



Tools for protecting & restoring riparian areas





Today's fare....

- **Welcome & Introductions** *Chet Arnold, UConn CLEAR*
- **Overview (and new tools)** *Dave Dickson, UConn CLEAR*
- **Status of riparian protections** *Zbig Grabowski, UConn CLEAR*
- **The Gateway experience** *Alan Ponanski, CT River Gateway Commission*
- **Legislative update** *Alicea Charamut, Rivers Alliance of CT*
- **Q&A; discussion** *All*

Overview of Riparian Areas & Importance



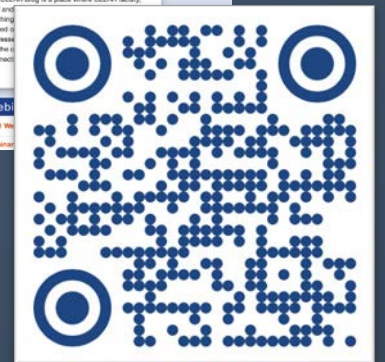


provides research, tools, training, information, and assistance to community decision makers and other audiences in support of:

- better land use decisions
- healthier natural resources
- more resilient communities



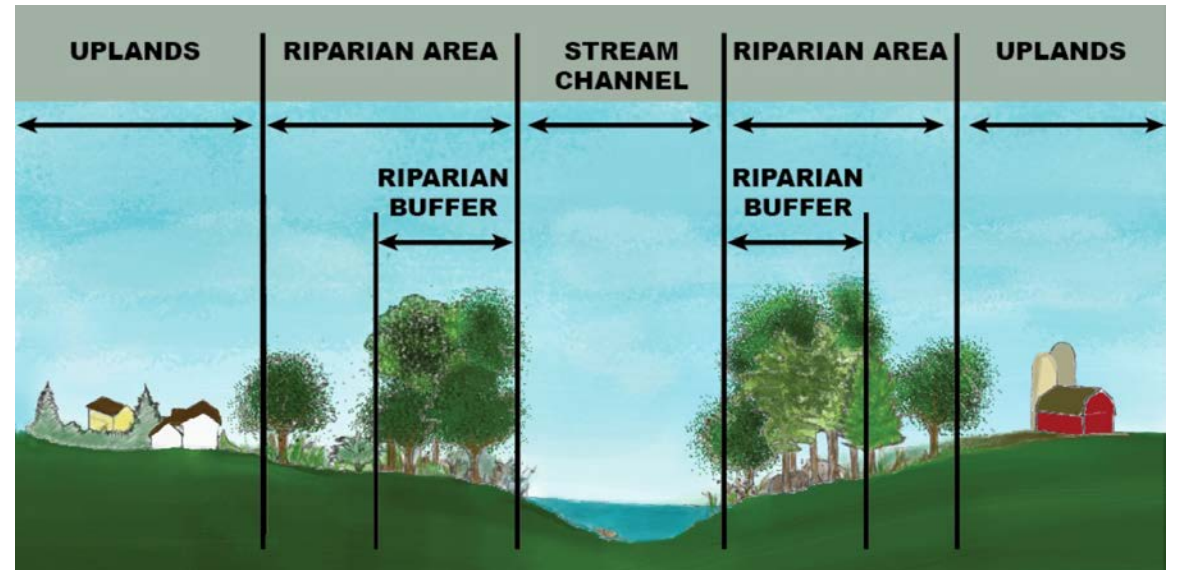
Center for Land Use Education and Research (CLEAR)



<https://clear.uconn.edu>

Defining the Terms

- “**Riparian**” refers to the area by the banks of a river, stream, or other body of water.
- “**Riparian Corridor**” refers to a designated zone or strip of land of a specified width along the border of an area
- “**Riparian Buffer**” is the natural vegetation *and soil* cover adjacent to a river, stream, or other body of water.



Riparian buffer functions

first line of defense against the impacts of development

- slow runoff
- stabilize shorelines & protect from erosion
- aid in flood control (temp storage)
- filter or trap pollutants from runoff
- provide food, habitat, and corridors for invertebrates, fish, and wildlife
- shade waters (temp moderation) for fisheries enhancement



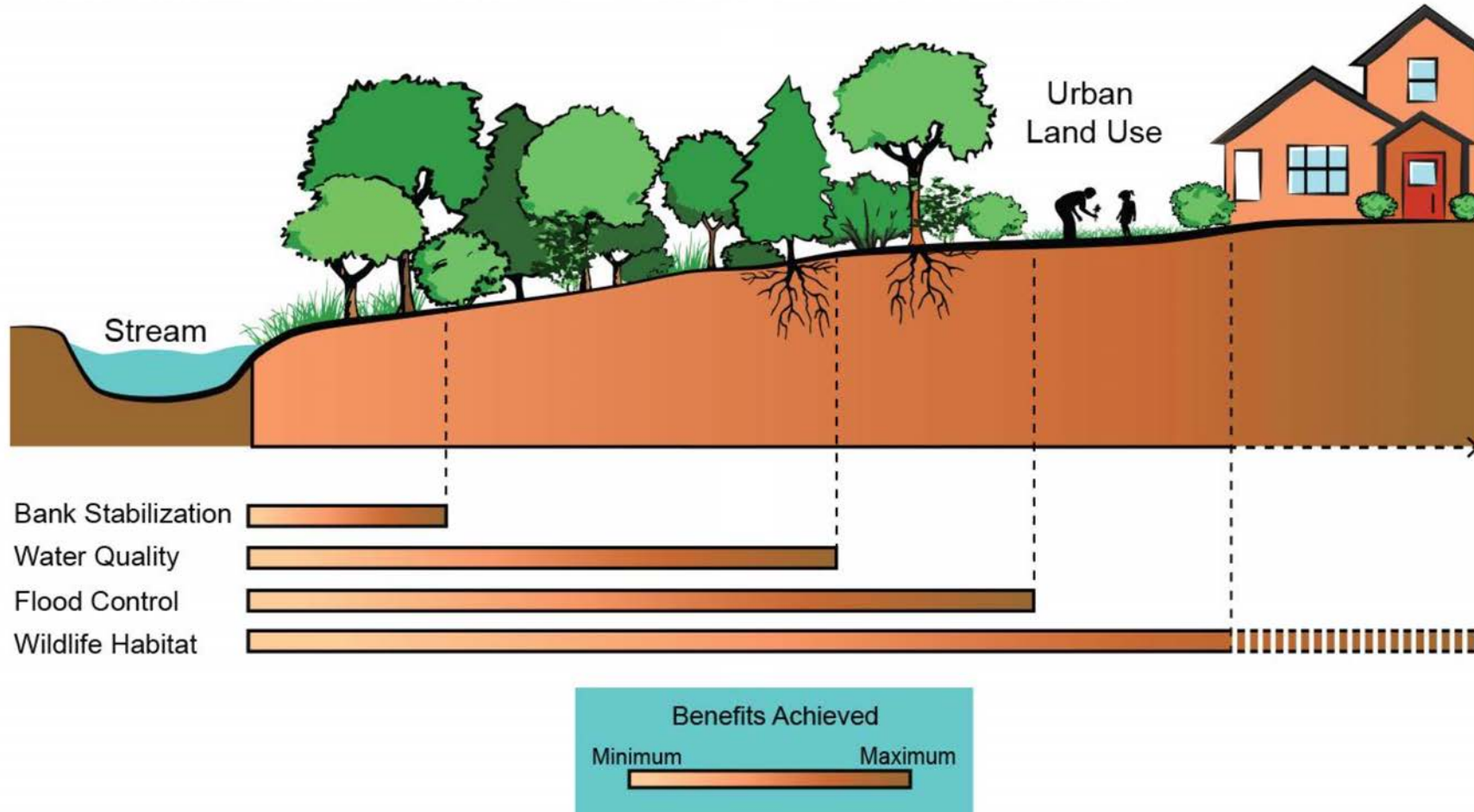
Riparian buffer services/benefits

- Minimize property damage
- Investment in stormwater management, flood control and pollutant removal
- Increased property values
- Reduced land maintenance costs (compared to managed areas)
- Reduced urban heat island
- Recreational opportunities/aesthetics
- Connectivity of green space



Size matters

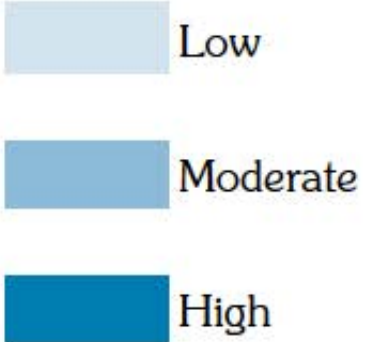
The Wider the Buffer the Greater the Benefits



Content matters

Effectiveness of Different Vegetation Types for Specific Buffer Benefits

BENEFITS	grass	shrubs	trees
stabilize streambank	Low	High	High
filter sediment and the nutrients, pesticides, & pathogens bound to it	High	Moderate	High
filter nutrients, pesticides, and microbes from surface water	Moderate	Low	Moderate
protect groundwater and drinking water supplies	Low	Moderate	High
improve aquatic habitat	Low	Moderate	High
improve wildlife habitat for field animals	High	Moderate	Low
improve wildlife habitat for forest animals	Low	Moderate	High
provide economically valued products	Moderate	Moderate	High
provide visual interest	Low	Moderate	High
protect against flooding	Low	Moderate	High



Disturbances within the Riparian Corridor

- Conversion of natural vegetation to lawn
- Dumping of yard waste
- Increased dominance of invasive species

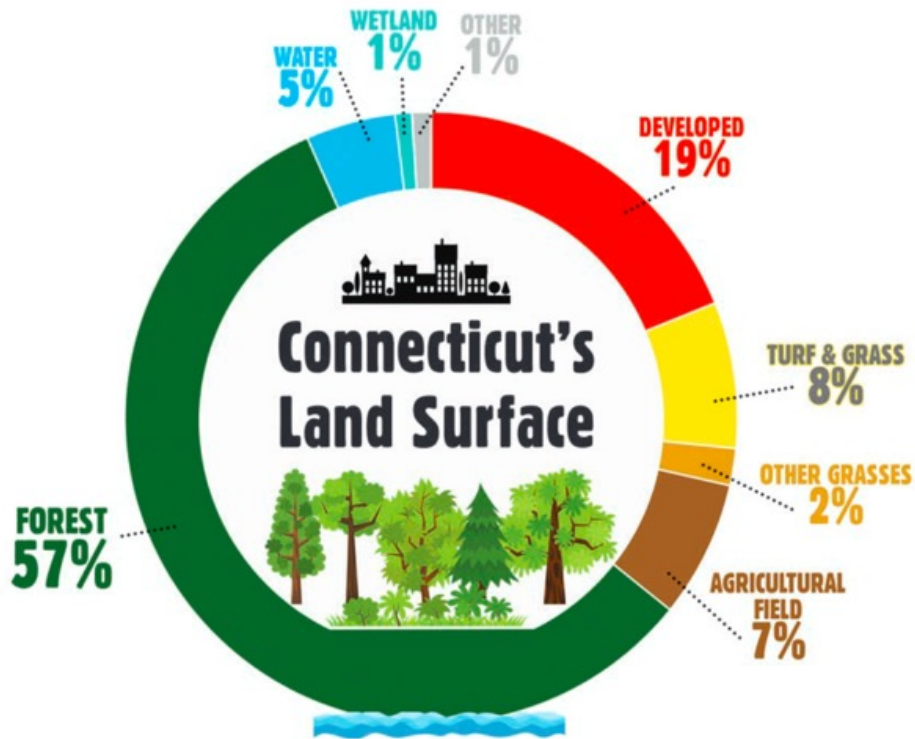
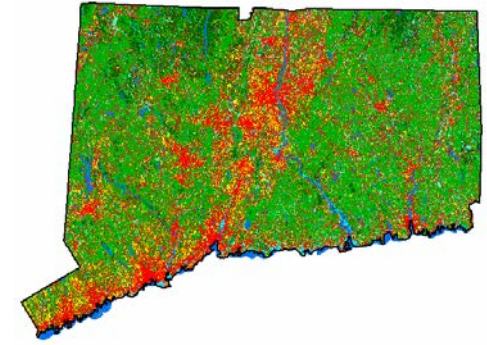


- Tree & woody debris removal
- Trail establishment
- Stormwater erosion
- Fertilizer impacts

Riparian
buffer
importance
has never
been greater

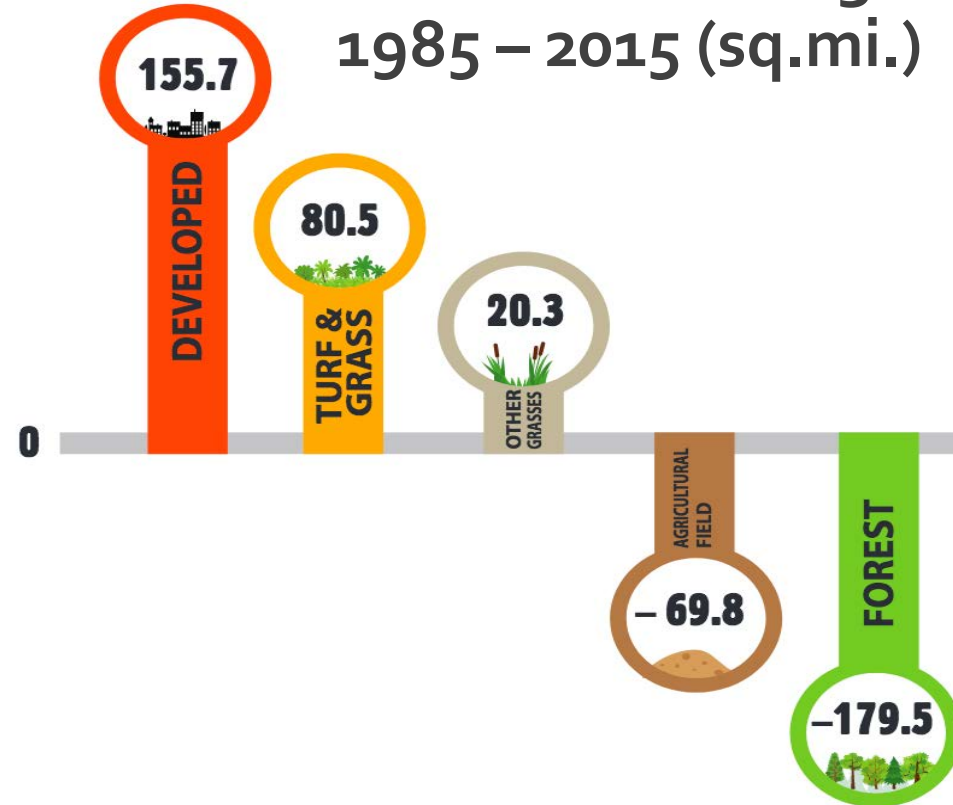


We are an urbanizing state



2015 Land Cover

Land Cover Change 1985 – 2015 (sq.mi.)



