

Biological and morphometric characteristics of, *Capoeta fusca*, a cyprinid fish living in the qanats of south Khorasan, Iran

(Osteichthyes: Cyprinidae)

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Abstract: The siah mahi, *Capoeta fusca*, is a sub-endemic fish of eastern Iran. We studied morphometric characteristics, diet and reproduction of 600 specimens in qanats of the central zone of Birjand County, South Khorasan Province, from November 2006 to October 2007. The mean total length was 13.5 ± 1.43 cm and maximum length was 21.5 cm. The length-weight relationship of this fish was described by body weight = $0.0101 \times \text{total length}^{2.9477}$ ($r^2=0.9747$). The mean relative length of the gut was 4.42 ± 0.48 , suggesting that this species is an herbivorous fish. Similarly, the mean of the vacuity index was 30.95 ± 5.90 , and this fish was classified in a relatively gluttonous group. Besides plants as the primary food, molluscs, aquatic insects, and sometimes frog eggs were distinguished as secondary foods. According to the gonadosomatic index, the reproduction period begins in March and lasts into May. Variations of the gastro-somatic index show that feeding is correlated with reproduction. Measurement of salinity resistance in 96 fish showed that this species can withstand up to 10 p.p.t. of salinity indefinitely.

Keywords: *Capoeta fusca*, siah mahi, qanat, biometry, diet, Birjand, Iran, Middle East.

Introduction

The qanat is a unique environment for fishes comprising an adit which taps groundwater and provides a permanent flow. In many areas of the Iranian plateau, fishes are only found in qanats, some of which have flowed for many hundreds of years (COAD 1996). The qanat fishes of Iran comprised 25 species in Coad's study, 40% of the plateau fauna. The qanat fauna is a subset of the basin in which the qanat occurs, comprising small species, which are broadcast spawners, lacking in specialized food requirements, non-migratory, and widely tolerant of environmental conditions. However, qanats are now rapidly being replaced by pump-wells which are faster and easier to excavate but do not provide fish habitat. Also, schemes to restrict water flow from qanats for conservation reasons will presumably affect the available habitat for fishes (SALIMI MANSHADI et al. 1997).

The siah mahi or black fish (*Capoeta fusca* Nikol'skii, 1897), a cyprinid, is one of the most important fishes in qanats of eastern Iran. It is found in qanats of the Tedzhen, Bedjestan, Sistan, Kavir, and Lut basins (ABDOLI 2000) and also occurs in rivers, e.g. in Ghoorghoori, Asafshad, Mardan Shah, Gazdmoo, and Afin rivers in Qae'nat province in eastern Iran (Johari et al., unpubl. data) as well as western Afghanistan.