



Histological study of kidney & gill during smoltification in Caspian brown trout (*Salmo trutta caspius*)

Mohammadrezaei D.^{1*}

1-Department of Fisheries, Faculty of Natural Resources and Environmental, Malayer University, Malayer, Iran

*Corresponding author's email: d.mrezaei@malayeru.ac.ir

Abstract:

salmo trutta caspius is an important and economic fish in the Caspian Sea that has anadromous life cycle. This fish has several morphological and physiological changes during smoltification. In this study, Hormonal (T3, T4 & Cortisol) and ionic (Na⁺, Cl⁻ & K⁺) changes in the serum and the number of chloride cell in gill and the number and size of Bowman's capsule in the kidney were determined during the period of smoltification in 5, 10, 15 & 20 gr of hatchery reared salmo trutta caspius in different seasons (spring, autumn & winter). Chloride cell and Bowman's capsule were measured through histological study. Chloride cell were quite high in spring, especially in the juvenile of 20 gr ($P < 0.05$). The number of Bowman's capsule and glummeral size showed no significant difference with season and weight ($P < 0.05$). This result suggests that histological study of gill and kidney provide useful information about the optimal time of transferring Caspian Sea trout from fresh water to sea water. It is concluded that the juvenile fish of 20 gr show better smoltification in the spring.

Keywords:: Salmo trutta caspiuos, Smoltification, Bowman's capsule, Chloride cell, Weight, Season.