Updated 9/2003

Watershed Restoration Action Strategy (WRAS)
State Water Plan Subbasin 20F
Chartiers Creek Watershed
(Ohio River)
Washington and Allegheny Counties

Introduction

Subbasin 20F includes the 296-square mile Chartiers Creek watershed located in southwestern Allegheny and northern Washington Counties and the 19.4 square mile watershed of Sawmill Run, the upstream most named tributary flowing directly into the Ohio River. A total of 408 streams flow for 567 miles through the subbasin. Most of the tributary watersheds are small; only Little Chartiers Creek and Robinson Run have drainage areas greater than 30 square miles.

Chartiers Creek starts in a rural section of northern Washington County and flows north through Allegheny County and the western Pittsburgh suburbs and through the Pittsburgh City limits to its confluence with the Ohio River near McKees Rocks. The subbasin is part of **HUC Area 5030001**, Upper Ohio River, a Category I, FY99/2000 Priority watershed in the Unified Watershed Assessment.

Geology/Soils:

The entire subbasin is in the Western Allegheny Plateau Ecoregion. The upper third of the subbasin is in the Permian Hills (70a) subsection and the lower portion is in the Monongahela Transition Zone (70b) subsection. Strata are composed of sequences of sandstone, shale, limestone, and coal. The commercially valuable Pittsburgh coal underlies the entire subbasin. The upper basin was extensively deep mined starting in the late 1800's, by the room and pillar method, with coal left in place to support the overlying rock and surface. The region supplied coal and coke for the numerous steel plants in the Pittsburgh region. More recent mines are far beneath the surface and employ the newer technique called longwall mining, in which huge blocks are removed, with the overlying rock collapsing soon after the coal is removed. The second most valuable coal is the Waynesburg coal, which is surface mined in the upper basin in Washington County. Significant extraction of the Upper Freeport coal also occurred. Oil and gas reserves were also located in the subbasin. Washington County was once a large producer of oil in Pennsylvania. Oil production has declined to secondary production in established fields.

Soils in this basin are derived from noncarbonate sedimentary rocks. The infiltration rates are moderate, which allows for good hydrologic characteristics. The hilly terrain has shallow well-drained soils.

Land Use:

Chartiers Creek watershed has a combination of urban, rural, forested, agricultural and surface mined land uses. The major urban areas are the city of Pittsburgh and its suburbs at lower Chartiers and Little Chartiers Creek, Cannonsburg at mid Chartiers Creek and Washington near the upper end of Chartiers Creek. This area was an important steel, railroad and manufacturing hub up to the early 1900's. I-79 and I-70 pass through the subbasin. A suburban/urban corridor is adjacent to I-79 from Washington PA to Pittsburgh. Around 350,000 people lived within the subbasin as of the 1990 census; the population is projected to increase significantly to 520,000 by the year 2040.

Natural/Recreational Resources:

Upper St Clair Township is completing a master plan for their 474-acre Boyce/Mayview Park, which is listed in the Allegheny County Natural Diversity Inventory as a significant biological diversity area.

The 76-acre PA Fish and Boat Commission (PFBC) owned Canonsburg Lake is located in the

Washington County portion of the watershed. A field survey by the PFBC in May 2000 indicated that the lake contains an excellent population of largemouth bass. A good population of large channel catfish is also present.

Chapter 93 designated Exceptional Value (EV) and High Quality Streams (HQ):
EV: None.
(HQ):

- Reservoirs #2, 3 and 4 on upper Chartiers Creek
- Little Chartiers Creek, from headwaters down to Alco Dam
- Little Sewickley Creek

Water Quality Impairment

The subbasin suffers from a variety of nonpoint and point source pollution sources. New and expanded municipal sewage treatment plants have resulted in water quality improvements over the past 20 years; however combined storm sewer overflows still carry considerable urban runoff into the streams. Habitat and stream channel modification g from urban development and impervious cover are also significant causes of impairment in the lower portion of the watershed. Portions of the watershed are also affected by agricultural activities and abandoned mine drainage (AMD).

