

## Brief report: Nutrient distribution in the estuary of Pekalongan, North Java, Indonesia using chemical tracers

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Water pollution and sea level rise have occurred in wide coastal areas in Indonesia due to ongoing climate change and current increased human activities. In particular, northern part of Java Island has high density of housing, fishing, and industry, and there is an increasing need to monitor river and sea water quality to prevent water pollution. In addition, the region is considered to be one of the most vulnerable areas to sea level rise and flooding, leading to expansion of flooded areas and displacement of people. In order to solve these problems, the local municipality and the Indonesian government need to create policies that can respond to the problem and maintain the sustainability of these areas. The aim of this study is to clarify the sources, quantities, distribution patterns of the dissolved chemicals in the estuaries of Mrican River and Pencongkan River in Pekalongan, North Java, and elucidate the impact of the chemical substances using oxygen and hydrogen stable isotopes and chemical compositions of river water and seawater. It is also expected international collaborative research will be conducted based on this study in Indonesia, consisting of other coastal regions in different Southeast Asian and African countries.

キーワード：水質汚染、海面上昇、インドネシア、栄養塩

Keywords: Water pollution, Sea level rise, Indonesia, Nutrient