Effects of Urbanization #1: Flooding



Effects of Urbanization #2: Pollution

- **Nutrients (Nitrogen, Phosphorous)**
- **Sediment**
- **Pollutants**
- **Bacteria**
- **Heavy Metals**
- **Microplastics**
- **Salt**
- **Pharmaceuticals**
- **Complex compounds (PFAS)**
- **Etc., etc.**



The Effects of Urbanization #3: Stream Form & Function

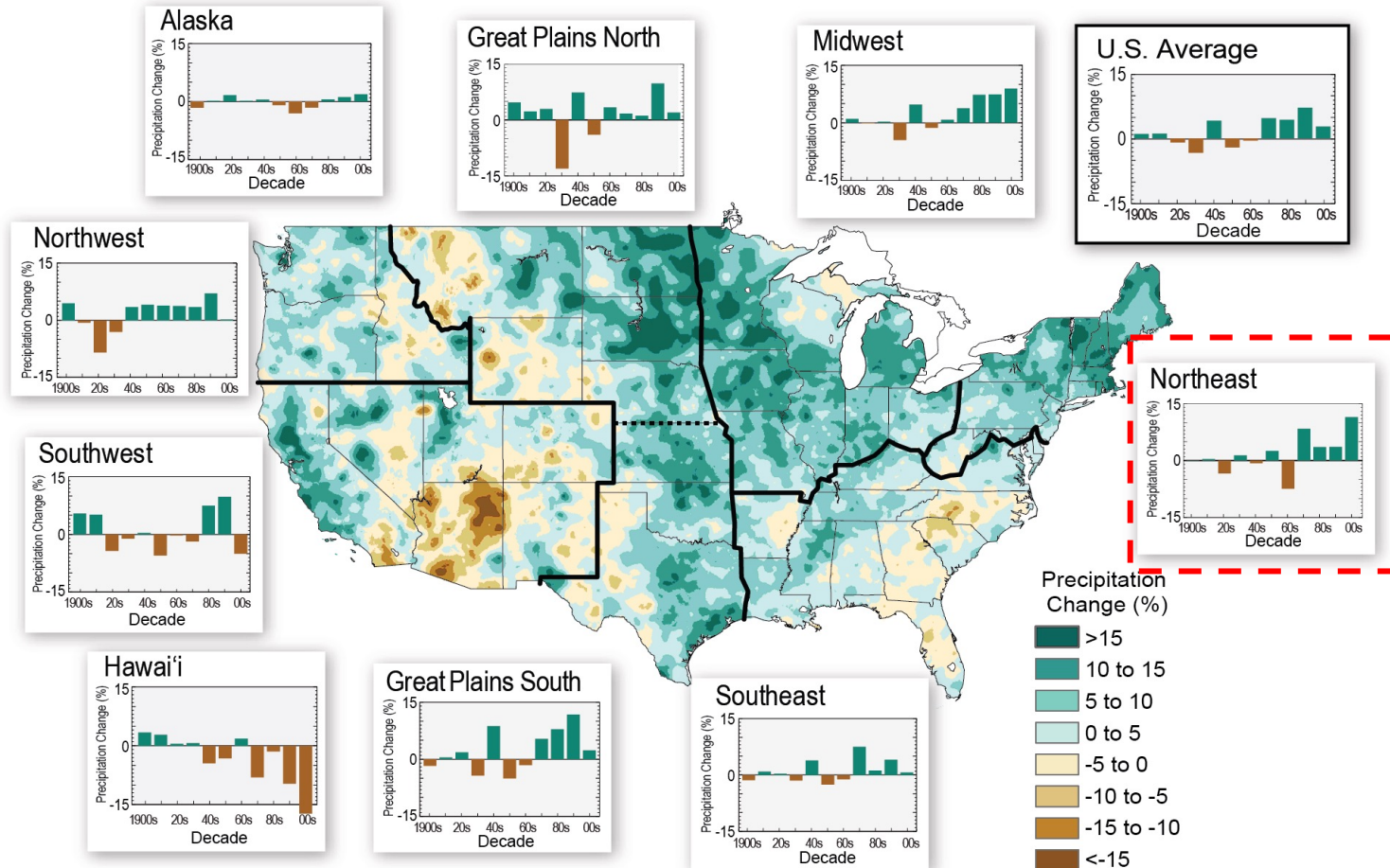


And now, to pile on: climate change

more rain

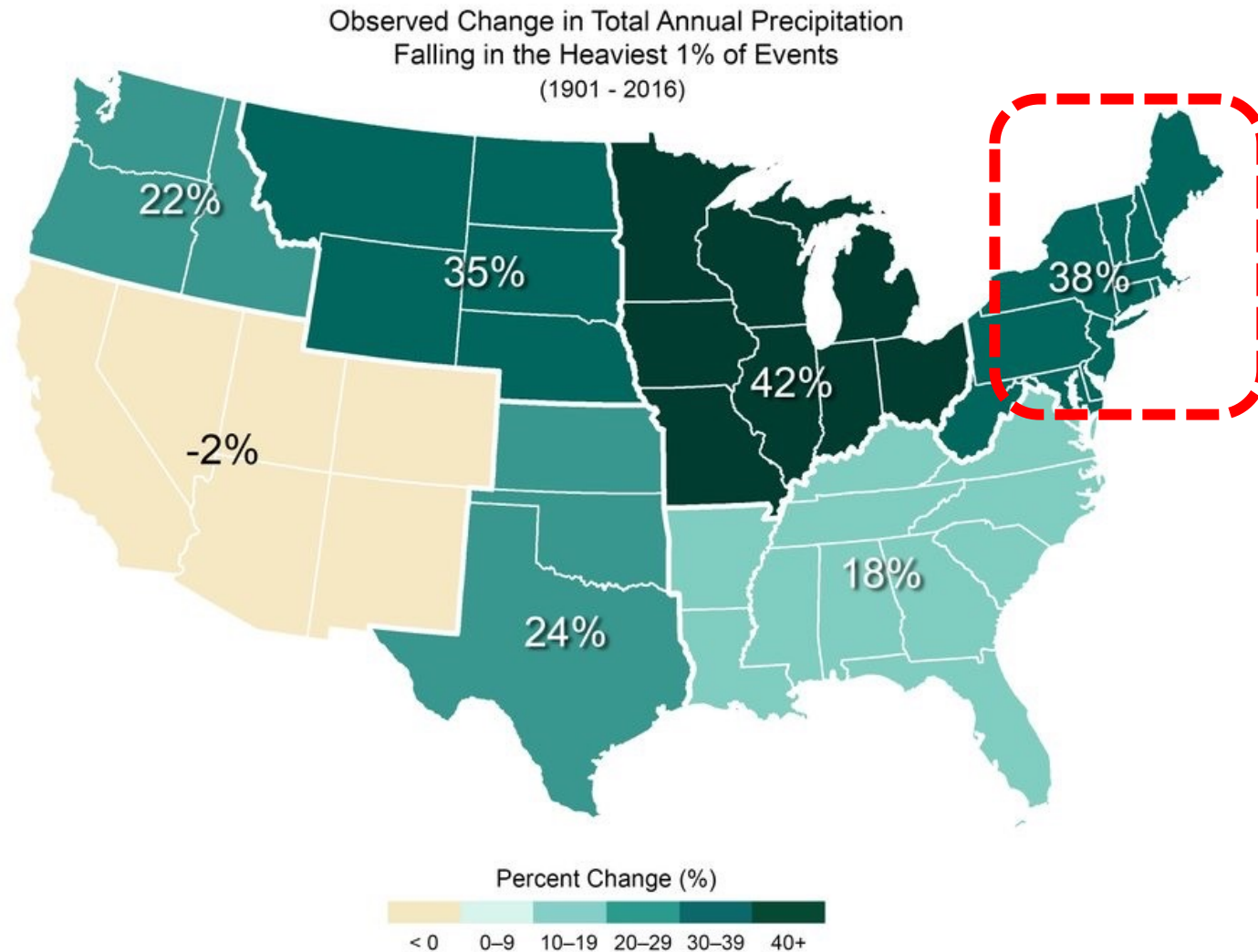


Observed U.S. Precipitation Change



And now, to pile on: climate change

heavier storms



from the National Climate Assessment

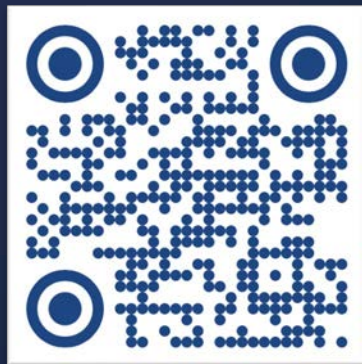
Riparian buffer services/benefits

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New CLEAR info & tools



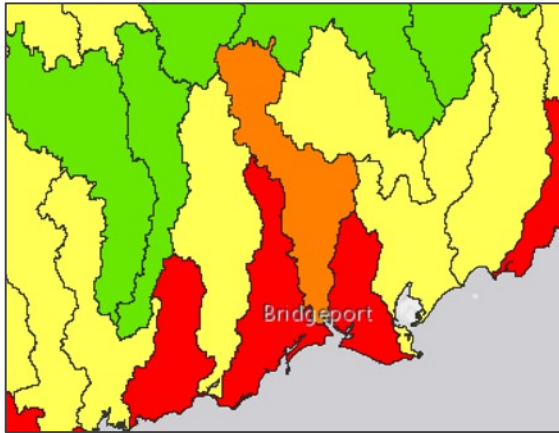
<https://clear.uconn.edu>

Land cover indicators of watershed health

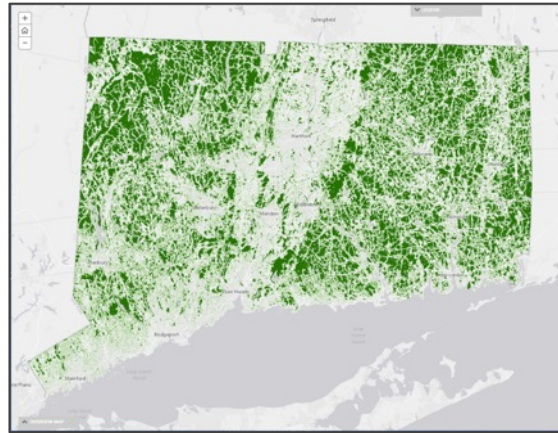
The literature points to the critical role that various land cover factors have in watershed health

