

SOCIOECONOMIC ANALYSES TO PRIORITIZE RESTORATION OF STREAMS IMPACTED BY MINE DRAINAGE¹

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Abstract: Acid mine drainage (AMD) can impair or eliminate streams as aesthetic, recreational, fisheries, or drinking water resources, resulting in socioeconomic losses to surrounding communities. The degree of this loss and the justifiable cost of stream restoration are not generally known. To quantify the value of stream restoration to a rural community, a willingness-to-pay survey was conducted in the Broad Top region of Pennsylvania, an area impacted by AMD. In a parallel study, a Watershed Restoration Analysis Model (WRAM) was developed to model the effects of AMD treatment on Shoup Run within this region, and to predict the local costs per mile of stream restoration. Willingness-to-pay results for fishable water quality ranged from \$0 to \$94.70 per household per year, and for drinking water quality from \$227.53 to \$335.97 per household per year. Annualized 15-year construction, operation, and maintenance costs for treatment systems on Shoup Run ranged from \$34,200 to \$86,000 per mile per year, with costs increasing trending downstream from headwaters to main stem restoration. The annualized cost for headwaters restoration was compatible with the local willingness-to-pay, while the annualized cost for main stem restoration suggested a need for outside funding. Based on WRAM results, a progressive watershed restoration plan was prepared for Shoup Run, and a generalized methodology for implementing watershed-scale restoration projects was developed to guide future efforts. It is recommended that cost-benefit analyses of this type be used for assessing and prioritizing watershed restoration projects to maximize the benefits of allocating available funding.

Additional Key Words: socioeconomic benefits, stream restoration, AMD treatment

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