

## P2.25

### Metals mobility assessment in sediments of São Francisco canal mouth from Sepetiba bay, Rio de Janeiro

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#### Abstract

The Sepetiba Bay (Brazil Southeast) is a known metal contamination site, mainly for Cd and Zn, due to the erosion of rejection pile left after a metal industry deactivation in the 90s. This bay has also important harbors, demanding periodic dredging and reflecting directly in the mobility of the metals. The main goal of this work was the assessment of metal mobility associated with grain-size.[\[a1\]](#) To achieve that goal 18 superficial sediment samples at São Francisco Canal mouth were collected for metals and grain size analyses with the Van-Veen support, pH and Eh were measured for each sample with a Hanna Multiparameter Probe. The metal mobility assessment was analyzed for exchangeable, reducible, oxidizable, and residual fractions through the sequential extraction procedure that was proposed by the European Community Bureau of Reference (BCR). For grain-size analyses, the samples were sieved in 1mm mesh and analyzed in Melvern Mastersizer (Low Angle Laser Light Scattering).[\[a2\]](#) The results demonstrate Cd and Zn are mainly associated with exchangeable (Cd and Zn medium 0,46 g kg<sup>-1</sup> and 149,40 g kg<sup>-1</sup> respectively) and reducible fractions (Cd and Zn medium 0,27 g kg<sup>-1</sup> and 65,55 g kg<sup>-1</sup> respectively), while Fe, Cr, Cu, Ni, and Al is associated with residual fraction.[\[a3\]](#) Those metals associated with residual fraction are probably related to the mineral assembly on sediment, and should not represent a considerable environmental risk of the biota. The metals associated with exchangeable and reducible fraction are related with strongly reducing characteristics on surface sediments, consequently to reduced hydrodynamics and high organic matter input. However, Cd and Zn could represent a risk, mainly in resuspension sediment events, alterations on pH, and Eh promoted by oxygenation of sediment due to suspension could be capable of collaborating to release these metals from the water column.[\[a4\]](#)

#### Keywords

SEQUENTIAL EXTRACTION, TRACE ELEMENTS, RIO DE JANEIRO, BCR-701