

RACCOON CREEK WATERSHED

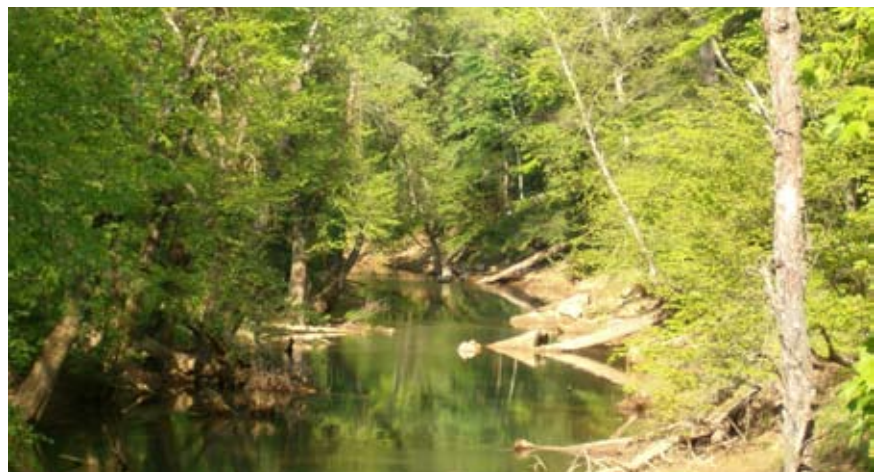
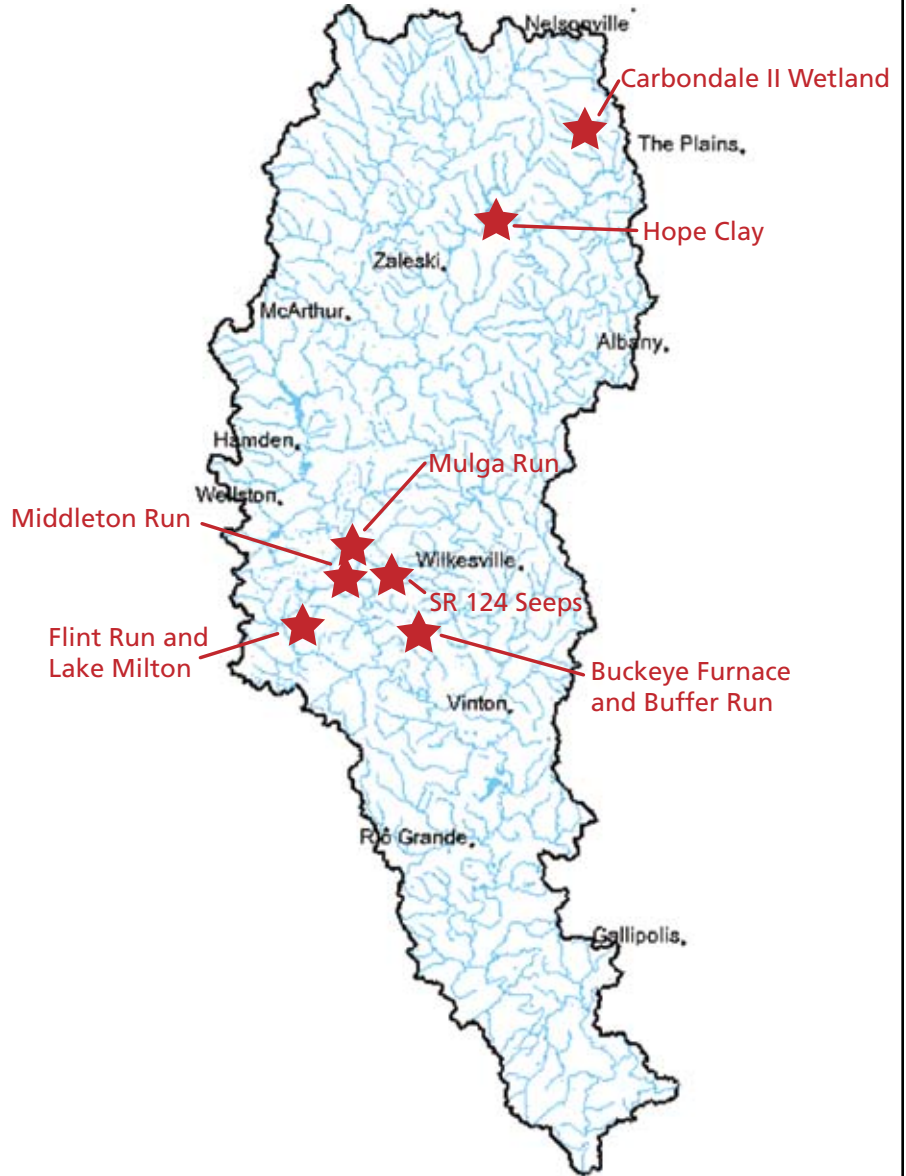
Generated by Non-Point Source Monitoring System www.watersheddata.com

