

## **Benthic fluxes of ex situ incubations and porewater nutrient concentrations near the wastewater treatment plant of Athens, Saronikos Gulf, Greece**

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Saronikos Gulf is subjected to intense anthropogenic pressures; one of the main pressures is the discharge of the nearby water treatment plant (WWTP).

Nutrient dynamics in the sediment-water interface were studied through ex-situ incubation experiments at station S7, in February and July 2012. Benthic fluxes were measured with dark chamber incubation for approximately 24 hours. Porewater profiles were obtained from 20-25 cm cores.

In February the seafloor acts as a sink for nitrate, nitrite and ammonia. In porewater profiles, nitrate concentrations are decreasing downwards in the first 5 cm, while ammonia is increasing. The downcore decreasing trend in nitrate and nitrite concentrations is suggesting that denitrification may be the controlling process, further supported by the flux incubation experiments. At the horizon of 8-9 cm, ammonia concentration increases while organic nitrogen decrease possibly indicating that ammonification is the prevailing process at this layer.

Nutrient dynamics demonstrated seasonal variability. Indeed, in July, the incubations showed an efflux for nitrogen species. Nitrite and ammonia demonstrated a significant positive correlation, probably implying that ammonia was produced through ammonification process or that ammonification is the main process controlling the fluxes.