AMD impairment is most apparent in the lower half of the watershed. Coal pillars left as support during underground mining allow pyretic material to come in contact with water in the flooded mines; water leaving the mines carries large loads of iron. Most of the mine discharges were acidic soon after they were flooded; however, many have become highly alkaline from contact with calcareous material in the overburden. The deep mines now discharge heavily iron-laden water to the receiving streams. These alkaline discharges are starting to be treated passively with constructed wetlands to remove the iron. Some of the active underground mines that are mining the extremely deep Pittsburgh coal in the Washington County portion of the subbasin have intercepted brines and discharge water that is highly alkaline with very high concentrations of total dissolved solids (TDS), sodium, chloride, calcium and sulfate. Some of these mines use longwall mining methods which can result in extensive areas of subsidence soon after mining. This subsidence can affect stream flow, highways and other surface structures.

Monitoring/Evaluation

The DEP Southwest Regional Office inventoried subbasin 20F through the unassessed waters program in 1997. They reaffirmed the earlier 303d listings and added many additional stream segments to the list. The subbasin is has one of the highest percentages of impaired miles in Pennsylvania. A total of 461 stream miles or 84% of the subbasin are listed as impaired on DEP's 2000 303d list. Only 87 assessed miles were determined to be attaining their water quality uses. Impairment sources were abandoned mine drainage, surface and subsurface mining, habitat modification, on-site wastewater, urban runoff/storm sewers, construction, and agriculture. In addition to nonpoint sources, 303d listings included fish consumption advisories for 30.37 miles of Chartiers Creek and 0.7 miles of Little Chartiers Creek for PCB and chlordane. The only assessed segments that were considered unimpaired are 49.73 miles of Little Chartiers Creek watershed and 37.46 miles of Robinson Run watershed. Discharges from oil and gas well production and storage and disposal of brines has also resulted in degraded surface and groundwater in some areas.

DEP biologists use a combination of habitat and biological assessments as the primary mechanism to evaluate Pennsylvania streams under the Unassessed Waters Program. This method requires selecting stream sites that would reflect impacts from surrounding land uses that are representative of the stream segment being assessed. The biologist selects as many sites as necessary to establish an accurate assessment for a stream segment. The length of the stream segment assessed can vary between sites.

Several factors are used to determine site location and how long a segment can be, including distinct changes in stream characteristics, surface geology, riparian land use, and the pollutant causing impairment. Habitat surveys and a biological assessment are conducted at each site. Biological surveys include kick screen sampling of called benthic macroinvertebrates, which are identified to family in the field, and an evaluation of their tolerances to pollution. Benthic macroinvertebrates are the organisms, mainly aquatic insects, that live on the stream bottom. Since they are short-lived (most have a one-year life cycle) and relatively immobile, they reflect the chemical and physical characteristics of a stream and chronic pollution sources or stresses. Habitat assessments evaluate how deeply the stream substrate is embedded, degree of streambank erosion, condition of riparian vegetation, and amount of sedimentation.

Future threats to water quality

With the large projected increase in population for the basin, urbanization will to be a continued threat to water quality. Degradation from abandoned mines should decrease as passive treatment is used to treat discharges. Water quality should also improve with the expanded schedule of orphan oil and gas well plugging contracted by the Department's Bureau of Oil and Gas Management.

Restoration Initiatives

Pennsylvania Growing Greener Grants:

- $79,558.89 (FY2003) to Chartiers Nature Conservancy - to develop a restoration plan for mine discharges in the Lower Chartiers Creek Watershed
- $35,000 (FY2002) to Mt Lebanon Nature Conservancy for education and outreach in Lower Chartiers Creek watershed.
- $15,000 (FY2001) to Green Tree Borough for restoration of Whiskey Run streambanks.
- $44,000 (FY2001) to the Chartiers Nature Conservancy for evaluation of discharges from abandoned coal mines in the Lower Chartiers Creek watershed.
- $50,000 (FY2001) to Bridgeville Borough for implementation of phase II of the McLaughlin Run restoration project.
- $86,872 (FY2000) to Bridgeville Borough for restoration of 1765 feet of streambank along the Bridgeville Borough portion of McLaughlin Run using the findings in Upper St. Claire's 319 funded fluvial geomorphology assessment.
- $7,000 (FY2000) to the Chartiers Nature Conservancy, Inc. to provide for enhancing and restoring riparian habitats along Chartiers Creek in the City of Pittsburgh, as part of the first phase of a Nature Learning Center. Specific actions include work on a 4500 square foot marsh, a 3000 square foot wet meadow and an acre of riparian forest, building a learning pavilion, creating a native plant propagation area and placing interpretive signs and placards.
- $77,300 (FY2000) to Upper Saint Clair Township/USC Citizens for Land Stewardship to prepare a Fluvial Geomorphology (FGM) design and then construct 500 feet of stream improvements to McLaughlin Run. This is a follow up implementation project to a previously awarded 319 Grant which funded the FGM assessment.
- $30,000 (FY1999) to the Washington County Alliance for an assessment of Raccoon Creek, Cross Creek, Chartiers Creek, and Pike Run watersheds to complement a similar assessment underway in the Allegheny County portion of these watersheds.
- $20,000 (FY1999) to Upper St. Clair Township for plugging of abandoned gas wells in Gilfillan Park.
- The Bureau of Oil and Gas Management has received funding for expansion of their orphan oil and gas wells plugging program.

U.S. EPA Clean Water Act 319 Grants:

- $153,000 (FY2002) to Upper St. Clair Township for implementation of phase IV of the McLaughlin Run streamside stabilization/riparian buffer plan.
- $19,500 to Mt. Lebanon Municipality for realignment of McDonald's Run.

- $72,000 (FY2001) to Upper St. Clair Township and Citizens for Land Stewardship for phase II of the McLaughlin Run streamside riparian forest buffer corridor improvement project.
- $112,00 (FY2001) to Upper St. Clair Township for phase I of the Boyce Mayview Park stream restoration.
- $100,000 (FY2001) to the Scott Conservancy for remediation and improvement of the Scrubgrass Run mine drainage passive treatment system constructed in 1995. Remediation will consist of removal of accumulated sludge, enlargement of treatment ponds and installation of better sludge removal features.
- $50,000 (FY2000) to the Horticultural Society of Western Pennsylvania for design of a passive treatment system on a discharge to an unnamed tributary of Robinson Run at the site of their new botanical garden.
- $102,295 (FY1999) to Upper St. Clair Township for an assessment of stream stability of McLaughlin Run affected by urban stormwater runoff using fluvial geomorphology methods. A demonstration of stream stabilization and riparian forest buffer improvement designs will be implemented.

Pennsylvania Watershed Restoration Assistance Program (WRAP):

- $29,300 (FY1999) to Chartiers Valley Nature Conservancy to demonstrate ecological and economic solutions to problem stormwater flows in densely populated areas within the watershed, which have combined sewer systems. Areas included were Crafton Borough, McKees Rocks Borough, Stowe Township, and the City of Pittsburgh.

Western PA Coalition for Abandoned Mine Reclamation (WPCAMR):

- $69,700 to Chartiers Creek Watershed Coalition for passive treatment (constructed wetlands) for remediation of a highly alkaline/high iron deep mine discharge to Scrubgrass Run.

104b3 (DEP Bureau of Mining and Reclamation):

- $49,200 (FY1999) to Chartiers Creek Watershed Coalition for aeration of the deep mine discharge to Scrubgrass Run to enhance iron removal in the constructed wetlands.

DCNR Rivers Conservation Grants:

- $64,000 (2000) to the Washington County Watershed Alliance to prepare a comprehensive rivers conservation plan for the upper Chartiers Creek.
- $50,000 (1997) to Chartiers Valley Nature Conservancy to develop a rivers conservation plan for lower Chartiers Creek watershed.
- $64,000 (2000) to the Washington County Watershed Alliance to prepare a rivers conservation plan for upper Chartiers Creek.

DEP Bureau of Abandoned Mine Reclamation

- Reimbursement of $184,645 to North Stabane Township in Washington County to partially pay PA American Water Co. to install a new water line and pump station to replace private wells diminished or contaminated by abandoned deep mines.