Generally, these indicators are more accurate at smaller watershed sizes

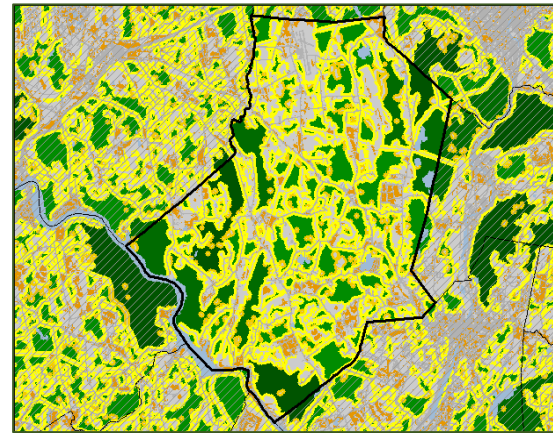
IMPERVIOUS COVER



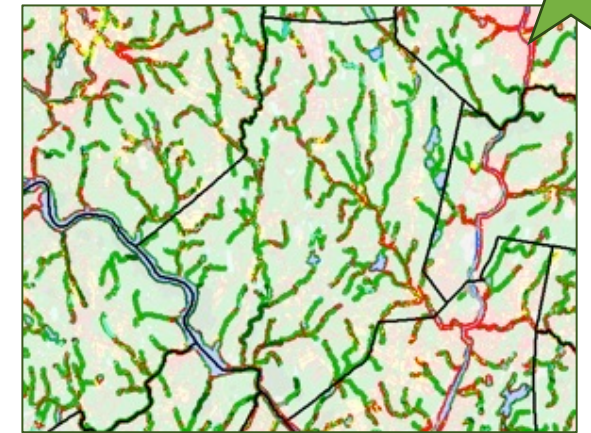
FOREST COVER



CORE FOREST

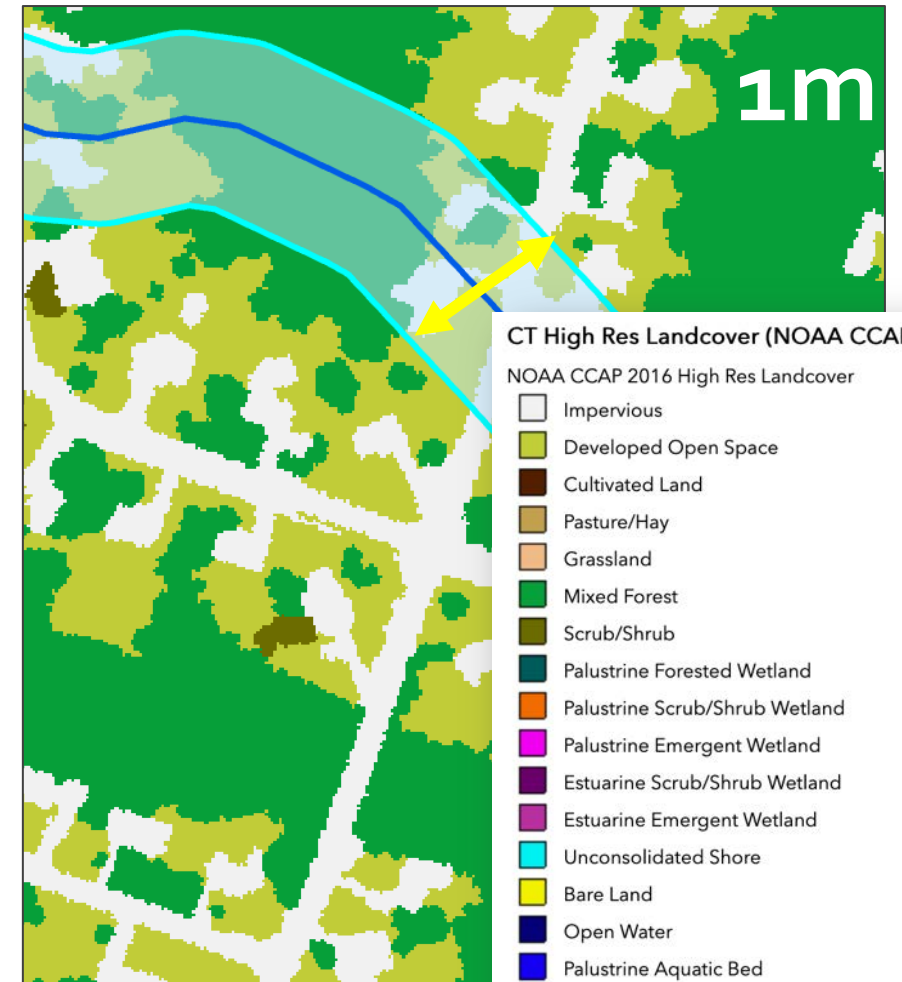
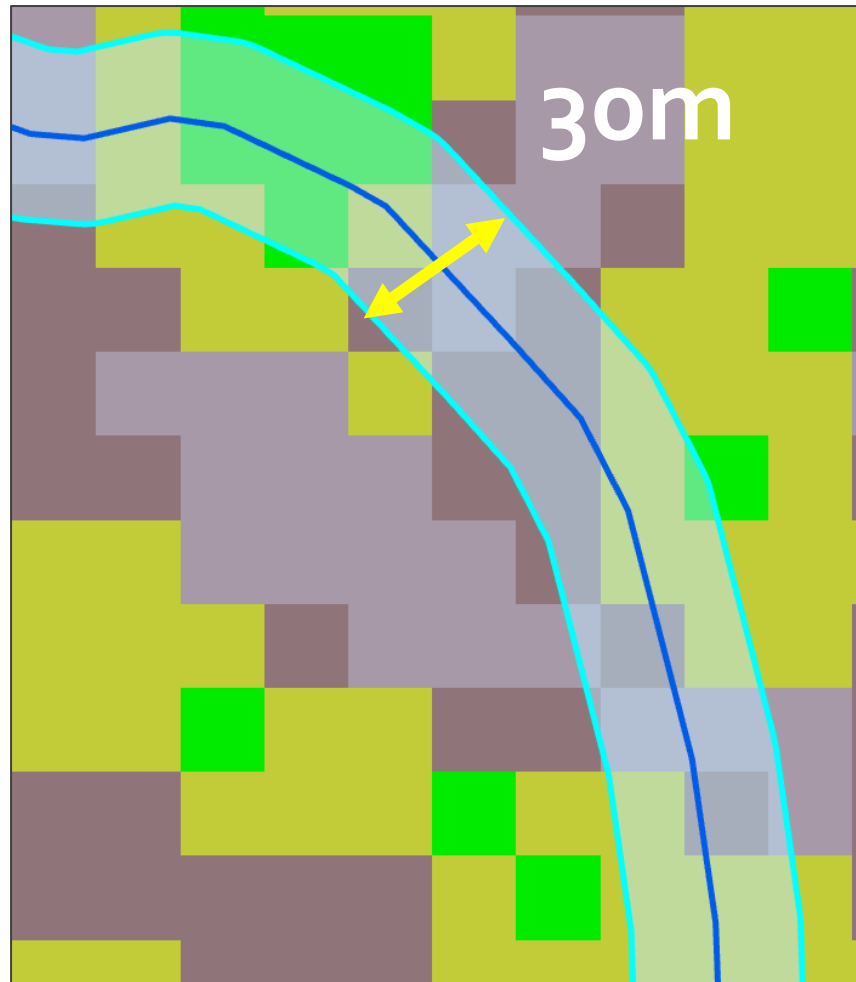


RIPARIAN CORRIDORS



2020: a leap in land cover resolution

New **1m resolution** NOAA C-CAP land cover dataset (based on 2016 imagery)

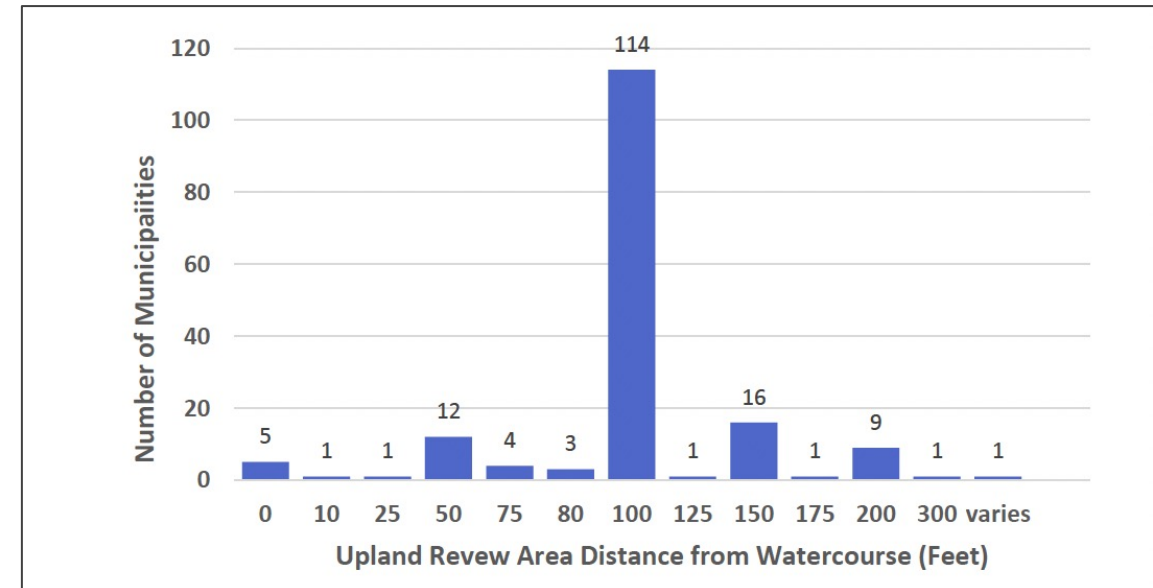
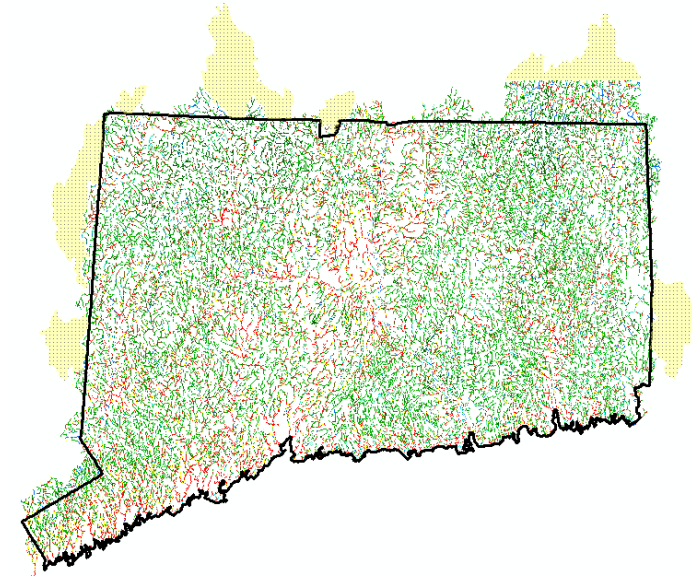


- CT High Res Landcover (NOAA CCAP)
- NOAA CCAP 2016 High Res Landcover
- Impervious
 - Developed Open Space
 - Cultivated Land
 - Pasture/Hay
 - Grassland
 - Mixed Forest
 - Scrub/Shrub
 - Palustrine Forested Wetland
 - Palustrine Scrub/Shrub Wetland
 - Palustrine Emergent Wetland
 - Estuarine Scrub/Shrub Wetland
 - Estuarine Emergent Wetland
 - Unconsolidated Shore
 - Bare Land
 - Open Water
 - Palustrine Aquatic Bed
 - Estuarine Aquatic Bed



