= Black Creek (Susquehanna River) =

Black Creek is a tributary of the Susquehanna River in Luzerne County , Pennsylvania , in the United States . It is approximately 2 @.@ 6 miles (4 @.@ 2 km) long and flows through Conyngham Township . The creek 's watershed has an area of 3 @.@ 85 square miles (10 @.@ 0 km2) . It is designated as a Coldwater Fishery and a Migratory Fishery . The creek is ephemeral and loses its flow to underground mines . Varying concentrations of many alkali metals , alkaline earth metals , and transition metals occur in water in the creek 's watershed . The watershed typically experiences relatively mild temperatures . It is mainly accessible via U.S. Route 11 , Pennsylvania Route 239 , and a local road .

Black Creek is situated within the Northern Anthracite Coal Field . Rock formations in the watershed include the Mauch Chunk Formation , the Pottsville Formation , and the Llwellyn Formation . Coal beds in the watershed include the Lower Red Ash bed , the Upper Red Ash bed , the Lower Ross bed , the Upper Ross bed , and the Baltimore Bed . Ridges of mine waste also occur in the creek 's drainage basin . Mining was done in the watershed as early as the winter of 1836 @-@ 1837 , but it stopped in 1955 . The creek and the surrounding areas were the subject of a joint study by several federal and state organizations in the 1960s .

= = Course = =

Black Creek begins in a valley in Conyngham Township . It flows west @-@ northwest for nearly a mile , passing through a large pond or small lake , before turning north for several hundred feet . The creek then turns west for a short distance and enters a broader and much shallower valley before receiving an unnamed tributary from the right . It then turns southwest for more than a mile before turning south @-@ southwest and flowing through a deep and narrow valley to the northern border of Mocanaqua . The creek then turns west for a few tenths of a mile , following the border of Mocanaqua to its confluence with the Susquehanna River .

Black Creek joins the Susquehanna River 171 @.@ 90 miles (276 @.@ 65 km) upstream of its mouth .

= = = Tributaries = = =

Black Creek has no officially named tributaries . However , an 1887 book stated that the creek had two tributaries . One was unnamed and flowed from a point 0 @.@ 5 miles (0 @.@ 80 km) west of the DuPont Drift to the creek at the Golden Drift . The other was referred to as Turkey Pond Creek and was sometimes nearly dry , but could have a substantial flow during spring rains .

= = Hydrology and climate = =

Black Creek is an ephemeral stream . It used to drain an area between Turtle Creek and the Susquehanna River , but now loses its flow to underground mines via broken bedrock . Its channel is also disrupted by strip mines and rock piles . The waters of Black Creek are acidic .

Anions in the waters of the Black Creek drainage basin include sulfate and bicarbonate . The concentrations of aluminum in the mine pools in the area are typically very low or nonexistent . However , some mine waters in the watershed can have aluminum ion concentrations of over 70 milligrams per liter , forming 6 percent of total dissolved solids in the water , as measured by weight . The concentration of manganese ions in the waters can be over 100 milligrams per liter and calcium also occurs in groundwater in the watershed . Magnesium occurs in the non @-@ polluted groundwater in the watershed in concentrations of 1 to 5 milligrams per liter and occurs in polluted groundwater at concentrations of 4 to 440 milligrams per liter .

Sodium and potassium occur in water in the Black Creek watershed , with sodium being considerably more common than potassium . Potassium concentrations are around 20 milligrams per liter , while sodium concentrations are less than 10 milligrams per liter . Lithium and rubidium

also have been observed in the watershed , with concentrations of 0 @.@ 02 to 0 @.@ 2 and 0 @.@ 04 milligrams per liter , respectively .

Barium occurs in the water of the Black Creek watershed , typically at concentrations of less than 0 @.@ 07 milligrams per liter . Beryllium is about as common , with a concentration of less than 0 @.@ 06 milligrams per liter . Strontium is much more common , with a concentration of up to 4 @.@ 4 milligrams per liter .

The concentration of titanium in the waters of the Black Creek watershed is less than 0 @.@ 17 milligrams per liter and the concentration of zirconium is less than 0 @.@ 055 milligrams per liter . Small amounts (less than 0 @.@ 01 milligrams per liter) of vanadium , chromium , and molybdenum also occur in the water . The cobalt concentration in mine waters in the watershed ranges from 0 @.@ 07 to 0 @.@ 93 milligrams per liter and the nickel concentration ranges from 0 @.@ 09 to 1 @.@ 2 milligrams per liter . Copper , silver , tin , and lead also occur in the watershed .

The concentration of chloride ions in the watershed of Black Creek ranges from 0 to 14 milligrams per liter .

A 1971 report described the climate in the watershed of Black Creek as " mild " . Temperatures above 100 ° F (38 ° C) are rare in the area , but temperatures below 32 ° F (0 ° C) are common . At the United States Weather Bureau station in Wilkes @-@ Barre , the highest recorded temperature between 1945 and 1966 was 101 ° F (38 ° C) and the lowest was ? 15 ° F (? 26 ° C) . Killing frosts have been recorded as early as October and as late as May .

= = Geography = =

The elevation near the mouth of Black Creek is 482 feet (147 m) above sea level . The elevation of the creek 's source is between 840 and 860 feet (260 and 260 m) above sea level . The lowest elevations in the watershed are approximately 500 feet (150 m) above sea level and they occur near the Susquehanna River . The highest part of the watershed is a ridge in the northern part of the watershed ; this area has an elevation of 1 @,@ 275 feet (389 m) above sea level . The highest level of topographic relief in the watershed is 775 feet (236 m) and local relief can be as high as 740 feet (230 m) , but is typically less than 500 feet (150 m) .

