

How Can Restoration Target Nitrate Removal?

- Wood (carbon) in channels
- Bugs and other bottom-dwelling critters
- Native plants to water's edge

We suggest approaches that increase in-stream carbon availability, contact between the water and benthos, and connections between streams and adjacent terrestrial environments.— Craig, et al.

Two-stage Ditch Research

- Most effective at reducing N at low flows (where nutrients are a problem in Iowa)
- Increase stability and reduce maintenance costs while increasing flood conveyance
- 900 meter long 2-stage ditch in Indiana yielded 6-9 percent N load decrease



Floodplain Restoration Enhances Denitrification and Reach-Scale Nitrogen Removal in an Agricultural Stream; Ecological Applications; 2012; SARAH S. ROLEY, et. al

Streambank Material Sampling Results* Summary of Average Values

Bulk Density: 71 to 148 lb/ft³

Total Phosphorus: 0.2 – 1.0 lb/ton of sediment

Total Nitrogen: 0.6 – 2.4 lb/ton of sediment

Location	Material Class	Bulk Density (lb/ft ³)	TP (lb/ton)	TN (lb/ton)
Neokaska - Gully	Fine	80	0.6	2.3
	Coarse	148	0.7	0.6
Neokaska - Sweetwater	Fine	101	0.6	1.6
	Coarse	135	0.3	0.6
White River	Fine	99	1.0	1.9
Mullins Branch	Fine	96	0.4	2.3
West Fork White River	Fine	99	0.6	1.0
	Coarse	97	0.3	0.6
Osage Creek	Fine	71	0.9	2.4
	Coarse	112	0.3	0.6

Credit: Sandi J. Formica and Matt Van Eps, Watershed Conservation Resource Center, Fayetteville, Ark.

* Results of the materials analysis is preliminary and under review

One White River Streambank Project Prevented the Loss of...

Sediment	3,600 tons / year
Phosphorous	3,500 lbs / year
Nitrogen	6,500 lbs / year

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