Riparian Zone width: 100 ft

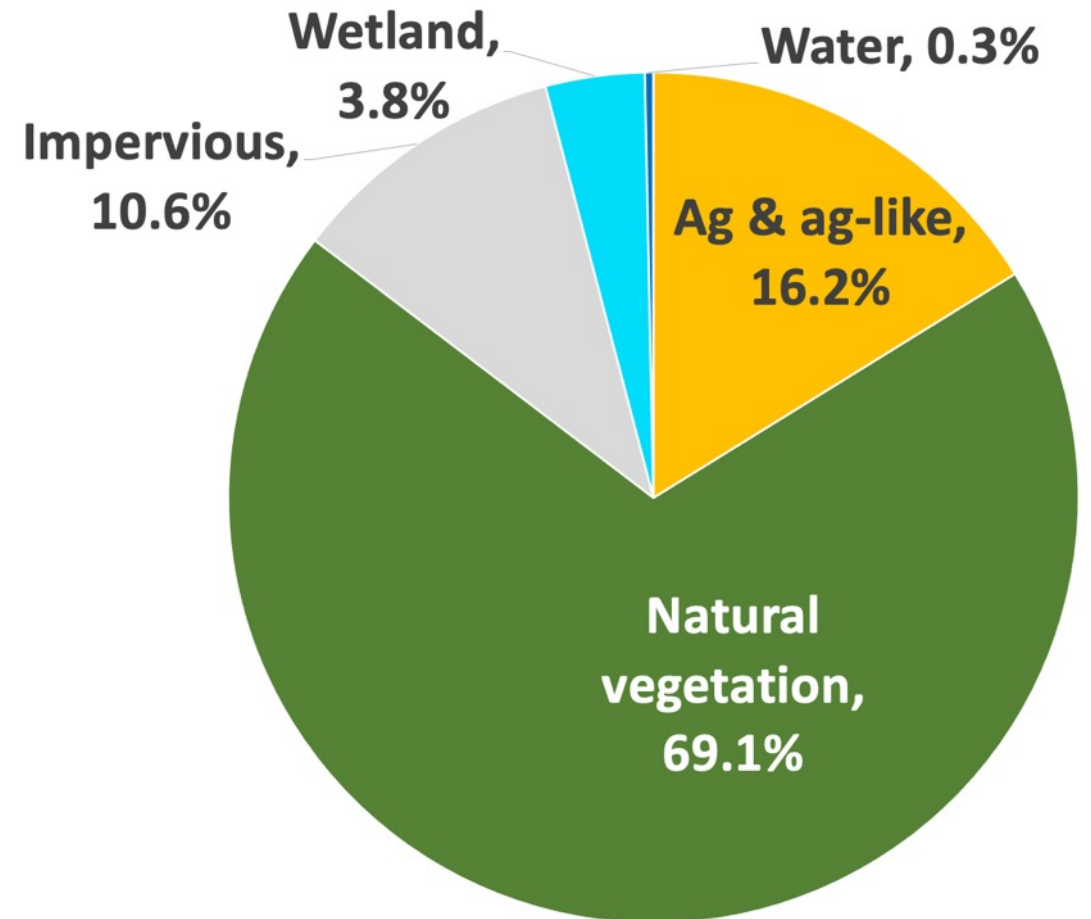
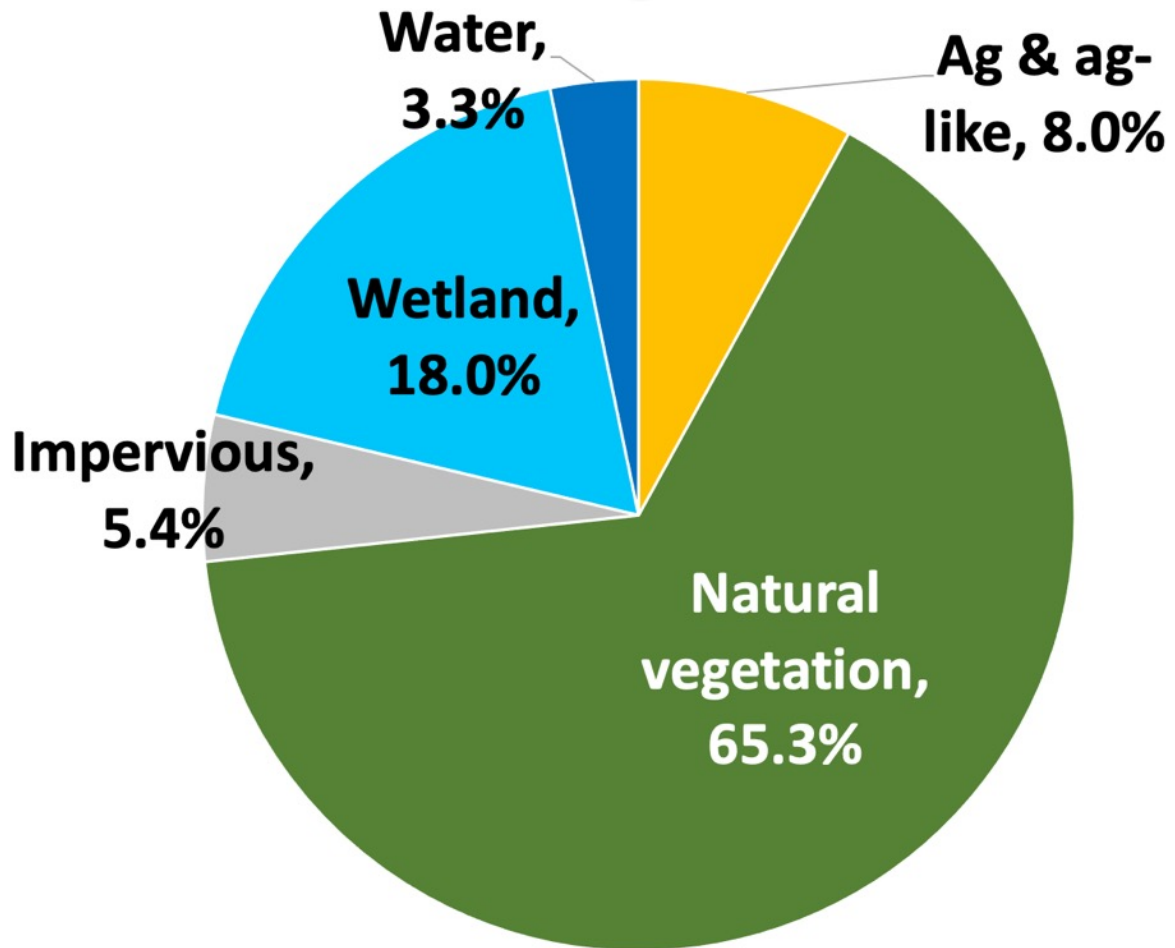
- Most common IWWC watercourse “review zone” used in CT communities
- Most common width used in previous studies (e.g., Goetz et al.)
- Recommended in several studies as width that is protective of water quality (e.g., UNH report)



From Western CT Council of Governments, 2022.

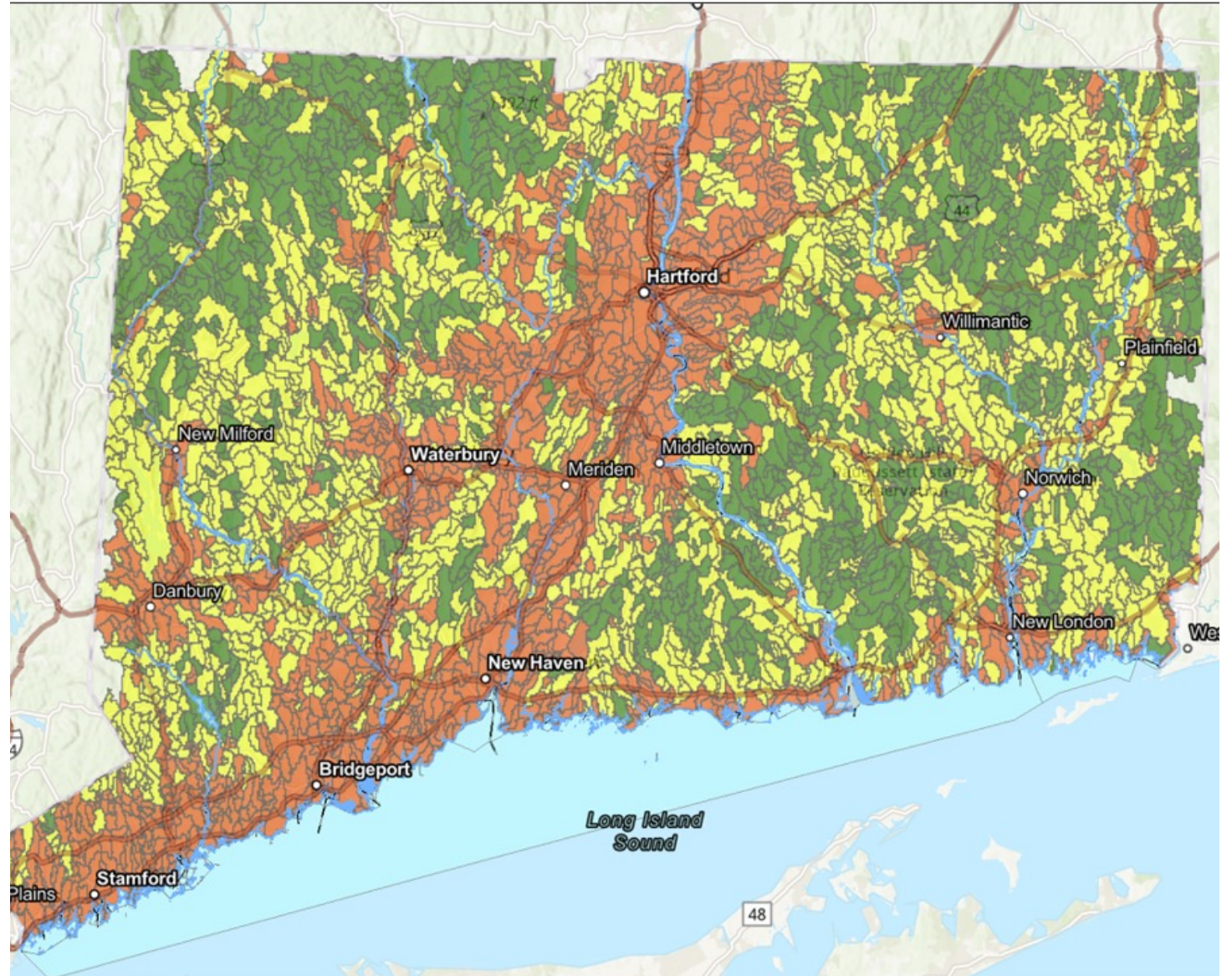
100' Riparian Corridor

Upland area (outside of corridor)



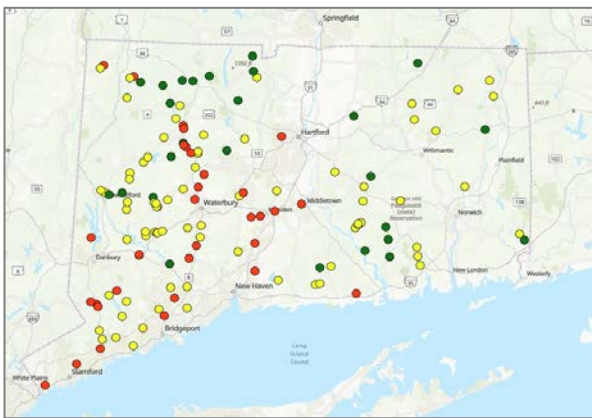
Local Watershed Assessment Tool

- Effort to assess the health of small watersheds in CT based on high resolution (1M) land cover in upland & riparian areas



The Combined Condition Index (CCI)

- **Combined Condition Index** is a metric that describes the probable health of a watershed based on land cover within the watershed.
- CCI is calculated to have best fit with Macroinvertebrate Multi-metric Index (MMI) –based on CT DEEP sampling data
- CCI ranges between 0 (poor) and 1 (excellent). Higher CCI score indicates better water quality.
- CCI is based on the land cover characteristics of riparian buffer and upland watershed.



How is CCI Calculated?

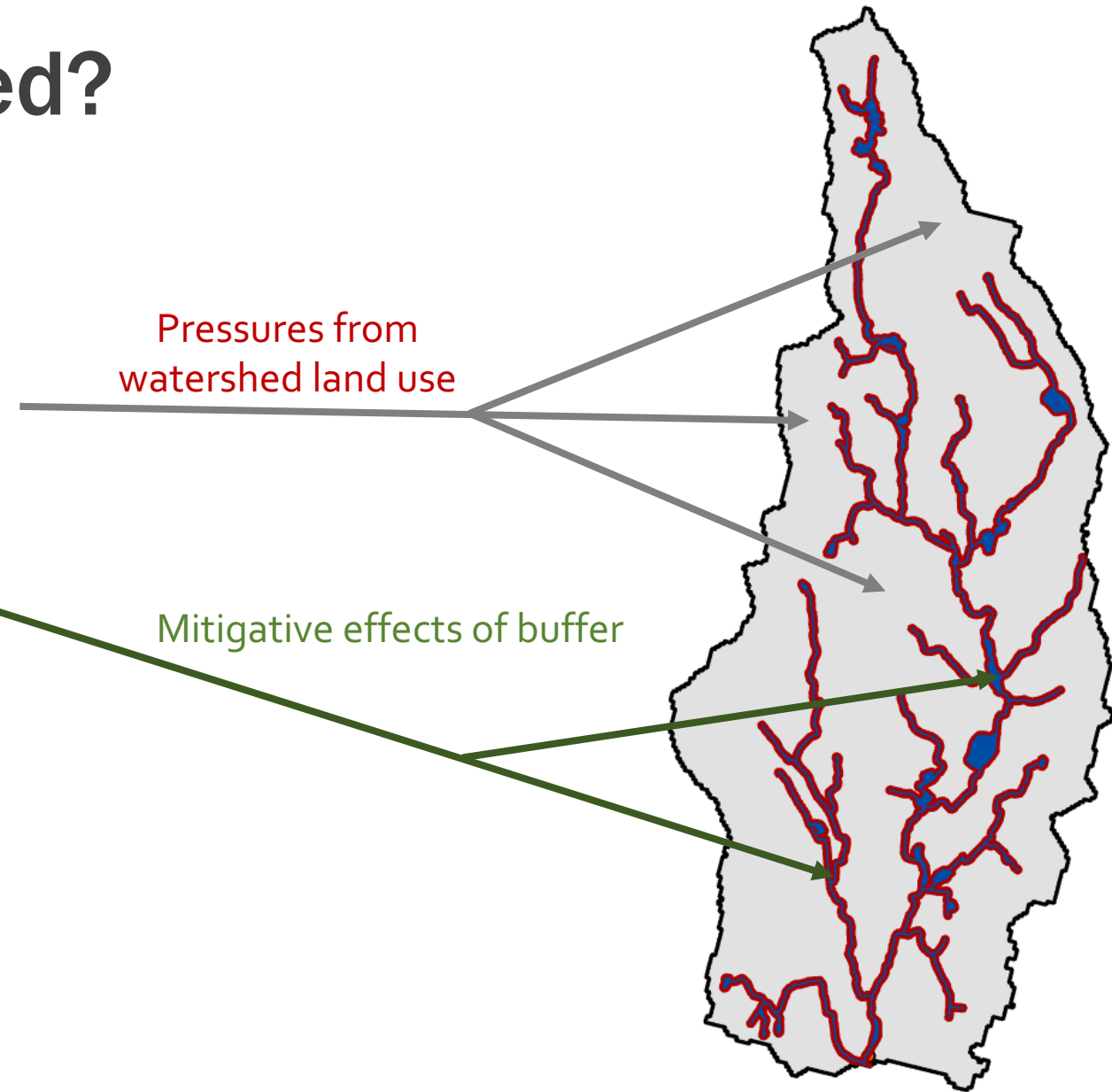
(black box version)

1. Divide a watershed into

- **upland watershed** (everything outside the buffer)
- **100' riparian buffer**

