

Speaker 2 of 3: Scott Heidel (PADEP), Kishacoquillas Creek Alternative Restoration Plan

The Kishacoquillas Creek Watershed (Kish) is an agricultural watershed in Central Pennsylvania with a Federal 319 Watershed Implementation Plan (WIP), but no TMDL. The WIP is being aggressively administered by the Mifflin County Conservation District (MCCD) to address sediment and nutrient impairments. MCCD has conducted significant implementation of agricultural BMPs over the last decade by building and maintaining strong relationships with the agricultural land owners.

The Kishacoquillas Creek Alternative Restoration Plan (ARP) developed sediment and nutrient reduction goals using a reference watershed approach as Pennsylvania does not have numeric criteria for these pollutants. The ARP allowed MCCD to evaluate the effectiveness of their implementation efforts to date and to update their WIP to incorporate load reduction goals and target future Best Management Practices (BMP) called for in the WIP and the ARP.

Current BMP implementation has resulted in a 21% reduction in TP. The next step, Phase 1, entails getting all agricultural operations into Regulatory Compliance including the implementation of Erosion and Sediment Control Plans and Nutrient Management Plans throughout the watershed.

Implementation of Phase 1 will nearly attain the numeric restoration goals of the ARP. Phase 2 of the restoration calls for a targeted suite of BMPs to get over the finish line and attain the pollution reduction goals of the ARP, as shown in the table below. Each Phase has five-year milestones, so this is a ten-year plan.

| Kish ARP TP reduction | Load, No BMPs | Current WIP BMPs, Load Reduction | Phase 1, Load Reduction | Reduction Goal | Phase 2, Load Reduction |
|-----------------------|---------------|----------------------------------|-------------------------|----------------|-------------------------|
| TP Load, lbs/day      | 149           | 117                              | 99                      | 73             | 65                      |
| Percent Reduction     |               | 21%                              | 34%                     | 51%            | 56%                     |

Monitoring, as a part of the Adaptive Management Approach built into this ARP, includes habitat assessments, pebble counts, water column chemistry (nutrients), field chemistry (DO, pH and Temp), electrofishing and macroinvertebrate sampling. Data collected will be used to track the positive ecological impact of BMP implementation as load reductions called for in this ARP are achieved. Results show improvement is occurring, slowly but surely.

The Kishacoquillas Creek watershed made a perfect candidate for an ARP as the local Conservation District was already engaged with the farmers in implementing the WIP, but did not have defined pollutant reduction goals. As this was Pennsylvania's first ARP, we learned that one possibility for a TMDL alternative would be a hybrid TMDL/Implementation Plan approach with schedules, milestones and monitoring components that conventional TMDLs lack. EPA R3 was instrumental in helping PA DEP develop the Kish ARP by providing recommendations and insight into their vision of what would constitute an acceptable alternative to a TMDL. Now, from the local partners on up, it is agreed that this ARP provides an effective road map for watershed restoration in the Kishacoquillas Creek Watershed.