

Updated 9/2003

**Watershed Restoration Action Strategy (WRAS)
State Water Plan Subbasin 19E
Upper Youghiogheny River Watershed
(Laurel Hill Creek and Indian Creek)
Fayette, Somerset and Westmoreland Counties**

Introduction

Subbasin 19E includes the upper Youghiogheny River and its west side tributaries from the PA-MD line downstream to the Borough of Confluence and east and west side tributaries from Laurel Hill Creek down through Indian Creek (except for the Casselman River which is in subbasin 19F). The basin comprises 399 square miles and contains 588 streams. Major tributaries are Laurel Hill Creek, a tributary to the Casselman River, and Indian Creek, both with 125-square mile watersheds. 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 entire subbasin is within the Central Appalachians Ecoregion. This ecoregion is divided into two parts in the subbasin, the Forested Hills and Mountains (69a), which is restricted to the upper slopes of Laurel Hill and other scattered knobs. The remainder of the basin is in the Uplands and Valleys of Mixed Land Use (69b) comprised of lower, rolling hills and valleys. The Allegheny and Pottsville Groups make up most of the rocks in the subbasin. These two groups consist of alternating layers of sandstone, shale, coals, and limestone. Two mountains, Laurel Hill and Chestnut Ridge, provide the major relief for the subbasin. This region of southwestern PA has some of the highest elevations in the state. The area between the ridges consists of rolling hills and valleys.

Mineable coals of the Allegheny Group underlie most of the basin, except for the crest of Laurel Hill and a few knobs at the top of Chestnut Ridge. These coals were extensively mined in the Indian Creek and Meadow Run watersheds. Mining in underground mines began in the early 1900's and now underlie much of these watersheds. Nearly all the deep mines were abandoned and discharge acidic water to these streams. Surface mining started later; but many of these were also abandoned, leaving behind open pits and coal refuse piles. Most of the deep mine discharges are acidic with elevated concentrations of iron. Surface mine discharges vary from acidic to highly alkaline depending on the coal seam and the overburden; some of the shale overlying the coal is calcareous and provides excellent buffering capacity to the discharges. Other surface mining resulted in highly acidic discharges with elevated concentrations of iron, aluminum and zinc. Multiply seam mining is usually the normal mining method. The Loyalhanna limestone has been quarried in a few locations on Laurel Hill.

Land Use:

Land use is largely rural or forested with scattered boroughs, villages and houses. The Youghiogheny River corridor is undeveloped and mainly forested due to the steep adjacent slopes. These slopes protect the river from excessive runoff and the shoreline from flood damage. Somerset Borough, the only large developed area in the subbasin, has a Turnpike exit and provides numerous motels, restaurants, shopping, and industry for the region.

Underground mining began in the subbasin in the late 1900's and continued into the late 1960's. Workers at the many deep mines lived in mining company towns scattered throughout the subbasin. Old company towns still remain near the entries to the large deep mines. After most of the mines closed, widespread unemployment resulted. Many people moved away from the area to seek employment. Current residents travel as far as the city of Pittsburgh and its suburbs to work. Scattered surface mining is still occurring

throughout the subbasin, but little or no active deep mining is occurring. The basin is sparsely populated; only 16,500 people resided in the subbasin as of 1990.

The major agricultural area is around Somerset Borough and extending southwest into the upper third of Laurel Hill Creek watershed. Mining and agriculture in the basin is projected to continue its decrease resulting in more land reverting to forest. Several ski resorts on Laurel Hill and Ohiopyle State Park provide inflow of tourist dollars to the western portion of the subbasin. Numerous vacation and second homes developed in and around the ski resorts are bringing a few new people into the area. The population is expected to increase by about 40% to 23,000 through 2040, which is still rather low for the size of the subbasin.

Natural/Recreational Resources:

Numerous state parks, State Game Lands 11 and 51, the Forbes State Forest and two Fish and Boat Commission owned lakes, Lakes Somerset and Donegal, are located in the basin. Ohiopyle State Park is the largest in the state and provides a starting point for whitewater rafting trips through the famous rapids of the Youghiogheny River. Numerous native brook trout streams originate on Laurel Hill. Bear Run in Fayette County has been designated a Pennsylvania Scenic River. The Bear Run Natural Area, which is owned by the Western Pennsylvania Conservancy, adjoins Ohiopyle State Park.

