

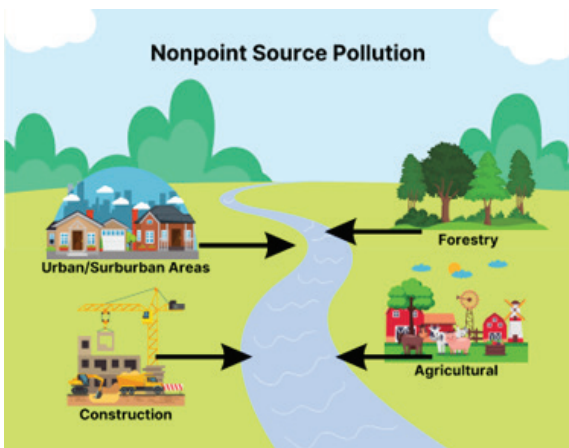
What are major sources of pollution?

Pollutants can harm fish and wildlife populations, kill native vegetation, foul drinking water, and make recreational areas unsafe and unpleasant. There are two broad categories: point source and nonpoint source.

Point Source Pollution refers to discharge that enters surface waters through a well-defined location such as a pipe or ditch.

Nonpoint Source Pollution can be:

- **Agricultural** activities such as confined animal operations, plowing, fertilizing, and harvesting disturb the soil and drain sediment, nutrients, pathogens, pesticides, and salts to surface waters.
- **Construction sites** that are exposed to rain and snowmelt wash soil, chemicals, and trash to surface waters.
- **Forestry activities** such as removal of stream side vegetation, road construction and use, timber harvesting, and mechanical preparation for the tree-planting drain sediment to waters. Tree removal along surface waters can also increase the temperature in the waters and destabilize banks.
- **Urban and suburban areas** increase the amount and types of pollutants (e.g., soil, oil and gasoline, fertilizer and lawn chemicals, pet waste) that drain to waters. Impervious surfaces, such as buildings and pavement, decrease the amount of rain and snowmelt that is soaked into the ground and increase the volume and velocity of stormwater runoff.



NCDEQ Stormwater Design Manual

Engineered stormwater controls, also called stormwater control measures, include infiltration systems, wet ponds, stormwater wetlands, permeable pavement, rainwater harvesting, treatment swales, and dry ponds.

The Stormwater Design Manual also includes minimum design criteria for new stormwater technologies such as StormFilters and BayFilters.

<https://www.deq.nc.gov/about/divisions/energy-mineral-and-land-resources/stormwater/stormwater-program/stormwater-design-manual>

Examples of Engineered Stormwater Controls



Image courtesy of NCDEQ

Want to learn more?



North Carolina Department of Environmental Quality: <https://www.deq.nc.gov/about/divisions/energy-mineral-and-land-resources/stormwater>

Beaufort County Stormwater Ordinance: <https://codelibrary.amlegal.com/codes/beaufortcounty/latest/overview>



Tar-Pamlico Nutrient Strategy: bit.ly/Tar-PamlicoStrategy

<https://sounddrivers.org/>



What Happens When It Rains



An Overview of Stormwater Regulations in Beaufort County, North Carolina for Developers

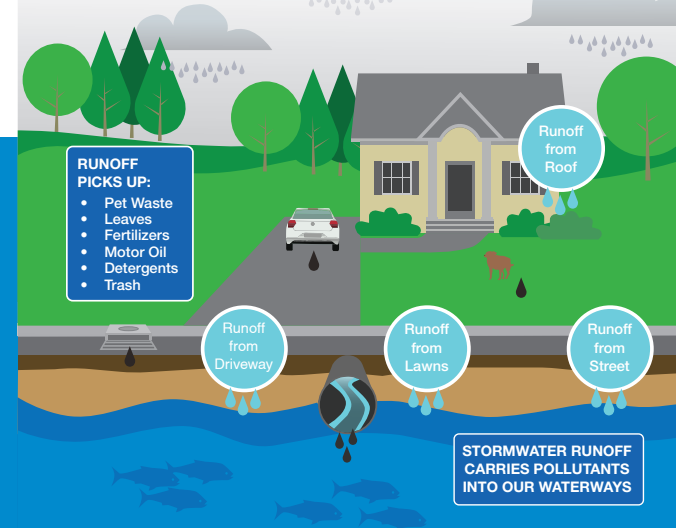


What is stormwater and what is a river basin?

Stormwater is rain that doesn't soak into the ground.

