Connecticut Coastal Management Program
Fact Sheet
for
VEGETATED BUFFERS

What is a Vegetated Buffer?

A vegetated buffer is an area or strip of land in permanent undisturbed vegetation adjacent to a waterbody or other resource (e.g., wetland). It can be either in a natural state or artificially planted. Depending upon their purpose and site-specific conditions, vegetated buffers can range in size from several feet to hundreds of yards wide.

Why are they valuable?

Buffers provide a mosaic of interdependent functions. They protect resources from adjacent development by reducing the adverse effects of human activities on natural resources including wetlands and surface waters. They protect water quality and temperature, control erosion and trap sediment, protect and provide wildlife habitat, reduce the effects of flooding, reduce the potential for direct human disturbance of sensitive resources, and maintain aesthetic diversity and recreational value. Further, as sea levels rise, buffers can provide a barrier-free upland area allowing tidal wetlands to migrate landward, helping the wetland elevation can keep pace with rising waters rather than drown in place. Installation of a buffer area can also lessen lawn maintenance requirements by reducing the area of manicured landscape.

How do they work?

Buffer areas work through several means. Land within buffer areas is not developed and, therefore, generally does not generate pollution. Vegetated buffer strips act as filters to intercept and absorb nutrients, sediment, and other pollutants carried in stormwater runoff. Buffers also slow the movement of runoff, which both reduces erosion and allows silt and other suspended solids to settle out before they reach a receiving waterbody or wetlands. Additionally, any contaminants attached to the sediment do not reach the waterbody or wetlands. Vegetated buffers provide an area for infiltration, thereby reducing the volume of runoff. Bacteria, pathogens, and pesticides that are trapped within the buffer area decompose or are broken down, thus preserving water quality.

Creating vegetated buffers

Where do we use vegetated buffers?

Vegetated buffers should be located between upland development and adjacent waterbodies or resources. Some water-dependent uses or water-dependent components of projects will likely

require development within a buffer area, but water-dependent uses and vegetated buffers are not necessarily mutually exclusive.

How big is big enough?

The size of an effective buffer can be anywhere from a small unmown area of a lot to a large forested strip. The ideal buffer width will depend on the desired emphasis (water quality protection, wildlife habitat, temperature moderation, erosion control, etc.), the amount of available land, and the proposed use of the property. Generally, the effectiveness of a buffer increases with its size. Large buffers (e.g., 100 feet or greater in width) provide the best protection for water quality by buffering temperature changes and improving control of erosion, sedimentation and pollution. However, even a narrow buffer (15 to 30 feet in width) can be effective under certain conditions.

What determines the effectiveness of a buffer area as a stormwater management measure?

- The type of stormwater flow. Sheet flow (unrestricted flow across the ground) along the length of the buffer allows the buffer area to more effectively trap sediments, attenuate pathogens and pollutants, and encourage infiltration. Concentrated flow (e.g., flows directed through swales, pipes or other conveyances) reduce or essentially eliminate the effectiveness of the buffer for stormwater management.
- The general topography of the buffer area. Flat or gently sloping buffers are more effective because they slow the rate that stormwater flows across them which enhances their infiltration and filtering capability.
- The permeability of the soils and the depth to the water table. Generally, higher permeability and greater depth to the water table will increase the rate of infiltration and attenuation within the buffer area.
- Whether the current vegetation is native or non-native, its density and its character (e.g., forested, shrubby, grassland, etc.). Dense native vegetation is generally more effective and requires less maintenance as it is inherently suited to the local climate.
- Whether the land use above the buffer poses a high, medium or low risk for pollution. The higher the risk posed by the upland use, the greater the need for an effective buffer. Increasing the width of a required buffer and/or increasing the density of native plantings can aid in offsetting the potential impacts from a high-risk upland use.
- Whether there is an existing buffer, and if so, whether its width is sufficient to provide habitat and corridors for wildlife, erosion and sedimentation control, water quality protection or other benefits of vegetated buffers. If an existing buffer of adequate width is present on a lot, all efforts should be made to preserve it in its natural state.
- The types of activities permitted within the buffer. The fewer activities that include land clearing, grading, or other disturbances, the better. However, in many instances, passive recreational amenities such as hiking trails may be appropriate.

In general terms, what does the ultimate vegetated buffer look like?

The answer will depend on what you want the buffer to do (and it can't do it all). However, in general terms, the ultimate vegetated buffer has gentle slopes, with undisturbed, moderately permeable soils and dense native vegetation, and is as wide as possible given the lot size, site conditions and proposed use(s).

How can a municipality implement vegetated buffers?

- Update zoning regulations to better protect sensitive resources by establishing or increasing protective buffers between development and coastal waters and associated sensitive resources. These buffers should be required landward of the upland limit of tidal wetlands, beaches and dunes, and coastal and inland waters, and from the tops of bluffs and escarpments.

- Once buffers are established by regulation, they should be strictly honored. Variances of the minimum buffer width should only be allowed in those extremely limited cases where there is a statutory hardship as defined in the Connecticut General Statutes Section 8-6(3) or to provide water-dependent use opportunities where appropriate.

- Revise subdivision regulations to require vegetated buffers abutting all water resources in new subdivisions.

- Revise zoning and subdivision regulations to limit clearing of vegetation to enhance views and to prohibit clearing or cutting along the face or at the edge of bluffs and escarpments.

- Update inland wetlands regulations to require larger buffers for all regulated activities adjacent to wetlands, including vernal pools and watercourses.

Additional resources

Coastal Landscaping Guide for Long Island Sound, UConn Center for Land Use Education and Research/Connecticut Sea Grant (http://clear.uconn.edu/crlg/)

Connecticut Sea Grant Connecticut Coastal Planting Guide (http://media.ctseagrant.uconn.edu/publications/coastalres/CTCoastal_planting.pdf)

Sea Level Affecting Marshes Model (SLAMM) (http://www.warrenpinnacle.com/prof/SLAMM/)