



## **Nitrous Oxide (N<sub>2</sub>O) and Methane (CH<sub>4</sub>) Emissions from Coastal Areas**

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Coastal areas such as continental shelves, estuaries, mangrove forests and upwelling areas can release high amounts of nitrous oxide (N<sub>2</sub>O) and methane (CH<sub>4</sub>) to the atmosphere. Significantly enhanced N<sub>2</sub>O concentrations are usually found in estuarine and upwelling systems, whereas shelf waters are close to equilibrium with the atmosphere. CH<sub>4</sub> concentrations show high temporal and spatial variabilities with maximum values in estuarine and mangrove systems. In general, CH<sub>4</sub> coastal emission estimates are underestimated since direct CH<sub>4</sub> release to the atmosphere from shallow gas seeps is not adequately represented. Future N<sub>2</sub>O and CH<sub>4</sub> emissions from coastal areas strongly depend on the degree of oxygenation of coastal waters and might increase in the future due to eutrophication which in turn leads to an increased number of hypoxic areas. In this presentation I will give an overview about the current knowledge about coastal fluxes of N<sub>2</sub>O and CH<sub>4</sub> to the atmosphere.