- The Raccoon Creek Watershed Project is a local partnership working towards conservation, stewardship, and restoration of the watershed for a healthier stream and community. The partnership consists of multiple agencies and individuals working to restore and promote the waters of Raccoon Creek. Encompassing over 683 square miles, the watershed lies in portions of six southeast Ohio Counties (Athens, Hocking, Meigs, Vinton, Jackson and Gallia). Raccoon Creek is one of Ohio's longest streams, measuring 112 miles draining into the Ohio River in Gallia County. Major sources of impairment to the stream include acid mine drainage (AMD), drainage from wastewater treatment facilities, and industrial discharges. By and large, AMD contributes to the vast majority of pollution issues in the watershed.

- The watershed currently has over 25,610 acres of underground coal mines and 21,550 acres of surface coal mines within its boundaries. About 110 acres of abandoned coal refuse piles also lie in the watershed. These abandoned mines and refuse piles leach thousands of pounds of sulfuric acid and metals into the creek daily, significantly degrading the water quality of streams. In the late 1990's representatives from several partnering agencies, including the Institute for Local Government and Rural Development (ILGARD), Ohio Department of Natural Resources, Division of Mineral Resource Management, and Ohio EPA, prioritized sites that contributed the most AMD pollution to Raccoon Creek and began to implement restoration strategies on these sites. Because the watershed is so large, three major sub-shed divisions are used to break up the region into more manageable sections. These consist of the Headwaters, Little Raccoon, and the Middle Basin sub-sheds. Each of these sections has priority AMD projects. Some of these projects have been completed, some are in progress, and some are anticipated future projects.

- **Headwaters**

- The major priority sites in the headwaters sub-shed include East Branch, where several impacted tributaries contribute to significant acid and metal loadings in Raccoon Creek. Brushy Creek and the Mainstem of Raccoon



Raccoon Creek near Moonville, Photo by Ben McCament

Creek above Brushy Creek are also priority AMD abatement sites.

- Little Raccoon
- Flint Run is the largest contributor of AMD in the Little Raccoon Creek watershed. A majority of this (90%) is attributed to a 240-acre site in the headwaters. This site, called Broken Aro, previously housed a coal preparation facility and mine tailings dump. Other major AMD contributors in this basin include Mulga Run, Buffer Run and Goose Run.

- Middle Basin

- Major acid contributors in the middle basin include Rock Camp and Pierce Run. Rock Camp is the most consistent contributor of AMD, and has net acidic water regardless of flow. Pierce Run has experienced some net alkaline flows; it is thought that this might result from current mining operations in the area.

- Watershed Outreach

- In addition to the technical work of AMD remediation, other activities in the watershed are geared toward meeting goals of stewardship and conservation in the region. Annual litter pick-ups, tree-plantings and canoe-floats all encourage residents to become stewards of our watershed. School programs for youths help educate students about water quality, acid mine drainage, and the value of clean water. In addition, a new community group has formed to address access issues for canoers and kayakers who wish to paddle on the creek.

