

## The relationship between Nitrogen load and river water quality in several catchments in different area sizes

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DIP below 16:1, especially in the agricultural catchments. During winter,  $\text{NO}_3\text{-N}$  tended to increase while  $\text{PO}_4\text{-P}$  decreased, resulting the increase of DIN:DIP above 16:1. The lower DIN:DIP during summer indicated a high rate of denitrification and a release of  $\text{PO}_4\text{-P}$  from paddy soils or sediments in an anoxic condition. Chl.a concentrations in the lake water were higher in the southeast area (max  $1190 \text{ mg L}^{-1}$ ) where the DIN:DIP were relatively low. Therefore, P limiting for algal bloom would be removed in the southeast area, and the lower DIN:DIP water from rivers during summer may trigger harmful algal bloom in the Lake Hachiro. This study suggested we should focus on the balance of N and P cycles in the watershed, and the input nutrients especially P should be managed carefully in the Lake Hachiro watershed.

### **References**

Hayakawa, A., Kondo, T., Miyata, N., Katano, N., Okano, K., Shuchi, N., Kanazawa, N., Ishikawa, Y., Hidaka, S., Ozaki, Y. 2011, Evaluation for the distribution of algal bloom in Lake Hachiro by remote sensing and water analysis. Abstracts of the annual meeting, Japanese society of Soil Science and Plant Nutrition, vol. 57, p.10

## **The relationship between Nitrogen load and river water quality in several catchments in different area sizes**

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In comparative research on water quality in watersheds, the issue of size of watershed area is often discussed. In this research, several catchments in different area size were set up and relationship between properties of catchment and potential nitrogen load in whole watershed and/or catchments was explored.

In the study, potential nitrogen load concentration (PNC) in the catchments were calculated and each catchments were categorized using land use types that were set based on ratio of urban, ratio of forest, ratio of cultivated land, ratio of paddy field in cultivated land and ratio of livestock load. In case of Upper Naka river watershed, there were 134 catchments and they were categorized into 7 land use types. Less than 20 % of catchments were same land use type as whole watershed. As a result, similarity of land use type in whole watershed and small catchments is one of the important factors. It is considered that the small catchment that has similar land use type of watershed represents property of river water quality of watershed.

## **Risk evaluation of the groundwater pollution by nitrate-nitrogen leached from farmlands in a middle-sized agricultural watershed**

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Groundwater pollution by nitrate-nitrogen ( $\text{NO}_3\text{-N}$ ) is widespread in Japan. Nitrogen (N) in chemical fertilizer and manure can be a source of the pollution but site vulnerability to the pollution cannot be determined in a wide area due to difficulties in understanding water and N movements in the soil-groundwater system. We developed a