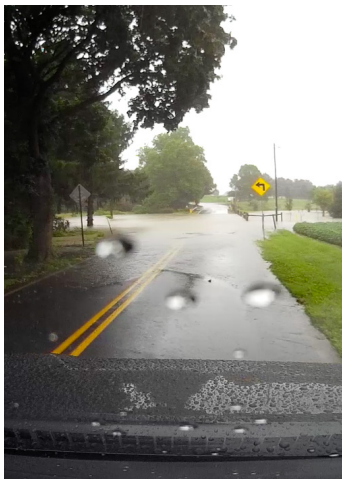
WHAT IS STORMWATER RUNOFF?

- The modern world is replete with impermeable surfaces like driveways, roadways, homes, parking lots, playgrounds and shopping malls.
- When rainwater is blocked from reabsorption into the ground, water runs across these impermeable surfaces and into the stormwater drains, or directly to local streams, rivers, wetlands and other low-lying areas. This causes erosion which increases sedimentation and results in the destruction of critical wildlife habitat.
- It's not just rainwater entering the streams and rivers, but pollutants, too: fertilizer and pesticide residue, pet waste, oil and grease, trash, and other unfriendly substances.



- Research shows that the impermeability of the modern world has a direct and adverse effect on stream health. The more impermeable surfaces there are in the watershed, the less healthy a water body will be. By developing stormwater management projects that reduce runoff and allow for water to return to groundwater, we help in sustaining a cleaner, greener ecosystem, one that will be alive and thriving for our own children and grandchildren.

SUSQUEHANNA RIVER

CHESAPEAKE BAY

WHAT IS A WATERSHED?

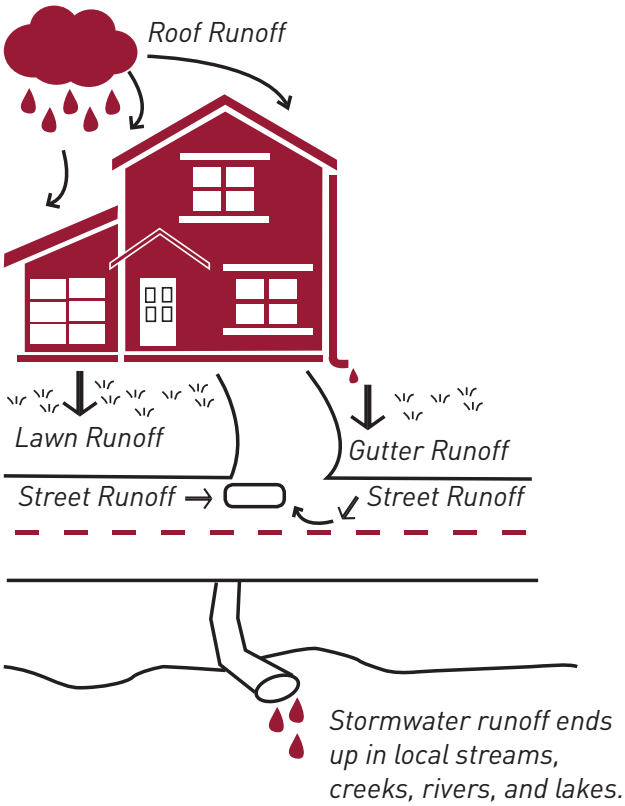
A watershed is the area of land that contributes runoff, draining to a lake, river, stream, wetland, estuary, or bay. Water quality and the overall integrity of an aquatic ecosystem depends on the condition of the contributing watershed. Components of the watershed include: headwater streams, floodplains, riparian corridors, and wetlands. Watersheds vary in size and scope, depending on the resource they are contributing. For example, the Chesapeake Bay has a large watershed that encompasses parts of six states— Pennsylvania, Virginia, West Virginia, Maryland, Delaware and New York— while the Conestoga River has a smaller watershed wholly located within Pennsylvania. The Conestoga River is also a part of the watershed for the Chesapeake Bay. So all of the Conestoga River Watershed contributes to the Chesapeake Bay Watershed. In this way, watersheds are nested within each other, sharing aquatic resources.

STORMWATER RUNOFF ACTIVITY:

What is stormwater runoff and how does it affect a watershed? A community?

- Create a diagram of the footprint of your home.
- List the various impermeable surfaces and the sizes by square foot.
- Check the National Oceanic Atmospheric Administration (NOAA) website to determine the amount of rain in inches per month.
  https://www.noaa.gov
- Discuss how water quantity impacts water quality.
- Do a stormwater modeling exercise using the Stormwater Runoff Calculator.

  Stormwater Runoff Calculator Examples:
  https://www.esf.edu/ere/endreny/GICalculator/RunoffHome.html
  https://swcweb.epa.gov/stormwatercalculator/
- Review a video on the destructive force of flooding from Hurriance Sandy in New York:
  https://youtu.be/wtb-0k4bEs4
- Review The Homeowner's Guide to Stormwater Runoff:
  http://agsci.psu.edu/aec/research-extension/conservation-tools/stormwater-management



EFFECTS OF EXCESSIVE STORMWATER RUNOFF:

QUESTIONS TO PONDER:

- How does the footprint of your home contribute to stormwater runoff?

- How is the watershed affected by wet weather events and does that effect change depending on the size of the storm?

- What happens to water quality when large quantities of stormwater runoff infiltrate the watershed?

- Is there a threshold for impacts or is it solely pollutant driven?

- Is there anything that can be done to prevent pollutants from entering the river?

- Is there anything that can be done to remove pollutants from the river once they are there?

GLOSSARY OF TERMS:

IMPERMEABLE SURFACES - are surfaces through which stormwater cannot penetrate such as highways and driveways.

REABSORPTION - is the ability of the ground to take in or soak up the water.

EROSION - is the gradual destruction or diminution of something such as stream bank.

SEDIMENTATION - is soil particulate matter that settles or is deposited at the bottom of a river, estuary or other water body.

RIPARIAN CORRIDORS - lie along the banks of the river in the floodplain closest to the stream and are affected by the stream.