

INVESTIGATIONS INTO GENETIC DIVERSITY OF THE PERCH INHABITING IGNALINA NUCLEAR POWER PLANT COOLER AND OTHER INLAND WATER BODIES OF LITHUANIA ON THE BASIS OF MtDNA ANALYSIS

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Abstract. In order to collect information about the impact of Nuclear Power Plants (NPP) on the formation of the genetic structure of the population of commercially exploited fish species, our research group initiated an investigation into the genetic diversity of a rapidly changing mtDNA D-loop region of the perch (*Perca fluviatilis*). The perch is a naturally distributed species common in the inland water bodies of Lithuania, so it was chosen as a model species for the current study. The genetic diversity of the perch populations inhabiting the Lake Drūkšiai, the Lake Plateliai, the Lake Metelys and two major Lithuanian rivers Nemunas and Neris was studied on the basis of detection and comparison of 99 sequences of mtDNA D-loop region. Fifteen different haplotypes consisting of 389-400 bp were identified. Eight of them were not observed earlier in other locations in Europe; four new haplotypes were detected in Lake Drūkšiai only. All pairwise comparisons indicated that the perch population inhabiting the Lake Drūkšiai, which is used as cooler of Ignalina Nuclear Power Plant, was significantly ($P < 0.05$) genetically different from other perch populations studied in Lithuania. The data obtained formed background information to be used to investigate the possible impact of NPP on the formation of and changes in the genetic structure of the perch populations.

Keywords: *Perca fluviatilis*, Model species, D-loop, NPP, Lake Drūkšiai, Lithuania.