

Study of Phenotypic variation in four population of Urmia Kingfish (*Alburnus atropatenae*) in Urmia Lake basin using Elliptic Fourier Analysis

Fatemeh Moshaiedi¹

Soheil Eagderi^{2*}

Shaghayegh Hasanpour³

1, 3. M.Sc. Student, Department of Fisheries, Faculty of Natural Resources, University of Tehran, Karaj, Iran

2. Department of Fisheries, Faculty of Natural Resources, University of Tehran, Karaj, Iran

*Corresponding author

Soheil.eagderi@ut.ac.ir

Received date: 2014.04.15

Reception date: 2014.05.18

Abstract

This study was conducted to survey the phenotypic variation in four populations of Urmia kingfish (*Alburnus atropatenae*) using Elliptic Fourier Analysis. Hence, a total number of 163 specimens was sampled from the four Rivers of the Urmia basin including the Baneh, Saghezchai, Siminehrood and Zarinerood rivers. The left sides of specimens were photographed. Then, the outline curve was drawn using TpsDig2 software and resampled to equal distances with 150 points. TPS data was converted to a readable file format for EPA analysis in EFAWIN software and EFA analysis was carried out with opting 17 shape harmonics (with 2 constants and four coefficients per harmonic). Data analyzed by PCA and CVA/Manova analysis. A significant difference between studied populations in terms of body shape was seen. Based on cluster analysis, the studied populations according to their body shape divided into (1) Zarinerood and (2) Saghezchai, Siminehrood and Baneh branches. Based on results, the Baneh, Siminehrood and Saghezchai population distinguished due to having small head size and caudal peduncle and The Zarinerood population due to bearing larger head and caudal peduncle was. In addition, The Baneh and Saghezchai population compared to The Zarinerood and Siminehrood populations possess greater caudal peduncle and body depth. The observed morphological variation can display phenotypic plasticity among studied populations as result of environmental conditions of their habitats and geographical isolation.

Keywords: Kingfish, Phenotypic plasticity, Urmia Lake Basin, Morphometrics.