

## What are the Drivers of Environmental Degradation? A River Basin Scale Investigation at Takatsu River Basin Shimane

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This poster presentation discusses a peculiar and challenging case of degradation of the natural environment in a river basin that is generally considered to have excellent ecological parameters. The 81 Km long Takatsu River in Shimane is a rare large river without a dam. It had topped the water quality surveys in the past. However, in recent years the river has shown clear trends of degradation, decline of fish species, lack of flow volume, and rise in turbidity in the pools. Our survey found that despite the general perception of a healthy and clean river, Takatsu River is subjected to a number of stress factors, which are distributed very diffusely on the spatial scale. These are, qualitative change in the upland forest cover, increase in pollution in tributaries, presence of numerous check weirs that inhibit nutrient and material flow to the rivermouth and disturbance of the pool riffle sequence due to the combined effect of all the above factors, as well as changes of land use pattern around the stream. A local NPO Andante 21 is conducting surveys on a key species, the Hamaguri clam, that almost disappeared from the rivermouth. Currently citizen efforts are somewhat successful in prohibiting catch of clams, and the population has rebounded to a degree. As this key species shows, poorly understood mechanisms of nutrient flow from upstream to downstream can have swift effects on key species, thereby reducing the ecosystem diversity. The research suggests that it is imperative to understand the manifold ways of landscape connectivity, and how species depend on these connections, in order to address problems like degradations in a large spatial scale such as a river basin.