Rails-to-trails bikeways follow the Youghiogheny River from the Borough of Confluence to the Borough of South Connellsville through the Laurel Hill and Chestnut Ridge gorges and Indian Creek down to its confluence with the Youghiogheny River. These railways, which transported coal to Pittsburgh, were abandoned years ago after the large deep mines closed.

The Somerset Borough Municipal Authority uses a reservoir in Laurel Hill Creek and several water wells as their water supply. The authority received approval to impose water rationing in late summer 1999 due to the drought. The reservoir was shut off from use because not enough water was available for the pass-by release of 1,000 cfs into the creek.

PA Fish and Boat Commission Class A (highest biomass category) trout streams:

- Camp Run, near Jones Mills, headwaters to mouth, brook trout (4.1 miles)
- Buck Run, uppermost 1.7 miles, brook trout

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

EV:

- Jones Mill Run
- Blue Hole Creek
- Long Run
- Sheepskin Run
- Bear Run
- Jonathan Run
- Sugar Run
- Bruner Run (Haney Run)
- Camp Run near Jones Mill

HQ:

- Laurel Hill Creek, basin EXCEPT Jones Mill Run and Blue Hole Creek, which are EV
- Drake Run
- Camp Run at Bidwell

Water Quality Impairment

The steep slopes, large forested areas and state owned lands have helped to maintain the water quality and riparian vegetation of many tributaries in a relatively pristine state. Water quality impairment in the basin has been largely due to drainage from abandoned deep mines and some surface mines. Abandoned machinery and mine discharges have been encroached by woodlands and wildflowers growing in the rich soils. The upper end of Laurel Hill Creek has been impaired by agriculture. Underground mining has degraded the groundwater in much of the Indian Creek basin and residents are supplied by public water. Some small streams originating on Laurel Hill in the Pottsville Group sandstone are naturally acidic and vulnerable to acid precipitation.

Monitoring/Evaluation

Fifty-five percent of the subbasin was evaluated in 1998 under the Department's Unassessed Waters Program. Fourteen percent of the assessed waters were determined to be impaired.

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.

Results of the assessment indicate that the following streams are impaired:

- Laurel Hill Creek:
 - The main stem and 34 unnamed tributaries (UNTs) are impaired by agricultural practices, specifically from crop and cattle grazing, leading to organic enrichment, excess nutrients, and siltation.
 - Crab Run and 5 UNTs, by nutrients and organic enrichment/low dissolved oxygen (DO) from grazing related agricultural practices.
- Deadman Run and 3 UNTs, by organic enrichment and siltation from combined sewer overflows. Deadman Run flows through village of Farmington and adjacent developed area around US Route 40.
- Laurel Run near Ohiopyle by abandoned mine drainage
- Indian Creek, 5 UNTs by abandoned mine drainage and siltation
 - Champion Creek, lower 0.85 miles and one UNT, by abandoned mine drainage
 - Poplar Run and Newmyer Run, by abandoned mine drainage

DEP's Bureau of Mining and Reclamation conducted an Unsuitable for Mining (UFM) Study of the upper two-thirds of Indian Creek in 1994. The study resulted from a petition from the Mountain Watershed Association to prevent development of an underground mine in upper Indian Creek watershed. The UFM study reported on the water quality and effects of mine discharges in the watershed. Extensive water quality sampling was conducted throughout the watershed from the headwaters down to the village of Indian Head. Benthic macroinvertebrates and fish were also sampled at many locations.

Indian Creek has acidic discharges from several abandoned deep mines, but the moderate buffering capacity and the inflow of clean tributaries allows Indian Creek to assimilate most of the acid and the major pollutant is iron precipitate. A total of 10.9 miles of Indian Creek are degraded by AMD. The largest deep mines in the watershed are on the Middle Kittanning coal. The largest discharge to Indian Creek is the 750-gpm Kalp discharge which enters Indian Creek near the village of Romney. Indian Creek maintains a relatively diverse, though numerically limited, assemblage of benthic macroinvertebrates within a mile downstream of the Kalp discharge, except during the summer months, when the iron precipitate is most visible and most of the invertebrates have emerged into the adult stage or in a resting stage. Recovery of Indian Creek in this area is assisted by the inflow of the clean tributary, Back Creek. The water quality of Indian Creek deteriorates downstream of the Gallentine Mine discharge and the confluence of the degraded tributary, Poplar Run.

