AquA Net — standardized infrastructure for Lake Mesocosm studies

AquA Net is a unique infrastructure that is part of SITES to which international and national researchers can apply to run mesocosms and other experiments at five radically different Swedish lakes located from 57°N to 64°N.

The intention is to have a standardized set-up at each lake that consists of a raft with 16-20 mesocosms. Real time environmental data such as dissolved oxygen, temperature, photosynthetic active radiation, chlorophyll, phycocyanin and turbidity are available in each mesocosm at a 1-minute interval.

The infrastructure was established in 2017 and used in experiments. The experiments investigated the interactive effects of bottom-up, a reduction in light availability (figure 2), and top-down, fish predation, disturbances on the stability of plankton community composition (bacterio-, phyto- and zoo-plankton) and ecosystem functioning.

Aanderaa delivered Oxygen Optodes (model 4531) for the project with 100 of them used in last year’s fieldwork. Loggers from Campbell Scientific recorded data from all sensors. At one station the serial signals (RS232) from the optodes were registered, passing through a MOXA multiplexer. At the other 4 stations the analog outputs were logged in 2 channels, one for oxygen and the other for temperature.

Aanderaa plays an active role in AquA Net advising on how to maximise the data quality of the oxygen measurements, summarised in a project specific Best Practice document.

- Rafts in 5 lakes
- 16-20 mesocosms on each raft
- In each mesocosm, O2, PAR, Turb, Chla, Blue Green algae
- Other measurements available

For more information and questions please contact Dr. Anders Tengberg, Scientific Advisor and Product Manager.