

Updated March 2004

**Watershed Restoration Action Strategy (WRAS)
State Water Plan Subbasin 03B
Maiden Creek Watershed
(Schuylkill River)
Berks and Lehigh Counties**

Introduction

Subbasin 03B watershed comprises the northern corner of Berks County and the western tip of Lehigh County. The total watershed area is 300 square miles. Maiden Creek drains 216 square miles, the largest portion of the basin. The basin also includes the Schuylkill River from the southern flank of Blue Mountain down through the confluence of Maiden Creek. A total of 230 streams flow for 421 miles through the subbasin. The southern part of the basin reaches the northern suburbs of the city of Reading. The subbasin is included in **HUC Area 2040203**, Schuylkill River, a Category I, FY99/2000 Priority watershed under the Unified Watershed Assessment.

Geology/Soils

The geology of the subbasin is diverse and includes igneous, metamorphic, and sedimentary bedrock. The northern two-thirds and the western portion of the subbasin are located within the Ridge and Valley Ecoregion, Northern Shale Valleys Section (67b). The surface strata are mainly comprised of shale interbedded with limestone and dolomite of the Martinsburg Formation. The terrain in this section consists of rolling hills and some steeper ridges. Many small tributaries flow down the narrow valleys between the hills. The soil is shallow and very rocky. The shale region absorbs less precipitation than the carbonate valley to the south and the streams are larger and the runoff potential is greater.

Blue Mountain, which forms the steep northern boundary of the subbasin, is within the Northern Sandstone Ridges section (67c) comprised of erosion resistant, relatively lowly buffered, weather resistant quartzitic sandstone and conglomerate. Many high gradient streams originate on the mountain and flow down into shale or limestone valleys.

A wide band of the Northern Limestone Dolomite Valleys (67a) section passes through the lower third of the subbasin, through middle Sacony Creek in the Kutztown area, upper Moselem Creek, Willow Creek north of the railroad line, and Peters Creek along the eastern edge of Lake Ontelaunee. This limestone valley is flat lying to gently sloping with caves and sinkholes; much of the drainage is subsurface. Streams are generally small and shallow except where they are replenished by large springs. Moselem Creek is an example of a large limestone spring-fed stream. These streams also normally maintain a cool temperature year-round and can provide excellent habitat for trout if not degraded. Limestone is a valuable aggregate for construction and road building; two limestone quarries are in operation in Maiden Creek watershed.

The southeastern edge of the watershed contains granite-gneiss of the Reading Prong (58h), part of the Northeastern Highlands Ecoregion, formed of uplifted Precambrian igneous rocks. Reading Prong soils are fine-grained. This steeply sloped section forms the headwaters of Sacony and Little Sacony Creeks, which are very rocky, high gradient streams. This section is the least suitable for agriculture and most of it is still wooded with scattered houses. This area forms part of the watershed divide between Manatawny Creek and Little Lehigh Creek.

The limestone bedrock and the highly mineralized shale result in neutral to alkaline waters and productive agricultural soils through most of the subbasin. The limestone section provides the most productive soils and most of this area is in agricultural use for crops. Soils derived from shale and granite of quartzite generally have a rather high runoff potential. Streams through these bedrock types have a flashy nature, with lower low flows and higher high flows. Soils formed from the Martinsburg Formation shale have a very low water infiltration rate. Limestone derived soils have higher infiltration rates due to sinkholes, depressions and secondary faults. Limestone soils also have a greater vulnerability due to the high infiltration rates. When precipitation readily infiltrates, surface pollutants such as nitrates and pesticides are also readily carried into the groundwater, which has a high potential to reach water supply wells. Fractures in the limestone rocks provide the best groundwater yields in the subbasin. Water yields in the Reading Prong strata are poor unless wells tap into fractures.