Champion Creek is most heavily impacted in its lower 0.8 miles. The Melcroft #3 Portal Pond is the major source of AMD impact. Champion Creek and its tributaries have 43 abandoned mine discharges. Five of these produce 71% of the acid, 60% of the iron and 65% of the aluminum. Several of the surface mine discharges are highly alkaline with elevated iron concentrations. However, surface land reclamation by the DEP Bureau of Abandoned Mine Reclamation (BAMR) has reduced infiltration, covered and seeded coal refuse piles, and helped neutralize the water in lower Champion Creek. Lower Champion Creek now has a variety of benthic macroinvertebrates.

Newmyer Run is the most degraded stream in the subbasin. The entire length of Newmyer Run (2.6 miles) and Poplar Run downstream of Newmyer Run (2.6 miles) are degraded by acid and high concentrations of aluminum and zinc from surface mines and iron from an abandoned deep mine. The worst discharges are from surface mines on the Brookville coal at the top of Chestnut Ridge and from multiple coal seam mines on the hill north of the confluence of Newmyer Run with Poplar Run. The lower portion of Newmyer Run and its receiving stream, Poplar Run, have a thick coating of aluminum precipitate from these mine discharges and are heavily silted. The aluminum precipitate severely limits macroinvertebrate colonization and eliminates the fish population in Poplar Run downstream of Newmyer Run. Poplar Run maintains a remnant brook trout population upstream of Newmyer Run despite the surface mines upstream and the occasional presence of iron precipitate during late summer drought conditions.

The Middle Kittanning coal outcrops close to Indian Creek, Champion Creek and lower Little Champion Creek. Numerous iron-laden breakouts of mine drainage can be found as springs along the crop line. Many of these breakouts of mine water are alkaline when they reach the surface after passing through alkaline strata above the coal. One iron discharge spring upwells in the Little Champion Creek stream channel about 50 yards upstream of its confluence with Champion Creek. Surface mining of the Middle Kittanning coal in Champion Creek watershed has resulted in several highly alkaline discharges out of abandoned highwalls and mine pits. The alkalinity of Little Champion, Minnow Run and Champion Creek is often above 50 mg/l during the summer. The substrate of these creeks, however, is often covered with iron precipitate during low flow periods in late summer. The aquatic invertebrate fauna is diverse in these streams and includes many species of stoneflies.

DEP Bureau of Abandoned Mine Reclamation (BAMR) has been sampling discharges from the Melcroft deep mine complex in Indian Creek and Champion Creek watersheds to determine the best course of action for treatment and alleviation of flooding and mine seepage in the basements of residents of the village of Melcroft. They are also pursuing treatment options on discharges from two forfeited surface mines in the Newmyer Run watershed.

The Draft PL-566 mine drainage abatement plan developed by the U.S. Natural resources Conservation Service (NRCS) was approved for funding in December 2000. Federal funding, if appropriations are approved, will pay for half of the costs of reclamation of 10 min sites in the Indian Creek watershed.

Indian Creek watershed had one of the few court settlements of the early 1900's that prevented a coal company from discharging acid mine drainage to a stream. As a result of the settlement, a flume system was built to divert water from Indian Creek to downstream of the Mill Run water supply reservoir. The flume was over 7 miles long and was partially above and below ground. The flume began to deteriorate in the 1970's and became completely nonfunctional. The most visible breakouts of the flume can be seen as orange water flowing along the road ditch along PA Route 711 south of the Kalp discharge.

Despite the acidic deep mine discharges and iron covering the substrate of lower main stem Indian Creek and lower Champion Creek, the watershed was considered mostly unimpaired because the pH remains near neutral and the watershed supports a variety of aquatic invertebrates and fish. Numbers of aquatic invertebrates and fish, however, are reduced in the most severely iron-affected areas of Indian Creek. Newmyer Run, Poplar Run downstream of Neumyer Run, and the lower 5.5 miles of Indian Creek were the only impaired sections in Indian Creek watershed. Upper Meadow Run and Cucumber Run are also impaired by abandoned mine drainage. An abandoned clay mine discharges aluminum contaminated water to the North Branch of Cucumber Run in Ohiopyle State Park.

