

## **Chronology of Anthropogenic Footprint in Todos os Santos Bay**

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The present work aimed to use sedimentary records to determine the chronology of trace elements contamination in different regions of Todos os Santos Bay, Northeast Brazil. Four cores were collected, sliced and frozen. Major and trace elements, granulometry, Pb stable isotopes (<sup>206</sup>Pb, <sup>207</sup>Pb, <sup>208</sup>Pb and <sup>204</sup>Pb) and <sup>210</sup>Pb were determined.

The rates of sediment accumulation varied up to a order of magnitude (0.4-2.60 cm yr<sup>-1</sup>) among the different regions. As expected, an increase in the concentrations of the metals towards upper layers was observed throughout all cores. The uniformity of textures (> 90% silty) at different depths indicated that changes in metal concentrations are not due to variations in grain size, and/or changes in sediment sources over time. Trace element concentrations began to increase in the 1950s, which coincides with the installation of a refinery and the beginning of the industrialization of the watershed. Most metals showed minor to moderate enrichment factors (EF < 4). Copper presented the highest EF (28) at the Aratu harbor, which are associated to the use of antifouling paints in an area of intense harbour activities. Anthropogenic impacts were also evidenced by the changes in the Pb isotopic ratios that indicated that the main sources of anthropogenic Pb to the bay were a decommissioned lead smelter and burning of fossil fuels. On the whole, sedimentary records showed that anthropogenic inputs of metals can be related to the economical development of the region.