Buffers: An Efficient Tool for Watershed Protection

What Are Buffers?

A **buffer** is a strip of naturally vegetated land along a lake, stream, or wetland that provides numerous benefits. Preserving a buffer zone protects water resources from neighboring land uses. Nutrient inputs are of great concern because of their abundant sources (fertilizer, septic tank drain fields, leaking sewage lines, animal waste). Excess nutrients in lakes and estuaries cause toxic algal blooms and depleted oxygen. Natural chemical and biological processes within buffers alter or uptake nutrients and pollutants *before* they enter a water body, thus providing a cost-effective treatment system. Buffers preserve native habitat for wildlife and enhance aquatic habitat. The range of benefits provided by buffers includes:

- Water quality protection
- Erosion control
- Storage of floodwaters and flood damage reduction
- Aquatic habitat enhancement
- Habitat for terrestrial riparian wildlife
- Maintenance of base flow in streams
- Improved aesthetic appearance of stream corridors
- Recreational and educational opportunities

Riparian refers to the land adjoining a body of water, usually a river or stream.

Buffer Width: Bigger is Better

Choosing a buffer width depends on your planning goals. As buffer width increases, the buffer provides greater benefits. As seen in the table below, a 30-foot buffer provides minimal service. At 50 feet, the buffer meets minimum water quality protection recommendations and gives some aquatic habitat benefits. For effective water quality and aquatic habitat protection, a buffer width of 100 feet is needed. Buffers to enhance riparian wildlife should be 300 feet or greater. Special buffer zones may be required to protect vulnerable species. Width should be increased where slope, impervious surface, and soil type reduce buffer effectiveness. The consequences of an inadequate buffer may be an increased need for stormwater ponds, increased flooding, decreased abundance of sportfish, and/or loss of certain species such as some salamanders or crayfish.

Benefit Provided:	**Buffer Width:**					
	30 ft	**50 ft**	**100 ft**	**300 ft**	**1,000 ft**	**1,500 ft**
Sediment Removal - Minimum	✓	✓	✓	✓	✓	✓
Maintain Stream Temperature	✓	✓	✓	✓	✓	✓
Nitrogen Removal - Minimum		✓	✓	✓	✓	✓
Contaminant Removal		✓	✓	✓	✓	✓
Large Woody Debris for Stream Habitat		✓	✓	✓	✓	✓
Effective Sediment Removal			✓	✓	✓	✓
Short-Term Phosphorus Control			✓	✓	✓	✓
Effective Nitrogen Removal			✓	✓	✓	✓
Maintain Diverse Stream Invertebrates			✓	✓	✓	✓
Bird Corridors				✓	✓	✓
Reptile and Amphibian Habitat					✓	✓
Habitat for Interior Forest Species					✓	✓
Flatwoods Salamander Habitat – Protected Species						✓

Sources

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