

## INDICATOR 4

# MINE DRAINAGE



### OVERVIEW

Mine drainage impacts approximately 2,000 miles of streams/rivers in the basin, and represents the second largest source of pollution in the Susquehanna River Basin. These impacts can be devastating to aquatic life and prevent the use of the resource for recreation and other human use. However, plans and strategies for addressing the problem have been developed for watersheds throughout the basin, and progress is being made towards realizing recovery of the resource within many settings.

### PARTNERSHIPS

In the Anthracite Region, SRBC is coordinating its efforts with the Pennsylvania Department of Environmental Protection, Eastern Pennsylvania Coalition for Abandoned Mine Reclamation (EPCAMR) and other private/public partners. In particular, the sharing of data between EPCAMR and SRBC for EPCAMR's Anthracite Region Mine Pooling Initiative and SRBC's remediation strategy has proven invaluable for moving both initiatives forward. Both agencies will continue to work together to implement the restoration strategy and continue the mine pool mapping effort in additional Anthracite Coal Fields.

### Overarching Issue

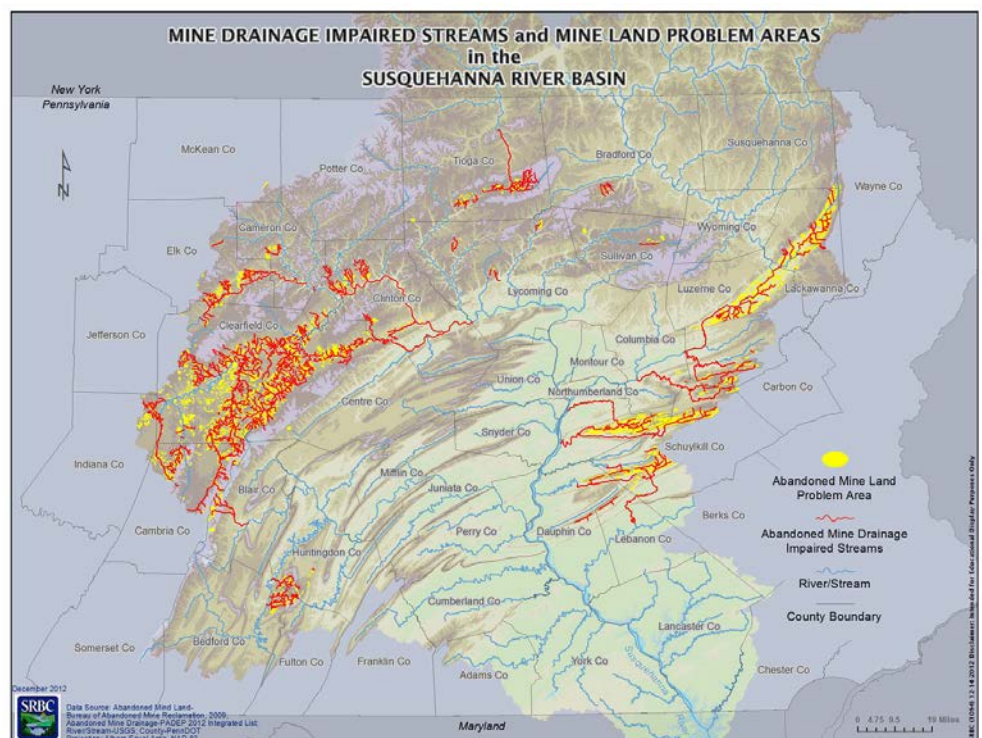
Mine drainage is the second largest source of stream impairment in the basin and encompasses a variety of aquatic impacts, including depressed pH and elevated acidity, sulfate, and metals such as iron, manganese, and aluminum, as well as sedimentation. These impacts, taken together, can have devastating impacts on aquatic life, such as mayflies, stoneflies, plants and native brook trout. Mine drainage also can preclude use of water for agriculture, commercial and industrial purposes and human consumption.

### INDICATOR CRITERIA

Criteria	Assessment Period	
	2010	2012
Number of mine drainage impaired stream miles	1,980	2,010 *
Number of remediation projects implemented	123	133
Number of acres of abandoned mine lands restored	15,752	16,554
Amount of mine drainage water allocated for beneficial use/reuse (MGD)	142	155

\* Increases in stream miles data from 2010 to 2012 largely reflect refinements to states' impaired-waters categorization process.

Data Sources: SRBC water use data, EPCAMR RAMLIS data, PADEP BAMR data, PA stream impairment data



## RESTORATION EFFORTS

Although mine drainage can have devastating effects on water quality and overall health of the aquatic ecosystem, there is the potential to see short term improvements after successful restoration efforts. The pictures at right show the changes that have occurred in the Bear Run Watershed after treating iron-laden discharges. Trout populations and other aquatic species can move into such areas quickly under such improved conditions.



Bear Run before (left) and after restoration efforts to reduce mine drainage into the watershed.

## FOCUS STORY

### ANTHRACITE REGION MINE DRAINAGE REMEDIATION STRATEGY

In 2011, SRBC completed the Susquehanna River Basin Anthracite Region Strategy, which encompasses a comprehensive inventory and analyses of water quality data for streams and mine drainage discharges within the basin's eastern anthracite region.

Of the 320 discharges inventoried, SRBC determined that as few as 20 mine drainage discharges are contributing nearly 72 percent of the mine drainage loading to rivers and streams in the region.

The primary recommendation of the plan is to construct 10 active treatment plants. These plants would treat only 11 percent of the 320 mine drainage discharges in the Susquehanna River Basin Anthracite Region; however, treatment of these significant discharges could potentially remove about 60 percent of the acidity loading, 68 percent of the iron loading, and 79 percent of the aluminum loading currently entering the Susquehanna River.

SRBC, along with EPCAMR and the Lackawanna River Corridor Association, is taking the steps needed to develop the first active treatment plant for the Old Forge Borehole and Duryea Breach Discharges near the mouth of the Lackawanna River. The collection of data to refine the restoration plan is complete, and the group is currently working on securing property rights for a future plant.