2. Compare land cover makeup of the two zones.

- Natural
- Impervious
- Agriculture-like

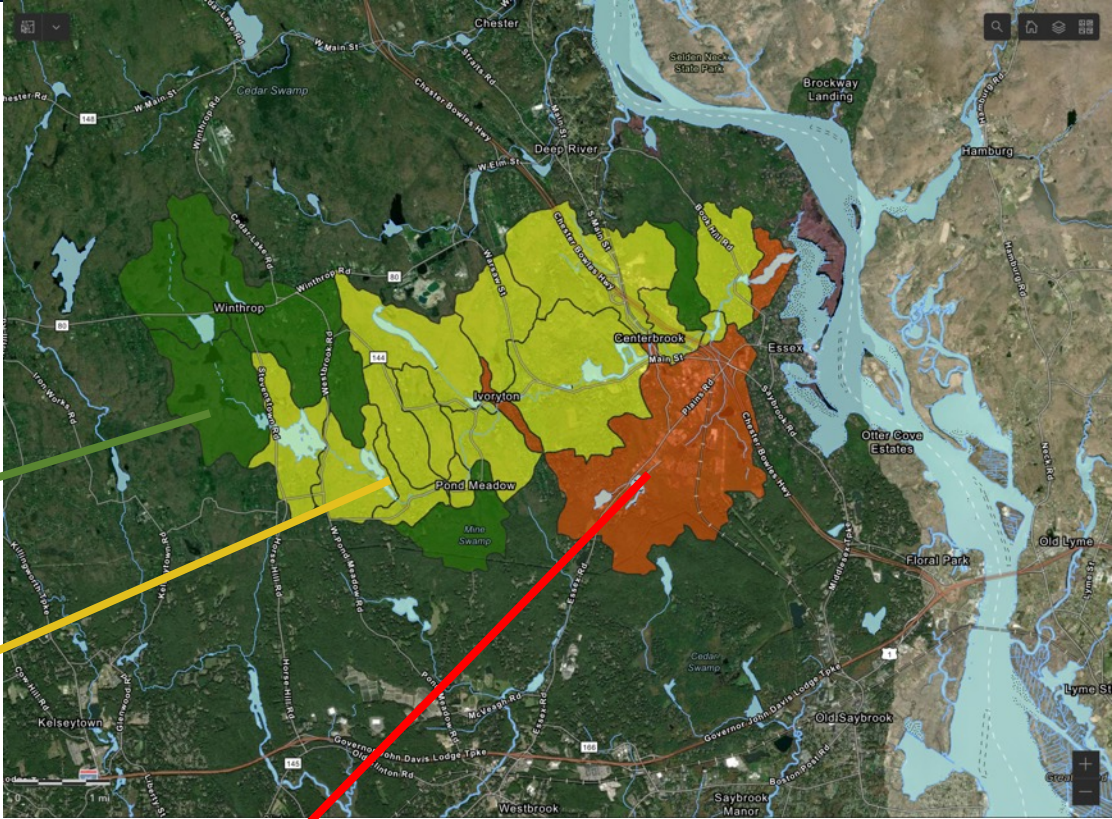


CCI Management Category indicates the state of, and suggested land use strategies for, a local basin

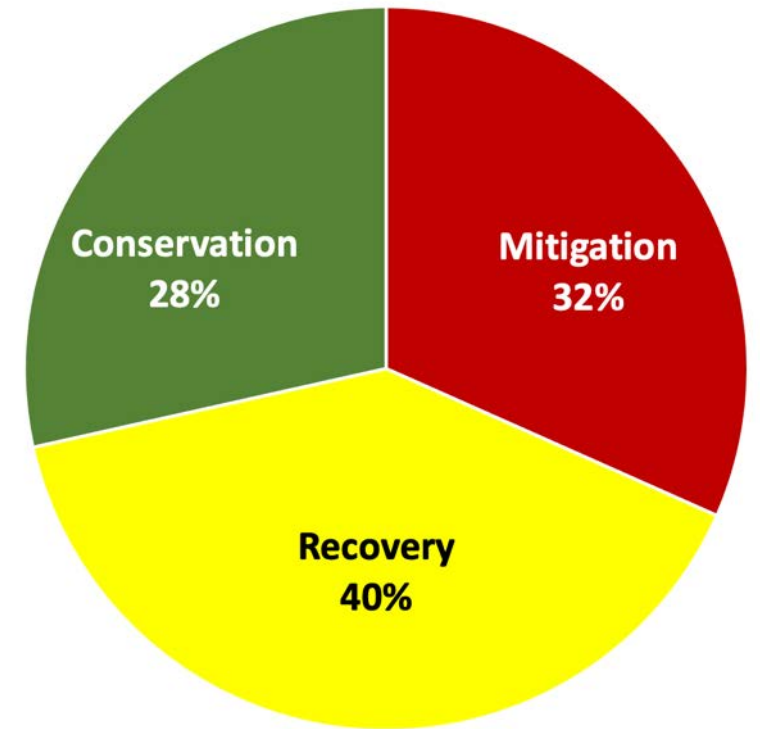
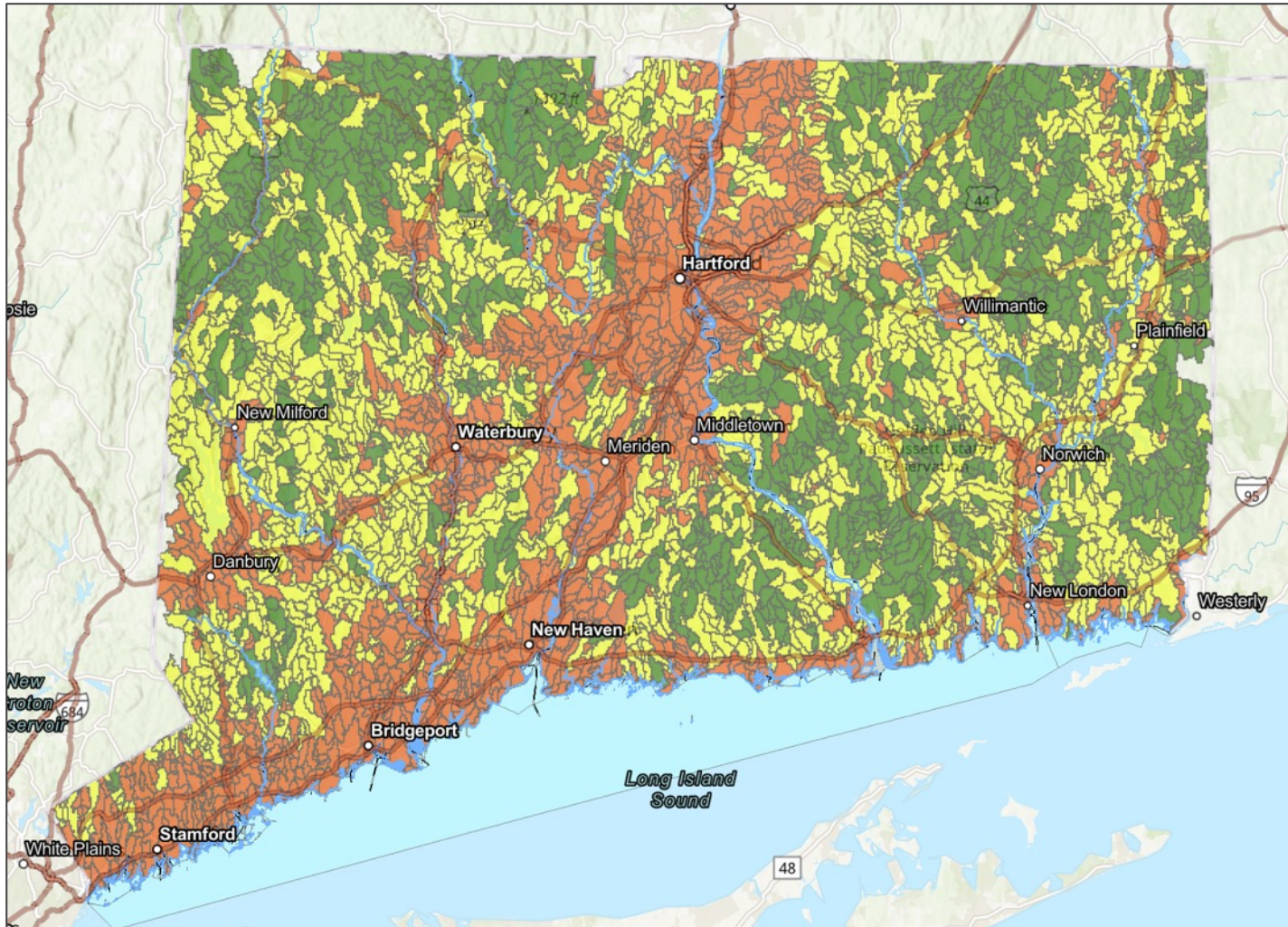
Conservation: CCI ≥ 0.75
protective strategies

Recovery: $0.43 < CCI < 0.75$.
reforesting, riparian protection, mitigation (GSI)

Mitigation: CCI < 0.43
riparian restoration, urban tree canopy initiatives, GSI

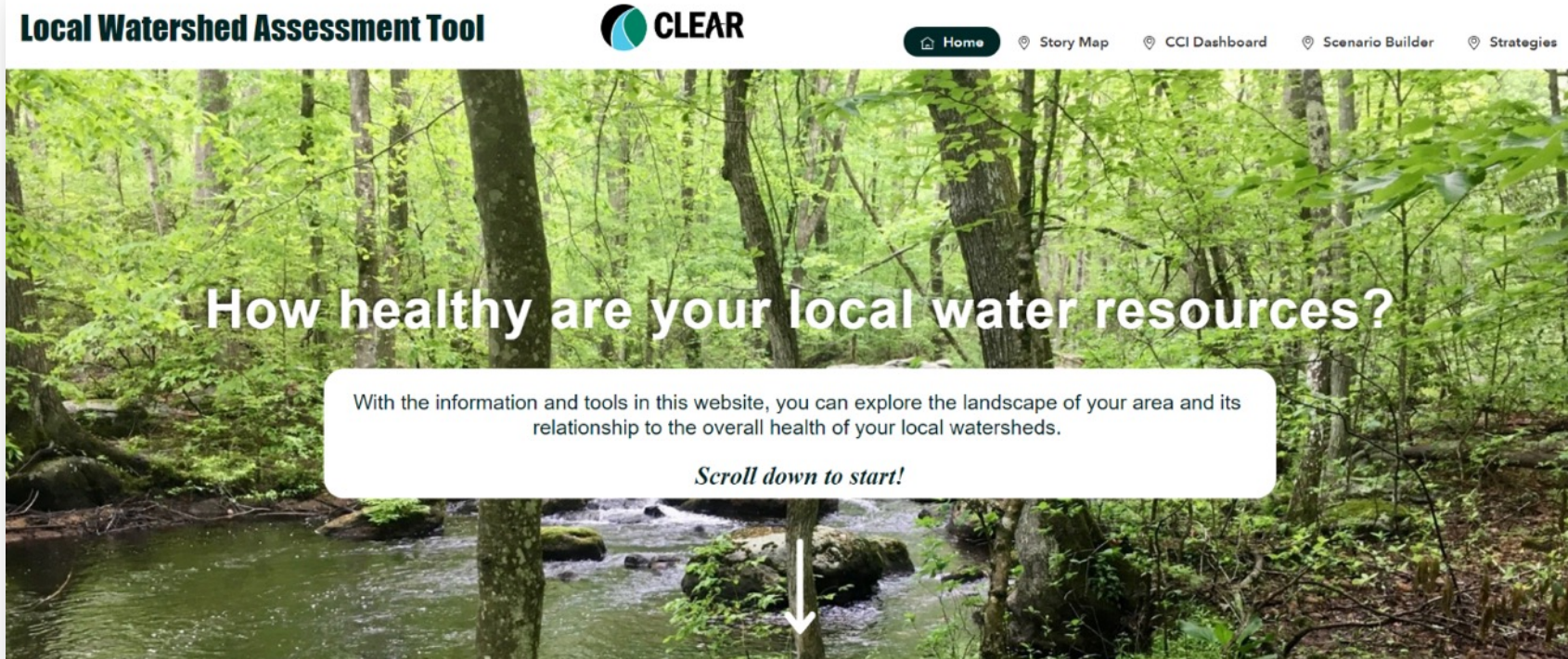
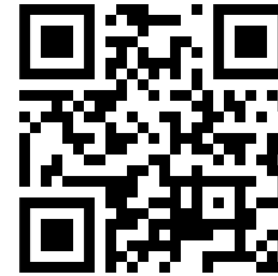


CCI map of CT



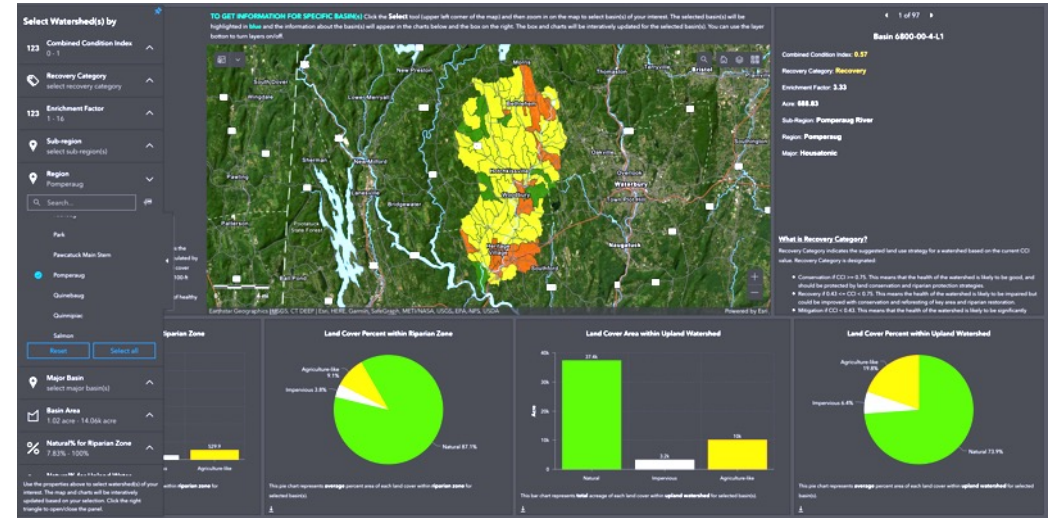
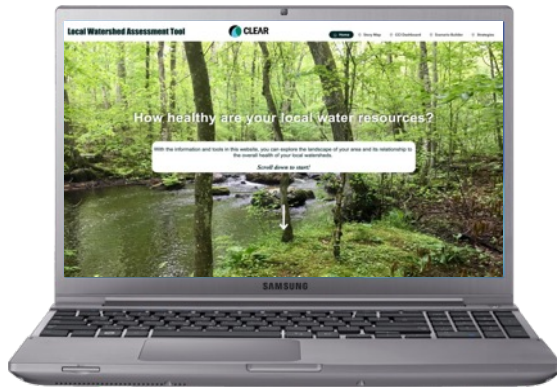
Local Watershed Assessment Tool

- <https://s.uconn.edu/wshedtool>
- integrates a Story Map, Dashboard, and Scenario Builder



Next up... strategies & workshops!