For further updates on the progress in Raccoon Creek,
please visit our webpage at:
www.raccooncreek.org



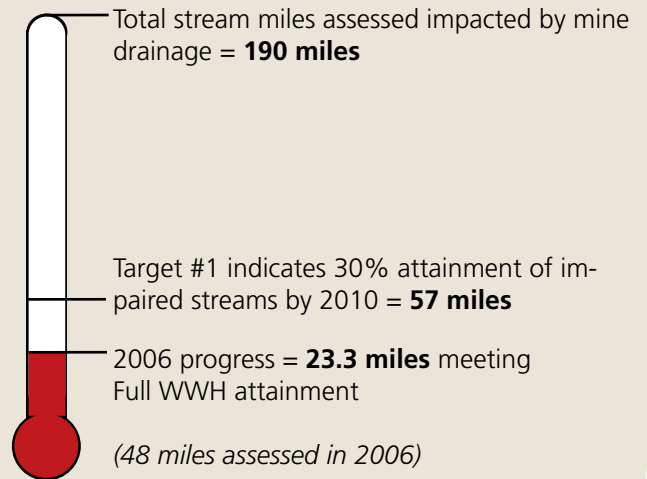
Reductions

Total acid load reduction = 5,339 lbs/day

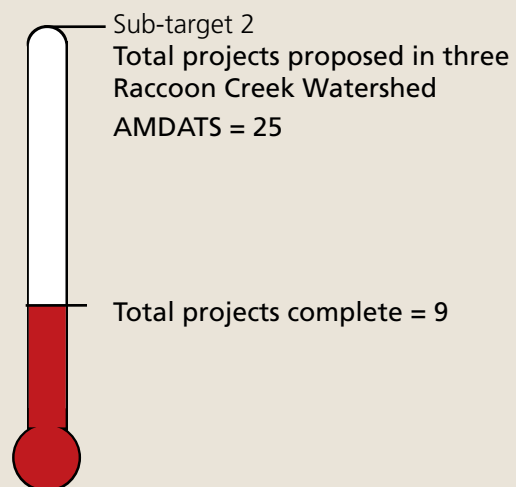
Total metal load reduction = 878 lbs/day

Data derived using the Mean Annual Load Method (Stoertz, 2004).

Attainment Miles



Completion and Costs



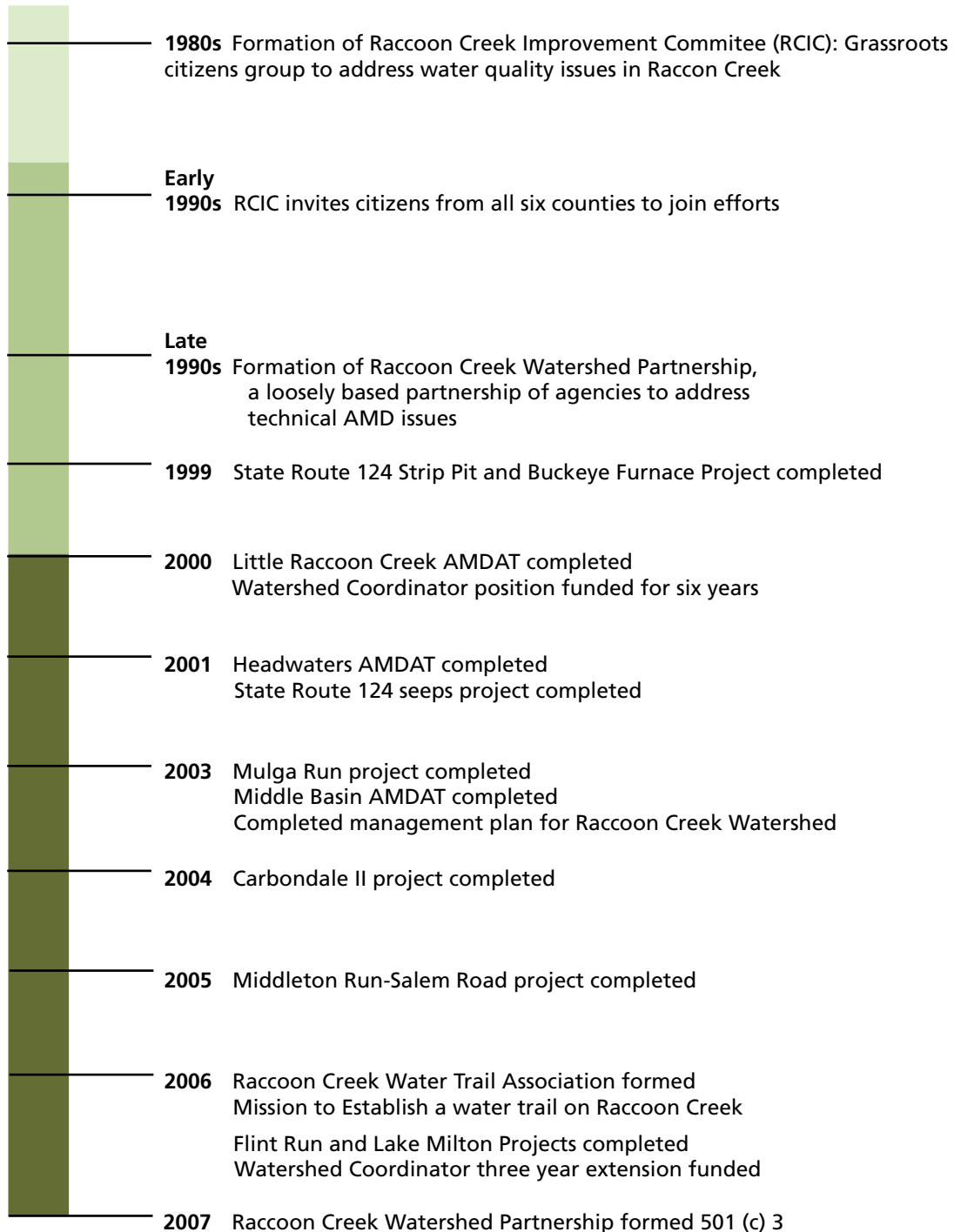
Design = \$1,356,135
Construction = \$5,408,995

