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[\[PDF \(1137K\)\]](#) [\[References\]](#)**Specification of compounds causing white turbidity in Lake Kasumigaura**[Hirokatsu UTAGAWA](#)¹⁾ and [Noriko TAKAMURA](#)¹⁾

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Abstract

In recent years, a singular phenomenon of white turbid water has often been observed in Lake Kasumigaura and has become a focus of great concern for its impact on the ecosystem. We investigated the chemical and mineral compositions of suspended solids (SS) in that white turbid water with the aim of identifying the compounds causing this phenomenon. In a comparison between the chemical compositions of SS during the presence and absence of turbidity, we found that the Ca content of SS turbidity was significantly higher than usual. X-ray diffraction patterns for SS during the period of turbidity showed a sharp peak at 0.30 nm. This peak disappeared following hydrochloric acid treatment, and dropped to 0.28 nm under heat treatment at 1050 °C for 1 hour. These facts suggested the presence of calcite (CaCO₃) in SS. Scanning electron microscopy and energy-dispersive X-ray spectroscopy revealed that the calcite in SS consisted of small cubic crystals with a particle size of less than 1 μm. The saturation index, on the other hand, showed that the water quality of Lake Kasumigaura was often in equilibrium with the calcite, leading us to conclude that the phenomenon is due to a suspension of fine calcite particles precipitated in the water by the mass balance of dissolved chemical components.

Key Words: [Calcite](#), [calcium carbonate](#), [Lake Kasumigaura](#), [suspended solids](#), [white turbid water](#)[\[PDF \(1137K\)\]](#) [\[References\]](#)

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