



Mid-Atlantic Water

Serving Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia

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Abandoned Mines' Role in Nonpoint Source Pollution

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There are three issues with abandoned mines that impact water quality in the mid-Atlantic region:

- [acid mine drainage](#) (the most prevalent)
- [alkaline mine drainage](#)
- [metal mine drainage](#)

The mid-Atlantic [Total Maximum Daily Load](#) (TMDL) program, which defines the amount of a pollutant that a waterbody can receive and still meet water quality standards, has completed hundreds of TMDLs for stream segments impacted by mine drainage. EPA provides funding through [Section 319](#) grants to assist in cleanup efforts.

Acid Mine Drainage

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[Acid Mine
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Acid mine drainage is water contaminated when pyrite, an iron sulfide, is exposed and reacts with air and water to form sulfuric acid and dissolved iron. Some or all of this iron can precipitate to form the red, orange, or yellow sediments in the bottom of streams containing mine drainage. The acid runoff further dissolves heavy metals such as copper, lead, mercury into ground or surface water. The rate and degree by which acid mine drainage proceeds can be increased by the action of certain bacteria.

There are a number of major environmental problems caused by acid mine drainage. It disrupts growth and reproduction of aquatic plants and animals, diminishes valued recreational fish species, degrades outdoor recreation and tourism, contaminates surface and groundwater drinking supplies, and causes acid corrosion of infrastructure like wastewater pipes.

Over 95% of the acid problem is located in western Pennsylvania, almost all of West Virginia, southwestern Virginia, and far western Maryland. The northern Appalachian coal fields (bituminous or soft coal) extend from northwestern Pennsylvania, south of the New York state line and west of the Susquehanna River, through western Pennsylvania and southeastern Ohio, and through most of West Virginia and into western Maryland and southwestern Virginia, eastern Kentucky, and northeastern Tennessee. Runoff water, polluted by acid, iron, sulfur and aluminum, has often drained away from the mines and into streams. Mine drainage is particularly heavy in the western and, to a lesser extent northeastern, Pennsylvania, and northern and south central West Virginia. Northeastern Pennsylvania is largely anthracite coal.

Alkaline Mine Drainage

The drainage from some mines is alkaline with high levels of metals. Generally, the rock that produces alkaline drainage has calcite and/or dolomite present.

Metal Mine Drainage

The mid-Atlantic region has a number of abandoned metal mines, some from the era of the Civil War. These mines produced lead, gold, and other metals. Drainage from these mines can contain high levels of these metals.

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<http://www.epa.gov/reg3wapd/nps/mining/mines.htm#acid>
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