The effects of resuspension on the fate of Hg in contaminated sediments
(Nalón estuary, Spain)

Efren Garcia-Ordiales (1), Nieves Roqueñí (1), Jose Manuel Rico (2), Stefano Covelli (3), Elisa Petranich (3),
Jorge Loredo (1), and Pelayo Rico (2)

(1) University Of Oviedo, Mining, Energy and Materials Engineering School, Mining Exploitation and Prospecting, Spain
(garciaefren@uniovi.es), (2) Department of Organisms and Systems Biology, University of Oviedo, Oviedo, Spain, (3)
Department of Mathematics and Geosciences, University of Trieste, Trieste, Italy

Sediments of the Nalón estuary (Cantabrian Sea, Spain) are important repositories of mercury as a direct conse-
quence of the runoffs from the historical Hg mining activity developed in the Nalón river basin. Previous studies
have shown that sediment acts as secondary source of Hg species to the overlying water column in natural condi-
tions. However, evidence for the effects of resuspension on the dynamics of Hg species is still lacking. The effect
of resuspension on the cycling of inorganic mercury (IHg) and methylmercury (MeHg) between the sediment and
water column was investigated in a mesocosm study. Two experiments were conducted in July 2017 based on
unaltered material collected from sites heavily impacted by Hg and periodically subjected to dredging activities.
Designed to mimic the resuspension of particles, both experiments revealed that the release of Hg species from the
solid to the dissolved phase became negligible quickly after the event. MeHg values did not change according to
total dissolved mercury (THg), suggesting that the enhancement of methylation processes may occur during this
processes. The results reported in this research may be useful for the local fishing activities and environmental
management, as well as for planning dredging activities on the area in order to decrease potential impacts on the
aquatic environment.