PENVEST:

- $1.9 million loan to the City of Washington for a stormwater control project.
- $780,000 loan to North Fayette Township to construct 3 miles of collection sewers to eliminate malfunctioning on-lot septic systems.
- $350,000 loan to Midway Sewage Authority to design a new treatment plant, pump station and collection lines to serve Midway Borough and portion s of Cecil, Mt. Pleasant, Robinson and Smith Townships. Malfunctioning on-lot septic systems and wildcat sewers discharge sewage into yards and nearby streams such as Robinson Run.

Other:

- Communities in the McLaughlin Run watershed completed a stormwater management plan to deal with increased problems of high stream flows and sedimentation. The plan considered mechanical remedies to streambank stabilization problems.

- The 37 Chartiers Creek municipalities are currently working with EPA, DEP, and the Allegheny County Sanitary Sewer Authority (ALCOSAN) to solve combined sewer overflow problems in the watershed.

Citizen/Conservation groups
Numerous conservation organizations have been formed to facilitate water quality improvements, including:
- Washington County Watershed Alliance
- Chartiers Nature Conservancy
- Chartiers Creek Watershed Coalition
- Washington County Groundwater Coalition
- Scott Conservancy
- Mt. Lebanon Nature Conservancy
- Upper St. Clair Group for Land Stewardship
- Chartiers Valley School District

The Chartiers Creek Watershed Coalition, Chartiers Valley High School and the WPCAMR received national recognition by Bruce Babbitt, Secretary of the US Department of the Interior for their restoration efforts on the Scrubgrass Creek AMD discharge.

Public participation/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. Choose Subjects/Water Management/Watershed Conservation/Watershed and Nonpoint Source Management/Watershed Notebooks.

A variety of federal and local agencies and staff from other Department programs reviewed or provided information for this WRAS. These included NRCS, the Bureau of Abandoned Mine Reclamation, Washington County Conservation District, and the DEP South West Regional Office. The public participation process has begun through distribution of this WRAS at various workshops and conferences and by the county conservation districts and DEP Regional Coordinators. Public input has been and will continue to be incorporated into expanding and fine tuning the WRAS for direction on use of 319 grant funds beyond FY2000.

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 TMDLs are developed for the watershed. The TMDL's for AMD and nutrients and sediment in Chartiers Creek watershed and Cannonsburg Lake are scheduled for completion in 2001. The TMDL for PCB and Chlordane in Chartiers and Little Chartiers Creeks is scheduled to be completed by the end of 2000.

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.

Restoration Needs

Restoration efforts have been lead by a variety of agencies and citizens groups, including the Western PA Coalition for Abandoned Mine Reclamation, Upper St. Clair Township, Chartiers Creek Watershed Coalition, and Chartiers Valley Nature Conservancy. Citizen volunteers under the direction of the Chartiers Valley High School and the Environmental Alliance for Senior Involvement (EASI) are monitoring the success of remediation efforts.

Chartiers Creek:

The majority of the subbasin was determined to be impaired from a variety of pollutants caused by mining, urbanization and agricultural activities. Several assessments are underway which should lead to a better understanding of restoration and funding needs in the watershed. Two DCNR funded rivers conservation plans are underway, one for the Allegheny County portion and one for the Washington County portion. The Washington County Alliance started an assessment of Chartiers Creek as part of an evaluation of streams in the entire county. The TMDL for nutrients, sediment and AMD pollutants in the watershed is scheduled for completion in 2001.

McLaughlin Run:

McLaughlin Run watershed was assessed using the principals of fluvial geomorphology. The study was funded through the 319 program. Results and recommendations of the study are as follows.

McLaughlin Run is a highly urbanized area in which increases in runoff have greatly affected the drainage system. The watershed is comprised of 21% impervious cover. Research has indicated that a sharp drop in stream water quality is seen at 10 to 15% impervious cover. Poor conditions begin occur at 25% imperious cover. The increased runoff and lack of stormwater control have increased channel erosion potential and sediment transport capacity of the streams. The increased sediment capacity has resulted in severe degradation of stream channels and banks. Channels have also widened so that they are encroaching on adjacent structures. Sediment accumulation has also restricted the active stream flow area. Many stream banks are highly eroded and unstable. Down cutting of the stream banks has resulted in habitat degradation such as loss of pool and riffle sequences and overhead cover.

