

SPECIAL PUBLICATIONS FROM THE SETO
MARINE BIOLOGICAL LABORATORY

BIOLOGICAL RESULTS
OF
THE JAPANESE ANTARCTIC RESEARCH EXPEDITION
9.

FISHES

BY

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AND

TAMOTSU IWAI

DEPARTMENT OF FISHERIES, FACULTY OF
AGRICULTURE, KYOTO UNIVERSITY,
MAIZURU, JAPAN

SIRAHAMA, WAKAYAMA-KEN
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THE following records are based on two specimens of fishes obtained during the second exploratory cruise of the Japanese Antarctic Expedition ship Sôya. The collections were made by Dr. R. YOSHII who served as biologist during the expedition. Careful examination revealed that these are identical with *Etrumeus micropus* (TEMMINCK and SCHLEGEL) and *Palunolepis brachydactylus* (CUVIER and VALENCIENNES) respectively.

Acknowledgment is made to Dr. T. TOKIOKA for facilities to study these specimens.

Counts and measurements of bodily parts were made according to the standard practice as outlined by MATSUBARA (1955, pp. 60-69).

1. *Etrumeus micropus* (TEMMINCK and SCHLEGEL)

(Dussumieridae) Pl. I, top.

Material examined:—1 specimen measuring 87.0 mm in total length and 70.5 mm in standard length.

Locality and date:—Cape Town, March 10, 1958.

Description:—Dorsal fin rays 18; anal fin rays 11; pectoral fin rays 17; pelvic fin rays 8. Scales in lateral line about 53. Gill-rakers on first arch $14+32=46$.

Greatest body depth 5.9 in standard length; greatest body width 8.8; head length 3.4; length of longest dorsal ray 5.9; longest anal ray 20.2; pectoral fin 7.1; pelvic fin 10.1; depth of caudal peduncle 11.7; distance from tip of snout: to origin of dorsal fin 2.1, to vent 1.3, and to base of pelvic fin 1.7.

Snout length 2.9 in head length; upper jaw length 2.7; eye diameter 4.1; interorbital width 5.9.

Body elongate, slightly compressed. Head moderately large, compressed anteriorly. Mouth relatively small, maxillary barely reaching anterior orbital rim. Premaxillary small, without teeth. Supramaxillary single. Villiform teeth on maxillary and lower jaw. Villiform teeth forming a band on vomer, palatine and tongue respectively. Eye rather large; adipose eye-lid well developed, without vertical slit over pupil. Snout long, about 1.4 times as long as eye diameter. Pseudobranchiae present. Gill-rakers slender, close-set. Inner surface of each raker armed with 1 or 2 rows of prickles. Outer row of gill-filaments much shorter than inner row of the same.

Origin of dorsal fin nearer tip of snout than caudal fin base, about midway between origin of anal fin and posterior border of orbit. Anal fin small, the origin about midway between base of pelvic fin and that of caudal fin. Pectoral fin low, inserted below posterior margin of opercle. Pelvic fin inserted below rear end of dorsal fin.

Scales mostly lost off, lateral line, therefore, obscure.

Color in formalin:—Dorsal half of body dark brown. Side and belly pale. Head pale, dusky above. Fins pale.

Remarks:—So far as the external features are concerned, the present specimen bears diagnostic features of *E. micropus* presented by CHAPMAN (1948, p. 40), that is, (1) pelvic fins are inserted behind the dorsal fin, (2) the belly is smoothly rounded, (3) the anal fin is much shorter than dorsal fin, (4) the adipose layer covers the eye continuously without vertical slit over pupil, and (5) the supra-maxillary bone is one in number. This specimen disagrees from the Japanese specimens treated by JORDAN and HERRE (1906, p. 628) in having a longer snout (the length of the snout is 2.9 in head length as against 3.5 in the latter) and smaller eye (the eye diameter is 4.1 in head length as against 3.0 in the latter). Although fishes of the genus *Etrumeus* reported from the world are, at the present, referred to a single species, *E. micropus*, the conclusion whether these are correctly identified should be confirmed by the extensive revision of a long series of materials.

According to BARNARD (1925, p. 108), in the South African region, the present species has been taken from Port Elizabeth and Natal coast.