Land Use

The subbasin is in a mixed land use of agricultural, woodlands, and scattered villages and boroughs, except for the nearly completely forested Blue Mountain area. Streamside woodlands are intact through much of the shale and granite-gneiss portions of the subbasin. Much of the steep slopes of these sections also retain their woodlands. A total of 53,000 people resided in the subbasin in 1990; population is projected to rise to 62,000 by 2040.

Approximately 58% of the Maiden Creek watershed is used for agriculture and forested lands comprise 39%. The majority of the farmlands are in the limestone valley of the southern watershed; however, the primary land use in the headwaters is also agriculture. Most of the forested land is on Blue Mountain, the State Game Lands, and around Lake Ontelaunee. Small residential subdivisions are spreading out from the boroughs and villages. Maidencreek Township, located north of Reading and bordering Lake Ontelaunee on the east, has had the most growth during the past decade. While only one subdivision was present in 1979, the township now has 13 subdivisions with 1,700 proposed units. The more intensively developed areas include the boroughs of Fleetwood and Kutztown and small villages such as Lenhartsville, Virginville, and Kempton. With development pressures mounting in the subbasin, preservation of the areas with the best agricultural soils is critical to maintain the agricultural productivity and heritage of the region.

Natural Resources:

- The PA Game Commission has a large state game lands on Blue Mountain at the northern boundary of the subbasin. Several other small game lands are located in the watershed.
- Lake Ontelaunee a 1,082-acre impoundment on lower Maiden Creek is managed as a public water supply for the City of Reading. Most of the lake is open to public fishing along the shore and for ice fishing; boating is not permitted. The PA Game Commission manages a portion of the surrounding land for wildlife. Hunting and hiking on this land is allowed seasonally.
- Hawk Mountain Sanctuary is located on upper Pine Creek. Thousands of people visit during the fall hawk migration.
- The PA Fish and Boat Commission (PFBC) owned Leaser Lake is located on an unnamed tributary to Ontelaunee Creek near the village of Jacksonville. The woods surrounding the lake which is owned by Lehigh County and the PFBC is a diverse second growth forest habitat.
- Sacony Marsh is a 20-acre significant palustrine wetland located southeast of Kutztown that contains populations of rare or endangered plants.
- The Pennsylvania Audubon Society has identified Lake Ontelaunee and its surrounding fields and woods as an Important Bird Area for migrating waterfowl and shorebirds.

PA Fish and Boat Commission Class A Trout Waters (highest biomass category):

- Furnace Creek, brook trout, headwaters down to near SR4044 (2.8 miles, Berks County)
- Peters Creek (UNT #01994), brook trout, a limestone spring creek (0.75 mile, Berks County)

DEP Chapter 93 Exceptional Value (EV) and High-Quality (HQ) Stream Listings:

- EV Streams:
 - Sacony Creek headwaters down to SR1029 bridge in Rockland Township
 - Peters Creek (UNT #01994)
- HQ Streams:
 - Pine Creek, source to farthest downstream crossing of T-803
 - Moselem Creek, a limestone spring creek

Water Supplies:

Eleven water suppliers are drawing water from the subbasin, mostly using wells and springs. Lake Ontelaunee is used as a water supply for the City of Reading and a reservoir on Furnace Creek supplies water to the Borough of Hamburg. Three municipal water authorities in Maiden Creek watershed supplying the Boroughs of Kutztown, Topton, and Lyons, and Manatawny Township (Flint Hill Water Company) are participating in the DEP wellhead protection program. The purpose of the wellhead protection program is to restrict land uses within the delineated zones of contribution that threaten groundwater quality.

Water Quality

The subbasin has relatively good water quality. The 12 miles of main stem Maiden Creek that has been unassessed is unimpaired, as are the entire 12.4 miles of the upper main stem, which is known as Ontelaunee Creek. Fourteen unnamed tributaries (UNTs) of Maiden/Ontelaunee Creek are impaired by siltation and nutrients from agriculture, urban runoff, small residential development, derelict land, and upstream impoundments. The lower three miles of Maiden Creek is impacted by habitat alteration by the upstream impoundment, Onetelaunee Lake. Five miles of Willow Creek is impacted by flow alterations from industrial point sources and natural sources.

