

Effects of global climate changes on water biota

Research Keywords:	Freshwater, Phytoplankton, Zooplankton
Reference ERCs (*):	LS8_1, LS8_8, LS8_9
Reference SDGs (**):	GOAL 4: Quality Education, GOAL 13: Climate Action, GOAL 14: Life Below Water
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Research topic

There is much evidence that climate is rapidly changing at a global scale, especially regarding mean annual temperatures, precipitations and evaporation. The consequences of this rapid environmental change on freshwater biota are still not clear, but they could be severe. The changes of water temperatures with the consequent diminution of dissolved oxygen concentration and the reduction of available habitats could cause important ecosystems problems. Moreover with the increasing intensity and frequency of extreme events such as droughts, the scenarios could be complicated for the freshwater biota (phytoplankton included), even in Italy. Shifts in life cycles of zooplankton community for example are likely to be expected with changes for the most sensitive species. More tolerant organisms may, on the other hand, enlarge their distribution ranges. Global climate change may also promote and enhance invasions of alien species in freshwater ecosystems.

Research team and environment

This PhD is within the framework of Climate Change Research Center of Insubria University where it will be possible to work in a multidisciplinary team including the CRyosphere Lab (resp. Prof. Mauro Guglielmin) and the Botany and Climate Change Lab (Resp. Prof. Nicoletta Cannone). Our group of Water Ecology and Ecotoxicology Lab (Resp. Prof. Roberta Bettinetti) has a great experience in aquatic ecology and has long-term data on several situations even in remote areas. The Climate Change Research Center of Insubria will have since 2022 the possibility to use the International Branch of Insubria at Barrow (USA, Alaska). The team is working in cooperation of many national and international Institution like the British Antarctic Survey, the Alfred Wegener Institute, the CNR-ISP, the CNR IRSA, the Trieste University and many other foreigner universities.

Suggested skills

The ideal candidate has a solid ecological background with a great propensity for field work and laboratory work. Critical skills and good preparation are required, in particular on the already known mechanisms regarding the effects of climate change on ecosystems (even terrestrial, not only aquatic since everything is interconnected)