Training on the tools

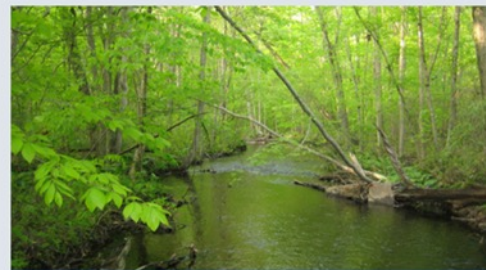


Watershed Tool screen for Pomperaug Watershed

Information on riparian strategies



Riparian Restoration



Riparian Protection



Low Impact Development



Open Space Conservation

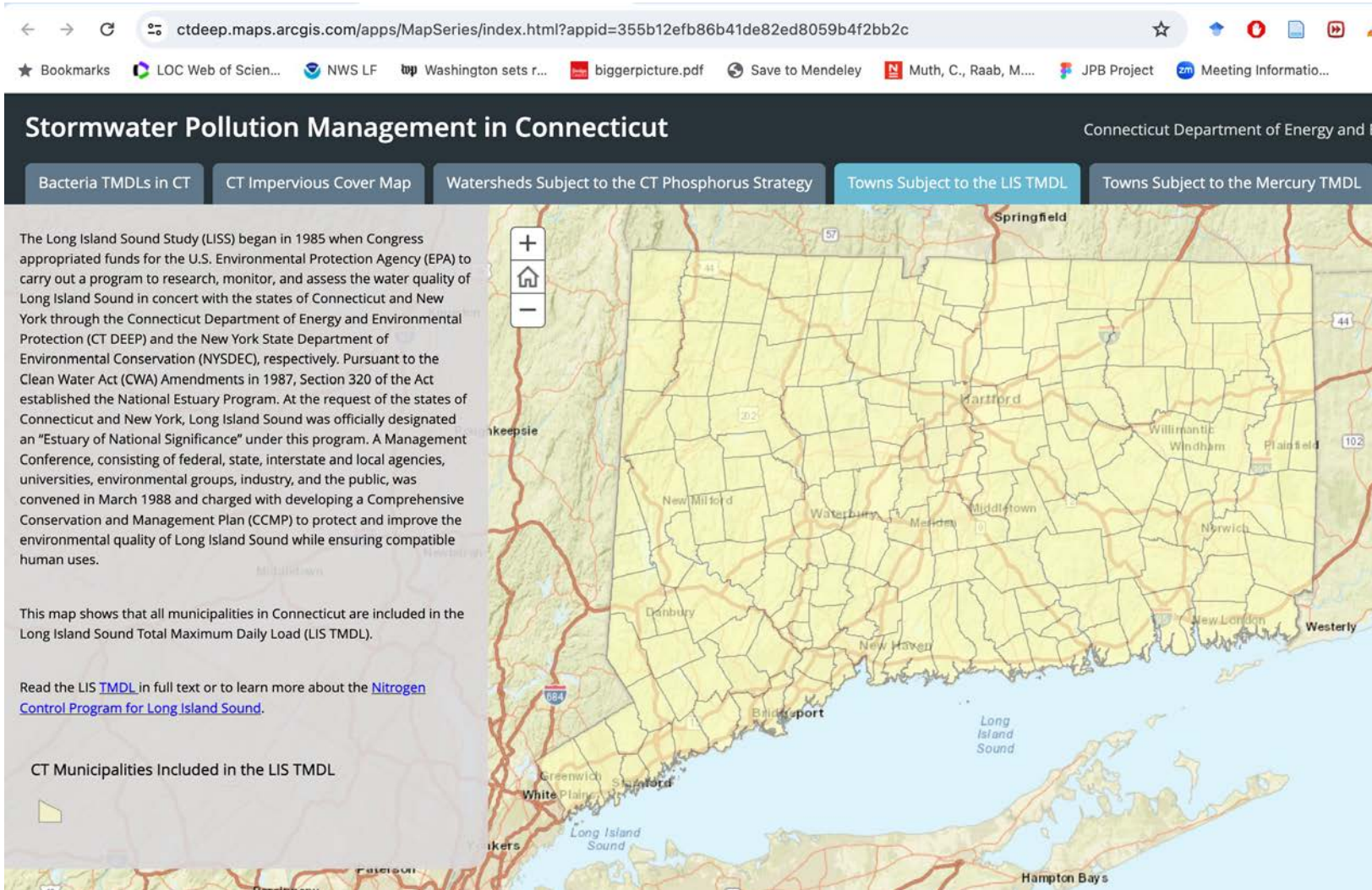
Status of Zoning Protections for Riparian Areas in CT

- Enabling Legislation
- What Zoning Regulations in CT are already protective of riparian areas?
- Do they appear to be effective given current data?
- Strategies for combining Zoning, Planning and Design



Dr. Zbigniew J. Grabowski
Associate Extension Educator
in Water Quality
UConn CLEAR

TMDL Towns in Connecticut and Public Act 21-29



(10) In any municipality that is contiguous to or on a navigable waterway draining to Long Island Sound, (A) be made with reasonable consideration for the restoration and protection of the ecosystem and habitat of Long Island Sound; (B) be designed to reduce hypoxia, pathogens, toxic contaminants and floatable debris on Long Island Sound; and (C) provide that such municipality's zoning commission consider the environmental impact on Long Island Sound coastal resources, as defined in section 22a-93, of any proposal for development.

Inland Wetlands and Watercourses (IWW) Act and Review Areas

Chapter 440 of CTGS

Recognizes importance of IWW protection for public welfare

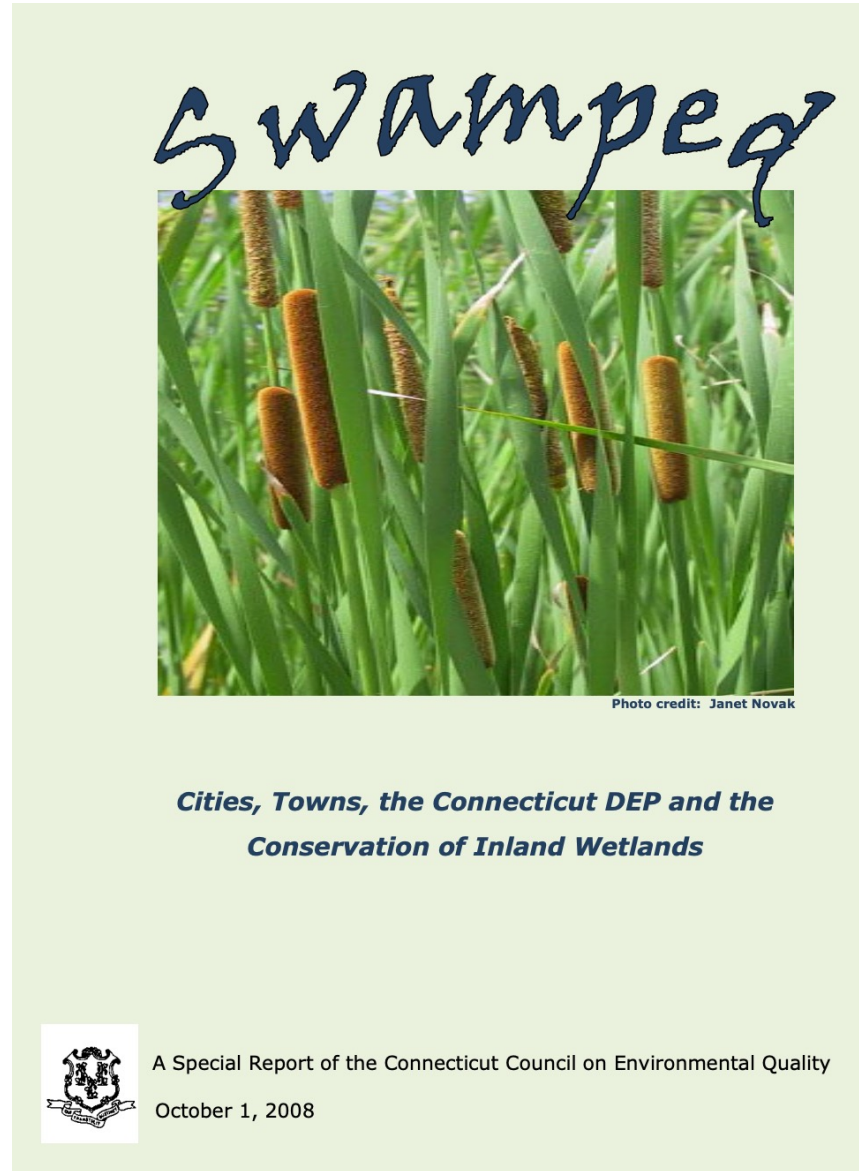
Requires training for IWW agency/commission member(s)

Requires permits for activities impacting IWW

Generally permissive of residential development, agriculture, recreation, and 'accessory' uses

Boundaries of review areas set by municipalities

Specifies criteria for administrative review and intervention



CEQ in 2008:

Training appears to be effective in protecting wetlands

Training needed to be more accessible and updated

Municipalities have inconsistent reporting to DEEP

DEEP did not have staff to implement, enforce, or provide sufficient technical assistance to IWWA

Combined IWW and PZC appear less effective at protecting wetlands

Dedicated Riparian Corridors / Buffers

Willington CT, Effective 12/15/2012

Riparian Corridors. The following watercourses and their tributaries (upstream to the point where their drainage area is less than 200 acres) are of special concern within the town: Fenton River, Roaring Brook and Willimantic River. For these watercourses and their tributaries, no buildings or associated parking areas, septic systems, or clearing of vegetation shall be proposed within 150 feet measured horizontally from the wetland boundaries adjacent to each side of the watercourse; provided, however, that septic systems required to serve an existing building or use may be located within such buffer, subject to approval in accordance with the Willington Inland Wetland and Watercourses Regulations. Utilities, erosion and sediment control practices and storm water management control practices may be installed within the 150' buffer provided their impact is minimal. [Effective 12/15/12]

THE CASE FOR RIPARIAN CORRIDOR PROTECTIONS



Zoning Strategies to Reduce Pollution of Inland Waters and Resultant Hypoxia of Long Island Sound

August 10, 2021
 Western Connecticut Council of Governments
 1 Riverside Road, Sandy Hook, CT 06482
<http://westcog.org>



Wetlands and Watercourses Buffers

Washington, CT, effective January 11/4/2021

12.1* Wetlands and Watercourses Setbacks.

12.1.1 No structure except a fence shall be located within 50 feet of any water body, watercourse, or wetland or within 50 feet of a flood plain boundary line with the following exceptions:

A. Erosion and sedimentation remediation measures approved by the Inland Wetlands Commission

B. For Lake Waramaug only:

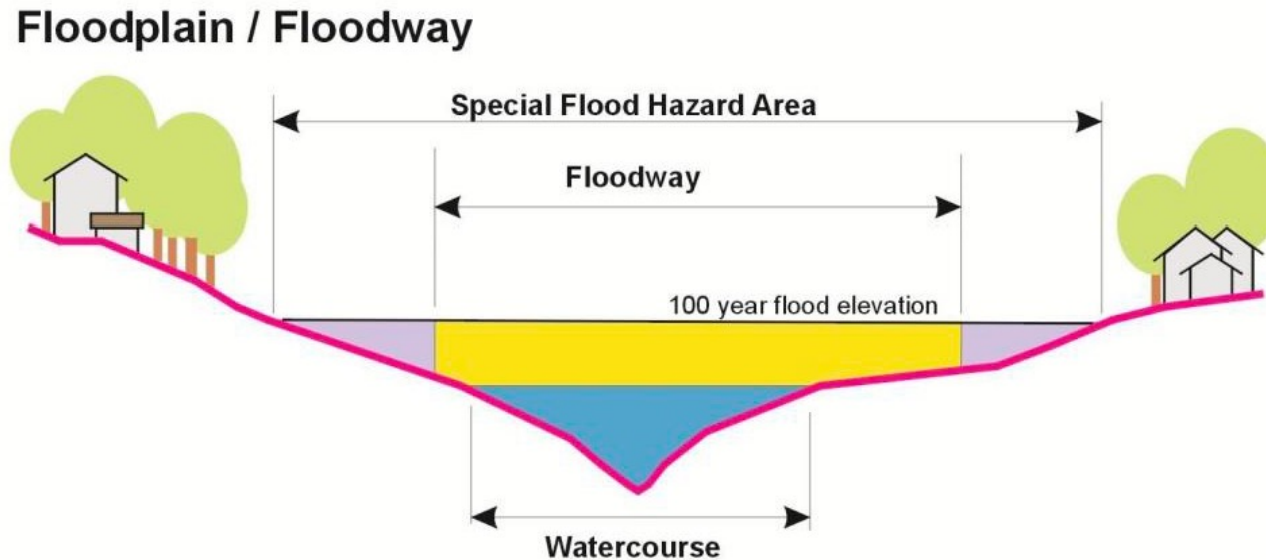
- 1.† Boathouses, docks, rowing shell docks, and waterfront access stairs as provided for in Section 6 of these Regulations pertaining to the Lake Waramaug Residential District. Boathouses shall not extend over or into Lake Waramaug.
2. One municipal boat ramp and associated parking and storage structures and facilities managed and operated by the Town of Washington.

