Riparian Buffers and Headwaters/High Quality Habitat: A Policy and Regulatory Assessment

Alicea Charamut
Executive Director, Rivers Alliance of Connecticut

Nature-based Solutions

Actions that involve the protection, restoration or management of natural and semi-natural ecosystems and/or actions that are inspired by processes and functioning of nature to increase the resilience of freshwater systems.

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Nature-based Solutions

They can provide a cost-effective addition or alternative to traditional infrastructure to improve water quality, protect cold-water habitat, reduce sewer overflows, and mitigate flooding while improving habitat and revitalizing communities, making them more resilient to the effects of climate change.

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Nature-based Solutions

- Low Impact Development (LID)
- Green stormwater infrastructure (GI)
- Best Management Practices (BMPs)
- Protection, sustainable management and restoration of natural ecosystems

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Riparian Buffers

One of the most cost-effective ways to:

- Reduce pollution from contaminated runoff or other nonpoint sources by filtering nutrients, pesticides, and animal waste
- Erosion control
- Flood protection

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Riparian Buffers

Bantam Lake WBP Pollutant Load Reduction Optimization Analysis for the Bantam Lake Watershed.

Table 13a. Scenario 1 Results

(Maximum Possible Implementation Extent, No Optimization)

BMP Category	BMP Name	Treated Area (ac)	TP Load Reduction (lb/yr)	TN Load Reduction (lb/yr)	Cost ($)	Cost per Pound P Reduced ($ / lb)
Structural	Bioretention Area *(HSG A/B)*	71.3	61.7	284.0	$ 8,005,079	$ 129,700
	Sand Filter *(HSG A/B)*	71.3	88.5	284.0	$ 9,289,206	$ 29,204
	Bioretention w/ ISR *(HSG C/D)*	116.7	137.9	1,057.4	$ 13,229,308	$ 104,951
	Gravel Wetland *(HSG C/D)*	233.5	221.4	1,748.2	$ 14,881,912	$ 95,934
	Wet Pond *(HSG C/D)*	116.7	96.2	451.2	$ 5,762,927	$ 67,226
	Infiltration Basin *(HSG A/B)*	142.6	221.3	1,757.1	$ 6,462,056	$ 59,924
Institutional *(aka Non-structural)*	Street Sweeping	267.0	11.8	84.7	$ 331,000	$ 28,051
	Catch Basin Cleaning	250.0	9.8	70.5	$ 100,000	$ 10,204
Agricultural / Other	Riparian Buffer Improvement	343.7	35.9	626.9	$ 216,000	$ 6,017
	Livestock Exclusion Fencing	10.6	3.8	51.7	$ 31,000	$ 8,158
	Totals:	**1,623.5**	**888.2**	**6,415.6**	**$ 58,308,488**	$ 65,645

Note:

1. Treated runoff depth is 1" for all structural BMPs.
2. Street Sweeping and Catch Basin Cleaning results are annual.
3. TP reduction goal is 107 lb/yr.
4. Color scale for "Cost per pound of P Reduced" ranges from lowest (green) to highest (red).

Riparian Buffer Protection in Connecticut?

The term riparian buffer is an ecological concept.

This term does not exist within Connecticut's regulatory framework. Our regulatory framework focuses on Upland Review Areas.

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Activities are Regulated in the URA

Connecticut's statutory Upland Review Area authorization is the antithesis of a riparian corridor and creates a barrier to establishing any workable riparian corridor protection for a watercourse or a significant wetland system due to its piecemeal property-by-property decision-making process and the significant burdens placed upon the local regulatory agencies responsible for implementing it.

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How does CT Compare to Other Northeast States?

Currently, out of all the New England states, Connecticut has the least protective buffer protection standards.

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Headwaters/High Quality Habitat

Headwaters: The smallest upgradient sections of rivers, sometimes lacking permanent flow and characterized by high connectivity with their surroundings.

High Quality Habitat: water bodies or sections of water bodies in least disturbed condition which is the "best available physical, chemical, and biological habitat conditions given today's state of the landscape."

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Headwaters/High Quality Habitat

- Trap floodwaters
- Recharge groundwater supplies
- Remove and filter pollutants
- Provide food and habitat for fish and wildlife (specifically cold water species such as native brook trout)
- Sustain the health of downstream rivers
- Play a critical role in ensuring that the quality and supply of our drinking water is safe

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Headwaters/High Quality Habitat

It is important to recognize the relationship between riparian buffers and headwaters and understand that by protecting riparian buffers, we are also protecting headwater streams.

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How Can We Do Better?

- Look at how the IWWA can be updated to include the most recent science and incorporate climate change.
- Provide for more consistent riparian buffer protections while avoiding “takings.”
- Increase resources to increase staff dedicated to Inland Wetlands and Watercourses within DEEP.
- Look to zoning?
- Re-evaluate temperature standards in CT’s WQS

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Protection Through Zoning?

Examples here in Connecticut

- Overlay zones in towns with Wild and Scenic Rivers
- Viewshed protections

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Contact Information

Alicea Charamut

alicea@riversalliance.org

www.riversalliance.org

(860) 361-9349 office

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