Water Quality Trading to Meet Local and Regional Goals

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WQT Programs
Ohio River Basin WQT Overview

- Ohio, Indiana, Kentucky
- Full decade of experience
- 60 Landowners
- Contracts run between 5 to 40 years
- Agricultural and Forestry Practices
- 200,000 TN/TP Credits Verified
Heartbroken dog owners mourn the loss of their pets from deadly algae

August 14, 2019

Fox News Channel

Across the South, dogs are dying from toxic algae exposure after swimming in lakes, ponds.
Models – Edge of Farm (NTT) and Watershed Model (WARMF)
Specific Nutrient Numbers Depend on Location
First Journal paper on Credit Calculation Methods

Published June 2014

Attenuation Coefficients for Water Quality Trading

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§Supporting Information

ABSTRACT: Water quality trading has been proposed as a cost-effective approach for reducing nutrient loads through credit generation from agricultural or point source reductions sold to buyers facing costly options. We present a systematic approach to determine attenuation coefficients and their uncertainty. Using a process-based model, we determine attenuation with safety margins at many watersheds for total nitrogen (TN) and total phosphorus (TP) loads as they transport from point of load reduction to the credit buyer. TN and TP in-stream attenuation generally increases with decreasing mean river flow; smaller rivers in the modeled region of the Ohio River Basin had TN attenuation factors per km, including safety margins, of 0.19–1.6%, medium rivers of
Overall, there is the potential for avoiding 60 million kg N and 2 million kg P from reaching the streams and rivers of the northern ORB as a result of conversion of marginal farmland to tree planting. This represents a significant fraction of the goal of the USEPA Gulf of Mexico Hypoxia Task Force to reduce TN and TP reaching the dead zone in the Gulf of Mexico.

How to improve the quality of water? By planting (many) trees

American researchers have made the link between reforestation and improved water quality. They call today polluting facilities to reforest their lands.
## Credits are Registered

![Ohio River Basin Trading Project](image)

### Ohio River Basin - Water Quality Trading Project

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Account Name</th>
<th>Project Type</th>
<th>Installation Date</th>
<th>State / Province</th>
<th>Watershed (WUC)</th>
<th>Sub-Watershed (WUC)</th>
<th>BMP Description</th>
<th>Details</th>
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<td>South Hogan Creek-North Hogan Creek</td>
<td>Feedlot Waste Management System</td>
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Personal Footprints

http://n-print.org/

James Galloway, University of Virginia
Allison Leach, University of New Hampshire
Scenarios

SRF/WIFIA Projects

- $50M Funding
- 1% allocated to WQT = $500,000
- Benefits achieved quickly while traditional infrastructure installed.

319 Funds

- States can purchase and retire credits.

Funding cycles back into more BMPs and more TN/TP reductions.
Future . . .

Figure 2: Phosphorus load ranges in tonnes/year flowing into Lake Winnipeg based on averaged total annual phosphorus loads measured from 1994 to 2001 at long-term monitoring stations in Manitoba and interpreted by Bourne et al. (2002)
Let’s Give This a Go!

- Inventory of verified credits & ready to produce more.
- A decade of agency and stakeholder support.
- Science to calculate value based on specific point of concern.
- We need State’s help to identify teaming opportunities for grants, loans, purchases.
OHIO RIVER BASIN
WATER QUALITY TRADING PROJECT

Do Your Part!

wqt.epri.com