- As stormwater flows, it picks up **everything** in its path including household chemicals, oil, gasoline, litter, pesticides, leaves, animal waste, and eroded soil.
- A **river basin** is an area of land that drains to a river.
- If the stormwater isn't properly treated, it can **pollute** surface waters and groundwaters.
- Everyone lives in a river basin, even if you don't live near the river itself.

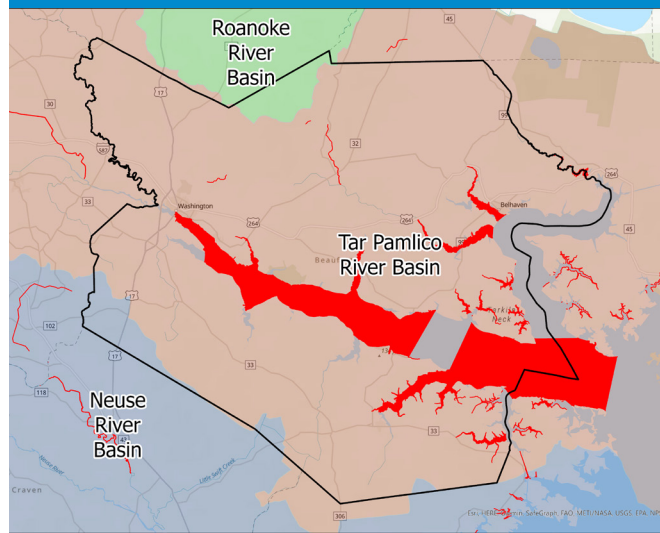
Image courtesy of City of Urbana, IL



How is water quality defined?

State government agencies determine whether **surface waters** support specific, designated uses.

- Designated uses** include growth and protection of aquatic animals, primary recreation, secondary recreation (e.g., wading and boating), shellfish harvesting, water supply and fish consumption.
- The **Clean Water Act** requires states, territories, and authorized tribes to submit impaired and threatened waters lists for EPA. The term "**303(d) list**" refers to this list of waters that have been identified and reported to EPA.



Beaufort County at a Glance

There are **88,000 acres** of water within Beaufort County including:

- Major river basins: the Tar-Pamlico River, Neuse River, and Roanoke River
- Several 303d waters within Beaufort County

The **Tar-Pamlico River Basin** is the fourth largest drainage basin in North Carolina. A majority of Beaufort County is within the Tar-Pamlico River Basin.

Nutrient-related pollution has caused water quality issues in the Tar-Pamlico River, including algal blooms, low oxygen levels, and fish kills.

In response, North Carolina developed the **Tar-Pamlico Nutrient Management Strategy** and established a 30% reduction goal of nitrogen being exported to the Tar-Pamlico.

The strategy consists of rules that regulate nutrient pollution from point and nonpoint sources, establish protections to the areas adjacent to surface waters (riparian buffers), mandate training for professional fertilizer applicators.

Beaufort County adopted the **Local Program to Implement Tar-Pamlico Stormwater Rules** to establish and define the means by which the County will comply with the requirements of the Strategy.

Controlling Impacts from Development

Developers and city planners should attempt to control the volume of runoff from new development by using low impact development (LIDs), structural controls, and pollution prevention strategies.

Current stormwater rules for the State of North Carolina went to effect on January 1, 2017. Ordinances are being developed and implemented by many local governments within North Carolina and across the country.

In addition to federal and state stormwater rules, Beaufort County adopted the **Tar-Pamlico Stormwater Ordinance for New Development** to protect, maintain, and enhance the public health, safety, environment, and general welfare. Objectives of the ordinance include:

- Establishing **decision-making processes** for development;
- Requiring that **new development** not exceed export targets for nutrients in stormwater runoff for the watershed;
- Establishing minimum post-development **stormwater management standards** and design criteria; and
- Establishing **administrative procedures** for the submission, review, approval and disapproval of stormwater management plans, for the inspection of approved projects, and to assure appropriate long-term maintenance.
- Nutrient reduction requirements can be met through the following methods:
 - Engineered stormwater controls designed in accordance with the NCDEQ Stormwater Design Manual,
 - An approved, offsite regional engineered stormwater control, and/or
 - Acquisition of permanent nutrient offsite credits.

The **North Carolina Department of Environmental Quality (NCDEQ)** has developed the Stormwater Design Manual. The manual establishes **minimum design criteria** for engineered stormwater controls. *(Please see the website URL on the back of this pamphlet.)*