

STORMWATER WATCH

A NEW COST-SHARE PROGRAM

The city's Heal Our Waterways (HOW) Program is excited to announce a pilot cost-share rebate program to install green infrastructure on commercial, mixed-use, and high-density properties, and HOA common areas. Eligible property owners and HOAs can receive up to \$10,000 in rebates for specific nature-based stormwater solutions that go above and beyond the minimum permitted stormwater management requirements for the property.



Properties must fall within the Bradley or Hewletts Creeks Watersheds to qualify for funding. Projects must be officially approved by the city's Heal Our Waterways Program prior to any construction to receive a rebate. Applicants will need to supply their own contractor. Funding is first-come, first-served. This program was created to encourage large-scale stormwater solutions that will help achieve the goals of the Bradley and Hewletts Creeks Watershed Restoration Plan to improve water quality in both creeks. ■

 **Email:** healourwaterways@wilmingtonnc.gov
Web: healourwaterways.org

2024 EARTH DAY FESTIVAL



The annual Earth Day Festival will be held on **Saturday, April 20, 2024** from **12 p.m.-6 p.m.** at Long Leaf Park in Wilmington. This year's theme is "The Planet vs. Plastics."

The City of Wilmington Stormwater and Heal Our Waterways programs are major sponsors of the event and will host interactive exhibits.

The festival features environmental information and activities with 50+ exhibitors. This FREE fun-filled family event offers live music, food trucks, raffle prizes, and a Kids' EcoZone. On-site free parking and trolley shuttles from satellite locations are planned. ■

 wilmingtonearthday.com



CLEAR RUN BRANCH PROJECT

The city has completed the first phase of an \$11 million stormwater project to reduce chronic flooding, improve water quality, and enhance natural habitat in Clear Run Branch, a tributary of Bradley Creek. The project is the largest stormwater capital improvement project the city has undertaken.

Prior to remediation, Clear Run Branch was impacted by excessive stormwater runoff from upstream development. The first phase of the project included installing large box culverts (pipes) to convey stormwater under College Acres Drive and Mallard Street. Stream restoration included creating a floodplain to improve water storage capacity and the natural characteristics of the stream. The next phase of the project will include installing large culverts to capture and convey floodwaters from the South College Road and New Centre Drive commercial areas.

Additionally, grant-funded green infrastructure projects are being installed in collaboration with NC State University. These projects capture and filter polluted runoff and include a bioretention area at Cypress Pointe Apartments, tree plantings, and converting a pond to a constructed wetland near University Landing. ■



 **Learn more at** wilmingtonnc.gov/stormwaterprojects

THE STATE OF WILMINGTON'S WATERWAYS

2023 UNCW SURFACE WATER QUALITY REPORT

(The following is a summary of the condition of major creeks and waterways, not drinking water, within the city limits.)

The State of Wilmington's Waterways 2023 UNCW Surface Water Quality Report is a summary of the current health and condition of the major creeks and waterbodies that fall within Wilmington's city limits. UNCW water quality sampling information was provided by Dr. Michael Mallin of the UNCW Center for Marine Science and lead scientist for the Wilmington Watersheds Project. The water quality sampling summary is based on data collected between the months of **January-December 2023** and is presented from a watershed perspective, regardless of political boundaries.

The summary describes each watershed by size, state classification, state status, reason for impairment, and UNCW sampling summary. For more information on the current health of Wilmington's waterways or to read Dr. Mallin's entire report, please visit:

<https://uncw.edu/research/centers/marine-science/research/aquatic-ecology/>

Water Definitions

Algal Bloom Rapidly occurring growth and accumulation of algae in a waterway resulting from excess nutrients that can lead to low dissolved oxygen levels and fish kills. (Sources: fertilizers, grass clippings, pet waste)

