What is nonpoint source pollution?

Nonpoint source (NPS) pollution, also referred to as polluted runoff, comes from many diffuse sources. Unlike point source pollution that comes from specific sources such as sewage treatment plants and industrial facilities, NPS pollution is transported by water, from rainfall or irrigation, flowing over land. As the water moves across the land, it picks up and transports pollutants. These pollutants include oil and sediment from roadways, agricultural chemicals from farmland, and fertilizer, pesticides, and pet waste from urban and suburban areas. Eventually this polluted runoff is deposited into the nearest waterbody either directly or through storm drain systems.

Development in coastal regions.

Over half of our nation’s population lives along the coast and this trend is expected to continue. In the Charleston area alone we expect to see a population increase of nearly 263,000 people between 1994 and 2030. It is predicted that 618 square miles of developed area, representing a 247% increase in development, will accommodate this increase in population.1 If this growth is not properly planned for and managed, then we can expect problems with costly, haphazard development (sprawl) and increased traffic congestion. The impervious cover (roads, parking lots, rooftops, etc.) that accompanies development prevents infiltration of rainwater into the ground, which leads to a host of problems such as localized flooding, water quality degradation, and the declining health of our coastal resources (e.g., closure of shellfish beds and beaches).

Additional Resources

S.C. Sea Grant Extension Program
www.scseagrant.org/extension
Clemson University Cooperative Extension Service
www.clemson.edu/extension
South Carolina Coast-A-Syst: An Environmental Risk-Assessment Guide for Protecting Coastal Water Quality
www.clemson.edu/sccoastasyt/newb/siteassessm.htm or contact S.C. Sea Grant at 843/953-2078 for a free copy
S.C. Department of Health and Environmental Control – Bureau of Water
www.scdhec.gov/environment/water
www.scdhec.gov/environment/ocrm
South Carolina Native Plant Society
www.scnps.org
Low Impact Development Center, Inc.
www.lowimpactdevelopment.org
U.S. Environmental Protection Agency – Office of Wetlands, Oceans, and Watersheds
www.epa.gov/owow

Where does NPS pollution come from?

Everybody is responsible for contributing to NPS pollution. In rural regions, agricultural practices provide contributions of nutrients, toxic chemicals, and waste from the application of fertilizers, pesticides, and animal husbandry practices. Suburban and urban contributions of pollutants are most influenced by the people who reside there. Homeowners, through traditional gardening practices (e.g., mowing, fertilizing, watering, and pesticide application), generate a variety of nutrients and toxic chemicals that eventually make their way into nearby waterways. Other toxic chemicals come from the use, storage, and improper disposal of automobile fluids, paint, and everyday household products. In suburban and urban areas, bacteria can come from pet waste or improperly designed or maintained septic systems. It is also important to note that a significant amount of pollutants such as nutrients, toxic chemicals, bacteria, sediment, and debris accumulates on roads, parking lots, rooftops, driveways, and sidewalks. All of these surfaces easily convey pollutants to local waterbodies.

What can we do?

Everyone can play a large role in reducing our impact on receiving waterbodies. Limit your load of pollutants into the environment through these activities:

1. Apply fertilizers and pesticides sparingly and according to directions. For more information, contact your local Clemson University Cooperative Extension Service at www.clemson.edu/extension.

2. Reduce bacteria by picking up after your pets and disposing of the pet waste appropriately.

3. Wash your car on your lawn (or other pervious areas) where the chemicals can be absorbed into the soil rather than draining into the nearest creek or pond.

4. Dispose of lawn clippings in a compost pile.

5. Harvest rooftop rain water through rain barrels or rain gardens. For additional information, visit www.rainbarrelguide.com or www.lid-stormwater.net.

6. Do not dump paint, oil, antifreeze, debris, or other household chemicals into street gutters or storm drains—these outlets drain to the nearest local waterbody and these toxins are detrimental to aquatic environments.

7. Clean up spilled brake fluid, oil, grease, and antifreeze. Do not hose them into the street where they can eventually reach local waterways.

8. Maintain proper septic system function with inspections and pump-outs every 3-5 years.

Why should we care?

According to the United States Environmental Protection Agency, NPS pollution is the single largest contributor to the deterioration of our nation’s water quality. The effects of polluted runoff are not limited to large lakes or estuaries. In fact, chances are that you don’t have to look any farther than your neighborhood creek or stormwater pond. Water pollution in your town, and perhaps in your own backyard, can result in anything from weed-choked ponds and fish kills to closed shellfish beds and contaminated drinking water.

What are coastal communities doing to minimize NPS pollution?

Through federal, state, and local policies, developers and engineers are required to manage stormwater runoff from rain events. Traditional management strategies have included detention ponds and vegetative buffers; however, new development practices are leaning towards alternative strategies such as Low Impact Development (LID). LID practices promote the infiltration of stormwater to minimize the impacts of development. LID practices include the use of tree preservation, bioretention swales, rain gardens, pervious pavement, and wetland systems. Oak Terrace Preserve in North Charleston is a local example of such a LID-based stormwater system (www.oaktreepreservesc.com).