The ski resorts on top of Laurel Hill use large quantities of water to make snow, discharge warmer water to the receiving streams, and cause some depletion of groundwater recharge to headwater tributaries.

Future threats to water quality

The major threat to water quality has been from underground coal 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. Expansion of the few urban and recreational areas may increase residential and second home development and stormwater runoff potential from developing areas.

Restoration Initiatives

Pennsylvania Growing Greener Grants:

- \$152,171 (FY2003) and \$66,280 (FY2001) to the Mountain Watershed Association for fluvial geomorphological assessment and rehabilitation on Mill Run.
- \$1,196,659 (1999) to Stream Restoration, Inc. for Phase II of the passive treatment system for abandoned mine discharges in Ohiopyle State Park.
- \$21,675 (1999) to the Upper Meadow Run Watershed Association to construct two wetland treatment cells to remove sediment and nutrients from stormwater flowing into Deer Lake. A communications network will be formed to provide information to landowners on their role in protecting existing aquatic resources of Meadow Run. Water quality will be monitored in the upper watershed and a long-range management plan will be developed to address nonpoint source pollution.

US EPA Clean Water Act Section 319 Grants:

- \$172,386 (1999) to Mountain Watershed Association for passive treatment and relocation and seeding of a coal refuse pile at the abandoned Sagamore mine complex on Indian Creek. Additional funding received from:
 - \$10,000 from Heinz Endowment
 - \$40,000 from NRCS Rural Abandoned Mine Program (RAMP).
 - \$67,560 from OSM Appalachian Clean Streams program.

- \$250,000 (2000) to the Mountain Watershed Association for passive treatment of the Gallentine Mine discharge to Indian Creek. An additional \$69,000 will be provided by OSM.

DCNR Rivers Conservation Grant:

- \$50,000 (1999) to the Mountain Watershed Association for a rivers conservation study of Indian Creek watershed.
- \$115,000 (1997) to Somerset County Conservancy and Chestnut Ridge Trout Unlimited to prepare a rivers conservation plan for the Youghiogheny River from the PA/MD line to South Connellsville.

DEP Bureau of Abandoned Mine Reclamation (BAMR):

- BAMR is studying discharges from the Melcroft deep mine complex in Indian Creek and Champion Creek watersheds for passive treatment. They are also pursuing treatment options on discharges from two forfeited surface mines in the Newmyer Run watershed.
- BAMR has completed surface restoration and coal refuse removal of several abandoned mine sites in Indian Creek watershed through its bond forfeiture program.
- 10% set-aside funds project on North Branch Cucumber Run; passive treatment system on discharges within Ohiopyle State Park. Treatment consists of wetland and ALD. Construction costs were \$166,000.

DEP Bureau of Mining and Reclamation WRPA Grants:

- \$261,294 (1999) to Stream Restoration, Inc. for a passive treatment system on Laurel Run within Ohiopyle State Park.

US Natural Resources Conservation Service (NRCS) PL-566 Program:

- Study of AMD discharges to determine if PL-566 funding can be used to implement an AMD treatment plan for Indian Creek watershed. NRCS will develop a remediation plan and a cost-benefits ratio for restoration. The U.S. Congress approved the Plan in December 2000.

Western Pennsylvania Watershed Protection Program (WPWPP)

- Grant for \$15,000 to the Mountain Watershed Association for stream bank restoration and riparian corridor improvements on Indian Creek at Jones Mills.

Penndot Dirt and Gravel Roads Program

- Grant to Westmoreland CD: repairs made to Tunnel Road in Donegal Township near the old Laurel Mountain turnpike tunnel should help sediment pollution to unnamed tributaries of upper Indian Creek. Repairs included installation of cross pipes, ditch work, rip-rap energy dissipaters, recrowning of the road surface, and stabilization of the disturbed slopes with seed and mulch.

Coldwater Heritage Partnership Grant:

- \$5,000 to the Somerset Conservation District for a preliminary watershed assessment of the lower portion of Laurel Hill Creek (1999).

