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Relationship between dissolved oxygen concentration of bottom water and macrophyte biomass in the southern basin of Lake Biwa, Japan

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Abstract

The horizontal distribution of dissolved oxygen (DO) concentrations on the lake bottom was investigated on September 2-5, 2002. At 36 out of the 84 sites, DO concentrations were at less than 50% of saturation. The biomass of macrophytes was investigated on September 6-11 at 44 sites, and ignition loss of sediments was investigated at 41 sites on September 17-18. The results of multiple regression analysis suggested that DO concentrations could be estimated using the biomass of *Egeria densa*, *Myriophyllum spicatum*, and *Potamogeton maackianus*, and the water depth as explanatory variables ($R = 0.65$, $R' = 0.61$, $n = 44$, $P < 0.01$). Both the partial correlation coefficient and partial regression coefficient indicated that biomass of *Egeria densa* was the most influential environmental factor on the fluctuation of DO concentrations on the bottom water.

Key Words: [dissolved oxygen](#), [submerged macrophyte](#), [southern basin of Lake Biwa](#)

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