

Description for the general public

With the advent of global warming, the current literature focuses on temperature as a factor moderating the impact of other factors affecting the body size of organisms. Numerous studies have revealed an apparent decrease in individual body size among a variety of aquatic ectotherms, as well as the mean body size of their populations and communities at an elevated temperature, either spatially or temporally. In the case of zooplankton communities, two general and nonexclusive hypotheses have been proposed to explain the increase in the proportion of small-bodied species (over large ones) at an elevated temperature. The first is based on the assumption that a higher water temperature may increase mortality by predation (mainly by planktivorous fish), which would selectively eliminate larger species. The second maintains that warming increases the competitive abilities of smaller species compared to larger ones (causing the elimination or decreased abundance of the latter ones) due to their physiological adaptations to higher temperatures. In our project, we aimed to determine experimentally the validity of these explanations and try to identify the possible physiological and ecological mechanisms behind them, focusing on the effect of temperature-dependent oxygen demands and supply for fish and zooplankton.