

SEASONAL VARIATION OF DISSOLVED TRACE ELEMENTS IN LAKE KIBA-GATA

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This study addresses the changes in dissolved trace element concentrations of the Lake Kiba-gata, which is located at Komatsu City, Ishikawa Prefecture, Japan and is a small, shallow and semi-closed environment. The water chemistry of trace elements is an important issue since it is a micronutrient for the growth of a phytoplankton and involves many environmental problems in water quality.

Surface water samples were taken from 6 points that evenly scattered across the lake territory and one inflow river during April 2017-January 2020 in monthly intervals for understanding spatio-temporal distribution of the main and trace elements. The water samples were vertically collected at KBG3, central part of the lake, with 0.5 m depth interval from surface to 2.0 m depth.

The seasonal variation of trace elements as Fe and Mn are observed significantly in horizontal and vertical distribution. The higher concentration of Fe and Mn in surface water was detected in the station near the river mouth in December to February and the lower concentration was observed in summer season. The dissolved iron concentration decreased with increasing depth in winter season at the central part of the lake but shows increasing trend with water depth. There is positive linear correlations between concentration of trace elements (Fe and Mn) and NH_4^+ and a negative correlation with lake water pH. The results indicate that the redox condition maybe related to the spatial and temporal variation of Fe and Mn in Lake Kiba-gata.

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