

## **Onset and breakup of summer lake stratification estimated from routine temperature measurements**

Christof Engelhardt and Georgiy Kirillin  
Leibniz-Institute of Freshwater Ecology and Inland Fisheries, Berlin

The ecological conditions of temperate lakes during stratification differ substantially from those during the preceding and following periods of complete overturn. Hence, the duration of stratification is of crucial ecological importance. Climate change increase stability and duration of summer stratification in the temperate zone. One possibility to estimate the envisaged trends from observational data is to determine experimentally the onset and the end of stratification with the help of long-term measurements.

For two temperate lakes in Northern Germany, it is shown that the result of the experimental detection of stratification duration depends on the frequency of data collecting. The number of sensors (spatial resolution of measurements) and the choice of stratification thresholds are of lesser importance than the temporal resolution of routine temperature measurements. At least, daily data are necessary to detect experimentally the length of the stratified period with accuracy sufficient to estimate long-term shifts in these characteristics.