

**Watershed Restoration Action Strategy (WRAS)  
State Water Plan Subbasin 19D  
Lower Youghiogheny River Watershed  
Westmoreland and Fayette Counties**

**Introduction**

Subbasin 19D includes a 478-square mile area of the lower Youghiogheny (Yough) River and its tributaries from below the mouth of Indian Creek to the confluence with the Monongahela River. The largest watersheds in the subbasin are Sewickley Creek and Jacobs Creek. A total of 780 streams flow through this subbasin. The subbasin is part of **HUC Area 5020006, Youghiogheny River**, a Category I, FY99/2000 Priority watershed in the Unified Watershed Assessment.

Geology/Soils

The eastern third of the subbasin is within the Central Appalachians Ecoregion, Uplands and Valleys of Mixed Land Use (69b). The western boundary of this ecoregion is Chestnut Ridge. This ecoregion consists of nearly horizontal, alternating layers of sandstone, shale, mineable coals, and limestone of the Conemaugh, Allegheny and Pottsville Groups of the Pennsylvanian Age. Soils of low to moderate fertility have eroded from this rock. Mississippian Age rocks of the Mauch Chunk and Loyalhanna Formations are also present in the upper portion of the watershed.

The western two thirds of the subbasin are in the Western Allegheny Plateau, Mononghela Transition Zone (70b). This ecoregion consists of layers of sandstone, shale, limestone, and coal of Permian and Pennsylvanian Age, Monongahela and Waynesburg Group. Ecoregion 70b contains urban, suburban, industrial, and mining land uses in a landscape of sparsely wooded, unglaciated terrain of rounded hills and open valleys. Entrenched rivers, gently dipping strata and land slips occur.

The most economically valuable coal of the bituminous region, the Pittsburgh coal, underlies the western two-thirds of the subbasin. Coals were extensively mined in the subbasin, dating back to the 1800's. Nearly all the deep mines were abandoned and discharge iron laden water to these streams. Some of the strata overlying the coal are calcareous and provide excellent buffering capacity to discharges from abandoned deep mines on the Pittsburgh coal. Many of the deep mines are interconnected and discharge large quantities of water from former mine openings. Surface mining started later; but many of these were also abandoned, leaving behind open pits and refuse piles. Surface mining discharges vary from acidic to highly alkaline depending on the coal seam and the overburden. Some of the discharges from very deep mines have contacted brines and have highly elevated salinity, total dissolved solids, sulfate, sodium, and chloride. Large refuse piles are common near former deep mine openings. Surface subsidence areas are common. The Loyalhanna Limestone is also mined in the subbasin.

### Land Use

The Borough of Greensburg and part of its surrounding urbanized area is located in the northeastern edge of the subbasin. This urban area is the eastern extension of the greater Pittsburgh metropolitan region. Urban, suburban and industrial activity is mostly concentrated in the narrow valleys that serve as transportation corridors. Some general farming and woodland is also present. The Pennsylvania Turnpike and US Routes 119 and 30 cross the subbasin. A turnpike exit, truck stop, industrial and commercial complexes are located at New Stanton, where the turnpike and US119 intersect. The population of the subbasin was 193,200 in 1990 and is projected to increase to 245,000 by 2040.

Most of the land in the upper Youghiogheny River and lower Jacobs Creek corridors portion of the subbasin, especially in the Central Appalachians Ecoregion is undeveloped and forested due to the steep slopes surrounding the entrenched river valley. The Yough is entrenched into a steep gorge as it passes through Chestnut Ridge and between the Boroughs of Perryopolis and Dawson. The forested slopes provide a natural buffer that protects the river from excessive runoff and from flood damage. Areas of prime farmland are scattered through the subbasin.

### Natural/Recreational Resources:

The Yough rails to trails bicycle route follows the scenic river gorge through Chestnut Ridge. State Game Land #51 is located in the upper watershed of Dunbar Creek and the Yough.

### DEP Chapter 93 designated Exceptional Value (EV) and High Quality Streams:

EV: None

#### High Quality:

- Dunbar Creek, source to Gist Run
- Virgin Run, source to Virgin Run Lake Dam
- Sewickley Creek, source to Brinker Run
- Long Run, source to Jacks Run
- Jacks Run

### **Water Quality Impairment**

The Yough has historically been a river damaged by industrial and mining pollution; however, water quality has improved considerably in the 1900's. The Youghiogheny River now supports a smallmouth bass population. The Sewickley Creek is the most severely degraded stream in the subbasin, due to elevated iron from highly alkaline deep mine discharges. Malfunctioning septic systems are also a problem in the subbasin. Over 95% of the Fayette County portion and 99% of the Westmoreland County portion of the upper subbasin have soils that are not suitable for conventional septic systems. Less than ¼ of the middle Yough watershed had municipal sewage treatment as of 1994.