2. *Palunolepis brachydactylus* (CUVIER and VALENCIENNES)

(Chilodactylidae) Pl. I, bottom.

Material examined:—1 specimen measuring 49.5 mm. in total length and 41.5 mm. in standard length.

Locality and date:—Cape Town, March 10, 1958.

Description:—Dorsal fin rays XVIII, 31; anal fin rays III, 10; pectoral fin rays 13; pelvic fin rays I, 5. Scales in lateral line 47. Gill-rakers on first arch 3+1+12=16. Vertebrae 35 including urostyle.

Greatest body depth 2.8 in standard length; head length 3.6; length of longest dorsal spine 13.8; longest soft dorsal ray 10.4; longest anal ray 8.3; pectoral fin 3.5; pelvic fin 6.2; depth of caudal peduncle 13.8; distance from tip of snout: to origin of dorsal fin 3.3, to vent 1.4, and to base of pelvic fin 2.3.

Snout length 3.6 in head length; upper jaw length 4.1; eye diameter 2.9; interorbital width 3.7.

Body compressed, much narrower than high. Head moderately large, with

scales. Mouth small and nearly horizontal in position. Maxillary does not extend to below anterior orbital rim. Lips thickened. Single row of small, conical teeth present on both upper and lower jaws (Fig. 1 A). Vomer and palatine toothless. Interorbital region slightly elevated. Snout short, about 1.3 times into eye diameter. Nostrils two on each side. Preopercle entire (Fig. 1 A). Gill-membranes united, free from isthmus. Pseudobranchiae present. Gill-rakers slender, the longest one on angle and gradually diminish in size toward both upper and lower extremities.

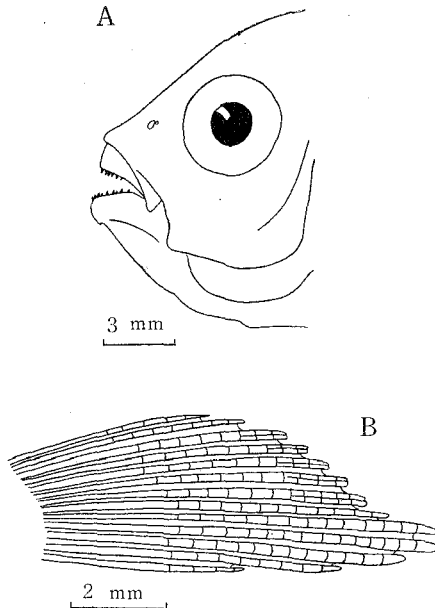


Fig. 1. Lateral aspects of head (A) and left pectoral fin (B) in *Palunolepis brachydactylus* (CUVIER and VALENCIENNES).

Dorsal fin single, extending far behind end of base of anal fin; dorsal spines stout, the first spine inserted immediately behind a vertical through upper extremity of gill-opening. Anal fin inserted under 5th soft dorsal ray. Caudal fin deeply forked. Pectoral fin rather long, reaching above vent, the lower 6 rays simple (Fig. 1 B). Pelvic fin comparatively posterior in position, inserted below 7th dorsal spine.

Lateral line complete and continuous.

Scales cycloid, the sheath along base of dorsal and anal fins composed of single row of small scales.

Color in formalin:—Body greyish brown, darker above. Thorax silvery. Top of head dark brown. Fins pale.

Remarks:— The present specimen agrees well in description with *P. brachydactylus* reported by BARNARD (1927, p. 458). BARNARD recorded a number of young specimens of this species captured in surface tow-nettings off Cape Point, South Africa. SMITH (1949, p. 182) described that young fishes of this species abound in almost all rock-pools. In his note on the young of Japanese aplodactylid fish, *Goniistius zonatus* (CUVIER and VALENCIENNES), NAKAMURA (1936, p. 134) mentioned that a young specimen measuring 20.5 mm. in length was obtained from surface water off Kominato, Chiba Prefecture, although the adult fishes of that species inhabit the rocky reef. These evidences may suggest that the young fishes of the family Chilodactylidae and the related groups inhabit the surface layer of inshore waters.

