

# On the status of the critically endangered Caspian Brown Trout, *Salmo trutta caspius*, during recent decades in the southern Caspian Sea basin

(Osteichthyes: Salmonidae)

Hamid Niksirat, Asghar Abdoli

**Abstract.** The changes in some of the biological traits of mature females of the critically endangered Caspian Brown Trout, *Salmo trutta caspius* Dorofeeva, 1967, during recent decades were analysed. The results demonstrated that the mean length has significantly ( $p < 0.05$ ) declined over the past 60 years, from 77.6 cm in 1947 to 59.8 cm in 2007 (22.4%). The same trend was observed for mean total weight which significantly ( $p < 0.05$ ) reduced from 4880.2 g in 1947 to 2486.8 g in 2007 (49.5%). Also, the level of absolute fecundity sharply decreased from 7041.8 in 1947 to 4526.1 in 1973 and to 2941.2 in 1986. Whereas there was no significant ( $p > 0.05$ ) difference between the relative fecundity in 1947 (1451.4 per kg of body weight) and 1973 (1372.6 per kg of body weight), a significant ( $p < 0.05$ ) reduction has been observed since 1986 (1199.8 per kg of body weight). The possible reasons for these biological changes are discussed. Based on this study, the exploitation and sale must be controlled, and efforts should be concentrated on rehabilitation of the natural spawning habitats as soon as possible.

**Key words.** Caspian Brown Trout, relative fecundity, absolute fecundity, length, conservation, Red Data Book, threatened species.

## Introduction

The Caspian Brown Trout, *Salmo trutta caspius* Dorofeeva, 1967, is one of the largest trouts in the world. The heaviest specimen reported was 51 kg (BERG 1948). The wild trout, which mature sexually in the brackish water of the Caspian Sea, migrate to the rivers to reproduce in mountain spawning grounds with cold, running freshwater (FARID PAK 1968). The Caspian Brown Trout has disappeared from much of its historic range in the southern Caspian basin, and is on the verge of extinction due to overfishing, water pollution, construction of dams and poaching of adults and fry (KIABI et al. 1999). For example, in the spawning season of 2007, only 64 adults (30 ♂, 34 ♀) were captured by the State Fisheries Organization Authorities for artificial reproduction purposes in the southern part of the Caspian Sea. Although the most recent Red List of IUCN (2008) gives *Salmo trutta* the category of “least concern”, COAD (1980) and KIABI et al. (1999) consider the subspecies *S. t. caspius* as endangered and critically endangered. Their evaluations for the taxon were based on the available population abundance data in the region.

There is no published information on the biology of this species or on changes in the size at maturity and fecundity of this fish during recent decades. Hence the aim of the present study was to evaluate the changes in size-at-maturity and fecundity of the Caspian Brown Trout during the last decades, the data from which may be helpful in conservation and management of this critically endangered taxon.