

# ABANDONED MINE DRAINAGE



## Overview

The headwaters of the Schuylkill River are located in the serene mountain valleys of Schuylkill County, Pennsylvania. An area rich in scenic beauty and coal mining history, the Little Schuylkill and Upper Schuylkill Rivers are designated cold-water fisheries, and the Schuylkill main stem is a State Scenic River at the confluence of these two tributary waterways.

Abandoned Mine Drainage (AMD) is the primary cause of pollution in the Schuylkill River headwaters and the biggest source of metals downstream. AMD is created deep below the ground in abandoned mines where streams, groundwater, and stormwater fill tunnels that were once kept dry by active pumping operations. Water and oxygen react with lingering iron sulfide (pyrite) producing metal-laden and sometimes highly acidic discharges that exit the tunnels in telltale orange and silver plumes, easily visible in these regional surface waters.



*Abandoned mine discharge*





*Abandoned mine tunnel*



*Passive AMD treatment system*

AMD interferes with vegetative growth and reproduction of aquatic animals by armoring the streambed with deposits of iron and other metals. Acidity and metals impair both surface and ground drinking water resources and quickly corrode pipes and industrial mechanisms. Unattractive waterways marred by AMD can hinder tourism and recreational opportunities like fishing, boating, and swimming that attract so many people to visit, vacation, and reside in this region.

AMD treatment is expensive, but so is the economic and environmental damage that results from untreated AMD. The Schuylkill Action Network (SAN) AMD Workgroup was formed to provide support and coordination among partners working to address AMD. Using Schuylkill Watershed Initiative Grant funding, the Schuylkill Headwaters Association, the Schuylkill Conservation District, the United States Geological Survey, and the Pennsylvania Department of Environmental Protection, with support from the Philadelphia Water Department, Aqua Pennsylvania, and the United States Environmental Protection Agency, have implemented innovative projects. These projects use both anoxic and oxic limestone drains, retaining basins, and/or wetlands to greatly reduce AMD flow by thousands of gallons per minute into the Schuylkill headwaters. By decreasing acidity and iron sedimentation in this precious water resource, these projects will restore and protect aquatic habitats, and ensure eco-based economic security and recreational enjoyment for present and future generations.

*The Schuylkill Watershed Initiative Grant is a \$1.15 million targeted watershed grant awarded by the U.S. Environmental Protection Agency for the completion of a suite of water quality improvement demonstration projects. The grant is administered by the Partnership for the Delaware Estuary and the Philadelphia Water Department, and through leveraging, provided \$3 million for water quality improvements, including over \$1.2 million devoted to AMD projects in the Schuylkill River Watershed.*

