

NWW.CABRRES.ORG



Problem statement

- **Control of emerging particulate contaminants** Chemicals & hazardous microbes
- Understanding of settling/resuspension processes
- **Treatment and reuse of accumulated sediments**



Objectives

- Sources of micro-organisms conveyed on sediments Related to social and economic activities on the catchment
- **Evolution of sediments quality**
- Spatial distribution of hazardous chemicals adsorbed on sediments Ecotoxicological and chemical characterizations

Experimental site and Methodology

Catchment & Retention/Detention basin at Chassieu (OTHU experimental site), **France (69)**: At the outlet of a 185 ha industrial catchment drained by a separate stormwater network [Surface = 11,000 m2; Storage capacity = 32,000 m3]

Samplings

Micro-organisms & velocity

P

Distribution of *Escherichia coli*

- Summary • *P. aeruginosa*, a bacterial pathogen, showed a biased distribution pattern that could depend upon social/economic activities, and lead to a contamination of runoff waters
 - Ecotoxicity was lower for old sediments
 - Hydrodynamics and physical processes impact sediment distribution patterns
 - New urban sediments management practices considering their quality are needed

Different over the time

Heterogeneous spatial

Accumulated sed

Trapped sed

distribution

Ecotoxicity of trapped sediments (= recent sediments) >> ecotoxicity of accumulated sediments (= old sediments)

Gislain Lipeme Kouyi¹, Romain Marti², Jean-Yves Toussaint³, Yves Perrodin⁴, Jean-Baptiste Aubin^{1,5}, Céline Becouze-Lareure¹, Laure Wiest⁶ Sylvie Barraud¹, Sophie Vareilles³, Audrey Gleizal², Carolina Gonzales-Merchan¹, Benoit Cournoyer² ¹ Université de Lyon, INSA Lyon, Laboratoire DEEP, Bât Coulomb, 34 avenue des Arts, 69 621 Villeurbanne cedex, France. ² Ecologie Microbienne, UMR5557 CNRS, VetAgro Sup et Université Lyon 1, 69280 Marcy L'Etoile ³ EVS, UMR 5600, France ; ⁴ : ENTPE, LENHA, Vaulx-en-Velin, France ; ⁵ Centre de Mathématique, INSA Lyon, Villeurbanne, France ; ⁶ ISA, TRACES Team, 5 rue de la Doua, 69 100 Villeurbanne, France