

# Management of cyanobacterial metabolite risk in DWTPs: a packaged solution for prediction & operating control through water monitoring and operational tools.

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## Abstract

Algae blooms present a number of issues to the operation of drinking water treatment plants (DWTPs). In order to fully optimise the water treatment conditions, the operator must have a complete picture of the raw water quality; online sensors are an excellent source of data for this effort. While phycocyanin is a useful measure of cyanobacterial biomass, many challenges remain in interpreting the outputs of probe. The objective of this project is to develop a global approach and associated tools to help DWTP operators to manage the impact of cyanobacteria blooms on drinking water quality.

## Approach

1. Selection of the best available technology for on line monitoring of cyanobacteria at the water intake.
2. Development of a predictive model and associated tools to translate fluoroprobe results to probability distributions of cyanobacterial concentration and algal metabolites concentrations in raw water.
3. Development of operational tools to adjust coagulant and PAC (powdered activated carbon) doses for removal of algae cells and algal metabolites in the clarification process.

## Outcomes

This innovative packaged solution will be implemented in different countries with variable resource characteristics:

- France, Cholet dam: blooms of *Oscillatoria*, *Microcystis*, *Aphanizomenon*, *Woronichinia*, DOC 6 – 10 mg/l, Turbidity 2 – 50 NTU
- Spain, Forcadas reservoir: bloom of *Anabaena sp*, *Woronichinia sp*, *Microcystis sp*, and *Chroococcus sp*, DOC mediane 2 mg/l, turbidity mediane 2 NTU
- Australia, Happy Valley dam: bloom of *Anabaena circinalis*, DOC 4 – 30 mg/l, turbidity 0.2 – 100 NTU

In this presentation, we will describe the development of the operational tools and their implementation.