

A photograph of a small stream flowing over mossy rocks in a dense forest. The water is clear and flows over several large, moss-covered boulders. The surrounding vegetation is lush and green, with some purple flowers visible on the left side. The lighting is soft, suggesting a shaded forest environment.

# What is a Watershed?

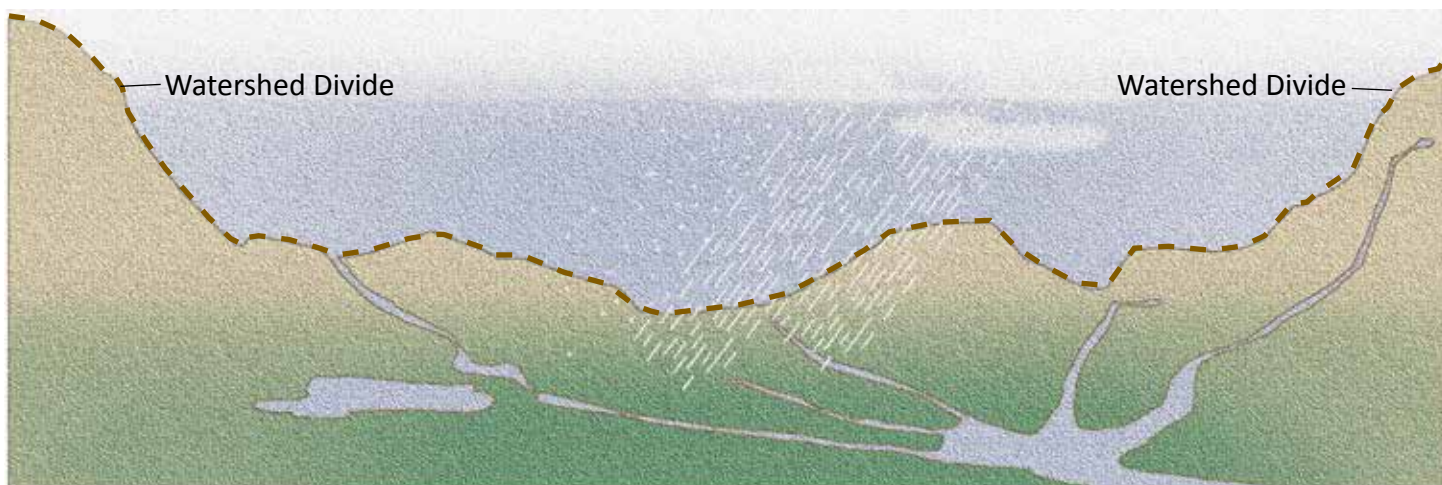
A watershed is formed by rain or snow that falls from the sky. The drop of water will sink into the soil, evaporate into the air or run off the surface of the ground. Surface water will eventually gather in a puddle, stream, or river or run off the surface of the ground. All the land area which drains into a body of water is called a watershed.

# Watersheds are everywhere.

A watershed can be as small as a section of land that drains to from a puddle or as enormous as the Chesapeake Bay Watershed which collects water from several states and drains into the Atlantic Ocean Watershed. The cleanliness of the water that flows into a small stream will affect the larger river it drains into.

Every place on earth in which water falls on land is called a watershed. We all live in a watershed. Just as a city, county or state has boundaries, so does a watershed. A divide in elevation represents the boundary of a watershed. Think of this as a line that connects all the highest points in an area.

## Elevated Landscape + Rain/Snow + Body of Water = A Watershed



Watersheds can include swamps, lakes, and ponds that produce very little movement. These are examples of the **lentic** movement.

Constantly moving (flowing) waters within watersheds can include streams, creeks, brooks, and rivers. These are examples of **lotic** movement.

Hint to remember: lotic is spelled with **lo** and flow is spelled with **lo**.

## What is nonpoint source pollution?

Nonpoint source pollution comes from so many sources that one point cannot be identified. Rainfall or melting snow flows over and into the ground. It picks up and carries away both natural and human-made pollutants. These pollutants can end up in streams, rivers, wetlands, and even underground sources of drinking water. Nonpoint source pollution comes from a variety of human activities on the land and water. Each of us can contribute to the problem without realizing it. We all play a part.