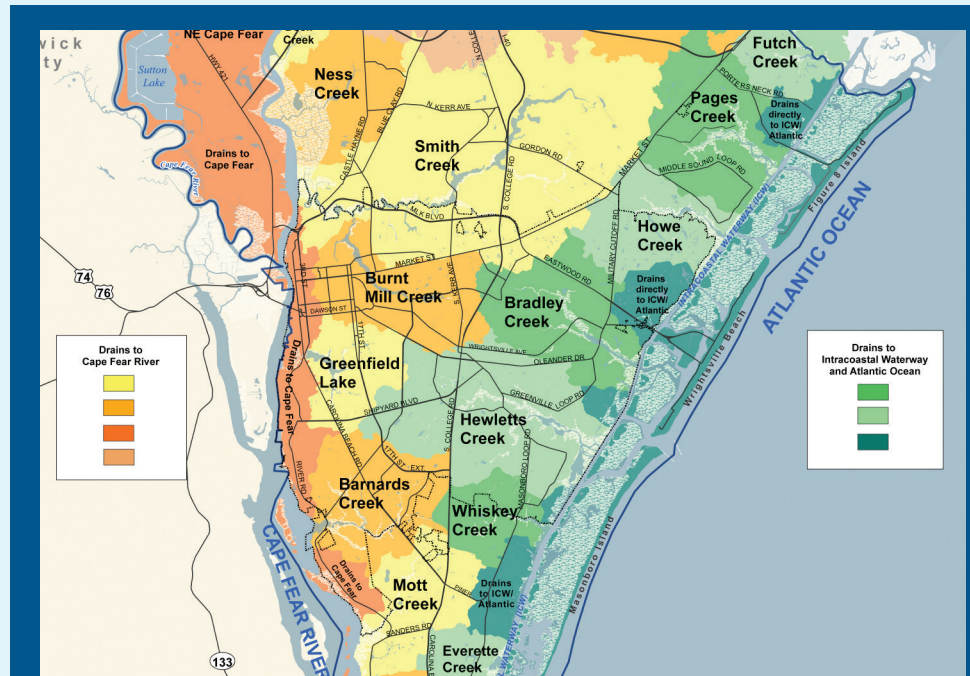
Biological Integrity The ability of an ecosystem to support and maintain a balanced and indigenous community of organisms.

Best Management Practice (BMP) or Stormwater Control Measure (SCM) Action or landscape modification that reduces the amount of pollution and/or the quantity of stormwater flowing into waterways. BMPs are actions, like picking up after pets, or on-the-ground practices, such as rain barrels and rain gardens.

Chlorophyll a Allows plants to photosynthesize and gives plants their green color. Waters that have high chlorophyll a levels are typically high in nutrients (phosphorus and nitrogen), which cause algae to grow or bloom. When algae die, it depletes oxygen from the water and can cause fish kills.

Dissolved Oxygen (DO) The amount of oxygen available in water. Fish and aquatic organisms require adequate levels of DO to survive.

Fecal Coliform Bacteria Bacteria present in the intestines and feces of warm-blooded animals. High counts of fecal coliform bacteria in a waterway indicate the presence of other disease-causing pathogens which can cause sickness and disease in humans and animals. (Sources: pet waste, sewer overflows, septic system failure)



UNCW Results Summary:

Lower Burnt Mill Creek and upper Bradley Creek maintain some of the most polluted waters in the city. However, upper Bradley Creek is currently undergoing restoration work in the Clear Run Branch tributary.

Greenfield Lake continues to host nuisance algal blooms, and the tributary creeks, Jumping Run Branch and Squash Branch, load high fecal bacteria and nutrients (nitrogen and phosphorous) into the lake. Extensive water sampling in the upper Jumping Run Branch was conducted for the past two years in advance of wetland rehabilitation, and dredging in the Squash Branch tributary is in the works.

Hypoxia Low dissolved oxygen levels in a waterway which can result in fish kills.

Nutrients Substances (e.g. nitrogen and phosphorous) needed by plants and animals for growth; however, excessive nutrients in a waterway can lead to harmful aquatic weed and algae growth, low DO levels, and fish kills. (Sources: fertilizers, yard waste, pet waste)

Pathogens Disease-causing organisms, such as bacteria and viruses. (Source: pet waste)

PAHs (Polycyclic Aromatic Hydrocarbons) Toxic byproducts of petroleum and fossil fuels, which can be harmful to humans and aquatic life and can persist in the environment for a long time. (Sources: auto exhaust, motor oil, parking lot sealcoats, roofing tars, coal power plants)

Sediment Particles of silt, clay, dirt, or sand, caused by land-disturbing activities or natural weathering, that wash into waterways. Sediment can settle to the bottom or remain suspended in water. (Sources: construction sites with failing/erosion control, eroding streambanks, exposed soil)

Tidal Creek A saltwater creek that is influenced by tides. Many tidal creeks have oyster reefs along their shorelines.

Turbidity A cloudy condition in water caused by suspended sediment.

Watershed An area of land that drains into a specific body of water, such as a creek, lake, or river.