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

Citizen/Conservation groups

Mountain Watershed Association has been active in remediation and protection of the Indian Creek watershed. They have developed a preliminary plan of attack for remediation of the major mine discharges in Indian Creek watershed. They also assisted NRCS in developing a PL-566 remediation

plan for the watershed. Photos of Indian Creek and the watershed association's restoration projects can be viewed at <http://www.mtwatershed.com/>.

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 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.

Restoration Needs in Indian Creek Watershed:

NRCS completed a Draft PL-566 study in 2000 to address remediation and to obtain funding for treatment of AMD problems in Indian Creek watershed. One hundred and nineteen discharges flow into Indian Creek watershed. Remediation of 10 mine sites in the Indian Creek watershed will treat 95% of the acid, 90% of the iron and 94% of the aluminum entering the watershed. Their cost estimate for treatment of these 10 sites is \$4.1 million, half of which would be funded by the PL-566 program. Treatment options would include constructed wetlands, settling basins, successive alkalinity producing systems (SAPS), anoxic limestone drains (ALD's), and limestone channels. The following mine sites were determined to be most adversely affecting Indian Creek watershed:

1. Melcroft #3 deep mine located at the village of Melcroft under lower Champion Creek, includes 3 mine pools, 5 discharges, in-stream upwellings, basement flooding, etc. The level of the mine will have to be lowered before treatment can proceed. After pool lowering, the discharge will then be conveyed to a settling basin, a SAPS, and an aerobic wetland.
2. Kalp deep mine discharge: the largest single discharge in the watershed, enters Indian Creek at the village of Romney, approximately 2 miles upstream of Sagamore and one mile downstream of the village of Melcroft. Flows range from 300 to 600 gpm; the pH ranges from 2.8 to 3.8. The discharge has formed an iron-encrusted wetlands in the floodplain between PA Route 711 and Indian Creek. A 20 gpm discharge is located 1000 feet north of the Kalp discharge. Treatment will require capturing and piping the discharge 1600 feet to a treatment area. The discharge will then be conveyed to a settling basin, a SAPS, and another settling basin.
3. Gallentine deep mine portal discharge into Indian Creek 1.5 miles downstream of Indian Head. Flows range from 40 to 50 gpm. Iron is high and aluminum is relatively low. The Westmoreland Water Authority owns most of the property where the discharge is located. The pH ranges from 3.7 to 4.8. Treatment will consist of a settling basin, a SAPS, and another settling basin. This is the second of the 319-funded remediation projects sponsored by the Mountain Watershed Association. Construction began in 2000.

4. Rondell-Correal surface mine located on Chestnut Ridge near the headwaters of Newmyer Run. This discharge has the worst water quality in the Indian Creek basin. The pH is below 3.0, iron ranges from 61 to 123 mg/l, and aluminum ranges from 68 to 124 mg/l. Total acidity ranges from 908 to 1188 mg/l. Flows range from 30 to 50 gpm. The high aluminum is believed to result from a clay seal used during backfilling of the mine. Removal of this clay seal should reduce the acid and aluminum loading from this site. After seal removal, the site will be studied and a passive treatment system designed.
5. Marsolino-Leighty surface mine located on lower Newmyer Run; also degrades Poplar Run. The pH is around 3.5 and the aluminum concentration ranges from 68 to 124 mg/l. A clay seal like the one used at the Rondell-Correal site is believed to have been used here. Treatment will involve removal of the clay seal and construction of passive treatment systems. Abandoned settling ponds up slope will also need to be filled and graded.
6. Fulton deep mine discharge located just below the confluence of Poplar Run and Newmyer Run. Acidic, low aluminum, high iron discharge. Proposed treatment is an ALD and settling basin.
7. Nicholson discharge from a reclaimed surface mine near the headwaters of Poplar Run. Treatment will be an ALD and settling basin.
8. Lawrence Coal Co., 2 discharges from a reclaimed surface mine ½ mile east of Rogers Mill. An ALD and settling basin is the proposed treatment.
9. Buck Run discharge from a reclaimed surface mine ½ mile east of Rogers Mill. Proposed treatment sequence is a settling basin, SAPS, and settling basin.
10. Permapress discharge from a reclaimed surface mine 2 miles east of Normalville. Proposed treatment sequence is a settling basin, SAPS, and settling basin.

