

Lycoming College

Clean Water Institute: Farm Project 2nd Year Update

Summary of Nutrient and Sediment Load

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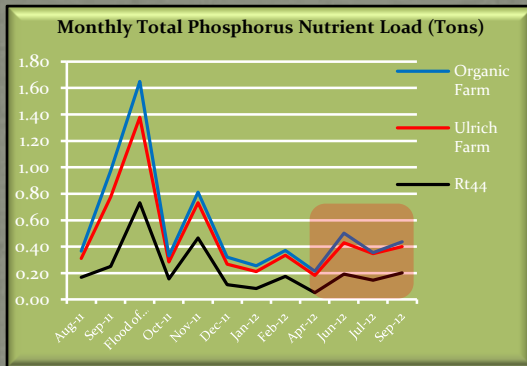
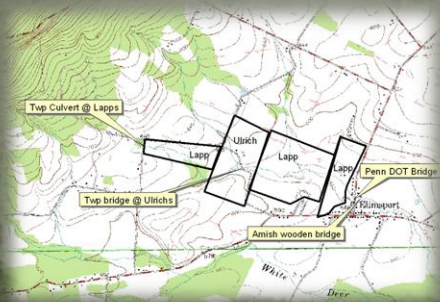


Project Overview

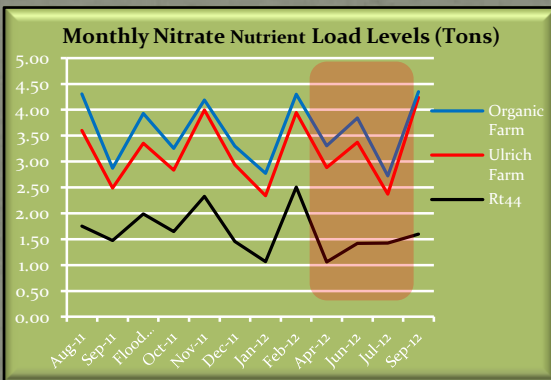
This project is a joint venture between the Lycoming County Conservation District, Lycoming County Planning Commission, Land Studies Inc., and the Lycoming College Clean Water Institute. The objectives of this project are to facilitate the cost effective implementation of agricultural best management practices (BMPs) in a small watershed in order to monitor local water quality improvements and facilitate voluntary implementation of BMPs to promote the goals and objectives of the Lycoming County Nutrient Management Strategy. By demonstrating how BMPs improve local water quality, stakeholder outreach will further promote voluntary participation in BMP implementation leading to more baseline compliances results within agricultural operations. In August 2011, an un-named tributary of White Deer Creek (near Elimsport in Lycoming County PA) was identified as the initial phase of the project when the owners of four separate farm partials agreed to participate (see figure).

Proposed Best Management practices include:

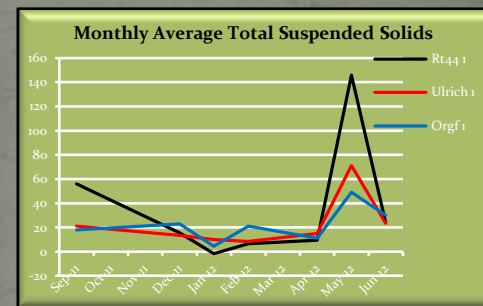
- Implementing Riparian Buffers and
- Implementing No-Till Farming
- Fencing off stream to keep out livestock
- Manure Management- Appropriately timed spreading of manure
- Monitoring fish populations and macro-invertebrates
- Land Studies: Calibration of flow calculation based on water shed with the use of Solinst Levelogger
- Goals of BMPs introduction is to reduce sediment (TSS), nitrogen and phosphorus run-off into the stream
- BMPs implemented June 2012



Graph 1: Monthly Total Phosphorus Nutrient Load output at each site. Spike in nutrient load at point 3 shows data from Flood Event in September 2011. Red Shaded area shows the implementation of BMP's.



Graph 2: Monthly Nutrient Load Levels in Tons of Nitrate of each Farm Site. Red Shaded area shows the implementation of BMP's.



Graph 3: Mean average total suspended solids by month for each site. High flow event shown (May-12) as increase in TSS. Chart omits the Flood of September 2011.

Normal Flow Comparison vs. High Flow Event



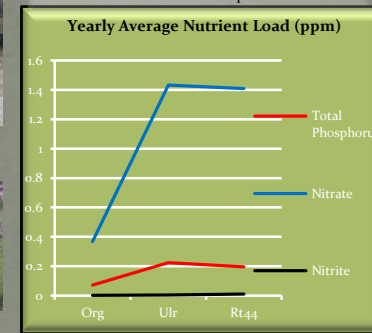
Site 1: Elimsport (Rt44 Bridge)



Site 1: Elimsport (Rt44) View From Bridge



Site 2: Ulrich Farm View Upstream



Graph 4: Yearly summary of the three main nutrients at all three site from upstream to downstream order. Nitrate is show to increase the most throughout the project site.

Clean Water Institute Interns:
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