North Carolina
Department of Environment and Natural Resources

Division of Water Quality

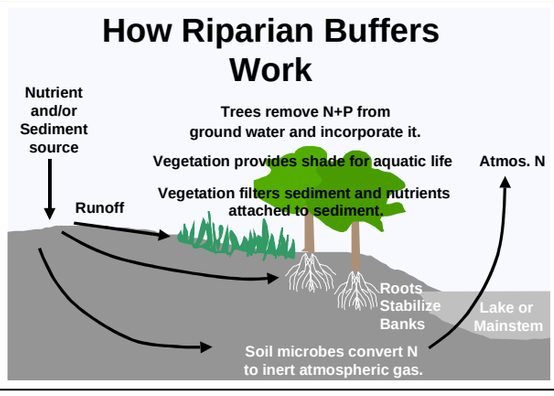
Riparian Buffers
For the Catawba Mainstem and Lakes

What are Riparian Buffers?

Riparian buffers refers to forested or vegetated strips of land that border creeks, rivers and lakes. These buffers can help filter sediment and other pollutants (such as fertilizer and pesticides) from rainwater that flows from the land into waterways, thus protecting these waters from various nearby land uses.

Why Should We Protect Buffers?

Riparian zones perform a broad range of functions with significant economic, ecological, and social value to people.



Water Quality Benefits of Buffers

• **Filtering runoff**—Rain that runs off the land can be slowed and infiltrated in the buffer, which helps settle out sediment, nutrients and other pollutants before they reach waterbodies.

• **Protects banks from erosion**-- Tree roots hold the bank soils together and stems protect banks by deflecting the cutting actions of currents, waves, boat wakes, and stormwater.

• **Nutrient Removal**-- Nutrients from fertilizers and animal waste that originate on land are taken up by tree roots. Phosphorus and nitrogen are stored in leaves, limbs and roots instead of reaching the stream. Phosphorus is the main nutrient of concern in freshwater lakes. There are 3 mechanisms of phosphorus removal in riparian buffers

- ★ Deposition of phosphorus with sediment
- ★ Adsorption of dissolved phosphorus on to sediment particles
- ★ Uptake of phosphorus by vegetation

Secondary Buffer Benefits

• **Effective flood control**—By slowing the velocity of runoff, the riparian buffer allow the water to infiltrate into the soil and recharge the groundwater supply. Groundwater enters the stream at a much slower rate and over a longer period of time than water that has traveled as surface runoff. This helps control flooding and maintain stream flow during the driest time of the year.

• **Provides Canopy and Shade—**Shading by lake vegetation can moderate water temperature along the shoreline providing some relief for aquatic life in the hot summer months.

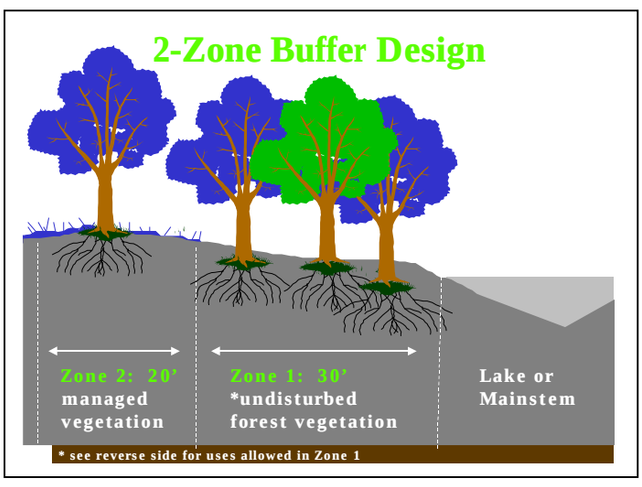
• **Provides food and habitat for wildlife**—Leaves fall into a lake or river where they provide food and habitat for small bottom-dwelling creatures which are critical to the aquatic food chain. The riparian buffer itself also offers habitat for many animals including song birds, eagles, foxes, turtles and amphibians.

• **Protects Property**—Waterfront land is a high risk area for development. Using buffers to set-back development and land uses from shorelines is a cost effective protection against the hazards caused by flooding, shoreline erosion and moving streams.

Why a 2-zone Buffer?

The riparian buffer being proposed in the Temporary Riparian Buffer Protection Rules from Lake James to Lake Wylie along the Catawba River and the Catawba River mainstem in the Catawba River Basin has a 2-zone design. The first zone (the zone that is closest to the shoreline) is an undisturbed 30 foot forest buffer. Zone 1 is designed to protect the physical and ecological integrity of the waterbody ecosystem by stabilizing the bank and providing habitat and food for aquatic organisms. Since this area is forested, this zone also removes, transforms and stores nutrients, sediments and other pollutants flowing over the surface and through the groundwater.

The second zone, immediately upslope from the Zone 1, consists of a 20 foot managed zone. Vegetation in this zone can be grass, although forest vegetation is recommended. The grass in Zone 2 compliments the forest vegetation in Zone 1 by increasing the roughness of the terrain and acting as an obstructive barrier to horizontal flow. This slowing of the water velocity allows for an increased residence time in the buffer, increases sediment and adsorbed pollutant removal, and allows for infiltration of ground water.



Frequently Asked Questions

Regarding Temporary Riparian Buffer Protection Rules for the Catawba River Mainstem and Mainstem Lakes from Lake James to Lake Wylie

Q. Who proposed these rules?

A. The temporary riparian buffer protection rules were proposed by the North Carolina Environmental Management Commission. Temporary rules were pursued under authority of the NC Clean Water Act of 1999 passed by the General Assembly. That act gave authority to the Commission to adopt temporary rules "to protect water quality standards and uses as required to implement basinwide water quality management plans" in the Tar-Pamlico, Catawba and Cape Fear river basins.

