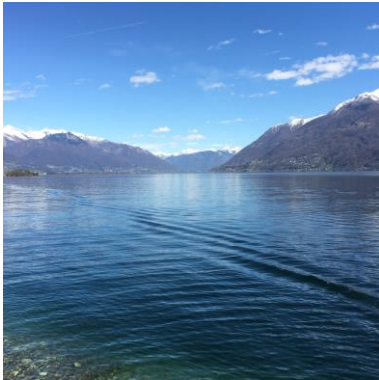


Master Thesis in Microbial Ecology at Lake Maggiore

The Microbial Ecology Group at the Institute of Ecosystem Study of the National Research Council of Verbania offers two positions for master projects

Thesis Project 1 – The co-selection of heavy metal and antibiotic resistant genes in a large freshwater lake



Rationale: Various antibiotic resistance genes can be found in high frequency in Lake Maggiore and similar aquatic habitats. Such lakes are thus considered a reservoir for resistance genes that can spread back to the clinical sphere. It is still unclear which mechanisms help to maintain these resistances but potentially they might be co-selected with heavy metal resistant genes. This thesis intends to monitor both types of resistant genes and other parameters in Lake Maggiore.

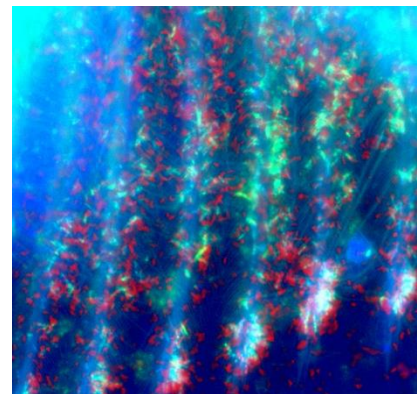
Methods: PCR, quantitative real-time PCR, cultivation of bacteria, DNA extraction, flow cytometry, microscopy

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Thesis Project 2 – Attachment of antibiotic resistant bacteria to zooplankton species

Rationale: Pathogens have a selective advantage when attaching to surfaces. Here we test whether zooplankton species, as rotifers, provide such a surface for antibiotic resistant bacteria to which they attach and thereby hitchhike within the lake from point contaminations to further away areas.

Methods: Cultivation of bacteria and zooplankton, experiments, microscopy, PCR methods, flow cytometry



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Our institute is located in Verbania, which is in Italy close to the Swiss border. Our group communicates in English, Italian and German (but it is enough if you can speak English). We are flexible considering starting dates. There is the possibility to be hosted in our student house (shared kitchen and bathroom). Moreover, you can stay affiliated with your home university since we are a research institute.