Total Costs through 2006 = \$6,765,130

Timeline of the Raccoon Creek Watershed Project Milestones & AMD Projects

This timeline shows the history of the Raccoon Creek Watershed Partnership, started almost two Decades ago by a group of concerned local citizens. Today, the partnership consists of multiple state and local agencies and private citizens. AMD projects have

been administered through the Vinton Soil and Water Conservation District and Ohio University's Voinovich Center (ILGARD), with funding from various state and federal grants but mostly from Ohio EPA's 319 program and ODNR-MRM's AMD program.



RACCOON CREEK WATERSHED

Generated by Non-Point Source Monitoring System www.watersheddata.com

Projects Completed July 1, 2006 – June 30, 2007

Flint Run East	\$1,697,808
Lake Milton	\$1,377,536
total	\$3,075,344

Load Reductions

	Flint Run	Lake Milton	
Acid Load	803 lbs/day	1,288 lbs/day	2,091 lbs/day
Metal Load	107 lbs/day	103 lbs/day	210 lbs/day

Cumulative BMP's installed

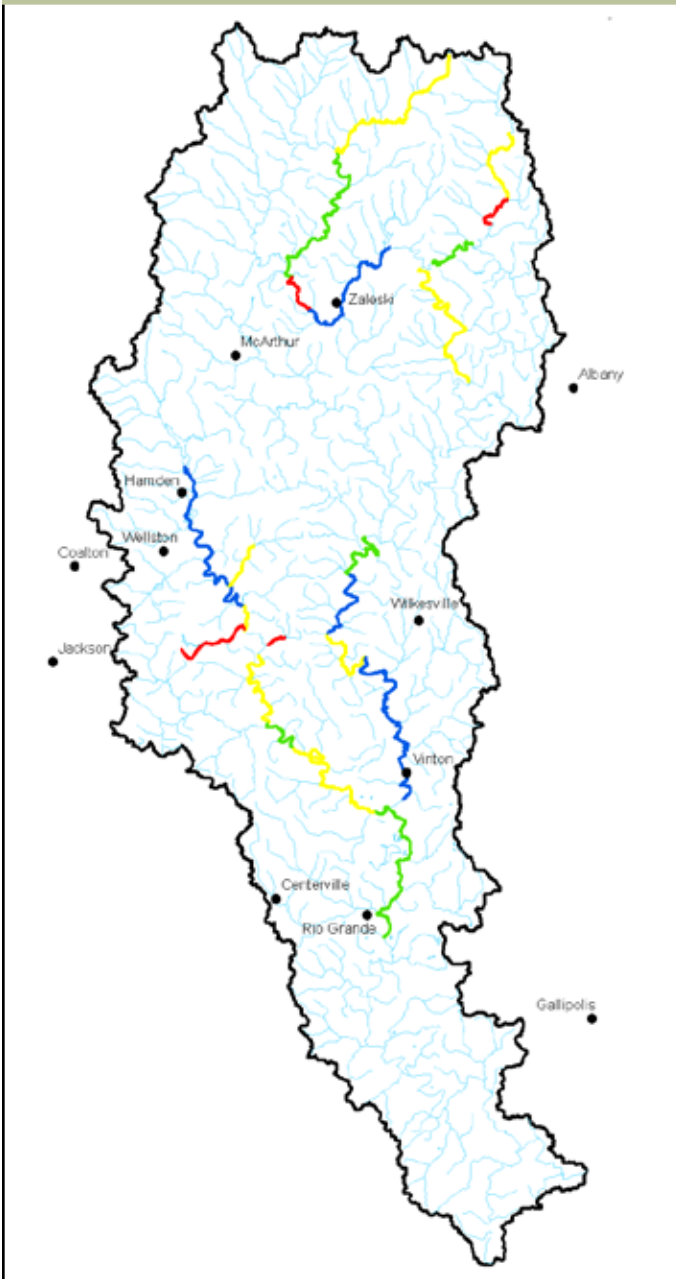
Treatment Installed	Flint Run	Lake Milton
Successive Alkaline Producing Systems (SAPS)	32,500 <i>square feet</i>	16,000 <i>square feet</i>
Open Limestone Channel	13,650 <i>linear feet</i>	2,300 <i>linear feet</i>
Steel Slag Leach Bed	32,500 <i>square feet</i>	74,000 <i>square feet</i>
Earthwork	56 <i>acres</i>	
Erosion Control	13,000 <i>linear feet</i>	
Dewatering Existing Impoundments	12,827,200 <i>gallons of water</i>	
Sediment Pond	87,400 <i>square feet</i>	
Fresh Water Storage Pond	84,800 <i>square feet</i>	
Limestone Leach Bed	10,400 <i>square feet</i>	
Wetland, passive	4,800 <i>square feet</i>	
Water Treatment in Lake Milton		50 <i>million gallons</i>
Repair Dam with Slurry Wall		75,000 <i>square feet</i>

RACCOON CREEK WATERSHED

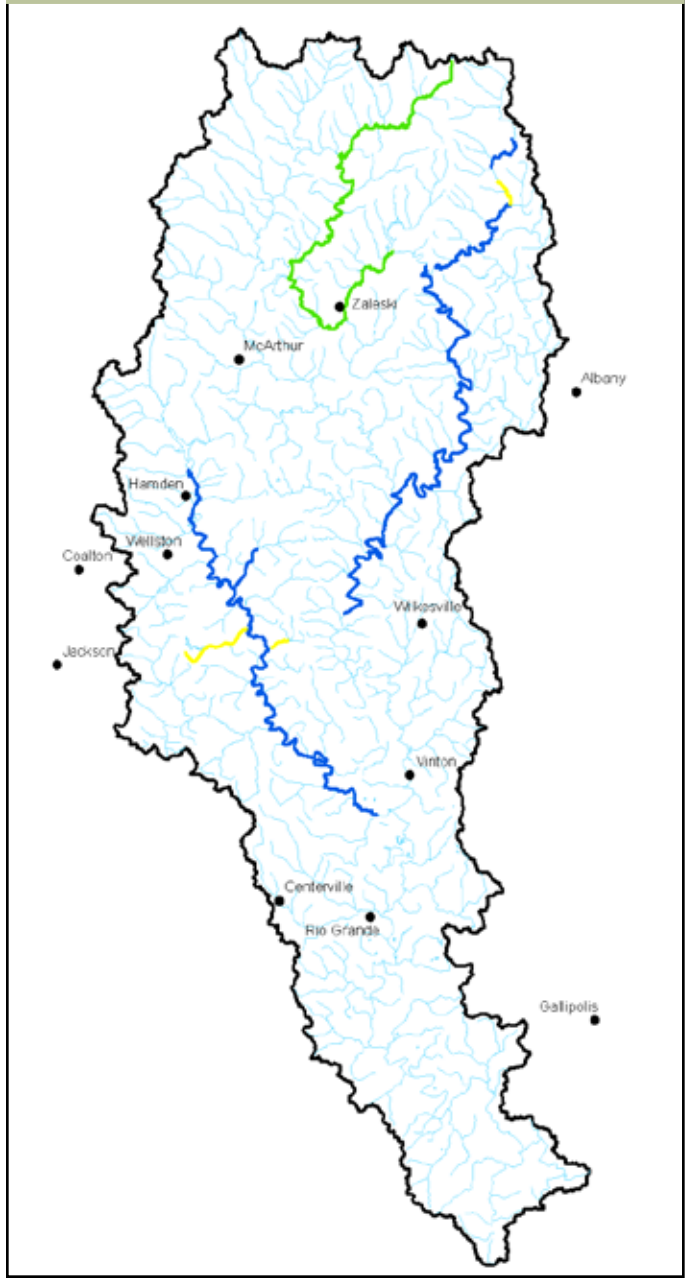
Generated by Non-Point Source Monitoring System www.watersheddata.com