### Monitoring/Evaluation:

Water testing for the middle Yough agriculture study revealed that all sites had nitrates under the 10 mg/l level set by the Federal Clean Drinking Water Act. Only 2 sites were above 5 mg/l. The study found that livestock stream exclusions were the most critical BMPs to reduce nonpoint pollution from agriculture in the middle Yough portion of the subbasin. Spreading of large amounts of manure was also a contributing factor on many farms. Only a small percentage of

farms were found to apply excessive amounts of fertilizer and pesticides. Improvements in conservation tillage practices were also noted as needed.

Treated and raw sewage is the second leading cause of pollution in the subbasin, after AMD, especially in the Sewickley Creek watershed. Over 24 facilities discharge into the Sewickley Creek. Jacobs Creek has fewer facilities, but has two large sewage treatment plants, one for Mt. Pleasant and one for Scottdale.

Future threats to water quality:

The previous major threat to water quality has been from coal mining deep mine discharges. The mine discharges are being cleaned up with the relatively recent development of passive treatment systems; therefore, water quality is expected to improve in the mined areas. The coal industry has been declining; many deep mines have closed; operators are going out of business. Future threats to water quality from mining will likely be due to mine abandonment and cessation of pumping and treating of discharges by the current responsible owners. With the projected increase in populations, problems with stormwater runoff will likely be a more significant pollution source.

**Monitoring/Evaluation**

The subbasin has not been evaluated under the DEP unassessed waters program.

**Restoration Initiatives**

Pennsylvania Growing Greener Grants:

- Sewickley Creek Watershed Association (FY2001):
  - \$400,000 for remediation of the Brinkerton Mine abandoned mine discharge.
  - \$75,000 for passive treatment of the Lowber abandoned mine discharge.
- \$247,500 (FY2001) to the Fayette County Conservation District for installation of agricultural best management practices (BMPs) to control nonpoint source pollution in the Middle Youghiogheny River watershed.
- \$50,000 (FY2001) to the Nicholson Township Supervisors for the Jacobs Creek watershed group study.
- \$67,428 (FY2001) to the Jacob's Creek Watershed Association for fish habitat and water quality enhancement in Jacobs Creek.
- \$200,000 (FY2000) to the Chestnut Ridge Chapter Trout Unlimited for assessment and abatement of 60-gal/min AMD source (pH 3.3, 3.8 mg/l iron, 1.8 mg/l aluminum) on Glade Run by construction of a passive treatment anoxic limestone drain. Treatment will improve a 5-mile stream reach.
- \$21,000 (1999) to Westmoreland County Conservation District for stabilization of streambanks and installation of 3,500 feet of streambank fencing and cattle crossings in Jacobs Creek.
- \$12,000 (1999) to the Borough of Dawson to identify areas in the borough with stormwater runoff problems and develop a plan for remediation measures.
- \$18,750 (1999) to Connellsville Area school District for a three-part project involving students in an assessment of the water quality in Opossum Run. Activities will include planning and evaluation of necessary stream restoration. The Pennsylvania Fish and Boat Commission will assist in planning and education activities.

- \$73,940 (1999) to the Westmoreland County Conservation District to create a highly visible stormwater demonstration project, trail, and education outreach program to encourage best management practices to address urban runoff in the Sewickley Creek watershed.
- \$21,000 (1999) to the Westmoreland County CD for remediation of streambanks and installation of 3,500 feet of stream fencing, 2 cattle crossings, and 3 fish enhancement structures.

US EPA Clean Water Act Section 319 Grants:

- \$185,195 (1995) to the US Bureau of Mines (now US Department of Energy) for an experimental demonstration project to settle iron precipitate within the Brinkerton deep mine on the Sewickley Creek before exiting the mine opening.
- \$130,000 (1999) to the Sewickley Creek Watershed Association in conjunction with the US Department of Mines to treat the 4200 gpm high alkalinity, high iron Brinkerton discharge through aeration to increase iron settling in constructed wetlands. Precipitated iron will be analyzed for potential recovery and industrial use.
- \$35,000 (1999) to the Westmoreland County CD to restore riparian areas along an unnamed tributary to Slate Creek in the Saxman Nature Park, which is impacted by urban runoff. A storm water detention pond will also be retrofitted to form a wet pond to provide water quality treatment of storm water runoff.

