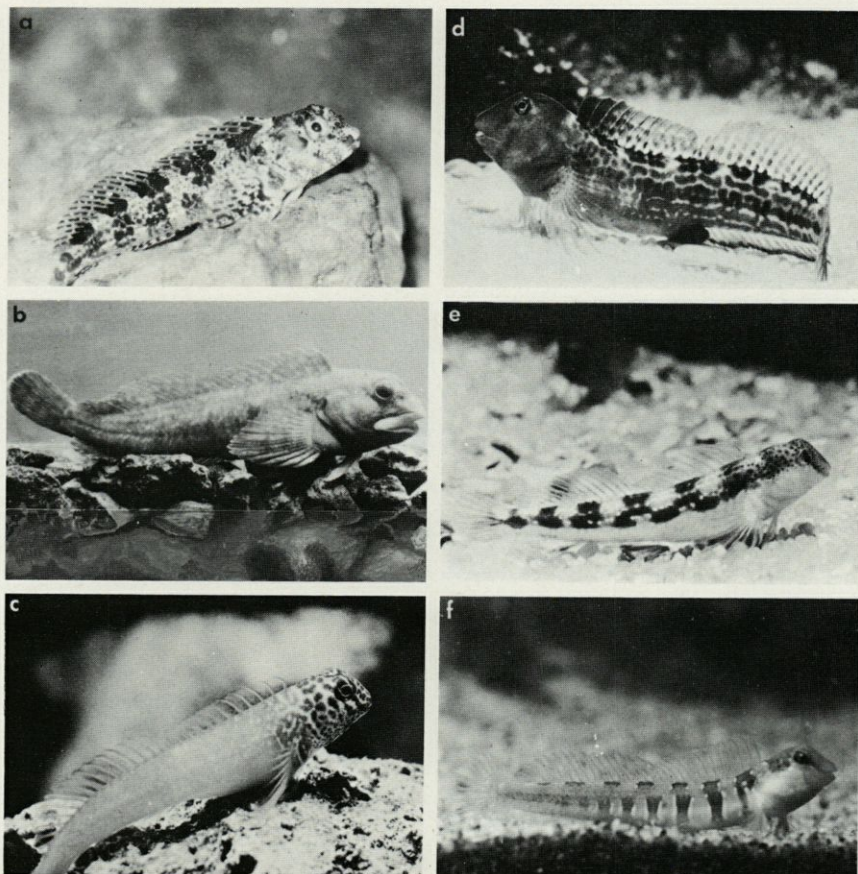


PLATE II

a) *Blennius trigloides* (photo Casimir) ; b) *Blennius pholis* (photo Rowntree) ;
 c) *Blennius nigriceps* (photo Herkner) ; d) *Blennius canavae*, defaecating
 (photo Herkner) ; e) *Blennius adriaticus* (photo Herkner) ; f) *Blennius*
dalmatinus ♂ (photo Wirtz).

13. a) Body red ; head red-brown to black ; up to 5.5 cm 14
 b) Body not red 15
14. *Blennius nigriceps* ; two subspecies :
- a) A dark spot on the caudal peduncle
 *Blennius nigriceps cypriacus* Bath 1972
- b) No dark spot on the caudal peduncle (Plate II, c)
 *Blennius nigriceps nigriceps* Vinciguerra 1883

