


Stormwater Watch

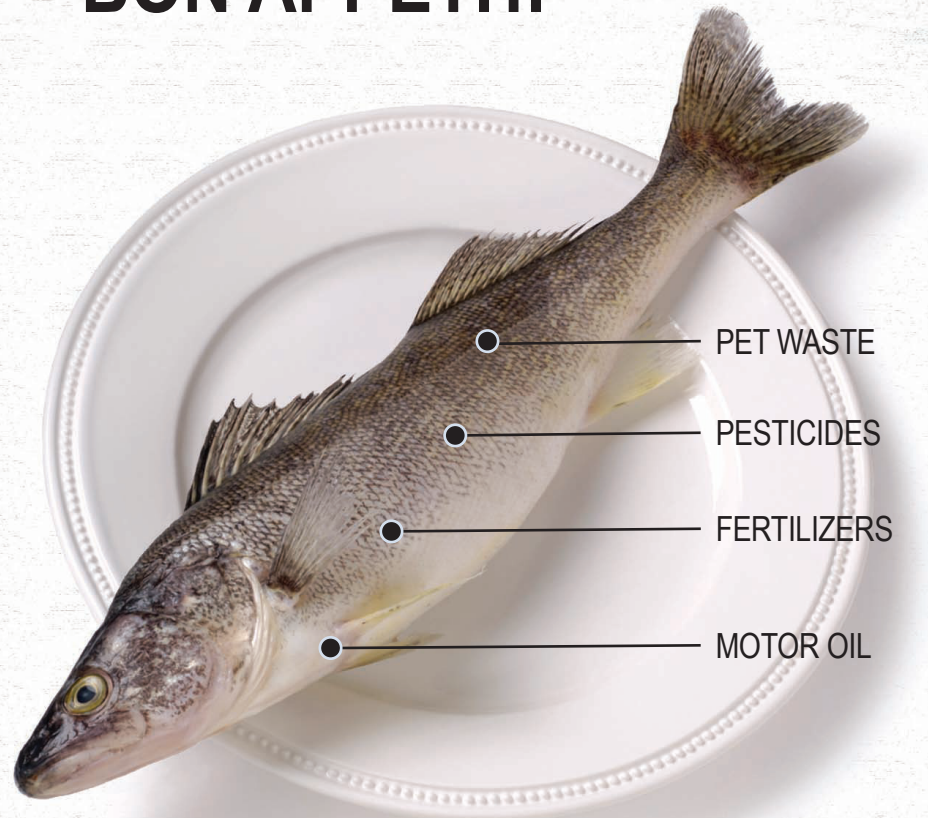
10 ways to help!

You can help protect lakes, creeks, rivers, wetlands and coastal waters by keeping common pollutants like pesticides, pet waste, grass clippings, and automotive fluids off the ground and out of storm drains.

- 1 Pick up after your pet.
- 2 Use commercial car washes.
- 3 Use pesticides and fertilizers sparingly; avoid using if the forecast calls for rain.
- 4 Use native plants and grasses (native plants require less water, fertilizer and pesticides).
- 5 Compost yard waste or leave grass clippings on the lawn to provide nutrients. Or bag it for yard waste pickup service.
- 6 Sweep driveways, sidewalks and roadways instead of using a hose.
- 7 Check your car, motorcycle, boat or other machinery for leaks and spills.
- 8 Properly dispose of hazardous chemicals; recycle used oil, antifreeze or other fluids.
- 9 Never dump anything into a storm drain, creek, or waterway.
- 10 Spread the word! Tell a friend or neighbor how they can help too!

 343-4777
Stormwater Services

BON APPETIT.



STORMWATER POLLUTANTS FIND THEIR WAY INTO WHERE WE FISH, WHERE WE SWIM AND WHAT WE DRINK.

Everything that goes into our storm drains—grass clippings, soap, pesticides, pet waste, etc. — makes its way straight to our creeks. Stormwater pollution is our biggest source of water pollution. It all adds up. It all comes back.

And you're the solution, now that you know where it goes.

Find out more today. Visit www.wilmingtonnc.gov

City of Wilmington's Stormwater Watch

Public Services Department Stormwater Services

Spring 2008

Be the solution to stormwater pollution!

What is stormwater?