Chemical Water Quality

Raccoon Creek baseline pH



Raccoon Creek 2006 pH



Lab pH
< 4
4 - 5.4
5.5 - 6.4
> 6.4

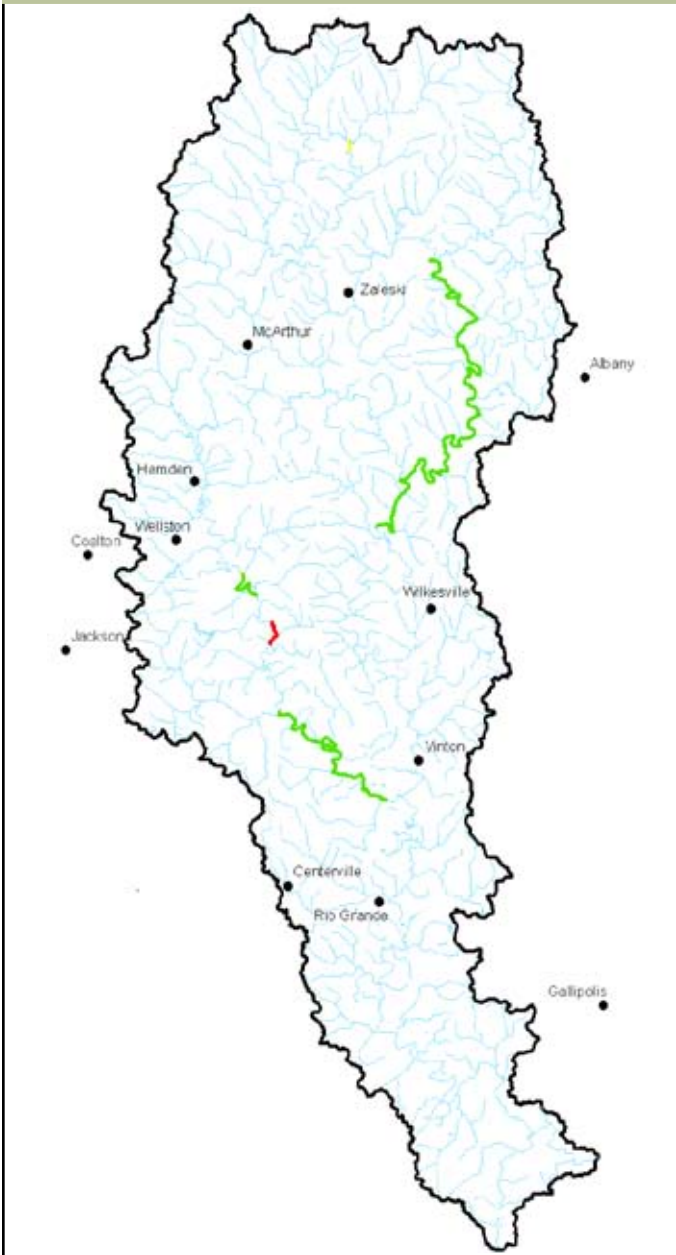
In Raccoon Creek pH values have improved throughout the watershed from baseline conditions (1994-2001) to 2006. Raccoon Creek mainstem, Hewett Fork and Little Raccoon Creek average pH values have increased from a range of 4.0-5.4 to 5.5-6.5. Sixty eight miles of stream are meeting water quality standards of pH >6.5 along the mainstem, Hewett Fork, and Little Raccoon Creek. Flint Run and Buffer Run pH values improved at their mouths.