Nonpoint source pollutants include:

- Excess fertilizers, herbicides and insecticides from home lawns, farms and towns.
- Oil, grease and toxic chemicals from vehicles, roadways, parking lots and boat fuels.
- Sediment and erosion from construction sites, pasture and crop lands and eroding streambanks.
- Bacteria and nutrients from pet waste, livestock in streams and failing family septic systems.
- De-icing chemicals or salt from treated roadways and sidewalks.



Different plants and aquatic insects like the dragonfly larva above and stonefly larva below (known as **macroinvertebrates**) can survive in different waterways, and depend on the movement of the water and the land around it. These differences may also change the temperature and the clarity of the water.

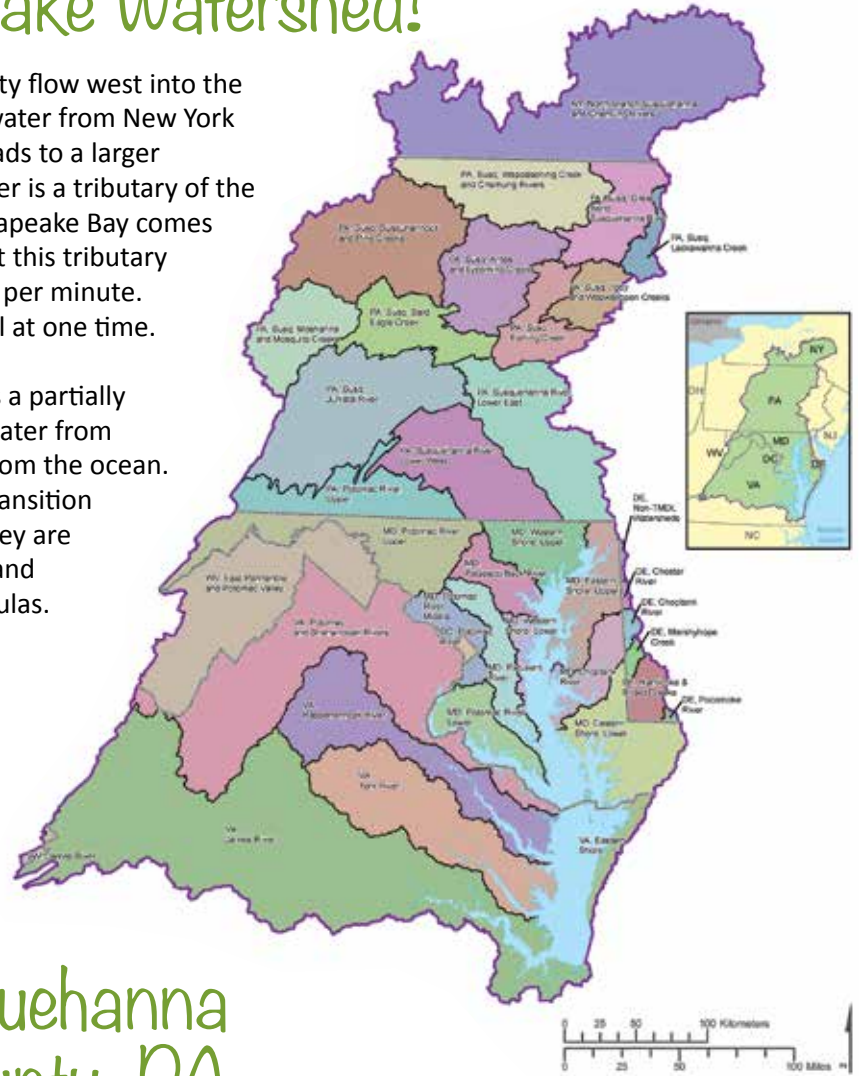


# You live in the Chesapeake Watershed!

The majority of streams and creeks in Lancaster County flow west into the Susquehanna River. The Susquehanna River collects water from New York through Pennsylvania. Any smaller waterbody that leads to a larger waterbody is called a **tributary**. The Susquehanna River is a tributary of the Chesapeake Bay. Nearly 50% of the water in the Chesapeake Bay comes from the Susquehanna River Watershed. The rate that this tributary empties into the Chesapeake Bay is 20 million gallons per minute. This would be the same as filling 5 million bathtubs all at one time.