Portions of the following tributary watersheds to Maiden/ Ontelaunee Creek are impaired by same sources as the Maiden Creek UNTs: 4 UNTs to School Creek, , Kistler Creek, all of main stem and one UNT, 2 UNTs to Pine Creek, 2 UNTs to Sacony Creek, all of main stem Little Sacony Creek, 1.5 miles of main stem Mill Creek near Kutztown and all or portions of 21 UNTs, 5 miles of main stem Willow Creek and all of one UNT.

The Schuylkill River meets its designated use for human health; however, 8 UNTs are impaired by nutrients from in-site wastewater, agriculture, golf courses, & derelict land. Impaired named tributary watersheds of the Schuylkill River are: one UNT to Pigeon Creek, Irish Creek, entire main stem and 6 UNTs, one UNT to Plum Creek. Two UNTs to the Schuylkill River are impacted by water flow variability from urban runoff and storm sewers.

TMDL's will be developed for the impaired streams described above, except for impairments due to water flow variability. .

Lake Ontelaunee, however, is impaired by siltation and nutrients from agriculture, urban runoff, small residential development, derelict land, and upstream impoundments. High algal counts in Lake Ontelaunee create filtration and taste and odor problems in the public water supply. Storm flows in the watershed are high in suspended sediments and fecal coliform counts. After rainfall, sediment and nutrient laden runoff passes quickly through the lake's feeder streams and settles into the lake.

Maiden Creek watershed has relatively few areas of severe streambank erosion in the lower watershed including Sacony Creek. Streambanks are largely lined with trees and brush. Sacony Creek, however, is heavily silted in the limestone portion around and through the Borough of Kutztown. Several of the farms in the Sacony Creek watershed allow free access of cattle and horses to creeks in streamside pastures. The Kutztown sewage treatment plant discharges to Sacony Creek. Numerous farm ponds and small stream impoundments are located in the subbasin. Moselem Creek is a swiftly flowing limestone spring creek that has nice gravel substrate in its lower half as it flows through a steep sloped shale area along PA Route 662.

Monitoring/Evaluation

USF&WS, Special Project Report 90-1, Preliminary Investigations of Tumors in Brown Bullheads from Lake Ontelaunee in Berks Co, PA, April, 1990. The report was produced to document findings in determining the causes of brown bullhead tumors in the lake, which were first reported by the PA Fish and Boat Commission in 1985. Chemical pollutants in the sediments of Lake Ontelaunee were the suspected cause; however, a virus-induced genetic defect was concluded to be the probable cause of the tumors.

The Clean Lakes Phase 1 Report, 1992, Diagnostic-Feasibility Study of Lake Ontelaunee, Final Report, April 1994, documented some impairment of the Lake Ontelaunee watershed. The study concluded that the lake is eutrophic due to high levels of nutrients, sediments and recurring algal blooms. Phosphorus is the limiting nutrient. Nonpoint sources of pollution, such as runoff from agricultural and urban areas and leachate from septic systems, contribute 92% of the annual phosphorus load and almost 100% of the sediment load to Lake Ontelaunee. The trophic status index (TSI) ranged from 61 to 69. Blue-green algae dominated the algae species composition. The study concluded that the lake had lost roughly 25% of its volume, or 1,067 million gallons, by 1992 due to sediment. Based on a fill date of 1938, this rate averages roughly 0.5% per year. Lake sediments contained moderate to high concentrations of arsenic, copper, lead, selenium and zinc. The fishery was considered balanced during the study; however, gizzard shad had recently been introduced and had a potent to change the fishery.