RACCOON CREEK WATERSHED

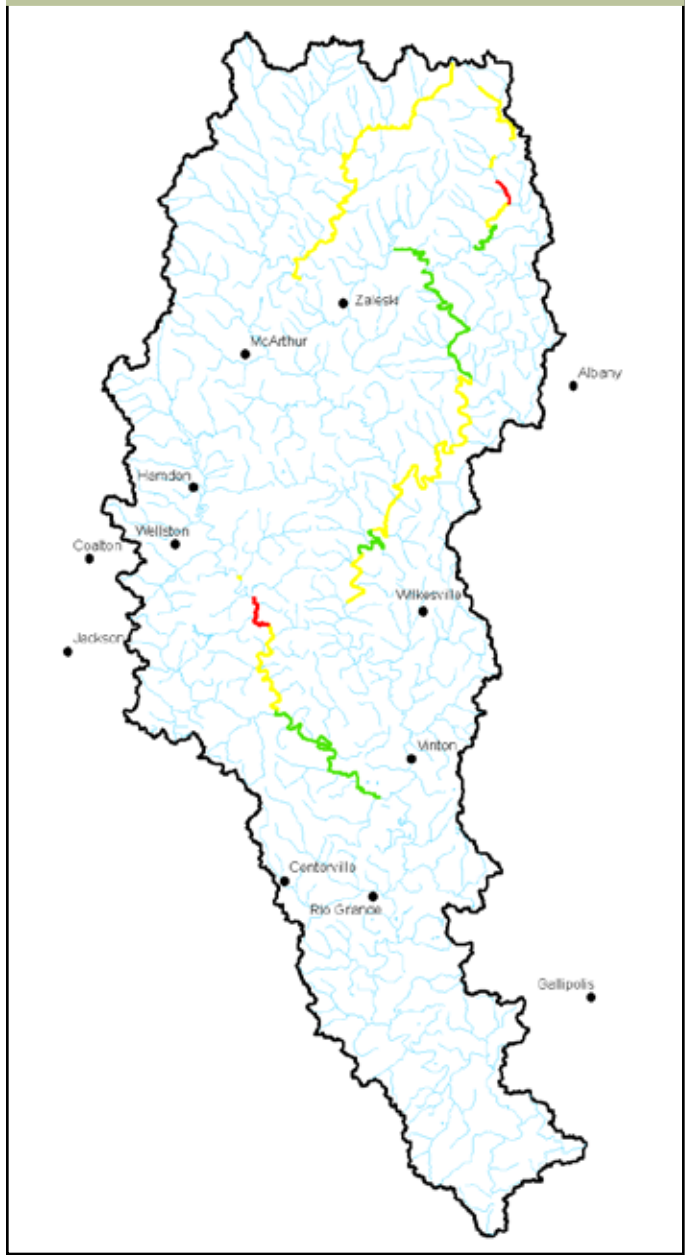
Generated by Non-Point Source Monitoring System www.watersheddata.com

Biological Water Quality

Raccoon Creek 2005 MAIS



Raccoon Creek 2006 MAIS



Macroinvertebrate Aggregated Index for Streams

-  0 - 7
-  8 - 11
-  12 - 15
-  > 15

MAIS samples were collected throughout Raccoon Creek in 2006, these stations has been established as annual monitoring stations for macroinvertebrates. These sites will be used to track incremental changes in future years.