



## Assessment of the water quality of aquatic resources using biological methods

Z. Dulić<sup>a\*</sup>, V. Poleksić<sup>a</sup>, B. Rašković<sup>a</sup>, N. Lakić<sup>a</sup>, Z. Marković<sup>a</sup>, I. Živić<sup>b</sup>, M. Stanković<sup>a</sup>

<sup>a</sup>University of Belgrade, Faculty of Agriculture, Department of Animal Science, Nemanjina 6, 11080 Belgrade, Serbia  
Tel. +381 113168499; Fax +381 113168499; email: zorkad@agrif.bg.ac.rs

<sup>b</sup>University of Belgrade, Faculty of Biology, Department of Animal Morphology, Systematics and Phylogeny,  
Studentski trg 16, 11000 Beograd, Serbia

Received 28 January 2009; Accepted 24 August 2009

---

### ABSTRACT

Assessment of water quality at Radmilovac estate near Belgrade that is used for irrigation of cultures and as a water supply for experimental fish farm and hatchery was performed by using aquatic invertebrates (zooplankton and macrozoobenthos) and fish gill histology as bioindicators. Two open wells and a stream were monitored during a three year investigation. A total of 25 and 31 species of zooplankton were found in open wells and 11 and 12 taxa of macrozoobenthos at two sites of stream Šugavac. The saprobity index (*S*) was used to evaluate the water quality of these four sites. Statistical analysis showed that site S2 was the most polluted, with *Oligochaeta* and *Chironomidae larvae* dominating. Overall,  $\beta$  mesosaprobic organisms have been prevailing at all four sites indicating that the water was polluted at moderate levels. All analyzed fish gills showed predominantly normal structure. Identified histopathological changes of gill structure indicated mild and repairable alterations. The results obtained imply that these water resources can be used as a supply for carp fish farm. We suggest that the type of biological water assessment depends on waterbodies characteristics.

**Keywords:** Water quality; Bioindicators; Zooplankton; Macrozoobenthos; Saprobity index; Gill histology

---

\* Corresponding author.