US EPA Clean Water Act Section 205j Studies:

- Grant to Westmoreland Conservation District for an evaluation of agricultural nonpoint source pollution in the middle Youghiogeny River watershed.

Western PA Coalition for Abandoned Mine Reclamation (WPCAMR):

- Wilson Run project for a retention baffle to facilitate treatment of a high alkaline, high iron, high volume discharge.
- \$20,500 for limestone sand addition to Glade Run, a tributary to Dunbar Creek to abate acid mine drainage. Local contributions of \$30,000. 450 tons were added the first year and 225 tons will be added annually. The goal of the project is to restore a native brook trout fishery.

DCNR Rivers Conservation Grants:

- \$85,000 (2000) to the Sewickley Creek Watershed Association, Inc. to develop a comprehensive rivers conservation plan for Sewickley Creek watershed.
- \$115,000 (1997) to Somerset County Conservancy and Chestnut Ridge Trout Unlimited to prepare a river conservation plan for the Youghiogeny River from the PA/MD line to South Connellsville.

DEP Bureau of Mining and Reclamation (BMR)

Reclamation In-lieu of Penalty Program:

- Hempfield Township Municipal Authority will pay a \$25,000 penalty for violations related to discharge monitoring at 7 of its treatment facilities and provide \$100,000 in funding to Sewickley Creek Watershed Association through the Penn's Corner Charitable Trust for mine reclamation activities. The watershed association will use the money at the Brinkerton Mine discharge wetlands passive treatment site.

PENNVEST:

- \$1.4 million loan to East Huntingdon Township to construct 10 miles of collection sewers and treatment facility to eliminate raw sewage discharges from local on-lot septic systems.
- \$167,500 loan to the City of Connellsville to construct stormwater collection and conveyance improvements to eliminate property damage and safety hazards caused by flooding.

## **Public Outreach**

### Watershed Notebooks

DEP's website has a watershed notebook for each of its 104 State Water Plan watersheds. Each notebook provides a brief description of the watershed with supporting data and information on agency and citizen group activities. Each notebook is organized to allow networking by watershed groups and others by providing access to send and post information about projects and activities underway in the watershed. This WRAS will be posted in the watershed notebook to allow for public comment and update. The notebooks also link to the Department's Watershed Idea Exchange, an open forum to discuss watershed issues. The website is [www.dep.state.pa.us](http://www.dep.state.pa.us). Choose Subjects/Water Management/Watershed Conservation/Watershed and Nonpoint Source Management/Watershed Notebooks.

### Citizen/Conservation groups

- Sewickley Creek Watershed Association
- Western Pennsylvania Coalition for Abandoned Mine Reclamation
- Concerned Citizens of Yukon and the Yough.

## **Funding Needs**

The total needed dollars for addressing all nonpoint source problems in the watershed is undetermined at this time and will be so until stream assessments are completed and necessary TMDL's are developed for the watershed. However, existing programs that address nonpoint source issues in the watershed will continue to move forward.

Pennsylvania has developed a Unified Watershed Assessment to identify priority watersheds needing restoration. Pennsylvania has worked cooperatively with agencies, organizations and the public to define watershed restoration priorities. The Commonwealth initiated a public participation process for the unified assessment and procedures for setting watershed priorities. Pennsylvania's assessment process was published in the *Pennsylvania Bulletin, DEP Update* publication and World Wide Web site. It was sent to the Department's list of watershed groups, monitoring groups, and Nonpoint Source Program mailing list. Department staff engaged in a significant outreach effort which included 23 additional events to solicit public comment. The Department received 23 written comments from a variety of agencies, conservation districts and watershed groups. Pennsylvania is committed to expanding and improving this process in the future.

After development of the initial WRAS a public participation process will take place to incorporate public input into expanding and "fine tuning" the WRAS for direction on use of 319 grant funds beyond FY2000.

## **References/Sources of information**

- State Water Plan, Subbasin 19, Monongahela River. Department of Environmental Protection, July 1982
- USGS Topographic Maps
- 319 project proposals and summaries
- DEP: Watershed Notebooks, Unified Assessment Document, and information from databases.

- Map of Draft Level III and IV Ecoregions of Pennsylvania and the Blue Ridge Mountains, Ridge and Valley, and Central Appalachians of EPA Regions III
- An Evaluation of Nonpoint Source Pollution from Agriculture in the Middle Youghiogeny River Watershed. Westmoreland Conservation District 1994.