The Ontelaunee Watershed Source Watershed Assessment Study, completed in 1998 by Camus Group, included several key concerns for the watershed: 1) bacterial contamination, 2) sediment delivery to the reservoir, and 3) algae growth fueled by phosphorus. The erosion of watershed soils and their transport to the reservoir are a major

concern in the watershed since sedimentation can reduce the capacity of the reservoir. Observers have noted that the upper reaches of the reservoir in Richmond, Perry and Maidencreek Townships are slowly filling in and reducing the reservoir's depth.

A special protection study was conducted by DEP in 1996. The study included a one-time sampling of chemistry and aquatic macroinvertebrates. A similar study was underway in 2000.

Local citizens conducted stream walks and published a report on their findings in 1992. They described visual signs of pollution, noted possible surface water problems, and sampled for macroinvertebrates. Potential pollution sources identified included wastewater discharges from residences, drainpipes, cattle with free access to streams, trash dumps, abandoned cars, and tire dumps.

Two of the studies noted presence of elevated nitrate concentrations (greater than 5 mg/l). Elevated concentrations were noted at one or more locations in Christmans Lake, Moselem Creek, Peters Creek, Sacony Creek, and several unnamed tributaries. Moselem Creek had measured concentrations at or near 10 mg/l. The three creeks with the highest nitrogen concentrations are all limestone spring influenced, showing that groundwater recharge is a probable major contributor to the high nitrogen loading. EPA has stated that nitrate concentrations over 10 mg/l can lead to suffocation or death in infants (blue baby syndrome). Major sources of nitrates to groundwater are fertilizers, and septic systems.

Nutrient loading modeling done by the Camus Group indicated that agricultural lands contributed the most nitrogen and sediment to surface water in the Maiden Creek watershed. Much of that nutrient loading winds up in Lake Ontelaunee. Subwatersheds with the highest nitrogen and phosphorus loading rates on an annual basis were determined to be Bailey Creek, Moselem Creek, Peters Creek and Mill Creek. Each of these is estimated to contribute greater than 16 kg/ha of nitrogen and over one kg/ha of phosphorus annually. The same watersheds also contribute high sediment loading. Sacony Creek, Kistler Creek, and Stony Run were estimated to contribute total suspended solids greater than 600 kg/l annually. On a percentage of total nutrient loading basis, however, Mill Creek was determined to have the highest percentage load, around 12%.

Point Sources:

Permits have been issued for 20 National Pollutant Discharge Elimination System (NPDES) sites in Maiden Creek watershed. Permits have been issued for industrial and chemical plants, sewage treatment plants, mushroom farms or processors, residences, and water systems. Willow Creek receives 5 of the discharges and Sacony and Maiden Creeks each receive 4. EPA considers the Kutztown Sewage Treatment Plant as the only major discharge in the watershed. Point sources were estimated to contribute 16.4% of the phosphorus loading and 5.8% of the total nitrogen loading to Lake Ontelaunee.

Future threats to water quality

With the slow anticipated population growth, the subbasin should be subjected to the same water quality impairments as now present.

Restoration and Protection Initiatives

Pennsylvania Growing Greener:

- Berks County Conservation District (FY 2003)
 - \$14,000 to implement stream bank fencing best management practices
 - \$25,000 to install agricultural best management practices on a dairy farm along Irish Creek.
- \$18,355 (FY2001) to Berks County Conservation District for streambank fencing along Furnace Creek using recycled fence posts.
- \$20,030 (FY2001) to Berks County Conservation District for streambank fencing and barnyard management in Sacony Creek watershed.
- \$11,727 (FY2001) to Berks County Conservation District for organization and outreach of the Maiden Creek Watershed Association.
- \$15,500 (FY2001) to Berks County Conservancy for renewal of the Moselem Creek headwaters.

- \$100,000 (FY1999) to the Berks County Conservation District (CD) to continue installation of agricultural BMPs to restore stream banks. The project will include installation of livestock crossings and stream bank fencing to exclude cattle.

