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Comparison and relationship between functional changes of macroinvertebrates and microbial communities in response to resuspension of contaminated sediment

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In the European water Framework directive context, long term management and prevention of damages on aquatic ecosystems is needed. Among pressures, historical contamination of sediments from surrounding industry and urbanization pose a serious ecological threat. Therefore, water storages within dams represent a critical system, retaining runoff and particulate-bound contaminants and thereby exposes organisms to elevated concentrations of contaminants. Moreover, when sediment is disturbed (i.e. sewages or remedial measures), contaminants can be released into the water column and sweep away in downstream systems. Ecological impacts of resuspension of contaminated sediment are low documented, most studies focusing on clogging or breaking up effects on halieutic resources. We determined functional changes in microbial and macroinvertebrates communities in response to resuspension of contaminated sediment (heavy metals and PAH) subsequent to dam's sewage. We assessed this ecological threat by sampling macroinvertebrates and microbial communities within sediment on five sites presenting different contamination levels. Functional diversity was evaluated through bioecological profiles of macroinvertebrates and with biotest ECOPLATES for microbial communities. Expected results should identify the sensibility of both communities to sediment resuspension. We hypothesize that microbial communities should respond faster than macroinvertebrates assemblages, and could be helpful to explain modifications of ecosystem processes.