

Anomalies in Bighead Carp *Aristichthys nobilis* and African Catfish *Clarias gariepinus* in Biratnagar, Nepal.

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Abstract

Truncation and deformation on the upper jaw in juvenile and adult respectively in African catfish *Clarias gariepinus*; and vertebral abnormalities in Bighead carp *Aristichthys nobilis* are described.

Key words : Anomalies, Upper jaw, Caudal fin, Vertebral column, Fishes

Introduction

Abnormalities in fishes are not uncommon and have been reported from different parts of the world from time to time. Several researchers have studied anomalies in fishes (Kaur and Toor 1977, Srivastava 1983-1984, Jayasankar 1989-90, Shekhar and Dutta 1993, Dutta *et al.* 1993, Dutta *et al.* 1995, Kaur *et al.* 1996, Subba 1998-1999, Subba and Pandey 2001). The present work deals with abnormalities in tail and upper jaw in African catfish and vertebral deformation in Bighead carp. The literature review reveals that there is no record of upper jaw abnormalities in fishes like in higher animals. The present work claims to be a new record of this type.

Materials and Methods

Fishes having abnormalities in different parts of the body were collected in the course of fish survey of Biratnagar. Fish ponds, rivers, ditches, pools, canals and marshy lands where fishermen used to catch fish were visited. Bighead carp having vertebral deformities, and African catfish (juvenile) having truncation and adult with upper jaw deformity were found in separate fishponds of Biratnagar.

Morphological changes in the abnormal fishes were studied before preserving them in 10% formalin. X-ray photograph of each fish was taken to study the deformed parts such as vertebrae, jaw and tail. The study of abnormal bones was made with the help of both x-ray negative and developed photographs.

Results and Discussion

The upper jaw of adult *Clarias gariepinus* was found deformed in such a way that the fish could hardly open its mouth. It was partly open due to the shifting of upper jaw towards right side, through which food could hardly be taken. (fig. 1, 2, 3 & 4). Taking of large food with the help of upper jaw was not possible. The juvenile catfish, which was 9.2 cm long and 13.12 gm of weight, was without tail. Its tail was completely absent just after the end of anal fin (fig. 5 & 6).

The vertebrae of normal Bighead carp (fig. 7 & 8) counted by direct observation of the x-ray negative and were found to be 37 whereas that of abnormal fish, it was 39. Due to bending of vertebral column the number of vertebra has increased. In the region where bending has taken place, the intervertebral gaps were wider than that of normal ones.

Several workers have suggested that different factors are responsible for the different types of abnormalities. Pollutants have been considered to be responsible for the deformation of different parts of the body of fish. Bengtson 1975 has suggested injury being other factors for abnormalities. Developmental errors are also responsible for deformation in fishes (Uma and Waghry 1998-90, Dutta *et al.* 1993). Dublin 1979 is of the opinion that deformation in fishes is caused by diseases.

In the present case deformation of upper jaw (fig. 1, 2,3 & 4) and truncation (fig. 5 & 6) are due to abnormal embryonic development whereas, the deformation of vertebral column (Fig 7 &8) is due to chemical effects. Other factors might be equally responsible for developmental anomalies.

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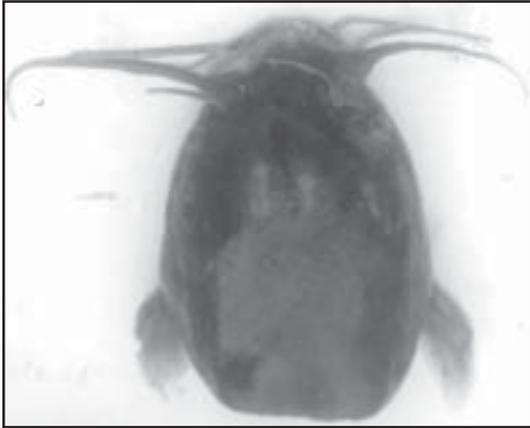


Figure 1. Abnormal head of African catfish, *Clarias gariepinus*.