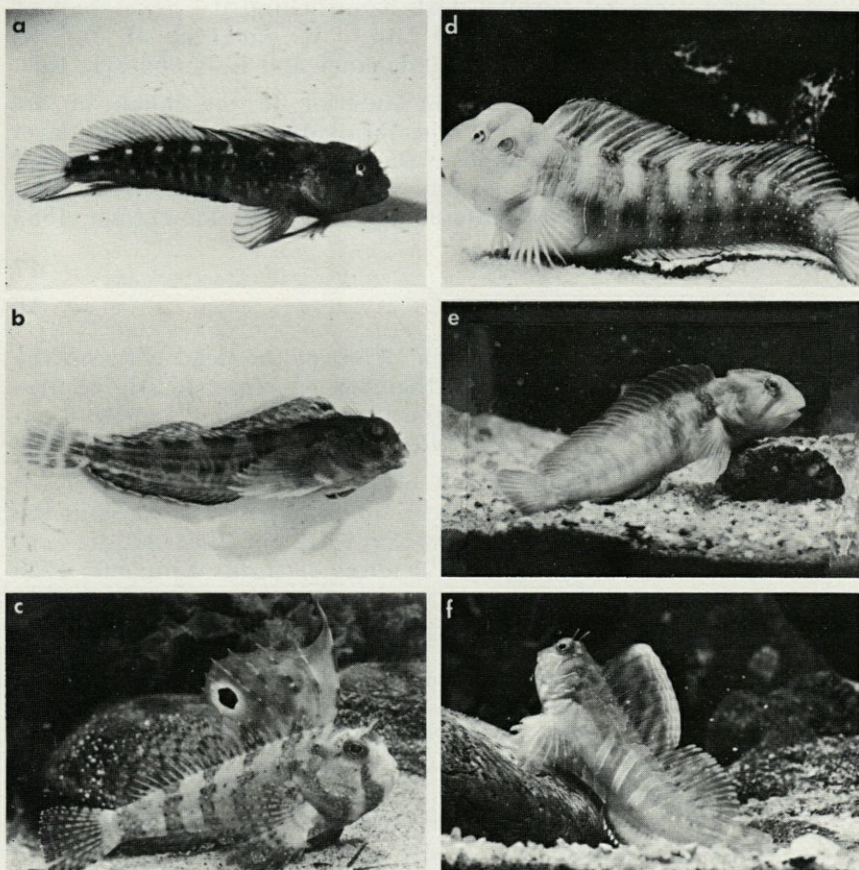


PLATE III

a) *Blennius zvonimiri* ♂ (photo Lecomte); b) *Blennius cristatus*, preserved specimen (photo Kacher); c) *Blennius ocellaris* (photo Wirtz); d) *Blennius pavo* ♂ (photo Herkner); e) *Blennius fluviatilis* ♂ (photo Wickler); f) *Blennius sphynx* ♂, courtship posture (photo Casimir).

15. a) Beginning of the anal fin level with the notch in the dorsal fin; body redbrown to black with many thin light longitudinal and vertical lines forming a net pattern on the flanks; up to 8 cm (Plate II, d) *Blennius caneae* Vinciguerra 1880
- b) Beginning of the anal fin anterior to the notch in the dorsal fin; the tip of the pectorals reaches the level of the anus; a thin dark band running from the eye to the corner of the

- lips ; a second parallel dark band behind it ; lower half of the flanks and belly white ; up to 5.5 cm (Plate II, e)
.. *Blennius adriaticus* Steindachner and Kolombatović 1883
- c) Beginning of the anal fin anterior to the notch in the dorsal fin ; the tip of the pectorals does not reach the level of the anus ; body light with 8 to 11 olive-green vertical bars with a silvery margin ; up to 5.5 cm (Plate II, f)
Blennius dalmatinus Steindachner and Kolombatović 1883
16. a) Nuchal tentacles present 17
b) Nuchal tentacles absent 18
17. a) Tentacles also present at the front of the head between the lower nasal openings and the eyes ; a large slightly recurved tooth at both ends of the upper teeth row ; up to 8 cm (Plate III, a) *Blennius svonimiri* Kolombatović 1892
b) No tentacles on the front of the head between the lower nasal openings and the eyes ; no large recurved tooth at the ends of the upper teeth row ; up to 12 cm (Plate III, b)
..... *Blennius cristatus* Linnaeus 1758
18. a) The first rays of the dorsal fin are elongated beyond the fin membrane ; below the first ray of the dorsal fin, at the level of the upper edge of the eye, there is a small skin flap ; the first part of the dorsal fin is conspicuously higher (about 1.5 times) than the second part ; usually a dark round spot with a light margin between the sixth and the eighth dorsal fin ray ; up to 18 cm (Plate III, c)
..... *Blennius ocellaris* Linnaeus 1758
b) First rays of the dorsal fin not elongated beyond the fin membrane ; no such skin flap ; the first part of the dorsal fin may be 1.5 times as high as the second part (males of *Blennius sphynx* only) ; if there is a dark round spot in the dorsal fin, it is not between the 6th and the 8th ray 19
19. a) The supraorbital tentacle of each eye is a single unbranched thread-like filament ; only in rare cases is this filament branched one to three times at the tip 20
b) Supraorbital tentacles thick and/or branched at the base 21
20. a) Dorsal fin not notched between spinous and soft part ; behind the eyes a red-brown eyespot with a light blue margin ; D XII : 21-24 ; A II : 22-26 ; males with a crested head ; up to 13 cm (Plate III, d) .. *Blennius pavo* Risso 1810

- b) Dorsal fin slightly notched between spinous and soft part ; no eyespot behind the eyes ; D XII : 17-20 ; A II : 17-20 ; males with a crested head ; up to 15 cm (Plate III, e) *Blennius fluviatilis* Asso 1784
 - c) Dorsal fin notched between spinous and soft part ; behind the eyes a blue eyespot with a red margin ; D XII : 16-17 ; A II : 16-20 ; in males the first part of the dorsal fin is conspicuously higher than the second part (about 1.5 times), up to 8 cm (Plate III, f) *Blennius sphynx* Valenciennes 1836
- 21. a) Body white ; a dark stripe runs from the eye to the base of the caudal fin 22
- b) Colouration not like this 23
- 22. a) A second dark band along the base of the dorsal fin ; up to 11 cm (Plate IV, a) *Blennius pilicornis* Cuvier 1829
- b) No second dark band along the base of the dorsal fin ; up to 8 cm (Plate IV, b) *Blennius rouxi* Cocco 1833
- 23. a) Supraorbital tentacles larger than eye diameter, consisting of a thick trunk with many small branches on the anterior and posterior side ; there is no large slightly recurved tooth at both ends of the upper teeth row ; up to 28 cm (Plate I, e) *Blennius gattorugine* Brünnich 1768
- b) If supraorbital tentacle larger than eye diameter, it is not a thick trunk bearing many small branches on the anterior and posterior side ; at both ends of the upper teeth row, there is a large slightly recurved tooth 24
- 24. a) Dorsal fin with a distinct notch between spinous and soft part 25
- b) Dorsal fin without a notch between spinous and soft part 26
- 25. a) Body reddish brown with five to seven yellow spots along the base of the dorsal fin ; usually a brownish mottled spot at the base of the caudal fin ; up to 8 cm (Plate III, a) *Blennius zvonimiri* Kolombatović 1892
- b) Body greenish ; without the series of yellow spots and without the brown spot at the base of the caudal fin ; up to 7 cm (Plate IV, c) *Blennius incognitus* Bath 1968
- 26. a) Supraorbital tentacles consist of one thick element, which may bear lap-like extensions on the posterior side only ; in

