

## **Seasonal variations in population dynamics and biomass of two *Unio pictorum mancus* (Mollusca, Unionidae) populations from two lakes of different trophic state**

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### **ABSTRACT**

*Samples of *Unio pictorum mancus* collected monthly from spring 2003 to summer 2004 in the meso-oligotrophic Lake Maggiore and the eutrophic Lake Candia were compared to evaluate the influence of lake trophic conditions on mussel populations. Shell form, maximum age (8 years) and percentage of organic matter in the shell and soft tissues were similar in both lakes. However, comparisons between same size classes revealed that mussels from Lake Maggiore were generally older, their shells heavier and their soft tissues lighter than those from Lake Candia. Recruitment occurred in both populations in June-July. The frequency distributions of adult mussels (>30 mm) and their soft tissues and shell biomasses in all size classes (range = 2 mm) were normal, but the curves of the mussels from Lake Candia were flat in comparison to those of mussels from Lake Maggiore. The median body size of Lake Maggiore mussels was 58 mm, while that of the Lake Candia population was 72 mm. During the study period the population density of each lake was fairly constant, whereas the population structure, and consequently the biomass, showed seasonal variations. The greatest differences were found between population density and shell and tissue biomass of the two populations, which were respectively 46.86 ind. m<sup>-2</sup>; 408 g d.w. m<sup>-2</sup> and 38.67 g d.w. m<sup>-2</sup> in Lake Maggiore, and 6.93 ind. m<sup>-2</sup>; 92.29 g d.w. m<sup>-2</sup> and 14.04 g d.w. m<sup>-2</sup> in Lake Candia. These values testify to the phenotypical plasticity of *Unio pictorum mancus* in relation to environmental characteristics, without excluding a possible genetic influence as a result of geographical isolation and the respective selection mechanisms. The influence exerted by the lake trophic level and by the physical environment on some population characteristics is discussed.*

*Key words: freshwater bivalve, eutrophication, population density and structure, shell and soft tissues biomasses*

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