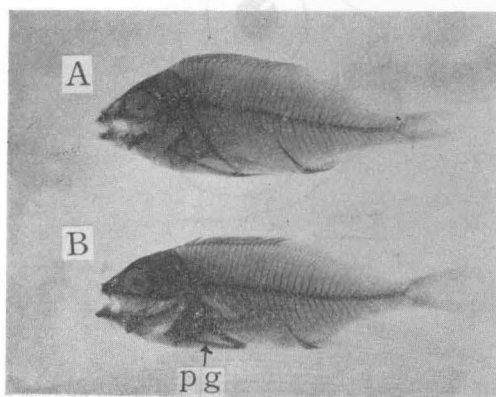


Fig. 2. Radiographs of *Goniistius zonatus* (CUVIER and VALENCIENNES) (A) and *Palunolepis brachydactylus* (CUVIER and VALENCIENNES) (B). p.g. pelvic girdle.

In order to make a comparative osteology of these groups, the writers have taken radiographs of *P. brachydactylus* and *Goniistius zonatus*. The radiographs show that no essential differences of skeletal elements are exemplified between these two species (Fig. 2). The most striking feature of skeletal elements in these species is a well developed pelvic girdle, the bone being as long as the head length. The anterior extremity of the pelvic girdle is attached to the ventro-anterior portion of the clavicle. The post-clavicle extends ventro-posteriorly to the posterior end of the pelvic girdle. In general, the chilodactylid or aplodactylid fishes are characterized in having the posterior insertion of the pelvic fin as compared with the other percoid fishes. Judging from the above-mentioned osteological evidence it is conceivable that this unusual position of the pelvic fin is merely due to the extraordinary development of the pelvic girdle.

Fishes

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PLATE I

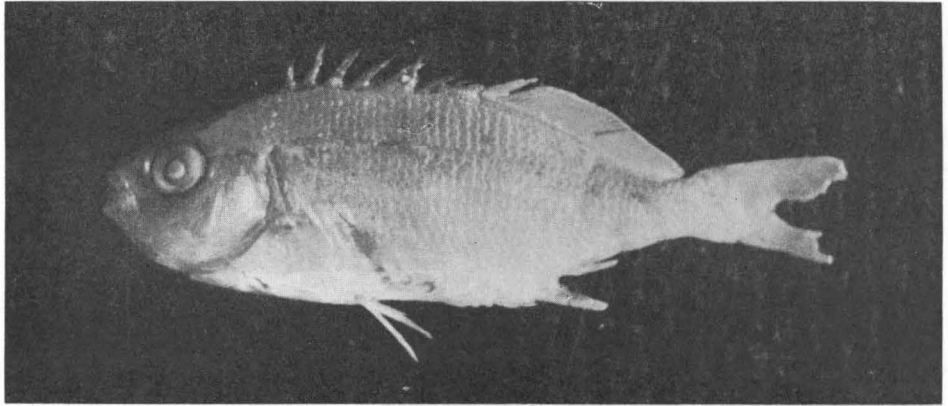
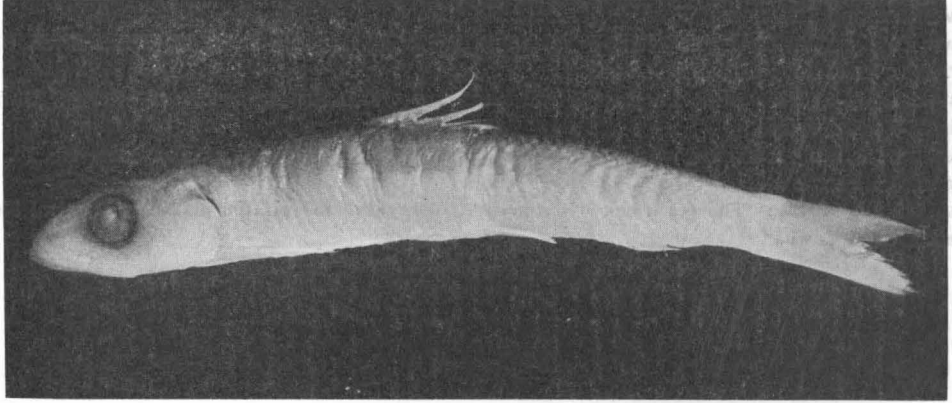


PLATE I

Top. *Etrumeus micropus* (TEMMINCK and SCHLEGEL).

Bottom. *Palunolepis brachydactylus* (CUVIER and VALENCIENNES).

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