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Impact assessment for rivers flowing into the Arctic Ocean by using Nutrient loading and Water Quality Index

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Nutrients carried by rivers to oceans are important indicators. Especially in the Arctic, these fluxes are important due to the large volume of inputs and the small area of the Arctic Ocean. A major issue in arctic research is how much nutrient inputs to the Arctic Ocean vary with climate change. In this study we aim (1) to estimate nutrient loading from land zone throughout international river basin using the GEMS/Water (Global Environment Monitoring System/Water) data sets for the purpose of estimating the gross nutrient loading to the marine environment,(2) to calculate Water Quality Index(WQI) for the purpose of evaluation of water quality that flows into the sea from the river,(3)to compare nutrient loading and WQI for propose of knowing the relationship between nutrient loading and single indicator of water quality index. WQI is a numeric expression used to evaluate the quality of a given water body and it was developed for the purpose of providing a tool to simplify the water quality data. It is a tool that provides meaningful summaries of water quality data that are useful to technical and policy individuals as well as the general public interested in water quality. As a result, in the some rivers which flow through the Arctic Ocean the nutrient flux is decrease comparing 1980's and 1990's even river discharge almost same value. But in the other rivers nutrient flux in 1990's is same or higher than the 1980's, the result of WQI in those rivers is the almost same as the nutrient flux result.

Keywords: GEMS/Water, Water quality, Flux, Water Quality Index