Water Classifications

The NC Division of Water Resources applies classifications to waterways which define the best uses to be protected within those waters (e.g. swimming, fishing, drinking water supply, aquatic life). These classifications have an associated set of water quality standards to protect their designated uses. These standards may be designed to protect water quality, fish and wildlife, the free flowing nature of a stream, or other special characteristics. In addition, there may be a **supplemental classification** applied to protect several different uses or special

characteristics within the same waterbody. Listed below are the freshwater and saltwater classifications that apply to Wilmington's waterways. For more information, visit: <https://deq.nc.gov/about/divisions/water-resources/planning/classification-standards/classifications>

Freshwater Classifications

Class C Waters protected for secondary recreation (fishing, boating, and other activities involving minimal and infrequent skin contact), wildlife, agriculture, biological integrity, and fish/aquatic life propagation and survival.

Supplemental Classification

Swamp Waters (Sw) Waters that naturally have low flow and other characteristics which differ from creeks that drain land with steeper topography.

Saltwater Classifications

Class SC Saltwaters protected for secondary recreation (fishing, boating, and other activities involving minimal skin contact), fish and noncommercial shellfish consumption, fish/aquatic life propagation and survival, and wildlife.

Class SB Saltwaters used for primary recreation, such as swimming, and all Class SC uses.

Class SA Saltwaters used for commercial shellfishing and all Class SC/SB uses. SA waters are also High Quality Waters (HQW) by supplemental classification.

Supplemental Classifications

High Quality Waters (HQW) Waters rated excellent based on biological, physical, and chemical characteristics and having primary or functional nursery areas.

Outstanding Resource Waters (ORW)

Unique and special waters having excellent water quality and being of exceptional state or national ecological or recreational significance.

State Status/Reason

Indicates whether or not a creek is supporting its state classification/use and the reason why.

NC 303(d) List of Impaired Waters

Section 303(d) of the Clean Water Act requires states to develop and frequently update a list of waters that do not meet water quality standards or have impaired uses. This newsletter is based on the NC 303(d) List, which is available for viewing at:

<https://deq.nc.gov/about/divisions/water-resources/water-planning/modeling-assessment/water-quality-data-assessment/integrated-report-files>

Unfortunately, several of Wilmington's waterways are on the 303(d) list because of pollution, such as bacteria and nutrients, which is washed from the land by stormwater runoff.



Cape Fear River



Intracoastal Waterway

Watersheds that drain to the Cape Fear River (CFR)

Smith Creek

Size of watershed: 16,650 acres
State classification/Use: C, Sw
State Status: Currently supporting use
Reason: Meets standards for Class C waters
UNCW Sampling Summary: Not sampled due to bridge being under repair.

Burnt Mill Creek

Size of watershed: 4,207 acres
State classification/Use: C, Sw
State Status: Impaired. On NC 303(d) List
Reason: Does not meet standards for Class C waters, specifically for biological integrity of benthos (bottom dwelling organisms)
UNCW Sampling Summary: The creek entering the Randall Parkway Pond had poor dissolved oxygen levels on three occasions. Exiting the pond showed good dissolved oxygen and low turbidity. Lower Burnt Mill Creek sampled at Princess Place had poor dissolved oxygen levels, low turbidity, and high fecal bacterial counts, and a moderate algal bloom in May 2023.

Greenfield Lake

Size of watershed: 2,465 acres
State classification/Use: C, Sw
State Status: Impaired. On NC 303(d) List
Reason: Does not meet standards for Class C waters, specifically for Chlorophyll a
UNCW Sampling Summary: The Squash Branch tributary into the lake was severely impacted by low dissolved oxygen levels. The Jumping Run Branch tributary was mildly impacted by low DO. However, both streams suffered from high fecal coliform counts. These tributaries are the main contributors of elevated nitrogen and phosphorus into the lake. The lake suffered from two major algal blooms at one sampling station and another station had issues with low DO.

Barnards Creek

Size of watershed: 4,173 acres
State classification/Use: C, Sw
State Status: Currently supporting use
Reason: Meets standards for Class C waters
UNCW Sampling Summary: Barnards Creek is sampled at two locations which showed problems with elevated fecal coliform counts and minor issues with low dissolved oxygen.

Mott Creek

Size of watershed: 3,342 acres
State classification/Use: C, Sw
State Status: Currently supporting use
Reason: Meets standards for Class C waters
UNCW Sampling Summary: Not sampled.

Watersheds that drain to the Intracoastal Waterway (ICW)

Howe Creek

Size of watershed: 3,516 acres
State classification/Use: SA, ORW
State Status: Impaired. On NC 303(d) List; closed to shellfishing
Reason: Does not meet standards for Class SA waters, specifically for fecal coliform bacteria; a portion of Howe Creek is also impaired for dissolved oxygen
UNCW Sampling Summary: Not sampled.

