

## Effects of hydrological and water quality alteration on river ecosystem functioning

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The project investigated the influence of dam operation rules inducing the environmental stressors that play important roles to river ecosystem functioning (i.e., metabolic functions and organic matter decomposition rates)

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Dam operation that generated prolonged stable flow regime has strong impact on metabolism of downstream.

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To investigate and monitor hydrologically impacted systems, Control-Impact field design based on large-scaled hydrological classification can be used to select the paired-control river reaches for comparision.

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Environmental characteristics, such as light availability (i.e., valley, canopy cover), and riparian vegetation should be added into consideration in order to choose comparable pairs of Control-Impact sampling sites.

The study identified environmental stressors, impacted by dam regulation, that have influence on river ecosystem functioning are (1) pattern of altered flow regimes,

(2) corresponding water temperature regimes, and (3) light availability controlled by riparian vegetation and valley effect.



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