Innovative monitoring methods for high resolution quick scans of water quality

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Introduction

Water systems are critical to human and ecological survival and are changing faster than ever (climate change, population growth and urban development).

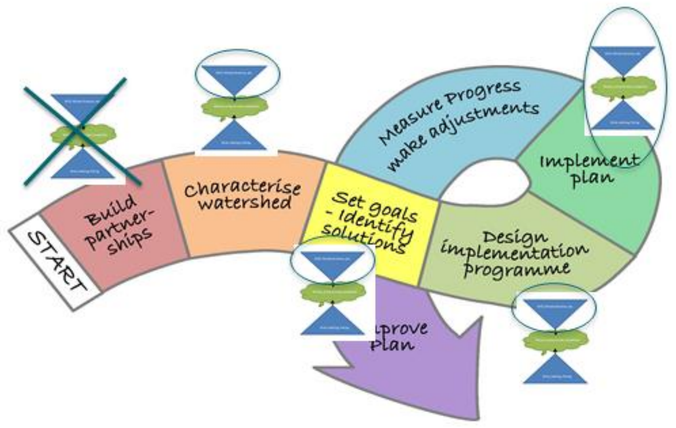
Aquatic Environments → Complex Interactions: Chemical, Physical, Biological, Ecological

- EU goals and objectives → EU Environmental regulations and standards (WFD).
- Difficult to characterize water quality, which varies in space, time (e.g. daily; 24h cycle), depth/stratification.

Water Co-Governance for Sustainable

Interreg North Sea Region WaterCoG

WaterCoG: EU Interreg Project



Description????

- How can the implementation of EU directives be achieved at a local level in the North Sea Region?
- Can water management frameworks be integrated with social, economic and environmental benefits?
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Methodology

Several methods were applied in different water management tasks, at multiple locations in The Netherlands, Indonesia and Denmark (ongoing) → participatory monitoring.

- Mobile sensors (attached to boats or underwater drones)
- Test strips and mobile apps
- Bio-monitoring (sediments)
- Ecology scans using underwater cameras
- Continuous/static measurements

Research locations WaterCoG (www.climatescan.nl)

Using apps for waterquality measurements

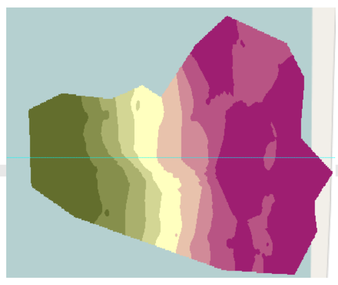
Replace by drone iin AMS?

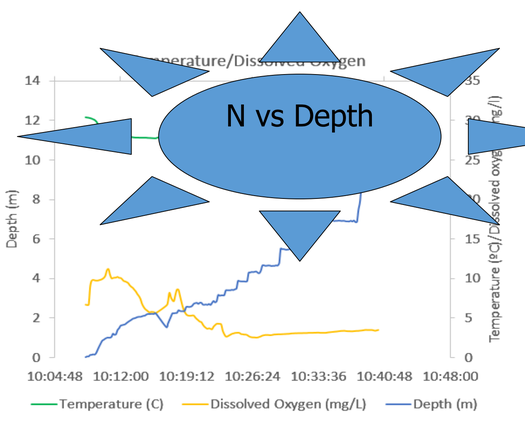
Results

- Technology enable high resolution monitoring of basic water quality parameters such as turbidity, electrical conductivity, dissolved oxygen or nutrients (ammonium/nitrate, phosphate).
- Water quality parameters can vary widely in space (x, y and depth) and time (day / night and seasonal).
- Drones, apps, and other user-friendly monitoring tools create awareness and stimulate participation of locals and all stakeholders involved

Conclusions and perspectives

- Innovative/dynamic monitoring → living environment (water, ecology, sediment)
- Field work activities revealed potentials as awareness actions
- cooperation between organizations and international partners are crucial for the process of adaptation and strengthening of regulations
- WaterCog will demonstrate, implement and integrate various water management frameworks in and outside EU region.





Example of in depth sensor data by drones

This study would not have been possible without the funding of the Interreg projects WaterCoG and support from stakeholders in The Netherlands and Denmark.