Figure 2. X-ray photograph of abnormal head of African catfish, *Clarias gariepinus*. (Adult)



Figure 3. X-ray photograph of normal head of African catfish *Clarias gariepinus*. (Adult)

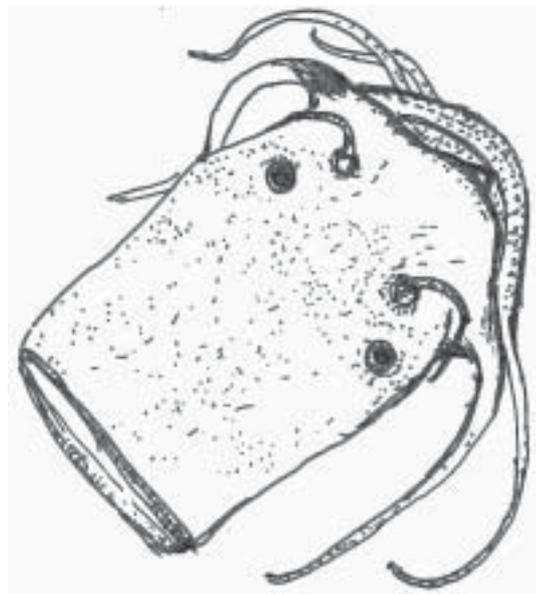


Figure 4. Showing abnormal upper jaw of African catfish



Figure 5. Abnormal tail of African catfish, *Clarias gariepinus*. (Juvenile)

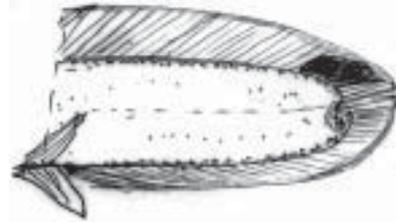


Figure 6. Showing deformed tail region in juvenile African catfish.

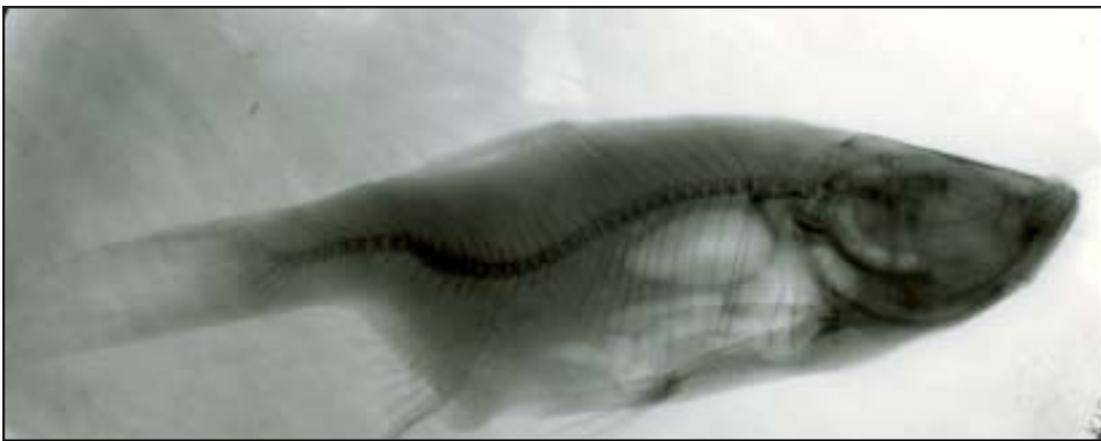


Figure 7. X-ray photograph of abnormal specimen of Bighead carp.

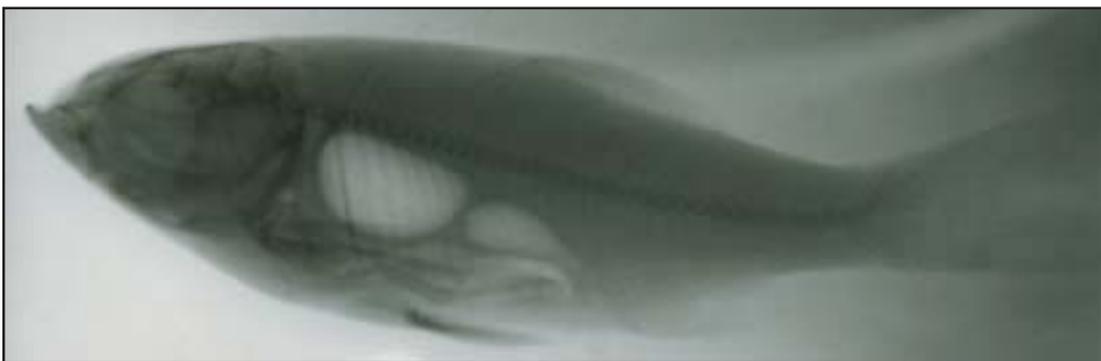


Figure 8. X-ray photograph of abnormal specimen of Bighead carp.