The watershed assessment developed seven best management practices as strategies for stream bank stabilization and restoration. List of BMPs:

1. New channel construction or relocation
2. Bank stabilization by grading, rock structures or rock toe protection
3. Debris jam removal
4. Revegetation/riparian plantings with live cuttings or stakes and seedlings
5. Sediment transport efficiency
6. Traditional engineering channel stabilization methods such as riprap, gabbion baskets, precast concrete blocks, retaining walls, used tires, or natural vegetation
7. Stormwater control methods such as constructed wetlands, dry ponds, wet ponds, permeable paving material and filter strips, grass swales

The report mapped priority areas and described the specific BMPs recommended for each area. These recommendations when implemented will serve as a model for stream restoration in the urbanized areas around Pittsburgh and other parts of southwestern Pennsylvania. One implementation project was begun during summer 2000 with funding from the original 319 grant and another will begin the following year with a FY 2001 319 grant. The townships in McLaughlin Run watershed plan to apply for additional grants to fund restoration of the remaining stream segments.

References/Sources of information

- State Water Plan, Subbasin 20, Ohio River. Department of Environmental Protection, January 1983
- USGS Topographic Maps
- 319 project proposals and summaries
- DEP: Watershed Notebooks, Unified Assessment Document, and information from files and 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

Streams in Subbasin 20F: 303d/305b Listings

Stream	Stream Code	Drainage area square miles	Miles Attained	Miles Impaired	Causes/Sources
2-Sawmill Run	37164	19.4		16.24	Metals from AMD, Water/flow variability, organic enrichment/low DO, siltation, other habitat alterations from URB/StrS, CSO's & Hab/Mod.
2-**Chartiers Creek**	36777	277	12.85 miles of 15 UNTs	50.62 miles main stem; 63.49 miles of 77 UNTs	Metals salinity/TDS/chlorides, suspended solids from AMD Siltation, nutrients, turbidity, water/ flow variability from URB/StrS, Hab/Mod; AG, grazing, land development, small residential runoff, CONS & unknown causes. *HQ-WWF, Reservoirs #2, 3, 4*
3-Catfish Creek	37132	4.70		3.98 miles main stem; 1.16 miles one UNT	Nutrients & siltation URB/StrS & Hab/Mod
3-Georges Run at Oak Grove	37111	7.57	3.61 miles main stem; & 7.84 miles of 6 UNTs	1.84 miles main stem	Metals , siltation, & salinity/TDS/ chlorides from AMD
3-"Allison Hollow" & 3 UNTs	37086	2.33		5.05	Salinity/TDS/chlorides, nutrients, siltation, suspended solids, turbidity metals from AMD; AG; and habitat modification
3-"Arnold Hollow"	37077			0.82	Metals, suspended solids, nutrients, organic enrichment/low DO, siltation from AMD, AG, CSO's, Hab/Mod & URB/StrS
3-Chartiers Run	37043	22.3		59.24	Turbidity, siltation, nutrients, habitat alterations, organic enrichment/low DO, from AG combined sewer overflows, construction, habitat modification, on-site wastewater. Salinity/ TDS/ chlorides, metals, pH from AMD
4-Plum Run	37044	4.11		4.25 miles main stem & 2.1 miles of 2 UNTs	Nutrients, organic enrichment/low DO, other habitat alterations, & turbidity, from AG, on site waste water, & habitat modification

