How Can Phosphorus Levels be Reduced at our Duck Creek Monitoring Sites?

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THE LOWER FOX RIVER watershed monitoring program

Introduction

TMDL: What Is It?

TMDL is a Government funded project to reduce total maximum daily loads.

The Lower Fox River Basin and Green Bay are impaired because of excess amounts of phosphorus, nitrates, and suspended solids. The TMDL plan sets a goal of .12 mg/L total phosphorus and 24 mg/L total suspended solids. Agricultural nonpoint source pollution can be reduced to about 50,000 kg/yr and point source facilities pollution can be reduced to about 45,000 kg/yr, both cut in half. Our group has focused on various land practices that effectively reduce these pollutants.

Proposed Results

Duck Creek FF

Date	P(mg/L PO4-P)	TMDL Target P	Riparian Buffer (25ft.)	Riparan Buffer (75ft.)	Wetland	Cons. Tillage
10/11/2007	0.22	0.12	0.16	0.06	0.13	0.15
7/17/2007	0.29	0.12	0.22	0.09	0.17	0.2
5/9/2007	0.07	0.12	0.05	0.02	0.04	0.05
9/26/2006	0.07	0.12	0.05	0.02	0.04	0.05
7/11/2006	0.27	0.12	0.21	0.08	0.16	0.19
9/29/2004	0.13	0.12	0.1	0.04	0.08	0.09
7/13/2004	0.14	0.12	0.11	0.04	0.08	0.1
6/15/2004	0.44	0.12	0.34	0.13	0.26	0.31
5/11/2004	0.45	0.12	0.35	0.14	0.26	0.32
10/21/2003	0.29	0.12	0.22	0.09	0.17	0.2

Duck Creek Overland

Date	P(mg/L PO4-P)	TMDL Target P	Riparian Buffer (25ft.)	Riparan Buffer (75ft.)	Wetland	Cons. Tillage
10/11/2007	0.61	0.12	0.47	0.18	0.35	0.43
7/17/2007	0.31	0.12	0.24	0.09	0.18	0.22
5/9/2007	0.12	0.12	0.09	0.04	0.07	0.08
9/26/2006	0.23	0.12	0.18	0.07	0.13	0.16
5/16/2006	0.49	0.12	0.38	0.15	0.28	0.34
10/11/2005	0.68	0.12	0.52	0.2	0.39	0.48
7/12/2005	0.77	0.12	0.59	0.23	0.45	0.54
9/29/2004	0.48	0.12	0.37	0.14	0.28	0.34
7/13/2004	0.22	0.12	0.17	0.07	0.13	0.15
6/15/2004	0.25	0.12	0.19	0.08	0.15	0.18
10/7/2003	0.13	0.12	0.1	0.04	0.08	0.09

Methods

Riparian Buffer: defined as a vegetated area near a stream, usually forested, which helps shade and partially protect a stream from the impact of adjacent land use.

•Reduce and filter out runoff->remove 84% sediment loads,

reduce phosphorous by 50-70% depending on their width.

Wetland Restoration: defined as restoring native vegetation that can withstand standing water for an extended period of time.

•Applies only to lands that were once wetlands and have the appropriate soils. Can reduce phosphorous loads by 42%.

Conservation Tillage: defined as crops grown with minimal cultivation of the soil. The stubble or plant residues remain on top of the soil to protect it and the new crop is planted into the stubble.

•Using this type of cultivation, phosphorous loading can be reduced by about 30%.

Other Methods:

•Low Impact Development in residential areas

•Rotational Grazing and Manure Management in agricultural areas.

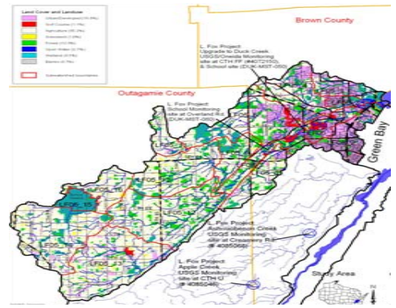
Conclusion

The primary water quality problems in the Fox River Basin stem from sediment and nutrients, particularly phosphorous. Using a TMDL project these nonpoint pollution sources can be effectively reduced.

• Using riparian buffer zones in the residential and recreational areas upstream of our FF site could reduce phosphorus loads by as much as 70%.

• Using conservation tillage, rotational grazing and manure management in the agricultural areas upstream of our Overland site could reduce phosphorus loads by as much as 30%.

• Using Low Impact Development in our residential areas could significantly reduce runoff which carries the sediment to Duck Creek..



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