US EPA Clean Water Act Section 319 Projects:

- \$75,000 (FY2000) to Berks County CD to continue EQIP restoration projects in Maiden Creek watershed. The CD will implement agricultural best management practices and provide assistance in developing conservation plans for farmers.
- \$31,845 (1999) to the Tulpehocken Chapter Trout Unlimited for restoration of riparian buffers through installation of fencing and in-stream erosion control devices in Sacony Creek watershed.
- \$30,000 (1999) to Berks County CD for streambank fencing and best management practices (BMPs) to restore riparian vegetation in Maiden Creek watershed.
- \$85,000 (1996) to Berks County CD for development and demonstration of BMPs to minimize nonpoint source pollution from mushroom farms in Tulpehocken Creek and Maiden Creek watersheds.

DCNR Rivers Conservation Grants:

- \$24,200 (1995) to the Schuylkill River Greenway Association to update the zoning and land use patterns along the Schuylkill River to assess opportunities for greenway development and river access.
- \$50,000 (1997) to the Berks County Conservancy to prepare a rivers conservation plan for Maiden Creek. Students and faculty associated with the Penn State University's Center for Watershed Stewardship conducted a year long study to develop the plan.
- \$225,000 (1996) to the Natural Lands Trust and The Conservation Fund to develop a regionally based watershed conservation plan for the Schuylkill River basin that can be used to support and assist watershed groups in developing detailed plans at the sub-watershed level.

US EPA Clean Lakes Program:

- Lake Ontelaunee Phase I Diagnostic-Feasibility Study, Final Report April 1994.

Stormwater Programs:

- \$84,824 (1995-96) to Berks County for preparation of a watershed stormwater plan to address excess stormwater runoff from new development sites. Recommendations in the plan will be implemented by the county's ordinances.
- Act 167 Stormwater Management Plans
 - Sacony Creek watershed has an approved plan

Water Supply Planning/Wellhead Protection Program:

- \$61,875 (1996) grant to Berks County to conduct a feasibility study for regionalization of all community drinking water systems in the county.

PENNVEST

- \$1.3 million loan to Manatawny Township Municipal Authority to construct a sewage collection and conveyance system to serve the Village of Bowers, thereby eliminating groundwater contamination and degradation of nearby Sacony Creek.

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. 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

- Schuylkill Riverkeeper
- Trout Unlimited
- Berks County Conservancy
- Schuylkill Recreation Commission
- Schuylkill River Greenway Association
- Friends of Sacony Marsh

- Pine Creek Valley Watershed Association

Funding Needs

The total dollars needed for addressing all nonpoint source problems in the watershed is undetermined. Stream assessments have been conducted and TMDLs will be developed for impaired waters in the subbasin. Watershed restoration plans developed for impaired waters will help determine what Best Management Practices (BMPs) are necessary to help reduce pollution sources and should give rough estimates of restoration needs.

Funding sources available to support the development of site-specific implementation plans and remediation projects that address the sources of water quality impairment include the EPA Clean Water Act Section 319 grant program and the newer Pennsylvania funded Growing Greener program which target reductions in nonpoint source pollution. Pennsylvania has generally placed more emphasis on funding projects slated for implementation on water bodies where TMDLs have been completed or where water quality impairments have been documented.

The Lake Ontelaunee Phase I study management plan included a list of activities or practices to address NPS pollution impacts, such as strip cropping, animal waste facilities, conservation tillage, diversions, terraces, underground outlets, pasture/hay land management, and grass waterways. Funding needs for the agricultural practices amounted to \$1,366,000. Agricultural best management practices and streambank stabilization work have been, and continue to be, implemented through several projects in the watershed.

