Managing eutrophication and cyanobacteria nuisance

From 2015-2019 | Total budget € 150,000

This project was a Science Without Borders Grant (2013-2014) for a full PhD research project to study potential materials and in-situ techniques for managing eutrophication and controlling cyanobacterial blooms. Controlled laboratory experiments were performed and a whole-lake intervention was monitored.

Ten possible clays/soils were evaluated on their ability to adsorb phosphate. A lanthanum modified clay (LMB) was further tested under different salinities and also used in core experiments with sediment from Jacarepaguá lagoon (Rio de Janeiro). The potential of using organic coagulants as an alternative to inorganic coagulants to remove cyanobacteria from the water column was studied. The eco-friendly coagulant, chitosan may, however, damage cell membranes of cyanobacteria, resulting in the release of cyanotoxins. A whole-lake intervention with an aluminium-based coagulant together with LMB was prepared and tested on lab scale. It was then performed on full scale and monitored closely to shed light on the efficacy of the treatment in managing eutrophication and eliminating cyanobacterial blooms.

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