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 and files.
- 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
- Unsuitable for Mining Technical Study. DEP Bureau of Mining and Reclamation, 1995.
- Stoneflies of Indian Creek watershed. 1997. Jane Earle, Masters Thesis, West Virginia University, and macroinvertebrate sampling.
- Mountain Watershed Association, preliminary plan for mine drainage treatment in Indian Creek.
- Earle, Jane I. 1997. Stoneflies of Indian Creek Watershed (Pennsylvania) A Watershed Affected by Abandoned Mine Drainage. Masters Thesis. West Virginia University.

Streams in Subbasin 19E: 303d/305b Listings

Stream	Stream Code	Drainage area square miles	Miles Impaired	Miles Attained	Causes/Sources/ Comments
3-Youghiogheny River	37456			48.06	
4-Reason Run	39392	1.24			
4-Hall Run & 4 UNTs	39369	12.1		6.67	
5-Pinkham Run & 3 UNTs	39381	2.41		6.74	
5-"Stuck Hollow" & 3 UNTs	39370	3.60		4.45	
6-Caney Valley Run	39372	1.54		1.29	
4-Tub Run	39361	6.95			
4-Hen Run	39351	1.67			
5-Laurel Hill Creek & 34 UNTs	38580	125	32.79		Organic enrichment/low DO & siltation from grazing and crop related agriculture <i>HQ-CWF</i>
6-Crab Run & 5 UNTs	38746	4.14		8.34	Nutrients and organic enrichment/low DO from grazing related AG <i>HQ-CWF</i>
6-Clear Run	38737	5.39			<i>HQ-CWF</i>
6-Shanks Run	38734	1.03			<i>HQ-CWF</i>
6-Shafer Run	38721	4.93			<i>HQ-CWF</i>
6-Kooser Run	38713	4.64			<i>HQ-CWF</i>
6-Gross Run	38706	1.23			<i>HQ-CWF</i>
6-Crise Run	38704	0.99			<i>HQ-CWF</i>
6-Buck Run near Jimtown	38701	1.08			<i>HQ-CWF</i>
6-Jones Mill Run	38693	4.89			<i>EV</i>
6-Spruce Run	38690	2.43			<i>HQ-CWF</i>
6-Allen Creek	38682	4.65			<i>HQ-CWF</i>
6-Fall Creek	38661	12.2			<i>HQ-CWF</i>
7-Blue Hole Creek	38663	5.70			<i>EV</i>
6-Lost Creek	38653	4.23			<i>HQ-CWF</i>
6-Whipkey Run	38637	2.55			<i>HQ-CWF</i>
7-Green King Run	38638	2.55			<i>HQ-CWF</i>
6-Mose King Run	38633	2.35			<i>HQ-CWF</i>
6-Sandy Run	38618	10.8			<i>HQ-CWF</i>
7-Harbaugh Run	38621	2.70			<i>HQ-CWF</i>
6-Cranberry Glade Run	38612	5.38			<i>HQ-CWF</i>

