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The Ditch Project: Digging in and reaching out

The Ditch Project is an integrated effort to study and improve the management of agricultural drainage ditches for water quality protection on the Delmvarva Peninsula. In this presentation, we will update our progress on understanding fundamental scientific processes operating in these ecosystems, discuss the installation and early results of our ditch management practices, and review successes and lessons learned from a major outreach event that we hosted. Our research is conducted primarily at the University of Maryland Eastern Shore Research Farm in Princess Anne, Maryland and at four on-farm locations in Somerset County, Maryland. At the Research Farm we have observed very large phosphorus loadings in shallow primary ditches, primarily flowing in the shallow subsurface zone during storm events. The soils forming in ditches appear to be acting primarily as phosphorus sinks over the long-term, but influence short-term phosphorus dynamics. Redox cycling appears to lead to high concentrations of poorly crystalline iron oxides with a high phosphorus sorption capacity. Iron monosulfide formation at the surface of ditch soils appears to widespread in Delmarva ditches. Our management practice installations include ditch clean-outs, water-control structures, and an innovative practice in which acid mine drainage residuals are be used as a means to sequester dissolved phosphorus from ditch drainage water. The outreach effort was a field tour and symposium held in August, 2006. The event was well attended with a breadth of individuals from within and outside the region.

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