

MONITORING CHALLENGES IN RAPIDLY CHANGING ENVIRONMENTS

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With climate change and increasing anthropogenic pressure, alarmingly accelerated changes to water bodies and catchments are being observed all around the globe. There is an urgency of monitoring methods that are capable of accompanying these trends and provide updated and detailed data that can support water and soil management actions. Often, the status of environmental conditions are based on isolated measurements, without regard to the spatial and temporal variability of water quality and ecology. The collection of data (e.g. sensors, sampling, and imaging) using mobile platforms is gradually becoming more common and appraised, with new applications and uses being explored every day. Data accessibility and readiness for use is also crucial to enable quick actions and interventions.

This work describes novel data collection possibilities in catchment-scale surface water bodies. Sensors were installed in mobile platforms (including boats and underwater drones) to assess spatial data variability. Additionally, smartphones and mobile apps backed the reading of test strips and other field sampling methods in real-time, and prompted the upload of data to online platforms. Such quick environmental scans were applied at multiple locations with different water systems in The Netherlands, Indonesia and Denmark (ongoing).

Results give an indication of (reference) values of basic water quality parameters such as turbidity, electrical conductivity, dissolved oxygen or nutrients (ammonium/nitrate). The work conducted showed how local water managers and stakeholders can use new technologies in favor of data quality and quantity. The latter highlighted autonomous collection of data, real-time access to datasets and quick response triggered by events as top needs for monitoring improvement. In small catchments, this technology can have high impact by supporting better informed resources management decisions.

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**WATER BALANCE OF SMALL CATCHMENTS IN A
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