Stormwater runoff is water from rain or irrigation that flows over land and into creeks, lakes, and larger waterways. Impervious (hard) surfaces, such as driveways, streets, parking lots, and rooftops, prevent stormwater runoff from naturally soaking into the ground. Instead, it picks up and transports pollutants such as pet waste, fertilizers, pesticides, auto fluids, yard debris, heavy metals, and litter through the drainage system and directly into our waterways. Stormwater runoff is the number one source for surface water pollution.



How does it work?

Stormwater runoff does not go to a treatment plant, instead it flows directly into the closest body of water. The land area that water drains off of is called a watershed. Because water bodies are lower than the surrounding land, all water flows downhill directly to the lowest point. During a rain, anything on the streets, on the ground, or on sidewalks will flow along with the stormwater into the storm drain or ditch, then into a creek, a lake, the Intracoastal Waterway or the Cape Fear River. Everything eventually ends up in the Cape Fear River or the Intracoastal Waterway—toxic to man and animal.

What can you do?

The next time you're taking a walk for your health, think about the health of our waterways. Take a look around on the roadways, sidewalks or your own driveway...whatever you see will ultimately end up in a nearby waterway. Stormwater pollution is a challenging water quality problem. Unlike regulated pollution from industry and wastewater treatment facilities, stormwater pollution is caused by the daily activities of people everywhere.

Remember, YOU are the solution to stormwater pollution...

Inside

2006-2007 UNCW
Surface Water Quality Report

Questions?

Stormwater Services Division
City of Wilmington
Public Services Department
P.O. Box 1810
Wilmington, NC 28402

[www.wilmingtonnc.gov/
publicservices/stormwater](http://www.wilmingtonnc.gov/publicservices/stormwater)

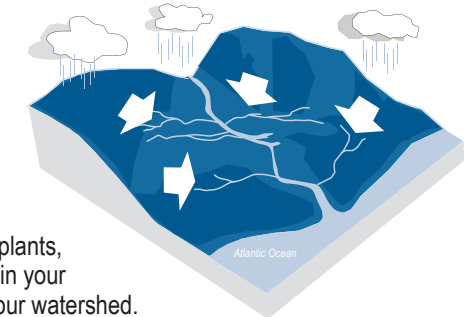
Administration 343-4777
Maintenance 341-4646
Billing Questions 341-7806

 343-4777

What is a watershed?

Everyone lives in a watershed. A watershed is the land area that drains runoff to a particular body of water, such as a creek, lake, or ocean. For example, if you live in the Hewletts Creek Watershed, even miles from Hewletts Creek, runoff from your property will eventually drain into Hewletts Creek, spilling into the Intracoastal Waterway and finally making its way to the Atlantic Ocean.

You and everyone in your watershed are part of the watershed community. This includes animals, birds, and fish too. You influence what happens in your watershed, good or bad, by how you treat the natural resources, the soil, water, air, plants, and animals. What happens in your backyard and in your neighborhood directly affects the water bodies in your watershed.





www.wilmingtonnc.gov/publicservices/stormwater

The State of Wilmington's Waterways 2006-2007 UNCW Surface Water Quality Report

(a summary of the current health and condition of major creeks, not drinking water, within the City limits)

Water Classifications

The State of North Carolina applies classifications to waterways which define the best uses to be protected within those waters (i.e. swimming, fishing, drinking water supply). 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 river, or other special characteristics.

In addition, there may be a supplemental classification applied to protect several different uses or special characteristics within the same waterway. Listed below are classifications that apply to Wilmington's waterways. For more information, visit <http://h2o.enr.state.nc.us/csu/>.

Classifications

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

Class SA Waters used for shellfishing and marketing purposes, and all SB and SC uses. All SA waters are also High Quality Waters (HQW) by definition.

Class SB Surface waters that are used for primary recreation such as swimming.

Class SC All tidal salt waters protected for secondary recreation, wildlife and aquatic life propagation and survival.

Supplemental Classifications

Swamp Waters (Sw) Waters with low flow, low pH, and low dissolved oxygen.

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 with excellent water quality and/or having national, ecological, or recreational significance.

NC 303(d) List of Impaired Waters

Section 303(d) of the Clean Water Act requires states to develop and update a list of waters that do not meet water quality standards or which have impaired uses. Unfortunately, many of Wilmington's waterways are on this list because of factors such as bacteria, sediment, and nutrients found in stormwater runoff.



