An Aberrant Dace, *Leuciscus hakonensis*, from the Uono River, Niigata

Yoshiharu Honma, Akira Chiba
and Sumio Yoshie

(Received January 31, 1981)

On June 13, 1979, an abnormal specimen of *Leuciscus hakonensis* Günther was caught by hook and line from the Uono River by Mr. Y. Shinbo. The Uono River originates in the mountains of Johshinétsu National Park, joins the Shinano River (the largest river on the mainland of Japan) and flows into the Japan Sea through Niigata City.

Noticing that the mouth was somewhat shark-like, Mr. Shinbo presented his catch to Mr. Y. Seki, Curator of Koide Branch of Niigata Prefectural Inlandwater Fisheries Experimental Station, located on the middle reach of the Uono River. The fish was kept in a pond until its death on June 30, 1979. It was subsequently preserved in 10% formol and sent to us for detailed examination.

Description

After taking measurements and meristic counts on this fish, the gonad (ovary) was removed, refixed with Bouin's solution, dehydrated with alcohol, embedded in paraffin, cut serially at 8 μm thick, and stained with Delafield's hematoxylin-eosin and azan triple stain.

The specimen is medium in size with the following measurements (in mm): total length, 256; 150 g in body weight; body length, 230.0; head, 59.0; depth at pectoral base, 40.0; depth at dorsal base, 41.0; caudal peduncle, 20.0; eye, 10.0; orbital space, 19.0; upper jaw, 17.0; lower jaw, 14.0; snout, 18.0; snout to vent, 156.0; and width, 29.0. Its meristic counts are as follows: dorsal fin rays, 9; pectoral, 17; ventral, 10; anal, 10; and scales on lateral line, 78. The lower jaw is included under the upper jaw.

There is a deep hole with an acute triangular configuration on the ventral side of the head situated right in the gular (from the chin to the isthmus) region. The triangular hole is 8 mm wide and 21 mm high. Consequently, the oral cavity is totally exposed and the roof of the palate and the gill arches were visible without difficulty (Fig. 1). The glossohyal and the tongue in round shape are situated just beneath the orbit. They are strongly curved, projected 8 mm from the ventral side, and gaped at an angle of 140° against the base of articular bone (Fig. 2). The surface of the tongue is largely granular. The

Fig. 1. Deformed mouth of a dace, *Leuciscus hakonensis*, from the Uono River, Niigata, showing the oral cavity. (Natural size).

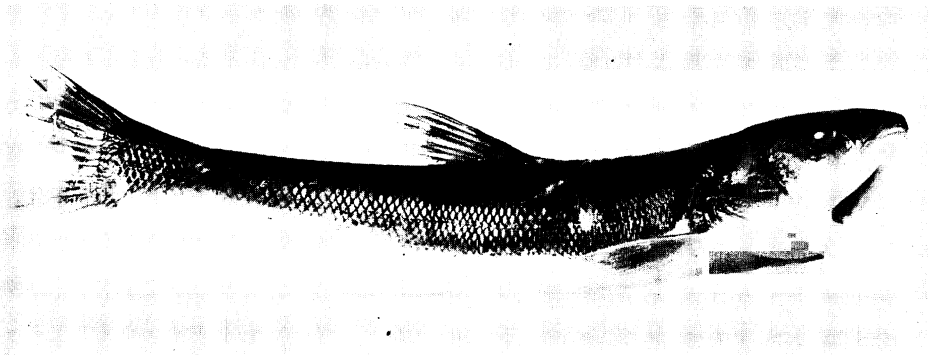

Fig. 2. General appearance of a deformed dace showing the projected tongue, gaped at an angle of 140° against the articular bone. (256 mm TL.)

membranous interbranchiostegal ray is permanently open even when the mouth is closed.

The ovary was thin, and was mostly filled with normally developing ova of the early perinucleolus stage. However, some larger oocytes in the late yolk vesicle stage, atretic follicles, and further corpora lutea-like bodies were detected here and there. Therefore, it is assumed that this fish is not a virgin, but a rather old spent fish.

Discussion

As far as we are aware, no report dealing with this type of deformity is extant. In their voluminous monographs dealing with many cases of deformity found in the lower jaws of vertebrate animals and men, Schwalbe (1909～1911) and Thoma and Goldman (1960) had no example of the type of abnormality as found in our dace. Moreover, we found no other related monstrosity as reported by Dawson (1964, 1966, 1971) and Dawson and Heal (1977). Although we have reported several cases of wild fish with severe deformities in the head (Hotta and Honma, 1958; Honma and Ikeda, 1971; Honma and Yoshie, 1978; Honma and Kobayashi, 1980), they were all referable to the pugheadedness. We have also reported cases of abnormal heads found in the larval salmon and bitterling hatched in the aquaria (Honma, 1958; Honma and de Wit, 1961, 1962), but none of them are referable to the present case. Although it is difficult to speculate the cause of this deformity, it is clear that this is not an external wound produced by a hook or other factors. Therefore, this case of abnormality seems to be the first record. It is not known how the fish obtained food with this deformity.

Acknowledgments

We wish to express our thanks to Mr. Y. Seki, Curator of the Koide Branch, Niigata Prefectural Inlandwater Fisheries Experimental Station, for supplying the material. We are also indebted to the late Prof. T. Yoshioka, Department of Oral Anatomy, Nippon Dental University, Niigata Faculty, for consulting with us on the literature of anomalies of the jaws.

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(YH: Faculty of Science, Niigata University, 8050 Igarashi-ninocho, Niigata 950–21, Japan; AC and SY: Nippon Dental University, Niigata Faculty, 1–8 Hamaura-cho, Niigata 951, Japan)

魚野川から採集されたウグイの異常体

本間義治・千葉　晃・吉江純夫

信濃川の一大支川である魚野川中流域から，1979年6月13日に釣獲された珍稀なウグイ奇形（雌，体長230 mm）を記載した．この個体は，頤から峡部にわたる喉部が広く欠失して穴あき状態となっている．したがって，口腔が露出し口蓋が露見でき，舌があたかも下唇のように下方へ垂れ下っていた．卵巣卵は周辺仁初期のものが大半を占めていたが，閉鎖卵胞や黄体様構造もみられ，経産魚と目された．このように変った奇形症状は，いままで脊椎動物では知られていないようである．

（本間：950-21　新潟市五十嵐２ノ町8050　新潟大学理学部；千葉・吉江：951　新潟市浜浦町1-8　日本歯科大学新潟歯学部）