**Streams in Subbasin 19D: 303d listings**

<b>Stream</b>	<b>Stream Code</b>	<b>Drainage area square miles</b>	<b>Miles Impaired</b>	<b>Miles Attained</b>	<b>Causes/Sources/ Comments</b>
<b>3-Youghiogeny River</b>	37456				
<b>4-Dunbar Creek</b>	38164	36.9			<i>HQ-CWF, upper basin</i>
5-Glade Run	38205	10.5	3.47		Metals and other organics from AMD <i>HQ-CWF</i>
6-Rock Run	38207	2.09			<i>HQ-CWF</i>
5-Limestone Run	38199	2.76			<i>HQ-CWF</i>
5-Tucker Run	38191	1.94			<i>HQ-CWF</i>
5-Elk Rock Run	38189	1.53			<i>HQ-CWF</i>
5-Irishtown Run	38184	1.65			<i>HQ-CWF</i>
5-Gist Run	38167	8.02			
6-Laurel Run at Mt. Braddock	38180	1.29			
6-Ferguson Run	38171	2.35	1.6		Metals from AMD
4-Connell Run	38156	3.13			
4-Opossum Run	38142	7.16			
4-Mounts Creek	38093	31.3			
5-Spruce Run	38126	5.51			
5-Irish Run	38115	2.82			
5-Whites Run	38097	9.55			
6-Breakneck Run	38100	6.99			
4-Galley Run	38083	3.27			
4-Hickman Run	38076	2.60			
4-Dickerson Run	38062	6.06			
4-Smiley Run	38057	2.71			
4-Laurel Run near Dawson	38049	2.91			
4-Furnace Run	38036	4.73			
4-Virgin Run	38036	4.73			<i>HQ-TSF, upper basin</i>
4-Washington Run	38019	7.72			
4-Browneller Run	38010	1.94			
<b>4-Jacobs Creek</b>	37868	94.9			
5-Laurel Run at Laurelville	37984	4.11			
5-Brush Run	37963	8.59			
5-Shupe Run	37958	4.01			
5-Green Lick Run	37946	7.21			
6-Latta Run	37949	2.40			
5-Stauffer Run	37927	5.06	1.42		Metals from AMD
5-Meadow Run	37894	6.95			
5-Barren Run	37870	10.4			
4-Cedar Creek	37838	5.72			

4-Sewickley Creek	37556	168	23.88		Metals from AMD <i>HQ-CWF, upper basin</i>
5-Welty Run	37779	12.6	7.27		pH from AMD <i>HQ-CWF</i>
5-Brinker Run	37769	3.49			
5-Boyer Run	37763	5.45			
6-Hurst Run	37764	1.27			
5-Township Line Run	37752	6.57			
5-Jacks Run at Youngwood	37702	28.6	1.3		Metals & salinity/TDS/ chlorides from AMD
6--Coal Tar Run	37734	1.06			
6-Zellers Run	37732	1.20			
6-Slate Creek	37714	7.65			
5-Wilson Run	37681	7.45			
5-Belson Run	37677	2.58			
5-Buffalo Run	37662	10.2	1.17		Metals from AMD
5-Lick Run	37642	1.64			
5-Pinkerton Run	37631	1.69			
5-Hunters Run	37627	1.93			
6-Painters Run	37628	3.18			
6-Kelly Run	37620	1.86			
6-Little Sewickley Creek	37557	30.8	1.0		Metals from AMD
7-Andrews Run	37575	2.62			
4-Polluck Run	37542	8.10			
4-Douglass Run	37520	2.70			
5-Gillespie Run	37520	2.70			
4-“Possum Hollow”	37494	2.46			
4-Crawford Run	37490	1.96			
4-“Boston Hollow”	37483	1.35			
4-Long Run	37460	13.2	4.6		Metals from AMD <i>HQ-TSF upper basin</i>
5-Jacks Run at White Oak	37462	4.37			<i>HQ-TSF</i>

The basin has not been assessed under the DEP unassessed waters project. Total miles impaired will certainly change after the stream is assessed.

Streams are listed in order from upstream to downstream. A stream with the number 2 is a tributary to a number 1 stream, 3's are tributaries to 2's, etc. Ohio River=1, Monongahela River=2.

Classification in Chapter 93: HQ= High Quality, CWF= Cold Water Fishes, EV= Exceptional Value