12.1.2 No building, paved surface, †street, sewage disposal system, excavation, quarry, or refuse disposal shall be located within 200 feet of the streambanks of the Shepaug and Bantam Rivers or Bee Brook as defined by the Northwest Conservation District, or within 100 feet of the streambanks of the East Aspetuck River. (For the purposes of this section, Bee Brook originates 200 feet north of Christian Street.)

12.1.3 No part of the leach field for any sewage disposal system shall be located within 75 feet of any well. No part of the leach field for any sewage disposal system shall be located within 100 feet of any spring, watercourse, or lake or within 50 feet of any human habitation other than the building served.

Floodplain Regulations / Review

Floodway or Regulatory Floodway– The channel of a river or other Watercourse and the adjacent land areas that must be reserved in order to discharge the Base Flood without cumulatively increasing the water surface elevation more than one (1) foot. The Floodway is designated on the community's Flood Boundary and Floodway Map.



New Hartford Zoning Regulations, Effective March 27, 2023

Floodplain Regulations / Review

Simsbury 05/21/2023

"Floodplain Permitted Uses:

Open space uses to the extent that they are not prohibited by any other ordinance or regulations and provided they do not require buildings, structures, fill, pavement, or the storage of equipment or materials.

Agricultural uses including farming, nurseries, forestry, and grazing: provided that fertilizer, manure, and chemicals are stored at least one hundred (100) feet away from and stream

Buildings, structures, and signs related to permitted uses

Parking areas as an accessory to adjacent permitted uses within or adjacent to the floodplain

Public roads

Filling, paving, and grading of land provided:

- a. Such filling is accessory to abutting permitted uses or a use permitted in the Floodplain zone
- b. The flow of the river or its related streams shall not be retarded, and the storage capacity that alleviates flooding elsewhere is not reduced

...In no case shall any new building or structure intended for human occupancy (residential or non-residential) be permitted in the Floodplain Zone."

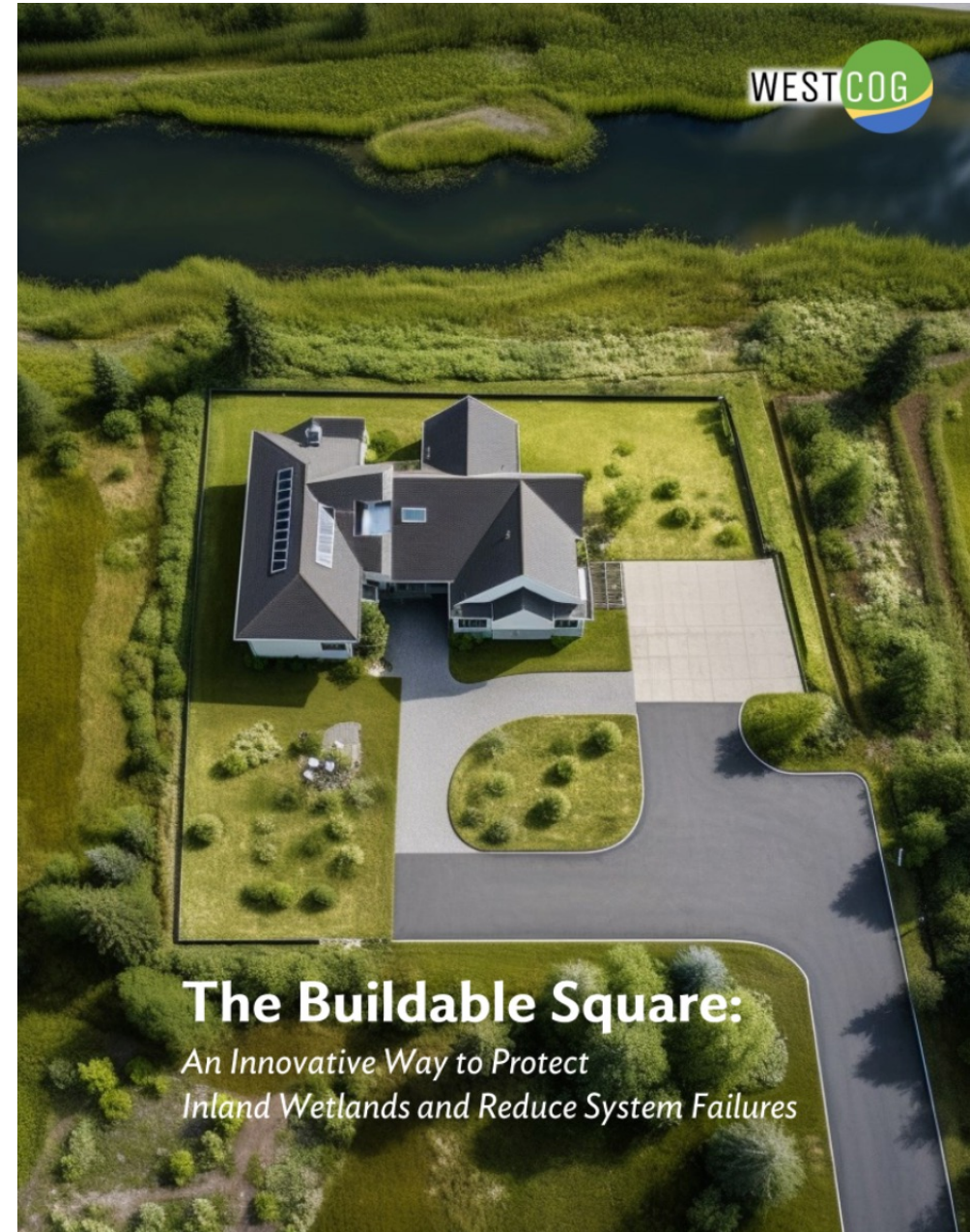
December
19, 2023



Minimum Buildable Lot/Area Standards

"For the purposes of Section 8.2 and 8.4 above, "buildable area" shall include the contiguous area of a lot exclusive of wetlands, watercourses, water bodies, **wetlands buffer areas (50' minimum)**, detention areas, utility and drainage easements, rights-of-ways, the required front yard, and one half (1/2) the side and rear yard setback. No more than 20% of the required minimum buildable area shall contain slopes in excess of 20%."

Lisbon, CT 10/01/2023



Vegetative Screening / Buffer Requirements - A missed opportunity?

Southington CT, effective 11/4/2023

1.5. Screening –

- a. Each property line along which residential units are proposed shall be paralleled by a screen of naturally existing vegetation at least 20 feet wide, or shall be landscaped by planting a double row of pine trees.
- b. All landscaping shall be appropriately maintained.
- c. Applicants shall avoid clearing existing vegetation where possible, but may propose additional plantings where necessary to improve screening.
- d. Such landscaping is not required in areas where utilities are proposed or where wetlands or watercourses are located.**
- e. Mechanicals and outside generators that serve the entire community and dumpsters shall be screened with a lightproof fence. In the case of dumpsters, a detail of the proposed dumpster enclosure shall be included on the plans and a note shall be added to the plans stating that the top of the dumpster shall be no higher than the top of the fence. A lightproof fence shall be required.

Aquifer and Water Supply Protection Zones

Montville CT, effective 01/29/2024

SECTION 5: WATER RESOURCE PROTECTION ZONE – WRP 160 DISTRICT

5.1 PURPOSE

The Commission recognizes the direct correlation between the overall level of development that exists in a drainage basin or aquifer recharge area and water quality. The water resources protection zone is designed to protect public water supply watersheds and groundwater sources which are capable of yielding a long term water supply. The clearing of natural ground cover and the filling of wetlands should be kept to an absolute minimum in this district. Public sewers should be extended to correct existing pollution problems only, not for the purposes of accommodating new development at increased density. The intent of the district is to limit land use to low density uses.

5.8 ENVIRONMENTAL PROTECTION

5.8.1 The following uses and/or activities are prohibited within this district:

- a. Underground storage tanks, b. Salt storage, c. Hazardous waste storage, d. Sewage lagoons e. The use of pesticides within one thousand feet (1,000') of the high-water mark of a public water supply reservoir. f. Sewage disposal systems within one hundred feet (100') of a high water mark of a public water supply reservoir or within seventy-five feet (75') of a watercourse flowing into a reservoir. g. Cemeteries h. Sanitary landfills
- i. The location of any building within seventy-five feet (75') of any regulated wetland, body of water, or watercourse.**

Linking Surface and Groundwater Protection in Riparian Zones

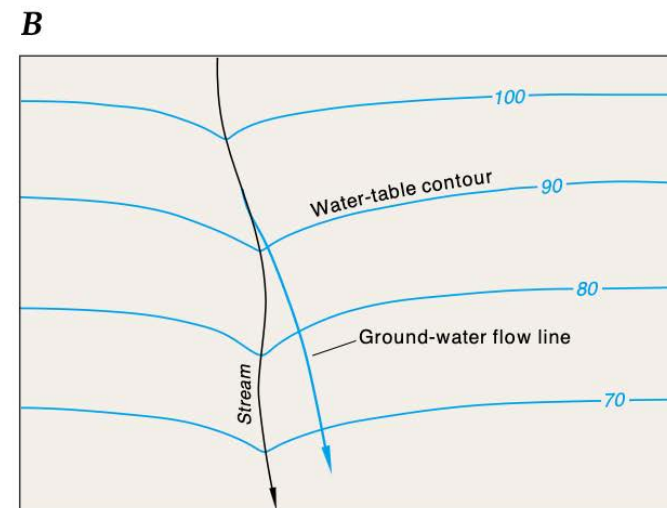
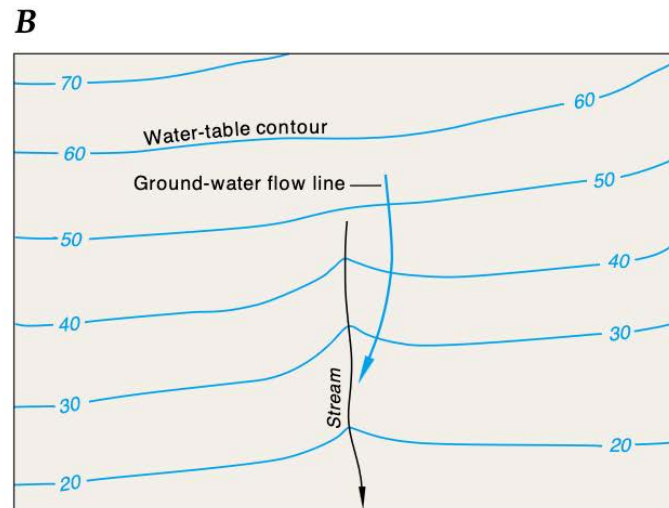
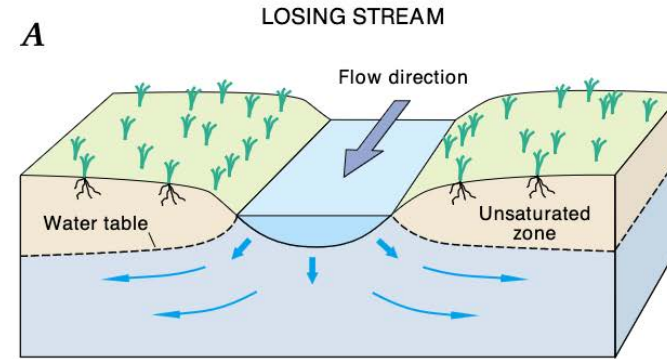
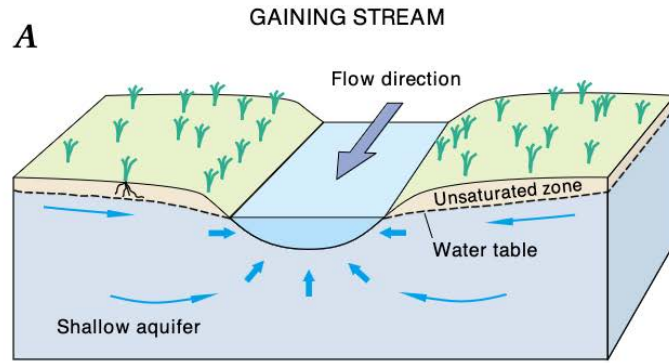


Figure 8. Gaining streams receive water from the ground-water system (A). This can be determined from water-table contour maps because the contour lines point in the upstream direction where they cross the stream (B).

