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## **INTEGRATED APPROACH FOR INNOVATIVE MONITORING STRATEGIES OF RESERVOIRS AND LAKES**

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### **Abstract**

An innovative strategy significantly increasing data density by introducing a flexible, problem-orientated, and cost-effective water quality monitoring approach is presented. Most current monitoring strategies produce water quality data based on fixed stations conducted on fixed dates throughout a defined period of time and, thus, often give a biased and insufficient picture of the water quality. Establishing a refined picture of water quality while not increasing monitoring costs clearly needs a change in monitoring strategy. The complexity of social-economic needs, environmental aspects and evolving legislative guideline values makes the design of a suitable innovative strategy challenging. The combination of investigative and risk-based monitoring with real-time monitoring of proxies (e. g., electrical conductivity (EC)) is a vital asset within this here proposed innovative strategy. For the former, organic micropollutants (e. g., pesticides, pharmaceuticals) are suggested in this article to be a powerful tool for source apportionment as they allow to determine and quantify the cause and impact of water quality impairments. This strategy was tested in a field campaign in which an area of elevated EC was investigated at Lake Garda, Italy. A radio-controlled boat was used for EC mapping and sampling. As no chemical indicators for significant anthropogenic sources could be detected, the elevated EC could be assigned to natural sources.

**Key words:** water quality monitoring, innovative monitoring strategy, micropollutants, proxy mapping, indicator concept

*Received: March, 2018; Revised final: June, 2018; Accepted: September, 2018; Published in final edited form: October 2018*

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