

## Influence of recirculated submarine groundwater discharge on phytoplankton dynamics in Moune Bay, Kesenuma

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Riverine inputs are often considered as the main terrestrial source of dissolved inorganic nitrogen (DIN), phosphorus (DIP), and silicon (DSi) in coastal seas. However, the fluxes of nutrients through submarine groundwater discharge (SGD) often exceed riverine inputs in different local and regional scale settings. Although the combined effects of riverine and SGD-derived nutrient inputs are crucial for sustaining marine productivity, a difference of nutrient composition in each source may result in a different response of phytoplankton dynamics in coastal seas. In this study, we evaluated the influence of each nutrient source on phytoplankton dynamics in the head of Kesenuma Bay in June, September and November 2018. Using the short-lived radium and radon isotopes, we quantified the contribution rates of four nutrient sources (river water, fresh SGD, recirculated SGD and offshore waters) on surface waters. Simultaneously, we evaluated productivity, biomass, apparent growth rates and species composition of phytoplankton. In brief results, DIP-enriched recirculated SGD affect significant impacts on phytoplankton dynamics. In the presentation, we will discuss more detailed results.

Keywords: Recirculated submarine groundwater discharge, Phytoplankton, Radium isotopes