

The relation between the phytoplankton and the water quality before Dam construction in the Kirime River

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Although an anthropogenic impact is a little in the mountainous area, water quality change in the dam and the reservoir in the mountainous area is thought to bring out change of ecosystems because of stagnant. Therefore, to study water quality and phytoplankton is important for evaluating the impact of dam construction. In this study, before dam construction, water quality and phytoplankton of the Kirime River are studied. The Kirime River located in the middle of Wakayama Prefecture is a class B river and flows into the Pacific Ocean. And the Kirime River is about 35km in length and the drainage basin area is about 75.6km². The dam will be constructed till 2014 in the middle stream of the Kirime River.

The water sampling of the Kirime River was performed from 2007 to 2009 once a month, and soluble substances and species composition of the phytoplankton were examined in the laboratory. Concentrations of Na⁺, K⁺, Mg²⁺, Ca²⁺, Cl⁻, NO₃⁻ and SO₄²⁻ increases with down the stream.

The number of phytoplankton decreased from 2007 to 2009 however pH values increased. Most observed phytoplankton was diatoms and Thalassiosiraseae was a main species. On the other hand, Nitzschia and Cyclotella were observed only in summer.

Because the whirlpool zooxanthella and blue-green algae were hardly observed, river water is good condition based on phytoplankton species.

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