Conservation Plan for Maiden Creek Watershed:

The Rivers Conservation Plan developed for Maiden Creek by the Pennsylvania State University Center for Watershed Stewardship identified several priority issues and management options in the watershed. These issues and management options include:

1. Impairment of surface waters from suspended solids, nutrients and pathogens. Sacony Creek and its tributary Mill Creek would be a top priority area since these streams contribute to the high loading in Ontelaunee Lake.
 - Investigate and target problem areas in streams with high nutrient loading for implementation of best management practices (BMPs).
 - Restore or enhance riparian buffers in watersheds contributing high nutrient and sediment loading.
 - Explore funding to acquire riparian conservation easements that incorporate BMPs.
 - Identify and prioritize areas where cattle have free access to the streams and assist landowners in implementing BMPs.
 - Expedite development and implementation of farm conservation plans. Examples of conservation practices that should be included in plans: conservation tillage, terraces, grassed waterways, field or strip contouring, streambank fencing, less erosive crop rotations, winter cover crops. Plans should also incorporate wetland and riparian area protection, restoration and enhancement.
 - Develop and implement improved waste management facilities for Concentrated Animal Operations (CAOs).
 - Encourage development of a resource recovery business for excess agricultural wastes.
 - Implement and monitor erosion and sedimentation control plans on all sites with earth moving activities.
 - Implement mushroom farm BMPs with assistance of the conservation districts and agricultural extension offices.
 - Identify areas of malfunctioning septic systems and implement appropriate control measures. Update Municipal Act 537 plans to address sewage problems.
2. Address threats to groundwater quality and quantity
 - Implement source water protection plans for all public water supplies.
 - Conduct hydrologic investigations in vulnerable groundwater areas such as sinkholes and important recharge and discharge areas.
 - Conduct a study of nitrates and pathogens and groundwater levels in representative private water supply wells.
 - Encourage conservation use of water supplies.
3. Determine the impacts of future development on agricultural land, open space and environmentally sensitive areas. This can be addressed through better promotion and implementation of existing state and local programs for stormwater management, conservation of agricultural lands, and zoning. Development should be

encouraged on lands with existing public water and sewer service. Local ordinances dealing with impervious cover should be reviewed to help reduce the amount of paved areas in new subdivisions.

- 4 Develop a strong community based organization dedicated to Maiden Creek to promote watershed awareness and lead protection and remediation activities.

An assessment of riparian buffers was conducted on four subwatersheds using USGS 7.5 minute maps, Sacony Creek, Bailey Run, Moselem Creek which had high nutrient load; Pine Creek which had low nutrient loading was assessed for comparison. Bailey Run and Moselem Creek had the highest stream length lacking forested riparian cover and developed or agricultural lands. These watersheds should be evaluated more closely to determine specific areas to target for buffer restoration.

References/Sources of information

- State Water Plan, Subbasin 3, Lower Delaware River. Department of Environmental Protection, July 1983
- 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
- Ontelaunee Watershed Source Water Assessment, the Cadmus Group through the DEP Bureau of Water Supply Management and the EPA Region III, September 30, 1998.
- Lake Ontelaunee Phase I Diagnostic-Feasibility Study, 1992.
- Maiden Creek Watershed. Keystone Project 1999-2000. Center for Watershed Stewardship The Pennsylvania State University. 2000.