Q. What is the effective date of the rules?

A. June 30, 2001

Q. Where do the temporary rules apply?

A. The temporary rules apply within 50 feet of all riparian shorelines along the Catawba River mainstem below Lake James and along the mainstem lakes from Lake James to NC/SC border in the Catawba River Basin. This includes Lake James, Lake Rhodhiss, Lake Hickory, Lookout Shoals Lake, Lake Norman, Mountain Island Lake, and Lake Wylie (NC portion**). The temporary rules do not include the Catawba River mainstem above Lake James nor any other streams in the Catawba Basin.**

Q. How wide is the buffer?

A. The buffer is 50-feet wide, measured horizontally from the water's edge (at full pond level in the lakes), and has two zones of 30 feet (Zone 1 nearest the water) and 20 feet (Zone 2 landward of Zone 1). The zones are shown and discussed on the reverse side.

Q. What do the rules require?

A. The proposed temporary rules require maintaining and protecting existing 50-foot wide vegetated riparian (shoreline) areas along the Catawba River below Lake James and along the mainstem lake shorelines from Lake James to Lake Wylie. **The rule precludes new building and impervious surfaces within the 50-foot buffer unless the activity is specifically allowed in the Table of Uses or is exempt as discussed below. In addition, grading and clearing of vegetation in the 30-foot zone nearest the water (Zone 1) is not allowed except for certain uses, discussed below. The outer 20-foot zone (Zone 2) can be cleared and graded but it is to be revegetated and maintain diffuse flow to Zone 1.**

Q. Does the rule require planting new buffers?

A. No, unless the existing use of the land changes after the effective date of the rule**.** An example of a use change would be if agricultural land that was cultivated up to the lake edge were developed for residential or commercial purposes. The new development would need to establish and maintain a 50-foot buffer.

Q Are there exemptions for Existing Uses?

A. Yes. The footprints of all existing uses are exempt including, but not limited to, cultivated cropland, pasture, buildings, industrial, commercial, and transportation facilities, lawns, gardens, utility lines, roads, driveways, walkways, decks, piers, seawalls and septic. Additional uses that may be exempt, allowable, or allowable with mitigation are included in a Table of Uses in the rules. A use shall also be considered as existing if the project or proposed development at a minimum has established a vested right under North Carolina zoning law as of the effective date of this Rule, based on at least one of the following criteria:

(A) Project requires a 401 Certification/404 Permit and these were issued prior to the effective date of this Rule;

(B) Projects that require a state permit, such as landfills, NPDES wastewater discharges, land application of residuals and road construction activities, have begun construction or are under contract to begin construction and have received all required state permits prior to the effective date of this Rule;

(C) Projects that have been determined to have a Vested Right by the NC Attorney General's Office; or

(D) ; Projects that have established a Vested Right under North Carolina zoning law as of the effective date of the rule.

Q. What CAN you do in the buffer?

A. Certain activities are identified in the rule as "exempt", "allowable", or "allowable with mitigation". Over 40 such uses are outlined in a Table of Uses in the rules. Examples of "exempt" activities **include view corridors** (allows thinning of underbrush, shrubs, trees less than 6" diameter, and low limbs to provide views to the lakes), **water dependent activities** (such as boat ramps, docks, boat houses, bulkheads and access structures), **recreational and accessory structures** with a footprint of less than 150 square feet and utility corridors. "Allowable" and "allowable with mitigation" activities require review and written approval by Division of Water Quality (DWQ) staff and include activities such as certain road crossings, air strips, new drainage ditches, stormwater ponds, buildings, paved surfaces, etc.

Q. Can you cut trees in the buffer?

A. Yes. in Zone 2, all trees can be cut provided that the land is restabilized and revegetated (e.g. garden, shrubs, lawn). In Zone 1, individual trees can be cut that are dead, diseased or damaged, or if they pose a threat to human life, property or the shoreline. For continuing forestry operations, all trees more than 10 feet from the shoreline and over 12-inch diameter may be cut at 15-year intervals provided the work is done under a Forest Management Plan prepared or approved by a registered professional forester.

Q. Are there any provisions for undeveloped lots or approved preliminary subdivision plans that existed as of June 30, 2001?

A. Yes. All properties in recorded subdivision plans whether undeveloped or previously built-upon and any approved preliminary subdivision plans (within last two years) are exempt from Zone 2 requirements. In addition, Zone 1 requirements are "allowable" (can be done with written permission by the state if no practical alternative exists).

Q. Are variances allowed?

A. Yes, if it can be shown that there are "no practical alternatives" to the proposed activity. Mitigation may be required for a variance.

Q. What is mitigation?

A. Mitigation is a way offsetting the environmental impacts from a project on a buffer. A separate temporary buffer mitigation rule establishes requirements for activities that state staff determine are "allowable with mitigation". Mitigation, which is required at a 1.5 or 2 to 1 ratio, can take three forms: a) restoration or enhancement of a non-riparian buffer, b) payment of a compensatory mitigation fee to a wetlands and riparian restoration fund (ranges from $1.44 to $1.92 per sq ft for the footprint of the variance activity in the buffer), or c) donation of real property.

Q. Approval of Local Ordinances

A. The temporary riparian buffer protection rules also give local governments the opportunity to enforce a local ordinance in lieu of this rule if the DWQ determines than the local riparian buffer ordinance provides equal or greater water quality protection than the proposed temporary rules. McDowell and Burke Counties, for example, have existing buffer protection ordinances which could be considered for approval under this provision.