

# Copper removal from water using a bio-rack system either unplanted or planted with *Phragmites australis*, *Juncus articulatus* and *Phalaris arundinacea*

Marchand, Lilian

Nsanganwimana, Florian

Oustrière, Nadège

Grebenshchykova, Zhanna

Lizama-Allende, Katherine

Mench, Michel

A bio-rack system was developed for treating Cu-contaminated freshwaters. Each pilot constructed wetland (CW, 110dm<sup>3</sup>) contained 15 perforated vertical pipes filled with a mixture of gravel (diorite; 80%) and perlite (20%) and assembled as a rack. The whole experimental device consisted of 12 CW planted either with *Phragmites australis*, *Phalaris arundinacea* or *Juncus articulatus*, and unplanted as control (in triplicates). All plants were sampled at a Cu-contaminated site. The CWs were filled with a mix of freshwater (30%) from the Jalle d'Eysines River (Bordeaux, France) and tap water (70%). Water was spiked with Cu (2.5?M, 158.5?g<sup>-1</sup>L<sup>-1</sup>). Three CW batches were carried out, i.e. in early spring (March, S#1), beginning of the growing season (May, S#2), and peak growing season (June, S#3). The S#3 water was initially acidified to pH 6. For all batches, water was recirculated in the CW during 14 days. Physico-chemical parameters (pH, electrical conductivity, redox potential, BOD5 and Cu<sup>2+</sup> con