

## Effect of over-levee irrigation on nutrient concentration in paddy field

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Anthropogenic nutrient loads to aquatic ecosystems has caused serious water pollution and eutrophication due to industrialization and urbanization. To prevent the progression of eutrophication, developed countries have controlled nutrient loads from point source through low enforcement and growing awareness. In contrast of point source, controlling the loads from non-point source is difficult. Paddy field is one of main non-point source in Japan, and thus, decrease of the loads from paddy field are a key to remedy of water eutrophication problems.

Over-levee irrigation of paddy field is a traditional irrigation system before paddy field improvement project in 1960s, in which water is supplied from upper paddy field to lower paddy fields to save water resources. Over-levee irrigation may increase the residence time of water and decrease runoff volume compared with current paddy field, in which water is supplied from the irrigation canal to every paddy field. Increase in residence time may reduce nutrient loads by promoting consumption of nutrients by sedimentation, soil adsorption and absorption by living things.

The aim of this study is to test the effect of over-levee irrigation systems on nutrient loads from paddy field to river. We investigated nutrient concentration in surface water in six over-levee irrigated paddy field for two months. In our presentation, we will introduce these results.

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