

Effects of dam removal on nutrient retention in agriculturally dominated streams

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A Report to Congress on Aging Watershed Infrastructure

An Analysis and Strategy for Addressing the Nation's
Aging Flood Control Dams



Project Goal and Approaches

- How does dam removal affect rivers, with particular emphasis on nutrient retention and light availability?
- Use dam removal as a whole-ecosystem experiment to investigate fluvial dynamics
 - Monitoring (BACI design)
 - Additional measurements, experiments for hypothesis testing
 - Simulation modeling

Sites

- North Carolina
 - Deep River
 - Little River
- Wisconsin
 - Big Spring



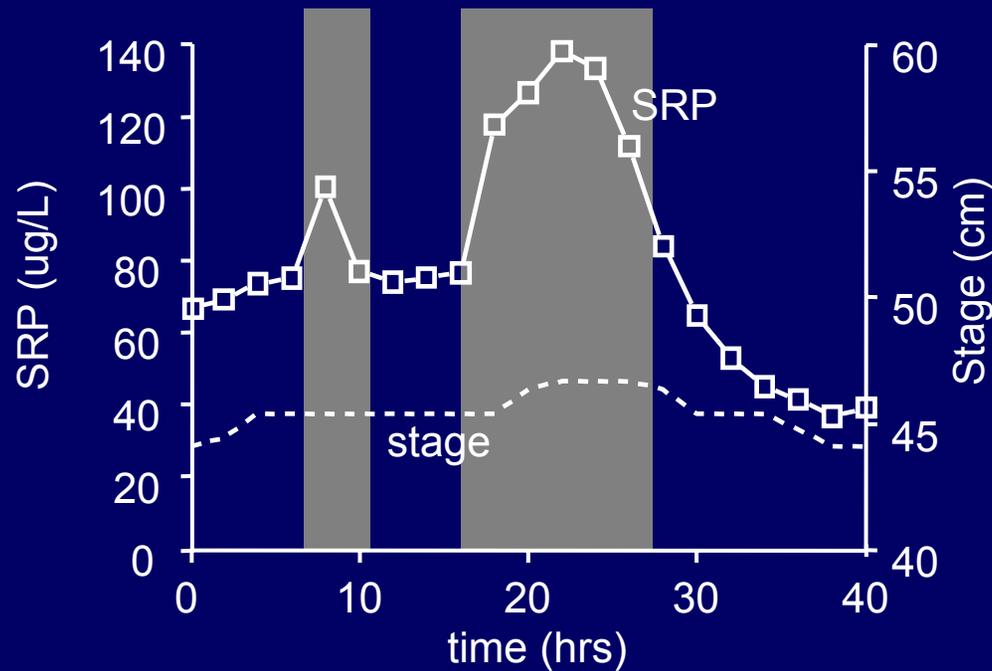
Removal of Carbonton Dam, NC
Dec 2005 (photo: A. Riggsbee)

Progress

- Development and testing of Benthic Light Availability Model (BLAM)- Jason Julian
- “Pulses”
 - Carbonton Dam removal:
 - Small pulses of sediments, nutrients associated with staged dam removal
 - Timing of pulses varies among constituents

Progress

- “Pulses” – Big Spring, WI
 - Pre-removal: reservoir modulating N pulses
 - Pulses of P in absence of increases in discharge



What's next...

- Continued monitoring at Big Spring
- Nutrient pulse experiments
 - Effects of impoundment
 - Effects of sediment
- Model development- Nutrient retention
 - Presence of reservoir
 - Removal of dam
 - Sediment-free pulses