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# 貯水池堆積物に基づく能登半島北部の流域環境変動の推定
# Catchment environmental changes inferred from reservoir sediment in northern area of Noto Peninsula

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This study aims to reveal the sedimentation records and the transport processes of organic matter in the reservoir-catchment system in Noto Peninsula in the central Japan. This area confronts the catchment environmental changes (vegetation and land use changes, etc.) related to change in human activities (population decrease and ageing, etc.) expected to affect the material transport. In Nanao Area, the central part of Noto Peninsula, our previous study suggested that the discharge of organic matter from the catchment was influenced by the deforestation of broadleaf forest and the cedar plantation during 1970s. In this study, the reservoir with the different vegetation history was investigated.

Study site is a small reservoir Shin-ike located in the northern part of Noto peninsula. Surface sediment core (31 cm length) was collected from the reservoir using a HR type core sampler (Rigo, Japan) in October, 2009. The contents of total organic carbon (TOC) and total nitrogen (TN), carbon and nitrogen isotope ratios (delta $^{13}$C and $^{15}$N), and grain size were analyzed for 1 cm interval. Vertical profiles of radionuclide activity concentration ($^{210}$Pb and $^{137}$Cs) were also measured to estimate sedimentation rate and age of the core.

The present vegetation of the Shin-ike catchment mainly consists of broadleaf and pine tree forest. The cedar plantation is not significant in this site. The observation based on the aerial photos suggests that vegetation has developed and not disturbed since the small deforestation in 1960s.

The age of the core were estimated at about 90 years based on the $^{210}$Pb method. The delta $^{13}$C and $^{15}$N of organic matter were constant from 1920s to 1950s. They decreased with some fluctuations since 1950s and then the delta $^{15}$N slightly increased since 1970s. These fluctuations may be attributed to the decreasing contribution of soil organic matter and the increasing contribution of plankton to reservoir sediment. These results suggest that the discharge of organic matter from the catchment has changed related to the vegetation development in the Shin-ike catchment since 1950s.

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