



The Importance of the 100-foot Setback Zone in the Town of Trumbull

Can a parcel be developed completely up to a water body by a property owner?

No. In accordance with the Connecticut Department of Environmental Protection *Guidelines for Upland Review Area Regulations*¹, the Town of Trumbull's Inland Wetland and Watercourses Regulations require an evaluation of the impact of regulated activities within a **100-foot setback zone** from the Town's wetlands and watercourses. This setback is often called a buffer or, if near a stream, riparian buffer. Any activities within the 100-foot setback must be approved by the Town's Inland Wetland & Watercourses Commission.

What are the benefits of an established riparian buffer?

Riparian buffer:

- Reduces the amount nutrients (e.g., nitrogen, phosphorus) entering Trumbull's surface waters. This is beneficial to the Long Island Sound, which experiences hypoxia (i.e., low dissolved oxygen levels) due to high nitrogen loading.
- Reduces the amount of toxic pesticides entering surface water and the aquatic food chain.
- Traps sediment and prevents stream bank erosion. Sediment entering a stream channel and eroding stream banks, widen watercourses and reduces aquatic habitat.
- Provides habitat for birds, reptiles, amphibians and mammals. Additionally, it provides a safe transportation corridor and access to drinking water for wildlife.
- Provides shading to cool water temperature to the benefit of macroinvertebrates and fish.
- Mitigates flooding. Riparian buffer stores a significant amount of flood water.

What is the Status of Trumbull's Riparian Buffer?

Trumbull has been fortunate in that the Pequonnock River Valley State Park protects the riparian buffer of much of the Town's major waterway, the Pequonnock River. Unfortunately, wherever the river is not protected by state or Town parkland, such as along Whitney Ave, Manor Drive and Tait, Blackberry and River Bend roads, the Town has allowed homes and lawns to be placed in the cleared 100-foot setback.

The Pequonnock River Watershed Plan, which recommends restoration of lost riparian buffer, protection of existing buffer and the promulgation of local stream buffer regulations, cites a study conducted by the Center for Land Use Education and Research (CLEAR), which characterized Connecticut's watersheds and their riparian areas through the use of remotely-sensed land cover during the 1985 to 2006 time

¹ See, http://www.ct.gov/deep/lib/deep/water_inland/wetlands/upland_review_document_june1997.pdf

period. Results of the study indicate that the Pequonnock River watershed is within one of the two major “hot spots” of clustered *Pequonnock River Watershed Based Plan* 39 subregional basins identified along the Connecticut coast as having high relative riparian vegetation loss within both a 100-foot and 300-foot riparian corridor.

The watershed plan recommendations for the Rooster River in western Trumbull are the similar to that of the Pequonnock, with the same CLEAR study citing the Rooster River watershed’s 0.5 to 2 percent loss of forested land within the 300-foot riparian corridor during the same time period. The study notes that the watershed has less than 20% forest cover within the 300-foot riparian corridor.

Why is Trumbull only protecting 100-feet of buffer?

Conditions at each site vary. The optimal buffer width is largely dependent on the area’s topography, the travel time of overland flow, soil permeability and the types of plants encountered by the run-off. Quantifying these factors is generally not possible and/or cost prohibitive, so a review of existing studies are relied upon to establish a standard protective and effective buffer width.

The most recent analysis of buffer width studies was conducted by the Stroud Water Research Center (SWRC) and appeared in the June, 2014 edition of the Journal of the American Water Resources Association (Vol. 50, No. 3.) The article titled *Streamside Forest Buffer Width Needed to Protect Stream Water Quality, Habitat, And Organisms: A Literature Review*² concluded based on the literature on eight major stream or streamside ecosystem factors (properties, components, or functions), that streamside forest buffers of greater than or equal to 30-meters wide are needed to protect water quality, habitat, and biotic features of streams associated with watersheds of less than or equal to 100-square kilometers. In English units, 30-meters is about 98-feet and 100-square kilometers is about 39-square mile. The Pequonnock and Rooster River watersheds are about 29- and 15-square miles, respectively.

The SWRC’s review of available scientific literature specifically concluded:

- Effective **nitrogen** removal at the watershed scale probably requires buffers that are at least 30-meters wide and that the likelihood of high removal efficiencies continues to increase in buffers wider than 30-meters.
- The ability of streamside buffers to trap **sediment**, when limited to streamside studies or comparable field conditions, show that buffers 10-meters wide can be expected to trap about 65% of sediments delivered by overland flow, while 30-meter wide buffers can be expected to trap about 85% of sediments.
- Buffer widths of greater than or equal to 20-meters will keep stream **temperatures** within 2°C of those that would occur in a fully forested watershed but that full protection from measureable temperature increases is assured only by a buffer width of greater than or equal to 30-meters.
- Lieu of direct studies bearing on this issue, we infer at this time that a streamside forest can best provide a natural level of LWD (**Large Woody Debris**, which provides nutrients and food for aquatic organisms) to streams if its width is generally about 30-meters.
- Most available data based on replicated, controlled studies suggest that a streamside forest of greater than or equal to 30-meters is needed to protect and maintain **fish communities** in a natural or near-natural state

² See, <http://www.stroudcenter.org/press/2014/2014-06-17-100ft-buffers.shtm>