

Ionic regulation ability in *Rutilus frisii kutum* fingerlings during sea water adaptation.

ABSTRACT

Experiments were conducted to determine the effects of weight on the ionic regulation ability of reared *Rutilus frisii kutum* fingerlings during adaptation to the seawater and downstream migration. Accordingly, the ionic regulation ability of Cl^- , K^+ , Na^+ and Mg^{2+} in kutum fingerlings with weights of 1, 3, 5 and 7 g in three different salinities, that is 13‰ (the Caspian Sea salinity), 7‰ (estuarine area) and fresh water (as control, 0.3-0.5‰), were assessed. The blood samples were provided before being transferred as control (fresh water) and during adaptation to the sea and estuary water in a period of up to 336 h by a pooling method. The measurements of ions were carried out for blood serum Na^+ and K^+ and also plasma Cl^- and Mg^{2+} by photometric methods. This investigation showed that ionic regulatory ability of kutum fingerlings depends on their weights. Results of ionic changes during the duration of 336 h (14 days) proved that unlike kutum fingerling with weights of 3, 5 and 7 g, the ionic regulation system in 1 g fingerlings were not able to expel excess ions. Further 1 g kutum were not physiologically ready (smolt) for downstream migration.

Keyword: *Rutilus frisii kutum*; Ionic regulation; Caspian Sea.