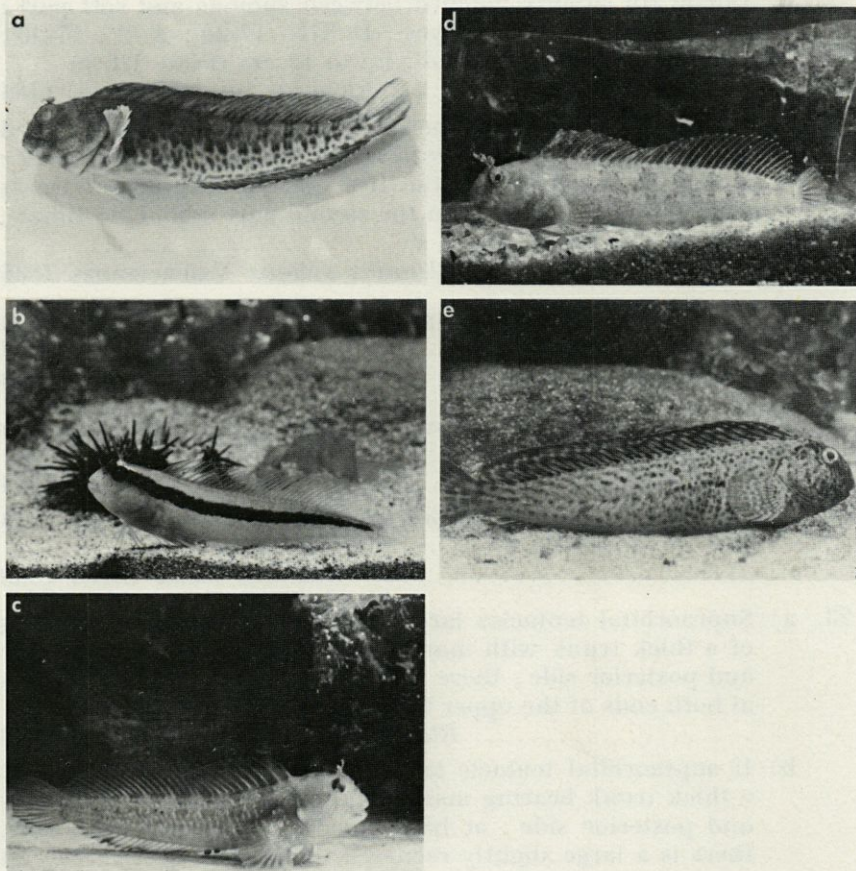


PLATE IV

a) *Blennius pilicornis*, preserved specimen (photo Kacher) ; b) *Blennius rouxi* ♂ (photo Wirtz) ; c) *Blennius incognitus* ♂ (photo Wirtz) ; d) *Blennius tentacularis* ♀ (photo Wirtz) ; e) *Blennius sanguinolentus*, anaesthetized specimen (photo Wirtz).

the male the supraorbital tentacle may be more than twice as long as the eye diameter and usually is without lap-like extensions ; in the female the length of the supraorbital tentacles is about equal to the eye diameter and bears many lap-like extensions on the posterior side only ; up to 16 cm (Plate IV, d) *Blennius tentacularis* Brännich 1768

b) Supraorbital tentacles consist of a group of small thin thread-like filaments 27

27. a) Supraorbital tentacles smaller than half the eye diameter ; at the tip of the pectoral fin the height of the spreaded dorsal fin equals about one third of the body height ; up to 20 cm (Plate IV, e) . . . *Blennius sanguinolentus* Pallas 1811
- b) The length of the supraorbital tentacles is about equal to the eye diameter ; at the tip of the pectoral fin the height of the spreaded dorsal fin equals about one fourth of the body height ; up to 11 cm (Plate IV, a) *Blennius pilicornis* Cuvier 1892

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RÉSUMÉ

L'auteur donne une clé pour la détermination des Blennioidea (Tripterygiidae, Clinidae, Blenniidae) européens. La plupart des 26 espèces sont représentées en photo.

ZUSAMMENFASSUNG

Für die europäischen Blennioidea (Tripterygiidae, Clinidae, Blenniidae) wird ein Bestimmungsschlüssel gegeben. Die meisten der 26 Arten sind in Photographien abgebildet.

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