**Mladen Avramović**

**How do environmental differences affect young European grayling growth, diet, and flow resistance?**

Populations of the wild European grayling (*Thymallus thymallus*) have dramatically declined throughout its original range due to numerous negative impacts. Despite efforts to counter this decline, restocking projects, usually based on restocking with farmed 1+-year-old fish, have proven ineffective, resulting in notably low recapture rates in natural habitats. Consequently, exploring different release sizes of stocked fish is recommended for more effective restocking.

There are suggestions that the reared early stage (0+) of E. grayling could show higher adaptability in the wild compared to the older categories due to shorter stay in captive breeding. However, the experience of the breeding environment during the early development could shape specific characteristics even in a young fish.

Recent studies are examining fine differentiation between wild and reared fish on many levels, trying to detect crucial reared-related traits that hinder their survival in natural environments.

In the present study, we will evaluate how the differences in the environment experienced by young grayling affect their biometric parameters, food composition and ability to withstand flow. Experimental grayling fry will be produced from planted-eyed grayling eggs in incubators in two localities: a cold-water pond and a natural stream. After hatching, fish will be released in the belonging environment. Then, after 2.5 months of living in these water bodies, they will be harvested for assessments of growth, stomach food content and resistance to the flow/morphological analysis. Collected stomach content will be stored in ethanol (70%) for subsequent taxonomic analysis of major food taxa. Resistance to flow will be performed in a chamber with adjustable water velocity.

There are no studies comparing several attributes in the early development of E. grayling fry in two different environments. Monitoring of these parameters additionally contributes to the clarification of the adaptive potential of reared grayling and can suggest the right breeding methods in order to achieve greater post-stocking success.

Therefore, the results from this study could represent valuable knowledge for developing successful reintroduction practices for E. grayling with and supply knowledge of the field of fisheries ecology and the developed fishing communities.