Streams in Subbasin 03B: 303d/305b Listings

| Stream | Stream Code | Drainage area square miles | Miles Attained* | Miles Impaired | Sources/Causes/Comments |
|------------------------|--------------------|-----------------------------------|---|--|--|
| 2-Schuylkill River | 00833 | | All of main stem attains its use for Human health | 12.78 miles of 8 UNTs 2.2 miles of 2 UNTs | Nutrients from in-site waste water, AG, golf courses, & derelict land TDS, chlorides, salinity, metals from Industrial point sources; Pathogens from municipal point source Water flow variability from urban runoff/storm sewers |
| 3-Mill Creek & 8 UNTs | 02187 | 17.6 | All | | |
| 4-Hassler Run | 02188 | 3.16 | All | | |
| 3-Pigeon Creek | 02180 | 7.55 | All of main stem & 2 UNTs | 3.2 miles of one UNT | Siltation from AG & Derelict land |
| 3-Irish Creek | 02153 | 25.2 | All or part of 5 UNTs | 8.7 miles of main stem & 7.8 miles of 6 UNTs | Siltation from AG & Derelict land |
| 4-Leshner Run & 3 UNTs | 02166 | 4.75 | All | | |
| 4-Plum Creek | 02160 | 3.47 | All of main stem & 3 UNTs | 0.7 mile of one UNT | Siltation from AG & Derelict land |
| 3-Maiden Creek | 01985 | 216 | 12 miles of main stem; all or part of 31 UNTs | 3 miles lower main stem 18.6 miles of 11 UNTs | Habitat alterations from upstream impoundment Siltation & nutrients from AG (grazing), Small residential developments, & Upstream impoundments |
| 4-Ontelaunee Creek | 02118 | 28.3 | All of main stem & 16 UNTs | 3.3 miles of 3 UNTs | Siltation & nutrients from AG & Urban runoff/storm sewers; Siltation from abandoned mine drainage |
| 5-School Creek | 02136 | 4.78 | All of main stem & 6 UNTs | 2.7 miles of 4 UNTs | Siltation from AG |
| 4-Kistler Creek | 02110 | 9.82 | All of 6 UNTs | 6.8 miles of main stem & 2.1 of one UNT | Siltation & nutrients from AG (grazing) |
| 4-Stony Run & 11 UNTs | 02092 | 8.98 | All | | |
| 4-Pine Creek | 02085 | 17.9 | All of main stem & 5 UNTs | 3.1 miles of 2 UNTs | Siltation & nutrients from AG |
| 4-Furnace Creek | 02080 | 3.65 | All | | <i>Class A brook trout upper 2.8 miles</i> |

| | | | | | |
|--------------------------|-------|------|--|---|---|
| 4-Sacony Creek | 02008 | 55.3 | All of main stem & 16 UNTs | 4 of 2 UNTs | Siltation from AG & Derelict land <i>EV, upper basin</i> |
| 5-Little Sacony Creek | 02064 | 1.42 | | 1.8 miles main stem | Siltation from Removal of vegetation |
| 5-Mill Creek | 02018 | 23.0 | 5.16 miles of main stem & all or part of 24 UNTs | 1.5 miles of main stem & 12.35 miles of 21 UNTs | Siltation from AG, Derelict land & Removal of vegetation |
| 4-Moselem Creek & 3 UNTs | 02003 | 13.6 | All | | <i>HQ-CWF</i> |
| 4-Bailey Creek & 2 UNTs | 01997 | 2.91 | All | | |
| 4- Peters Creek | 01994 | | All | | <i>EV, Class A brook trout</i> |
| 4-Willow Creek | 01986 | 21.7 | 4.63 miles of main stem & 8.48 of 5 UNTs | 5.1 miles main stem; 4.3 miles of one UNT 5 miles of main stem | Siltation & nutrients from AG & Road runoff Water flow variability from industrial point sources and natural sources |

- All streams listed are attaining their uses for aquatic life except for main stem Schuylkill River, which attains its use for Human health. The Schuylkill River has not been assessed for its use for aquatic life. The assessment for aquatic life has not been completed on 5.47 miles of main stem Maiden Creek. See the Integrated List of all waters on the DEP website at for explanation of methods and how uses and impairments are determined: <http://www.dep.state.pa.us/dep/deputate/watermgmt/wqp/wqstandards/303d-Report.htm>.
- 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. Delaware River=1.
- Chapter 93 information: EV= Exceptional Value; HQ= High Quality; WWF= warm water fishes; CWF= coldwater fishes; TSF= trout stocked fishes
- Lake Ontelaunee is on the Lake 303d list for impairment due to nutrients and suspended solids from agriculture, urban runoff, storm sewers, on-site wastewater, and municipal point sources.