Smith Creek

Watersheds that drain to Cape Fear River

Smith Creek

Size of Watershed: 13,649 acres

State Classification: C, Sw

Status: Impaired

Reason: Poor biological integrity

UNCW Sampling Summary:

Problems with fecal coliform bacteria, low DO and algal blooms. Low DO can reduce the abundance and diversity of the organisms living on the creek bottom.

Burnt Mill Creek

Size of Watershed: 4,223 acres

State Classification: C, Sw

Status: Impaired

Reason: Poor biological integrity

UNCW Sampling Summary:

Problems with fecal coliform bacteria, algal blooms, low DO and high sediment PAH concentrations. PAHs cause illness and death to aquatic life at the levels seen in the sediments.

Greenfield Lake

Size of Watershed: 2,448 acres

State Classification: C, Sw

Status: Impaired

Reason: Nutrients entering lake, aquatic weeds

UNCW Sampling Summary:

Has periodic minor algal blooms, mild hypoxia during summer, but continues to have high fecal coliform bacteria levels in upstream tributaries.

Barnards Creek

Size of Watershed: 4,143 acres

State Classification: C, Sw

Status: Currently supporting use

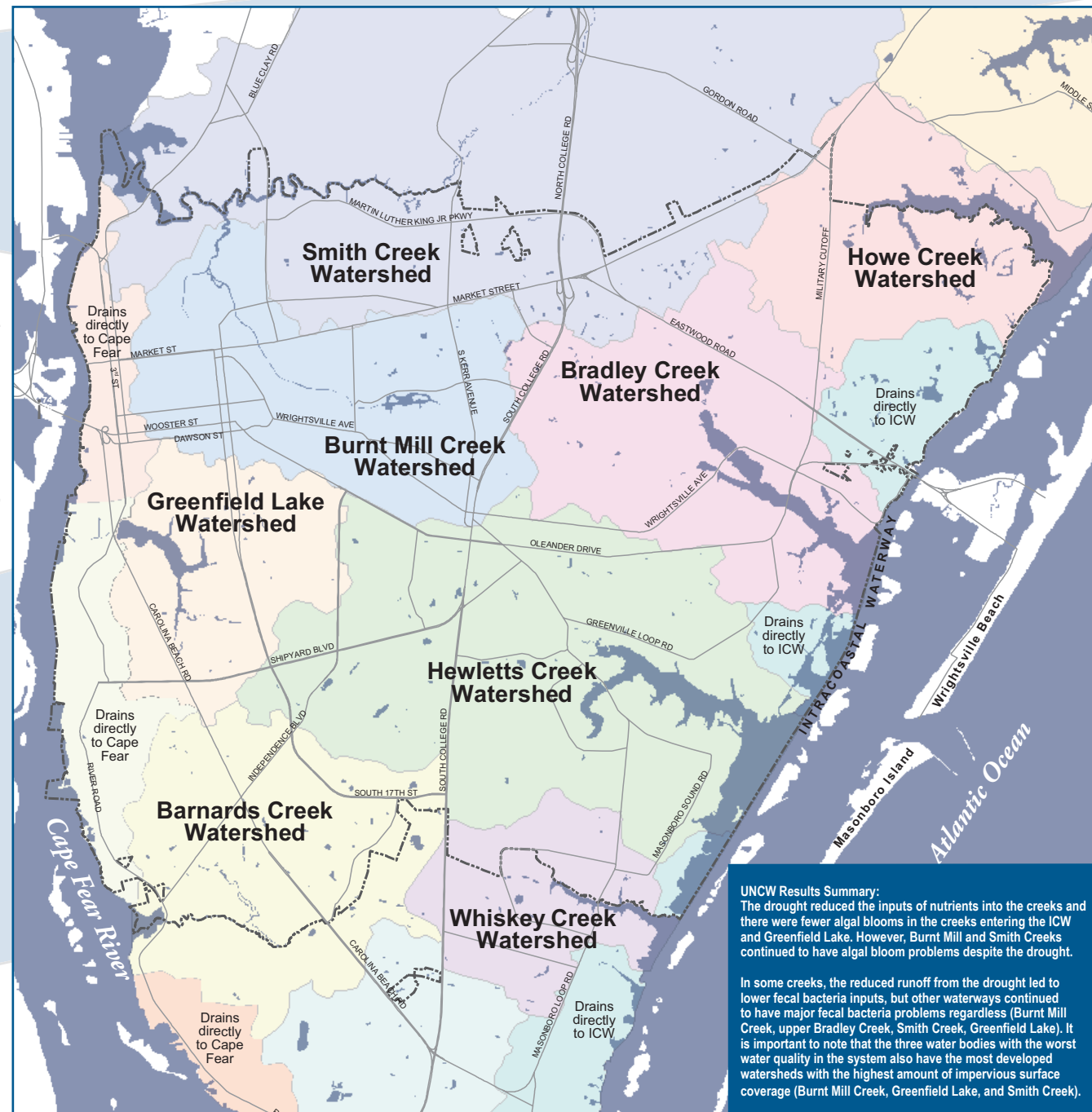
UNCW Sampling Summary:

Minor problems with low DO but not enough to impair its use. Otherwise the creek is in generally good condition.

