Japanese Journal of Ichthyology
Vol. 18, No. 1 June 15, 1971

魚 類 学 雑 誌
18巻1号 1971年6月15日

A Pug-Headed Specimen of Black Porgy, *Acanthopagrus schlegeli*, from the River-Mouth of Asa-kawa, Shikoku*

Yoshiharu Honma and Isamu Ikeda

(Received December 22, 1970)

On July 15, 1970, a heavy grade of pug-headed black porgy of medium size was obtained by angling at the river-mouth of Asa-kawa River that flows through the western area of Imabari City, Ehime Prefecture facing the Inland Sea of Japan. The angler presented this precious material to the authors for study, and the specimen was deposited in the Laboratory of Systematic Zoology, Niigata University.

The specimen (Fig. 1) preserved in formalin was measured and counted: total length 280 mm, standard length 228, greatest depth of body 88, width of body 34, length of head 66, tip of lower jaw to the posterior margin of operculum 79, eye diameter 14, interorbital space 27, length of pelvic fin 55, length of pectoral fin 88, tip of blunt snout to origin of dorsal fin 84, tip of lower jaw to vent 136. Dorsal fin, XI–11; anal fin, III–8; pelvic fin, I–5; pectoral fin, 15. Scales in lateral line 55; scales above lateral line 6. Weight of body 370 g.

This specimen was identified as *Acanthopagrus schlegeli* (Bleeker), by having the ordinary numbers of spines and soft rays of fins, and scales, a black patch on the upper end of operculum near the origin of lateral line, and so on. Unfortunately the specimen had been eviscerated and the sex and maturity were not determined.

The grade of deformities of this specimen seems to be greater than that of the specimens previously reported from the Japanese waters. Due to a great diminution of snout and vestigial upper jaw, the frontal head is obtuse. The deformed lower jaw is projected almost vertically toward the ventro-anterior direction, like a beak of bird. Accordingly, the tip of lower jaw attains far below from the level of the base of ventral fins, and the face of this specimen has a curious appearance (Figs. 2 and 3).

Both upper and lower jaws show a remarkable asymmetry. A left half of maxillary, 13 mm in length, runs parallel with the body axis of fish, and is located near the median axis. The origin of the left half is situated antero-obliquely beneath the left eyeball, just 16 mm from the lowest edge of the eyelid (Fig. 2). On the other hand, a right half originated 12 mm below from the right eyelid and 15 mm in length runs obliquely, and is contiguous to the mandible (Fig. 3). While the right component adheres to the mandible, the end of the left one appears to be in the shape of lip, namely the left, facing the region of articular and angular bones, is free from the mandible. There is a remarkable depression between the maxillary and the eyeball. The area between the basal region of angular and interopercular bones is also concave. The lower jaw, triangular as a whole, is distorted toward the left side: a right half of mandible runs roughly along the median line, while a left one is short and the presence of its dentary is seen without difficulty. Further, the tubercular molar teeth in two rows are encountered in the dentaries of both sides, although the anterior parts of these

* Contributions from the Sado Marine Biological Station, Niigata University.