Bradley Creek

Size of watershed: 4,583 acres
State classification/Use: SC, HQW
State Status: Currently supporting use
Reason: Meets standards for Class SC waters
UNCW Sampling Summary: Bradley Creek is sampled at two sites along Wrightsville Avenue and two sites in the upper north branch (Clear Run Branch). One upper stream sampling site was impacted by high fecal coliform, and an algal bloom in February 2023. The two Wrightsville Avenue sampling stations had generally good water quality with elevated turbidity on one occasion.

Hewletts Creek

Size of watershed: 7,478 acres
State classification/Use: SA, HQW
State Status: Impaired. On NC 303(d) List; closed to shellfishing
Reason: Does not meet standards for Class SA waters, specifically for fecal coliform bacteria
UNCW Sampling Summary: Hewletts Creek did not experience algal blooms or elevated turbidity, and dissolved oxygen was generally good. However, fecal coliform counts were consistently elevated at the station on Pine Grove Road, the middle branch into the creek.

Whiskey Creek

Size of watershed: 2,078 acres
State classification/Use: SA, HQW
State Status: Impaired. On NC 303(d) List; closed to shellfishing
Reason: Fecal coliform bacteria
UNCW Sampling Summary: Not sampled.

**All waters in the State of North Carolina are impaired for mercury, based on high levels found in the tissues of several fish species.*



DON'T BLOW IT

If you are dusting off that lawnmower or breaking out the leaf blower for another season of yard work, it is also the perfect time to refresh yourself on best practices for disposing of yard waste and other debris according to city stormwater regulations.

Did you know that debris can clog storm drains and ditches, resulting in flooded streets and property? Even worse, debris that ends up washing through the stormwater drainage system adds nutrients, specifically nitrogen and phosphorous, and herbicide pollution to our waterways. This nutrient imbalance can cause algal blooms and deplete dissolved oxygen, leading to fish kills and impaired aquatic habitat.

That is why it is unlawful to rake, sweep, blow, wash, direct, or place any debris into the street or storm drainage system, which includes streets, storm drains, ditches, swales, creeks, lakes, rights-of-way, dedicated easements, etc. Additionally, property owners are required to keep all ditches, drains, swales, and other drainageways on their property free from obstructions, so stormwater can flow freely.

According to Wilmington City Code, “yard waste [grass clippings, leaves, pine straw, etc.] sediment, trash, litter or debris of any kind,” should all be considered to comply with the city’s debris ordinance.

Don’t blow it this season! Instead of mishandling debris (and paying \$250 per occurrence), consider grasscycling or leaving grass clippings on the lawn as a natural fertilizer, blowing clippings and sediment back onto the lawn, turning the mower away from pavement, composting yard debris, or containing yard debris for city curbside pickup. Community members and businesses should also properly dispose of trash and non-yard debris. ■

 wilmingtonnc.gov/stormwaterregs

GO NATIVE

Native plants are beautiful and require much less maintenance than a conventional lawn. Native plants are drought-tolerant, support pollinators and wildlife, and are already acclimated to local conditions without needing fertilizers or pesticides. This helps keep nutrients and chemicals from polluting our waterways when it rains.

The NC Cooperative Extension and the NC Native Plant Society have extensive native plant lists for our area on their websites. ■



Purple Coneflower



Coreopsis “Tickseed”

THAT’S A WRAP

Driving around town, you may have noticed a new look on one of the city’s closed circuit TV (CCTV) trailers.



In an effort to highlight the services we provide, the CCTV trailer wrap includes messages about inspecting our drainage system and how to report stormwater pollution.

The CCTV system is a robotic camera unit that can travel inside pipes and inspect their current condition. This helps staff identify critical drainage and street improvements needed within the city limits.

CCTV camera operators are trained professionals that earn a national certification. Occasionally, operators observe unusual items in pipes including turtles, cats, or guns, as well as frequent litter/trash that has washed into pipes from storm drains. ■

CONTACT

Stormwater

Administration..... 910.343.4777
Drainage/Maintenance..... 910.341.4646
Billing Questions 910.343.4777

Report Stormwater Pollution Hotline

910.341.1020
wilmingtonnc.gov/reportstormwaterpollution

City of Wilmington Public Works Department

P.O. Box 1810, Wilmington, NC 28402

Public Works Department Director

Dave Mayes

Stormwater & Streets Manager

Fred Royal

Stormwater Watch Editor

Jennifer Butler

910-343-4777

wilmingtonnc.gov/stormwater



 The Public Information Report is printed using recycled paper.