

## Relationship between water quality, phytoplankton number and species, and the land use of the Kinokawa River basin

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Eutrophication is an important issue for water pollution. Phytoplankton activity depends on nutrient concentration in water.

The unusual increase in phytoplankton number has big influence on social life. The remains of phytoplankton are filtration obstacles in a water-purifying process and release a nasty smell. Then, this study focuses on the relationship between soluble substance concentrations, number and species of phytoplankton and the land use of the Kinokawa River basin.

The Kinokawa River which flows from Nara Prefecture to Wakayama Prefecture is the 1st class river with a valley area of 1750km<sup>2</sup>, and a length of 136km. The Otaki and Osako dams and one big floodgate, Kinokawaozeki and many small weir in the Kinokawa River were built for irrigation. When river stream stops, generally phytoplankton becomes active and nutrient concentration increases because organic compounds such as plant leaves precipitate. Then, water pollution caused by accumulation of the underwater nutrition salt and reduction in fishes are anxious in a stagnant water region.

From the research results, soluble substance concentrations become high down the stream and especially big change point is found. The point is cross section between the branch river and the Kinokawa River. Along the branch river basin, orchards are observed widely and high concentrations of soluble substance derived from fertilizer are found. Many phytoplankton are also observed in river water.

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