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# Mercury fluxes to mangrove saltmarsh sediments from a subtropical coastal lagoon (Gulf of California)

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## Abstract

Coastal zones worldwide are subject to important anthropogenic pressures. Although mangroves offer numerous and important ecosystem services, they develop in a delicate equilibrium of increasing sea level rise, sediment supply and multiple environmental stressors. The Estero de Urias lagoon (Mazatlán, Mexico) is a subtropical coastal lagoon used as a natural commercial and leisure port, and recipient of urban and industrial wastes from numerous sources. In order to reconstruct the Hg pollution history in the lagoon, sediment cores were collected from mangrove saltmarshes, dated by <sup>210</sup>Pb, elemental composition determined by X-ray fluorescence and Hg analyzed by atomic absorption spectrometry. Mercury concentrations, enrichment factors and fluxes were determined and analyzed. Levels ranged from 4 ng g<sup>-1</sup> to 200 ng g<sup>-1</sup>. The sedimentary records showed increasing trends from pre-industrial levels and a consistent maximum in the late 50s - early 60s was observed. Potential Hg sources include a thermoelectric power plant, gold mining in the distant catchment and long-range atmospheric transport. In this work we discuss the sources and processes of Hg contamination of the lagoon. Acknowledgements: projects CONACYT CB2010/153492 and PDCPN2013-01/214349, PRODEP network "Aquatic contamination: levels and effects" (year 3).

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