Why are buffers important to coastal water quality?

In recent years coastal North Carolina has been subject to problems related to pollution from nonpoint sources, such as stormwater runoff where upland pollutants find their way into the state's coastal waters. The problems associated with this pollution include harmful algal bloom, fish kills, sediment plumes and shellfish closures. Increasing conversion of natural land cover to impervious surfaces, such as parking lots, houses and roads, is the major factor contributing to this problem.

Vegetated buffers function as a barrier to and filter of surface water runoff.

Buffers are a naturally vegetated transitional zone between both differing land uses and the land/water interface. Currently they are applied in both engineered and natural settings to curb the effects of nonpoint source pollution.

Buffers improve water quality by removing sediment, nutrients, chemicals and bacterial and viral agents from surface water before it reaches riparian and coastal waters.

Information Clearinghouse

Additional information about vegetated buffers and other coastal environmental topics is available through the North Carolina Coastal Training Program at **www.NCCoastalTraining.net**

A technical paper with more details about vegetated buffers in coastal NC is available to the public through:

Coastal Training Program

Promoting informed coastal decisions through science-based education and training.

For more information about this and other publications, contact:

North Carolina National Estuarine Research Reserve, Education Office
135 Duke Marine Lab Road
Beaufort, NC 28516
(252) 728-2170
www.NCCoastalReserve.net

This document was funded in part by the National Oceanic and Atmospheric Administration and the North Carolina Division of Coastal Management.

Vegetated Buffers

Improving Environmental Quality in Coastal North Carolina

North Carolina National Estuarine Research Reserve

North Carolina Division of Coastal Management

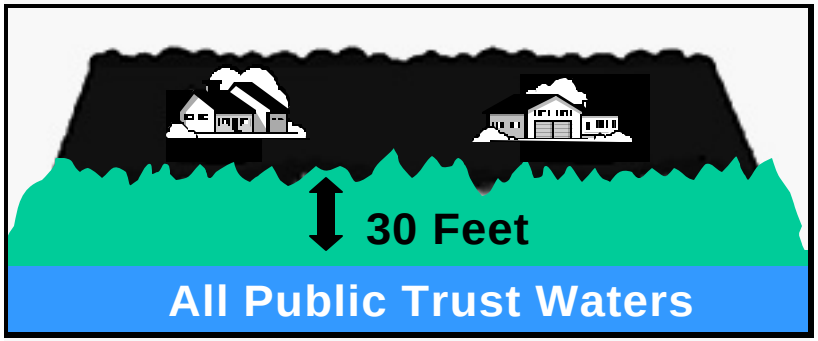
Science for Coastal Living Series, No. 2

Buffer Benefits

- ***Flood control*** - By reducing the velocity and providing a collection area for stormwater runoff and precipitation, buffers encourage water infiltration into the ground rather than flooding low-lying areas.
- ***Groundwater recharge*** - Buffers are also beneficial in recharging groundwater supplies and promoting groundwater flow.
- ***Soil erosion prevention*** - Vegetated buffers stabilize the soil and reduce sediment runoff.
- ***Conservation of coastal and riparian wildlife habitats*** - These natural areas provide breeding and nesting habitat and protect wildlife from predation. Vegetated buffers help increase the diversity of wildlife by providing sites for foraging and corridors for dispersal.

Physical Characteristics

- ***Width*** - As vegetated buffer width increases, so does its ability to remove pollutants and its value to wildlife.
- ***Slope*** - To promote the deposition of sediments, removal of pollutants and absorption of nutrients by buffer vegetation, slow, evenly spread water flow through the buffer resulting from shallow slopes is crucial.
- ***Vegetation*** - Buffer vegetation can be either natural or planted and may be manipulated in a variety of ways to achieve both environment quality goals and cost-effectiveness



North Carolina Division of Coastal Management's Shoreline Buffer Rule

In August of 2000 the state adopted at 30-foot buffer rule for all new development in the 20 coastal counties governed by the Coastal Area Management Act (CAMA). This rule applies to all navigable waterways excluding the oceanfront, which has previously established setback requirements. Development within this buffer is restricted unless the structure is water-dependent, such as docks and boat ramps. For more information see the Division of Coastal Management's Web site: http://www. nccoastalmanagement.net/Facts/buffer.htm

Home Landscaping and Water Quality

Adapted from Bruneau, A.H., S.C. Hodges, and L.T. Lucas. 1995. Water Quality and Home Lawn Care. North Carolina Cooperative Extension Service Publication WQWM-15.

Using common sense when planning and caring for your home's landscaping will reduce water pollution.

- **Watering** - Moisten only the top 4 to 6 inches of soil; over-watering can cause fertilizers and pesticides to move beyond the root zone into groundwater. To reduce nutrient runoff on slopes, water with light, frequent applications following fertilizer application. Use native plants (see ***http://www.ces.ncsu.edu/depts/hort/consumer/factsheets/native/index-native.html***), they are adapted to local rainfall.
- **Mowing** - Since grass clippings are mainly comprised of water, they decompose quickly. Leave clippings on your lawn after mowing, they will release nutrients reducing future fertilizer applications.
- **Fertilizing** - Apply slow-release sources of nitrogen whenever possible. If water-soluable or quick-release fertilizers are applied, use half the recommended amount in two applications 10 days apart. This will reduce the amount of fertilizer runoff to surface waters. The use of drop (gravity) type spreaders over centrifugal (rotary) type spreaders near water bodies will decrease the chance of fertilizer particles reaching these waters.