The State of Wilmington's Waterways, 2006-2007 UNCW Surface Water Quality Report is a summary of the current health and condition of major creeks falling within Wilmington 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. Each water quality sampling summary is based on data collected between the months of August 2006-September 2007

and is presented from a watershed perspective, regardless of political boundaries. This map shows the watersheds located in the city of Wilmington. The summary describes each watershed, by size, classification, status, reason and sampling summary.

For more information on the current health of Wilmington's Waterways and to read Dr. Mallin's entire report please visit www.uncw.edu/cmsr/aquaticecology/laboratory/.



UNCW Results Summary:
The drought reduced the inputs of nutrients into the creeks and there were fewer algal blooms in the creeks entering the ICW and Greenfield Lake. However, Burnt Mill and Smith Creeks continued to have algal bloom problems despite the drought.

In some creeks, the reduced runoff from the drought led to lower fecal bacteria inputs, but other waterways continued to have major fecal bacteria problems regardless (Burnt Mill Creek, upper Bradley Creek, Smith Creek, Greenfield Lake). It is important to note that the three water bodies with the worst water quality in the system also have the most developed watersheds with the highest amount of impervious surface coverage (Burnt Mill Creek, Greenfield Lake, and Smith Creek).



Hewletts Creek

Watersheds that drain to Intracoastal Waterway

Howe Creek

Size of Watershed: 3,343 acres

State Classification: SA, ORW

Status: Impaired. Closed to shellfishing.

Reason: Fecal coliform bacteria

UNCW Sampling Summary:

Problems with fecal coliform bacteria and low DO. Fecal bacteria from stormwater runoff in the upper creek led to shellfish bed closures.

Bradley Creek

Size of Watershed: 4,470 acres

State Classification: SC

Status: Currently supporting use

UNCW Sampling Summary:

Problems with fecal coliform bacteria, low DO and occasional algal blooms. It is not considered shellfishing waters, so its designated uses (aquatic life propagation and non-contact recreation) are not impaired.

Hewletts Creek

Size of Watershed: 7,124 acres

State Classification: SA, HQW

Status: Impaired. Closed to shellfishing.

Reason: Fecal coliform bacteria

UNCW Sampling Summary:

Problems with algal blooms, minor low DO levels and fecal coliform bacteria. Problems have come about from both polluted stormwater runoff and sewer leaks that led to shellfish bed closures.

Whiskey Creek

Size of Watershed: 1,854 acres

State Classification: SA, HQW

Status: Impaired. Closed to shellfishing.

Reason: Fecal coliform bacteria

UNCW Sampling Summary:

Problems with fecal coliform bacteria, mainly inputs in headwater areas, which have led to shellfish bed closures.

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)

Best Management Practice (BMP) A practice or landscape technique that reduces the amount of pollution and/or the quantity of stormwater flowing into waterways. BMPs can be structural, such as rain barrels or buffers, or non-structural, such as picking up after your pet.

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 levels of fecal coliform bacteria in a waterway can indicate the presence of other disease-causing pathogens which can cause sickness and disease in humans. (Sources: pet waste, sewer overflows, septic system failure)

Hypoxia Very low DO levels. Can result in fish kills.

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

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

Polycyclic Aromatic Hydrocarbons (PAHs) are natural components of crude oil and may also be formed when organic materials such as coal, oil, fuel, wood or even foods are not completely burned. (Sources: diesel exhaust, roofing tars, parking lot sealcoats, fireplace smoke and soot)

Sediment Particles of silt, clay, dirt, or sand that wash into waterways as a result of land-disturbing activities or natural weathering. Sediment is the #1 water pollutant in NC and can settle to the bottom or remain suspended in water. (Sources: construction sites with failing sediment/erosion control, eroding streambanks, and exposed soil)

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

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