

**Phenotypic plasticity of Common carp, Roach and Kutum in Caspian Sea  
with emphasis on ecological niche**

**Fariborz Ghojoghi <sup>1\*</sup>,**

**1-Department of Fishery , Azadshahr Branch , Islamic Azad University , Azadshahr , Iran.**

**\*Corresponding author g-mail: [fariborz.ghojoghi@gmail.com](mailto:fariborz.ghojoghi@gmail.com)**

## **Abstract**

Geometric morphometric analysis with emphasis on ecological niche were done on 90 specimens fishes including 30 Common carp, 30 Roach and 30 Kutum from Persian sea. A total of 15 homologous morphological landmarks were defined and digitized using TPSDig2 software and tps files were extracted. All statistical analyses were done using PAST and MorphoJ softwares. The results showed that the common carp had the biggest head length and head height, body depth and The Kutum had the least body depth and head height. The Roach was intermediate in most traits between Common carp and Kutum. It can be concluded that the observed morphological differences can be morphological plasticity in response of their ecological niches during their last long evolutionary history resulting the present species with measurable differences.

**Keywords:** Fish biodiversity, Southern basin of Caspian Sea, Geometric Morphometric.