3-Brush Run at Cannonsburg	37036	6.13		4.9 miles main stem; 4.62 miles of 4 UNTs	Siltation, nutrients, turbidity, habitat alterations, organic enrichment/low DO from Habitat modification, on-site waste water & AG and Salinity/ TDS/ chlorides from AMD;
3-**Little Chartiers Creek**	36943	46.7	7.48 miles main stem; 43.28 miles of 46 UNTs	9.80 miles main stem; 38.77 miles of 43 UNTs 5.16	Nutrients, siltation, suspended solids, organic enrichment/low DO from urban runoff/storm sewers, construction, habitat modification, removal of vegetation, small residential runoff, other causes, land development, golf courses, combined sewer overflow, crop & grazing related AG; Metals & suspended solids from AMD *HQ-WWF, upper basin*
4-Opossum Run	37018	1.29	2.14		
3-McPherson Creek	36940	2.93	2.33 miles main stem	1.32 miles main stem & 1.20 miles of 2 UNTs	Nutrients and habitat alterations from habitat modification
3-Brush Run near Murdocksville	36873	10.4		4.55 miles main stem; 18.98 miles 23 UNTs	Nutrients, siltation, turbidity, habitat alterations & organic enrichment/low DO from Hab/Mod & construction
3-Coal Run	36858	3.68		4.48 miles main stem; 3.06 miles 3 UNTs	Nutrients, siltation, suspended solids, turbidity from construction, AG, land development, golf courses
3-Millers Run	36827	28.1		41.23	Nutrients, siltation, turbidity, organic enrichment/low DO, unknown toxicity from AG, urban runoff/storm sewers, habitat modification, construction, unknown sources. Metals, salinity/TDS/ chlorides, turbidity from AMD and subsurface mining.
4-Fishing Run	36833	2.14		2.8 miles main stem; 0.67 miles one UNT	Metals, salinity/TDS/chlorides, turbidity from surface mining & AMD
4-Dolphin Run	36832	2.03		2.21	Salinity/TDS/chlorides, turbidity from Subsurface mining and AMD
3-Thoms Run	36823	3.46		9.28	Turbidity, suspended solids, & salinity/TDS/chlorides from AMD and subsurface mining. Organic enrichment/low DO,

					turbidity, siltation, nutrients, from Urban runoff/storm sewers, habitat modification, on-site waste water.
3-McLaughlin Run & 9 UNTs	36811	7.46		4.92 miles main stem & 5.35 miles of 9 UNTs	Nutrients, habitat alterations, siltation, water/flow variability, turbidity from Hab/Mod and hydromodification
4-Graesers Run & one UNT	36820	2.03		3.40	Siltation, nutrients, turbidity from: habitat modification
3-Painters Run	36803	4.42		1.57	Turbidity & siltation from habitat modification
3-Scrubgrass Run	36797	1.53		2.27 miles main stem & 0.62 miles of one UNT	Metals, suspended solid, siltation & salinity/TDS/chlorides from AMD
3-Georges Run at Heidelberg	36795	1.35		1.34 miles main stem & 2.86 miles of 4 UNTs	Metals, suspended solid, siltation & salinity/TDS/chlorides from AMD
3-**Robinson Run**	36794	41.0	37.46	31.1	Metals from AMD. Siltation & nutrients from on site wastewater & construction.
4-Robb Run	63307	1.07		2.01	Metals from AMD
5-Fink Run	63303			1.75	Metals, organic enrichment/low DO, nutrients from AMD, CSO's & Urb/StrS
4-North Branch Robinson Run	36803	12.9		7.80 miles main stem & 10.01 miles of 6 UNTs	Metals & siltation from AMD. Organic enrichment/low DO & from CSO's; nutrients from URB/StrS. (UNTs - metals from AMD & siltation from natural causes)
5-Half Crown Run	63300	2.25		3.55	Metals from AMD & siltation from natural sources
4-Pinkertons Run	63290	3.57		2.79 miles main stem & 0.53 miles of one UNT	Cause & source unknown
4-Lintons Run	63292	0.30		0.74	Cause & source unknown
4-Scotts Run	63286	1.22			
3-Campbells Run	36786	5.62		5.28 miles main stem & 4.69 miles of 5 UNTs	Metals, salinity/TDS/chlorides, suspended solids from AMD. Nutrients from Urban runoff/storm sewers & on site waste water

3-Whiskey Run	36784	1.57		2.11 miles main stem & 0.13 miles one UNT	Suspended solids, siltation, metals, & salinity/TDS/chlorides from AMD

Cannonsburg Lake (76 acres) is also on the 303d list for nutrients from agricultural sources.

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.

UNT= unnamed tributary, AG= agriculture, AMD= abandoned mine drainage, CSO's= combined sewer overflow, Hab/Mod= habitat modification, CONS= construction, URB/StrS= Urban runoff/storm sewers.

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