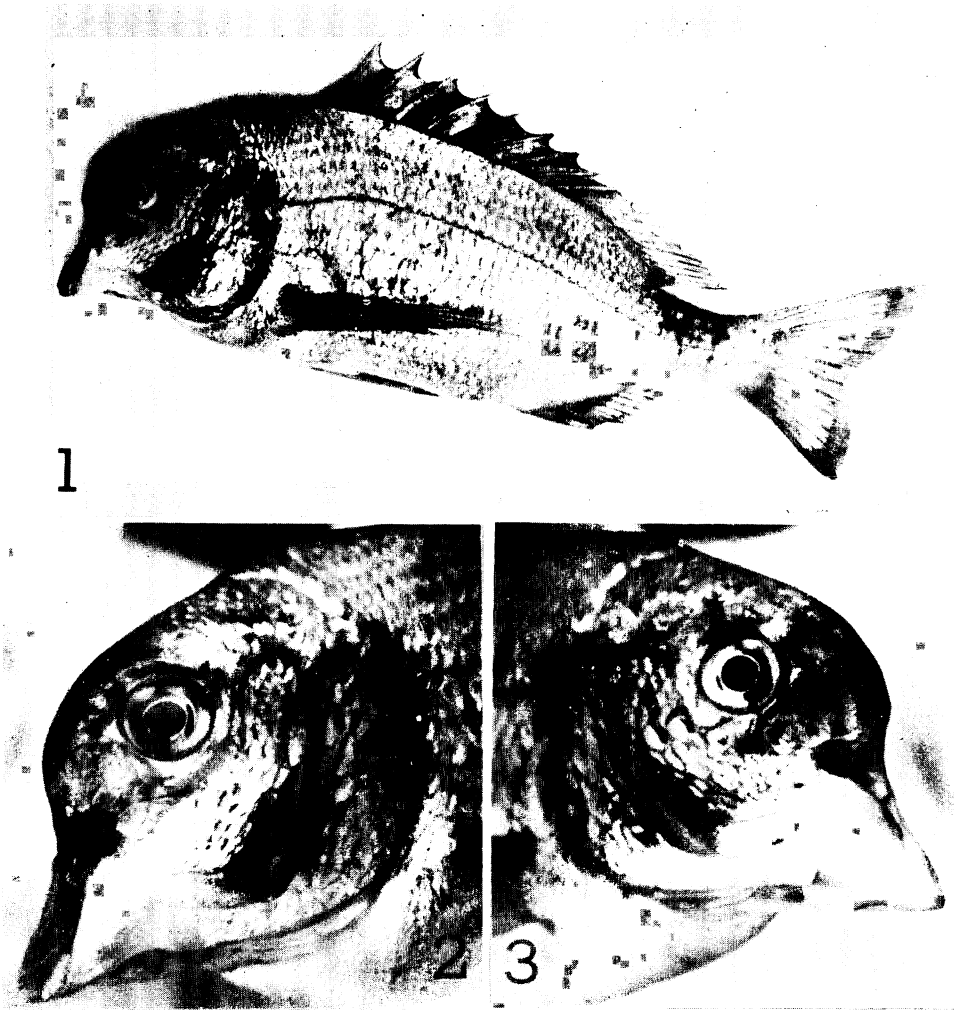

Fig. 1. General appearance of a specimen of a pug-headed black porgy, *Acanthopagrus schlegeli*, collected from Imabari City facing the Inland Sea. 280 mm in total length. ×2/5.
Fig. 2. Enlarged view of the left side. Notice several molar teeth along the dentary. ×5/6.
Fig. 3. Enlarged view of the right side. The lower jaw projects remarkably toward the antero-oblique direction. ×5/6.

are minute and slightly sharp (Fig. 2). No other deformities were recognized in this specimen.

There are a considerable number of papers dealing with the teratology of pug-head or Mopskopf of fishes. Dawson (1964, 1966), who published an excellent bibliography of anomalous fishes, has enumerated 79 papers which are referable to the anomalies of this line. In Japan seven cases have been reported (Akazaki, 1963; Hikita, 1955, 1961; Hotta and Honma, 1958; Okiyama, 1965; Sano, 1958; Tsuda and Nakata, 1940), and were summarized by Okiyama (1965). Although it is hardly possible to explain the causality of pug-headedness, genetic factors and germinal defects augmented by endocrine disturbances might be responsible for realizing these deformities (Leggett, 1969). The present specimen was hooked by the bait of polycaetous annelid, though the mouth is inconvenient to catch the food and is con-

sidered as immovable, but open permanently. As Asa-kawa River is in dirty condition by discharges of the drainage of the City lives and various kinds of industrial plants, the angler and his neighbors regarded the monstrosity of this fish as the result of these pollutants. Whether or not this specimen in early embryonic stage was affected by the water pollution is obscure, however.

The authors wish to express their thanks to Prof. T. Ito, Department of Biology, Ehime University, for his courtesy of checking the material.

Literature cited

Akazaki, M. 1963. A pug-headed *Evynnis japonica*. Saishu to Shiiku (Collecting and Breeding), 25: 26–27, fig. 1. In Japanese.

Dawson, C. E. 1964. A bibliography of anomalies of fishes. Gulf Res. Rep., 1: 308–399.

————. 1966. A bibliography of anomalies of fishes. Supplement 1. Ibid., 2: 169–176.

Hikita, H. 1955. On an aberrant form of chum salmon taken from the northern Pacific Ocean and some examples of salmonid fishes in Hokkaido. Sci. Rep. Hokkaido Fish. Hatch., 10: 63–71, pl. 1, figs. 1–7. In Japanese.

————. 1961. A young salmon with lopdog head. Saishu to Shiiku (Collecting and Breeding), 23: 130, fig. 1. In Japanese.

Hotta, H. and Y. Honma. 1958. A case of a pug headed apodal fish, *Muraenesox cinereus* (Forskål). Saishu to Shiiku (Collecting and Breeding), 20: 129 and 122, fig. 1. In Japanese.

Leggett, W. C. 1969. Pugheadedness in landlocked Atlantic salmon (*Salmo salar*). J. Fish. Res. Bd. Canada, 26: 3091–3093, fig. 1.

Okiyama, M. 1965. A case of pugheadedness in the rock fish, *Sebastes oblongus* Günther. Bull. Jap. Sea Reg. Fish. Res. Lab., (14): 85–89, figs. 1–2.

Sano, O. 1958. An aberrant sockeye salmon with pug head. Bull. Hokkaido Reg. Fish. Res. Lab., (19): 35–36, pl. 1, fig. 1. In Japanese.

Tsuda, M. and G. Nakata. 1940. A pug-headed individual of *Channa argus*. Zool. Mag. (Tokyo), 52: 253–254, fig. 1. In Japanese.

(Department of Biology, Faculty of Science, Niigata University, Niigata 951–21, and Imabari-Nishi High School, Imabari 794, Japan)

四国今治市で獲れたクロダイの狆頭標本

本間義治・池田勇

1970年7月15日，愛媛県今治市の西方を流れる浅川河口で釣獲された全長280 mmのクロダイ（性不明）は，頭部に顕著な畸形がみられたので，公害の所産物でないかと騒がれた．この標本は，いわゆる狆頭と呼ばれている範疇に属すもので，本邦でも過去に7例報告されている．しかし，従前のものより一層ひどい症状を示した珍稀なものであるので，記載した．この畸形の成因は明確でない．

(新潟市五十嵐二ノ町　新潟大学理学部生物学教室・今治市　愛媛県立今治西高等学校)