a depleted macroinvertebrate community. For a successful relocation, we want to develop a gentle removal and transport routine of the macroinvertebrate species, in order to keep the stress level of the organisms low.
This talk will give insights in the developed, executed and evaluated method and will present preliminary results. The substrate preferences of the macroinvertebrate fauna will hereby be used by providing natural substrate exposures (NSE). Pretests indicated high colonization numbers of different type-specific macroinvertebrate taxa on several NSE types. The substrate acceptance of the offered NSE and the transport of macroinvertebrates within their NSE enables a translocation with low mortality rates. Further analysis and controls are part of the pilot project and will show if the resettlement approach of macroinvertebrates is successful.

05-O 1D thermodynamic modelling of Lake Maggiore for thermal structure evolution predictions under climate change.

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The deep subalpine lakes have been characterised during the last decades by an oligomictic behaviour, full overturns being achieved only at the end of cold and windy winters. Since vertical mixing is essential for the chemical and biological dynamics, the study of how such behaviour will evolve with future climate change is strongly relevant.
In order to investigate that on Lake Maggiore, we built a 1D thermodynamic model of the basin using the General Lake Model (GLM) (Hipsey et al., 2014). Calibration was performed reproducing the thermal evolution in the period 1998-2014, feeding the model with meteorological data measured at the Pallanza and Locarno-Monti weather stations and comparing the results against monthly temperature observations along the deepest water column at the Ghiffa limnological site. The availability of extended data series, spanning years with very different meteorological and hydrological features, allowed to obtain calibration coefficients that are less specific and suitable for predictions.
Two versions of the model were initially developed, one with a closed and fixed-level lake approximation and another reproducing the complete hydrological and thermal balances, including inflows, outflow, and direct rainfall contributions. Daily discharges for the major tributaries and the emissary in the calibration period were available, while the daily temperatures of the inflows were computed from daily air temperatures using the *air2stream* model (Toffolon & Piccolroaz, 2015), calibrated using monthly available observations.
We studied the effects of an evolving climate scenario, with a linear increase of air temperature of 4°C from 2014 to 2081, as predicted by the International Panel for Climate Change (IPCC). A weather generator was used to estimate the corresponding variations of the other meteorological and hydrological parameters in response to the temperature rise, producing multiple series of input data for the thermodynamic simulations, whose results were statistically analysed. This allowed to evaluate the possible evolution of the thermal structure of the lake, especially considering the hypolimnion heating, the trend in the vertical mixing frequency and the influence of the “climatic memory” of the present state over future conditions.

05-O Is evaluation of large river hydromorphological characteristics using data based on remote sensing and field survey comparable?

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Hydromorphological degradation is one of the main stressors affecting river ecosystems worldwide. Especially large rivers are subject to the strongest pressures, due to their historical role in the development of human society and its dependence on the ecosystem services they provide. In order to achieve sustainable management of river ecosystems, a goal set with the implementation of the Water Framework Directive (WFD), also reliable methods for evaluation of hydromorphological characteristics of large rivers should be developed. In the current Slovenian hydromorphological assessment method (SIHM), morphological characteristics of large rivers are assessed based on 500 m river section field surveys, collecting detailed data on rather local habitat conditions and their modifications. The nature of large rivers, their size and dynamics, would probably acquire assessment of longer river sections, though field surveys would become costlier and more time consuming. As an alternative, remote sensing methods have already proven their usefulness in detecting large river habitat characteristics, especially those of larger scales, and also river dynamics, hardly detectable in the field. The aim of our research is to determine the amount of information on habitat quality and modification parameters of large rivers, that can be obtained with remote sensing, in comparison to field surveys using the SIHM