The watershed of Black Creek is situated at the southwestern end of the Northern Anthracite Coal Field . The watershed is also part of a " long , narrow , complexly deformed " synclinorium , with complex folds and faults . The watershed of the creek is within the filled @-@ in valley of the preglacial Susquehanna River . The watershed contains three downwarped coal basins : the West Basin , the East Basin , and the Priscilla Lee Basin . A tunnel runs between the West Basin and the East Basin at an elevation of 567 feet (173 m) above sea level .

There are a number of pits in the area of Black Creek , some of which are up to 100 feet (30 m) deep . Some are former entrances to mines , while others are strip mining pits . There is standing water in the underground mine workings in the creek 's vicinity . It drains a coal sheet known as Mine Sheet No. 1 . The creek once flowed over a ledge of conglomerate of the Pottsville Formation 2 @,@ 000 feet (610 m) upstream of its mouth . An 1887 book described this as " producing an effect especially interesting in the study of creek erosion " .

Black Creek accumulates drift to some degree as it flows along its course . However , due to the high speed of its waters , it does not deposit significant amounts of drift along its course .

= = Geology = =

The bedrock in the watershed of Black Creek consists of several rock formations . The oldest is the Mauch Chunk Formation of the Mississippian and Pennsylvanian eras . Younger rock formations in the watershed include the Pottsville Formation and the Llwellyn Formation , both of which date to the Pennsylvanian era . There are anthracite beds in the watershed and these beds occur within the Llwellyn Formation . The Mauch Chunk Formation was originally 1 @,@ 200 feet (370 m) thick in the watershed .

Most of the surficial geology in the watershed of Black Creek consists of bedrock . However , glaciofluvial deposits and mining waste also occur in some areas . To the west of the Lee Shaft , there are ridges of mine waste up to 70 feet (21 m) thick and there are a number of " finger @-@ shaped " ridges with a thickness of 120 feet (37 m) in the West Basin .

There are five beds of coal that have been mined in the watershed of Black Creek : the Lower Red Ash bed , the Upper Red Ash bed , the Lower Ross bed , the Upper Ross bed , and the Baltimore Bed . The Lower Red Ash coal bed has a thickness of up to 14 feet (4 @.@ 3 m) at the West End Mine in the watershed and the Upper Red Ash coal is up to 12 feet (3 @.@ 7 m) thick .

The bedrock is exposed on the ridges in the Black Creek watershed . The exposure is due to glaciofluvial deposits disappearing due to erosion and mining . There are many faults in the watershed 's rocks .

= = Watershed = =

The watershed of Black Creek has an area of 3 @.@ 85 square miles (10 @.@ 0 km2) . The mouth of the creek is in the United States Geological Survey quadrangle of Shickshinny . However , its source is in the quadrangle of Nanticoke .

The Susquehanna River watershed is immediately north and west of the watershed of Black Creek , while the watershed of Turtle Creek is located immediately south of the watershed . The eastern edge of the watershed (the part that was studied during the 1960s study of the watershed) includes a barrier pillar between the West End Mine and the Glen Lyon Mine . A body of water known as Stump Lake is in the creek 's watershed .

As of the 1960s or early 1970s , the only human inhabitants of the watershed of Black Creek reside either in the village of Mocanaqua in the southwestern part of the watershed or the small community of Lee . The watershed can be accessed from US Route 11 , Pennsylvania Route 239 , and a local road that runs from Mocanaqua to Glen Lyon .

Historically , there was a swamp at the headwaters of Black Creek . As late as the 1910s , the waters of the creek were described as coming from mountain springs and a swamp .

= = History = =

Black Creek was entered into the Geographic Names Information System on August 2 , 1979 . Its identifier in the Geographic Names Information System is 1169696 .

Coal mining was done in the watershed of Black Creek as early as the winter of 1836 ? 1837 . Several people operated in the area until 1865 , when it was leased to the E.I. du Pont de Nemours & Company for 99 years . However , the mining was stopped by a strike in 1872 and for some time thereafter mining was done by several smaller companies . The mine in the watershed was run by the Delaware , Lackawanna , and Western Railroad between 1901 and 1921 . The Glen Alden Corp. then operated it until 1938 , at which point underground mining in the watershed stopped . Strip mining was already underway there and it continued until 1955 , when all mining stopped . During World War II , coal waste in the watershed was rerun through a coal processing plant to recover coal . In 1971 , the land was owned by the Blue Coal Company . A total of 22 million tons of coal have been mined in the area .

In the early 1900s , mine water and culm were discharged into Black Creek .

Between 1965 and 1967 , the Federal Water Pollution Control Administration , the United States Bureau of Mines , the United States Bureau of Sport Fisheries and Wildlife , the United States Geological Survey , and the Pennsylvania Department of Mines and Mineral Industries conducted a joint study on the watershed of Black Creek . The purpose of the study was to deal with water pollution due to acid mine drainage . Geological field work was carried out in the area between October 1965 and December 1965 . Core and rock cuttings were done between October 1966 and June 1967 . However , this study was ended before all of the necessary scientific investigations were completed .

= = Biology = =

The entire drainage basin of Black Creek is designated as a Coldwater Fishery and a Migratory Fishery .