The Chesapeake Bay is a unique estuary. An estuary is a partially enclosed body of water along the coast where freshwater from rivers and streams meets and mixes with salt water from the ocean. Estuaries and lands surrounding them are places of transition from land to sea. Although influenced by the tides, they are protected from the full force of ocean waves, winds, and storms by such landforms as barrier islands or peninsulas.

SOURCE: [www.epa.gov](http://www.epa.gov)



## Tributaries of the Susquehanna River in Lancaster County, PA

Lancaster County has many waterways including runs, steams, creeks and rivers. There are also ponds and lakes with aquatic plants, fish and wildlife that depend on clean freshwater and nutrients. The waterways in Lancaster County are named. Here's a listing of some of the waterways in Lancaster County:

- |                  |                            |                        |                     |                             |                                    |
|------------------|----------------------------|------------------------|---------------------|-----------------------------|------------------------------------|
| Annan Run        | Dellinger Run              | House Rock Run         | Londonland Run      | Segloch Run                 | Watson Run                         |
| Bachman Run      | Doe Run                    | Houston Run            | Manns Run           | Shawnee Run                 | West Branch Little Conestoga Creek |
| Back Run         | Donegal Creek              | Huber Run              | McCreary Run        | Shearers Creek              | West Branch Octoraro Creek         |
| Ball Run         | Dry Run                    | Hubers Run             | Meadow Run          | Shells Run                  | White Horse Run                    |
| Bells Run        | East Branch Octoraro Creek | Indian Run             | Meetinghouse Creek  | Shirks Run                  | Williams Run                       |
| Big Beaver Creek | Creek                      | Indian Spring Run      | Middle Creek        | Shumans Run                 | Wissler Run                        |
| Big Spring Run   | Elders Run                 | Jackson Run            | Mill Creek          | Silver Mine Run             | Witmer Run                         |
| Black Creek      | Eshleman Run               | Kellys Run             | Millers Run         | Snitz Creek                 | Witmers Run                        |
| Bowery Run       | Evans Run                  | Kendig Run             | Millway Run         | South Fork Big Beaver Creek |                                    |
| Bowman Run       | Fisherman Run              | Kettle Run             | Muddy Creek         | Stauffer Run                |                                    |
| Boyers Run       | Fishing Creek              | Knott Run              | Muddy Run           | Stehman Run                 |                                    |
| Brubaker Run     | Fox Rill                   | Landis Run             | New Haven Run       | Stewart Run                 |                                    |
| Buck Run         | Frys Run                   | Lititz Run             | Nickel Mines Run    | Stony Run                   |                                    |
| Calamus Run      | Furnace Run                | Little Beaver Creek    | Pequea Creek        | Strickler Run               |                                    |
| Cedar Creek      | Gables Run                 | Little Chiques Creek   | Peters Creek        | Swarr Run                   |                                    |
| Chiques Creek    | Goff Run                   | Little Cocalico Creek  | Puddle Duck Creek   | Tobe Run                    |                                    |
| Climbers Run     | Goods Run                  | Little Conestoga       | Reed Run            | Trout Run                   |                                    |
| Cocalico Creek   | Groff Creek                | Little Conestoga Creek | Reynolds Run        | Tucquan Creek               |                                    |
| Conestoga River  | Groff Run                  | Little Conowingo Creek | Richardson Run      | Umble Run                   |                                    |
| Conoy Creek      | Haines Branch              | Little Conowingo Creek | Rife Run            | Valley Run                  |                                    |
| Coopers Run      | Hammer Creek               | Little Muddy Creek     | Rock Run            | Walnut Run                  |                                    |
| Coover Run       | Harnish Run                |                        | Santo Domingo Creek |                             |                                    |



# Match each possible pollution with its solution.

possible pollution ↓

↓ solutions

1



2



3



4



5



A



B



C



D



E