6-May Run	38608	1.12			<i>HQ-CWF</i>
6-“Coke Oven Hollow”	38605	1.68			<i>HQ-CWF</i>
6-“Smith Hollow”	38598	3.98			<i>HQ-CWF</i>
6-“Paddytown Hollow”	38590	3.33			<i>HQ-CWF</i>
4-Ramcat Run & 2 UNTs	38570	3.86		5.34	
4-Drake Run & 7 UNTs	38557	9.94		13.97	<i>HQ-CWF</i>
5-Little Glade Run & 3 UNTs	38563	4.69		5.74	<i>HQ-CWF</i>
6-Alex Run & one UNT	38565	1.19		2.41	<i>HQ-CWF</i>
4-Camp Run at Bidwell	38554	0.53		1.07	<i>HQ-CWF</i>
4-Lick Run & 2 UNTs	38551	2.68		3.45	<i>HQ-CWF</i>
4-Long Run	38547	0.58		0.97	
4-Rock Spring Run & one UNT	38545	1.76		2.60	<i>HQ-CWF</i>
4-Sheepskin Run	38544	1.05		1.36	<i>EV</i>
4- Meadow Run	38488	41.2			<i>HQ-CWF</i>
5-Deadman Run & 3 UNTs	38513	4.67	3.82		Organic enrichment & siltation from combined sewer overflow <i>HQ-CWF</i>
5-Beaver Creek	38493	14.8			<i>HQ-CWF</i>
6-Noahs Glade	38499	3.18			<i>HQ-CWF</i>
5-Laurel Run near Ohiopyle	38491	4.28	1.41		Metals and other inorganics from AMD <i>HQ-CWF</i>
4-Cucumber Run & 6 UNTs	38478	6.41		10.24	
5-North Branch Cucumber Run & 2 UNTs	38479	1.84		3.83	
4-Jim Run	39473	0.98		1.12	
4-Bear Run & 13 UNTs	38455	6.39		14.79	<i>EV</i>
4-Jonathan Run	38444	6.10			<i>EV</i>
5-Blackberry Run & 2 UNTs	38445	1.13		2.19	<i>EV</i>
4-Sugar Run	38443	1.08		1.03	<i>EV</i>
4-Laurel Run at Stewartown & 3 UNTs	38439	2.55		4.77	<i>HQ-CWF</i>
4-Crooked Run & 3 UNTs	38435	1.62		4.26	<i>HQ-CWF</i>

4-Bruner Run & 5 UNTs	38429	3.44		6.14	<i>EV</i>
4-Johnson Run & 7 UNTs	38428	1.21		12.58	<i>HQ-CWF</i>
4-Workman Run & 2 UNTs	37424	0.94		2.01	
4-Morgan Run & 3 UNTs	38419	5.03		8.27	<i>HQ-CWF</i>

4-Indian Creek	38235	125	5.49, 9 UNTs	27.27 main stem; 29.6, 32 UNTs	Metals, pH, salinity/TDS/ chlorides, siltation from AMD and surface mining; Turbidity from removal of vegetation <i>HQ-CWF, upper basin</i>
5-Little Run	38415	2.43			<i>HQ-CWF</i>
5-Camp Run near Jones Mills	38400	3.27			<i>EV, Class A brook trout</i>
5-Pike Run & 2 UNTs	38382	5.00		6.98	<i>HQ-CWF</i>
6-Roaring Run & 4 UNTs	38383	9.73		8.37	<i>HQ-CWF</i>
5-Champion Creek	38337	14.2	0.85 main stem; 0.74 one UNT	6.26 main stem; 6.79, 12 UNTs	Metals from AMD & surface mining
6-Minnow Run & 2 UNTs	38363	1.61		3.02	
6-Little Champion Creek & 16 UNTs	38342	6.81		13.81	
5-Wash Run	38334	1.01		1.66	
5-Back Creek & 7 UNTs	38319	11.8		11.89	
6-Neals Run & 2 UNTs	38330	3.19		3.84	<i>HQ-CWF</i>
6-Trout Run & 2 UNTs	38327	3.21		4.49	<i>HQ-CWF</i>
5-Poplar Run	38302	10.2	2.82 main stem; 2.22, 3 UNTs	2.54 main stem; 8.29, 6 UNTs	Metals from AMD & surface mining. Siltation from land development
6-Newmyer Run & 5 UNTs	38307	3.89	6.56		Metals from AMD & surface mining
5-Laurel Run at Rogers Mill & 6 UNTs	38285	12.1		8.52	
6-Middle Fork & one UNT	38286	2.54		4.14	
6-Buck Run at Rogers Mill & 3 UNTs	38284	4.90		6.95	<i>Class A brook trout, upper 1.7.miles</i>
5-Stony Run & 3 UNTs	38279	2.04		4.44	
5-Mill Run & 9 UNTs	38256	12.6		13.56	<i>HQ-CWF</i>
5-Clay Run	38271	2.11		3.12	
5-Fulton Run & 4 UNTs	38266	3.98		6.50	
5-Rasler Run & 10 UNTs	38241	7.00		14.72	

5-Richter Run	38239	1.56			
5-Tates Run & 2 UNTs	38236	2.33		3.81	
4-Laurel Run at South Connellsville	38231	1.82			

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, Youghioghney River=3, Casselman River=4.

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

UNT= Unnamed tributary, AG= Agriculture, AMD= Abandoned Mine Drainage