Demonstrating nitrogen treatment effectiveness through innovative bench wetland systems

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Project objectives:

The overall goal of this project is to demonstrate treatment effectiveness and efficiency of nitrogen contaminants in watershed runoff with an innovative bench wetland system, including a two-stage ditch with wetland features together with a bioreactor. A secondary goal is to quantify the other ecosystem services provided by the practice as noted below.

Specific objectives include:

1) Determine the cost, total reduction and cost per pound of nitrogen reduction through the entire bench wetland system.
2) Quantify additional ecosystem services provided within the bench wetland system, including
a. Bench wetland vegetation establishment and monitoring
b. Wetland hydrology and nitrogen reduction potential of managed bench wetlands
c. Geomorphic stability and aquatic habitat creation
d. Fish habitat utilization, including a new technique for monitoring.
3) Facilitate the transfer of this system to other locations by simulating the nutrient reduction of each component of the two-stage ditch system through physically-based models and effective information and outreach.