Figure 9. Losing streams lose water to the ground-water system (A). This can be determined from water-table contour maps because the contour lines point in the downstream direction where they cross the stream (B).

Section 9.11 – Eightmile River Watershed Overlay District

East Haddam – 10/01/2016

9.11.1 Purpose and Intent

The Town of East Haddam desires to protect its natural resources and to control development’s deleterious effects on its watersheds. The riparian and wetland features of the Eightmile River Watershed are a key component of the largely intact watersheds and natural character of East Haddam. In order to preserve a fully-functioning aquatic system in the Eightmile River Watershed, and to prevent damage to the critical buffer zone around it's water bodies, the Eightmile River Watershed Overlay District is hereby established. Please note that this does not replace any obligation of the applicant to have a determination made by the East Haddam Inland Wetlands and Watercourses Commission or any other regulatory agency as whether additional reviews and permits are necessary. **Protection of a buffer around water bodies and wetlands is crucial for public health, safety, and welfare because it protects water quality, regulates flow, preserves wildlife habitat, and maintains important cultural and historical features of the Town. This buffer serves many specific functions:**

Regulation of water flow:

- a. Promotes water infiltration and groundwater recharge.
- b. Reduces flooding.
- c. Reduces streambed scour.

Preservation of wildlife habitat:

- e. Provides a unique habitat that supports a diverse species assemblage.
- f. Shades, filters, and moderates stream flow, improving habitat for fish and other aquatic organisms.
- g. Provides an effective travel corridor for terrestrial wildlife.

Protection of water quality:

- a. Reduces sedimentation.
- b. Filters out pesticides, heavy metals, and biocontaminants.
- c. Removes excess nutrients that lead to eutrophication, including nitrogen and phosphorus.
- d. Prevents erosion through bank stabilization by vegetation.

Preservation of views:

- a. Provides a screen that protects privacy of riverfront landowners
- b. Enhances landscape diversity resulting in improved aesthetics

The purpose of this Eightmile River Watershed Overlay District is to maintain a continuous buffer of native forest and shrubs around all watercourses and wetlands. The most effective riparian buffers should include a mix of trees, shrubs and herbaceous plants native to the region and appropriate to the environment in which they are to be planted.

SECTION 5.3 FARMINGTON RIVER PROTECTION OVERLAY DISTRICT

New Hartford CT, effective 03/27/2023

A. Purpose

This regulation establishes standards and requirements for the use and conservation of land and water within the District in recognition of the river's eligibility for designation under the National Wild and Scenic Rivers Act. The regulation also contributes to the regional conservation of the river corridor.

The purposes of the Farmington River Protection Overlay District are to:

- Protect life, public safety and property from Flooding hazards;
- Prevent any Alterations to the natural flow of the river in order to maintain its recreational opportunities, environmental attributes, and historic features;
- Prevent water pollution, including thermal pollution, caused by erosion, sedimentation, nutrient or pesticide runoff, and poorly sited waste disposal facilities;
- Enhance and preserve existing scenic or environmentally sensitive areas along the shoreline;
- Conserve shore cover and encourage environmentally sensitive Developments;
- Preserve and maintain the groundwater table and water recharge areas;
- Conserve the river's Floodplain to maintain its vital ecological and Flood storage functions;
- Protect fisheries and wildlife habitat within and along the river;
- To preserve aesthetic values of the natural river area.

OPEN SPACE AND RECREATION OVERLAY ZONE

Granby CT, effective 12/15/2023

8.11.1 It is the policy of the Town of Granby to preserve open space in accordance with the requirements set forth herein. These Open Space and Recreation Requirements have been prepared from a regional perspective in an effort to preserve wildlife habitat, flora and fauna, while preserving for the citizens of the region an area in which to enjoy nature, with an opportunity to walk, jog, cross country ski, bicycle, horse ride, picnic, fish, wade, sit or otherwise spend time in a natural setting. In addition to these passive activities these requirements recognize the importance of areas which may be used for active recreational activities which include competitive sports and the importance of the Town's agricultural areas, which the Town strives to preserve, in an effort to provide locally grown fruits and vegetables, dairy products, trees, shrubbery and similar products. The Open Space and Recreation requirements outlined herein are based on the Town's Long Range, Master Plan, titled Preservation and Growth, A Plan of Conservation and Development and on studies and research which have identified agricultural and other important undeveloped areas throughout the town together with areas which can unite or link these areas. These "linkages" are formed by joining undeveloped and undevelopable land areas; including existing open spaces, areas with developmental restrictions, such as streams, wetlands and severe slopes and through the identification and plotting of existing trails. These areas are combined and identified on a map contained herein and entitled Granby's Open Space and Recreation Map.

8.11.1.5 Where a proposed subdivision includes an area containing a significant stream or a stream linkage as shown on the Open Space and Recreation Map, the applicant shall, where possible, preserve as open space the stream and an area located within two hundred feet from either side of the center line of the stream.

TRANSIT VILLAGE DESIGN DISTRICT CODE

CHAPTER 1. GENERAL INSTRUCTIONS

Town of Newington, CT

1.3 INTENT AND PURPOSE

THE INTENT AND PURPOSE OF THIS CODE IS TO ENABLE, ENCOURAGE AND QUALIFY THE IMPLEMENTATION OF THE FOLLOWING POLICIES:

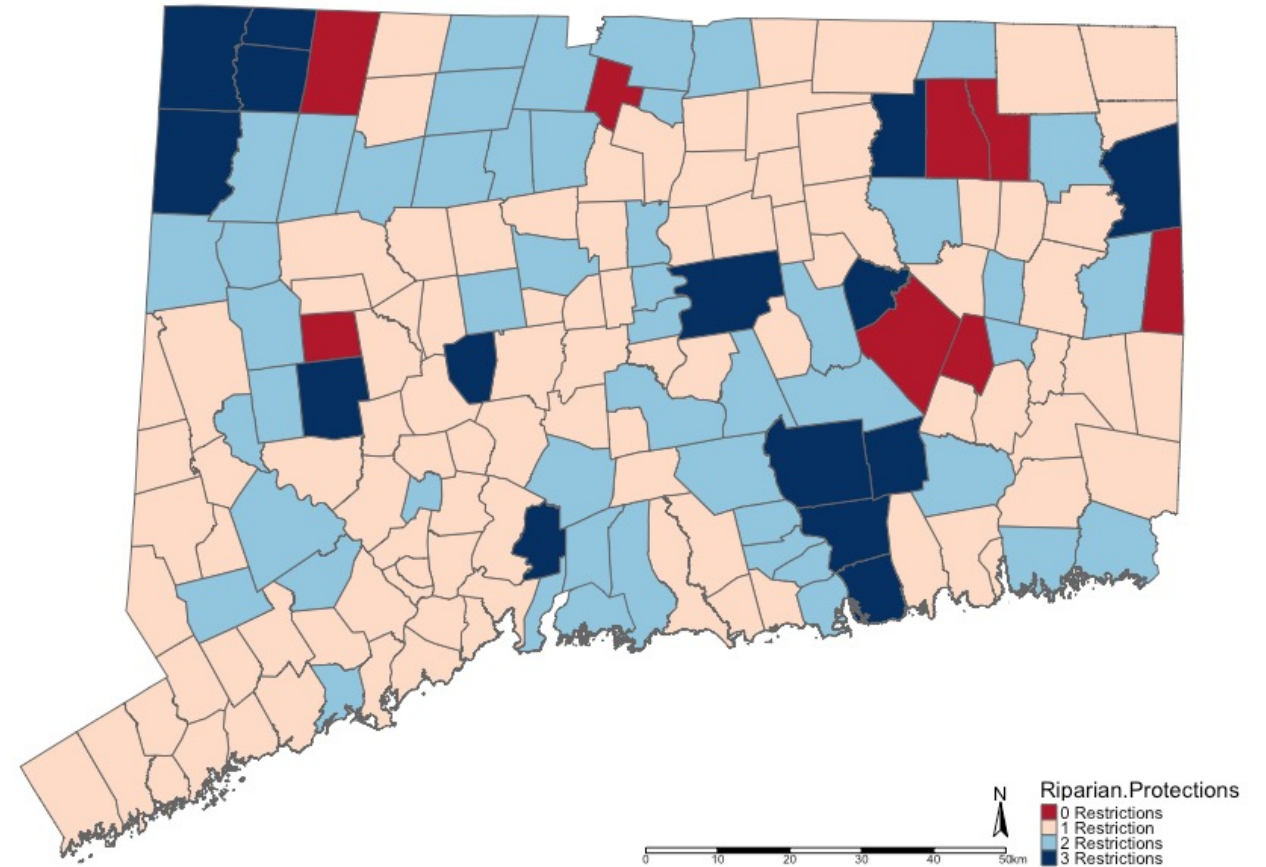
1.3.1 THE TOWN OF NEWINGTON

- a. That the area should retain its natural infrastructure and visual character derived from topography, woodlands, farmlands, and riparian corridors.
- b. That growth strategies should encourage infill, redevelopment, and retrofit to the extent possible.
- c. That new development should be organized in the pattern of complete neighborhoods and/or villages to encourage walking and bicycling and to preserve open lands.
- d. That workforce housing should be distributed throughout the area to match job opportunities.
- e. That transportation corridors should be planned and reserved in coordination with land use.
- f. That green corridors should be used to define and connect the developed areas.
- g. That the area should include a framework of transit, pedestrian, and bicycle systems that provide alternatives to the automobile.

Effective 12/28/2024

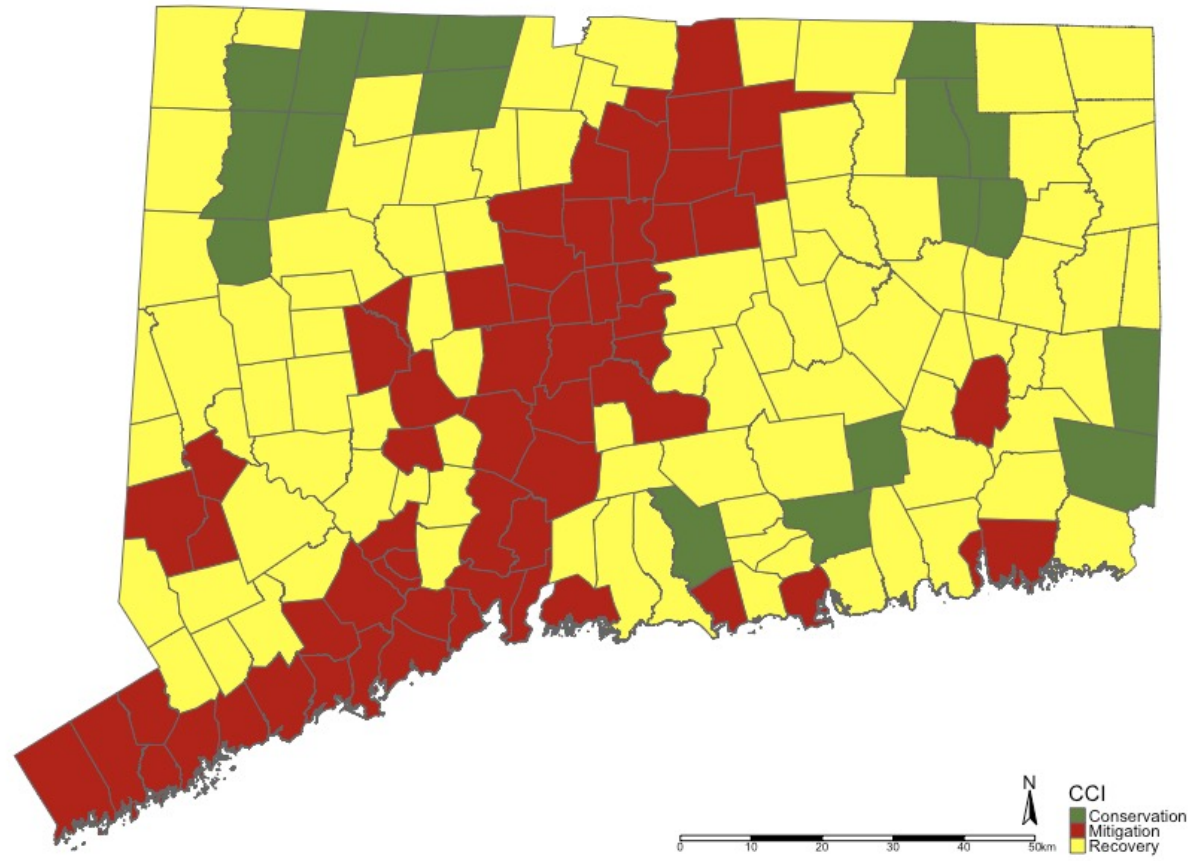
Review of Current Statewide Municipal Zoning Protections

- 31 (18%) CT Municipalities explicitly refer to riparian areas in their zoning regulations
- 51 (30%) have at least partial restrictions on clearance of vegetation near watercourses and wetlands
- 157 (93%) have at least partial restrictions on development, largely due to floodplain regulations, though of these, 147 (94%) are permissive of development with engineering certification of limited impacts on base flood elevations
- 20 (12%) restrict almost all development in the floodway and/or floodplain
- 33 (20%) have some restriction on agricultural activity near wetlands and watercourses

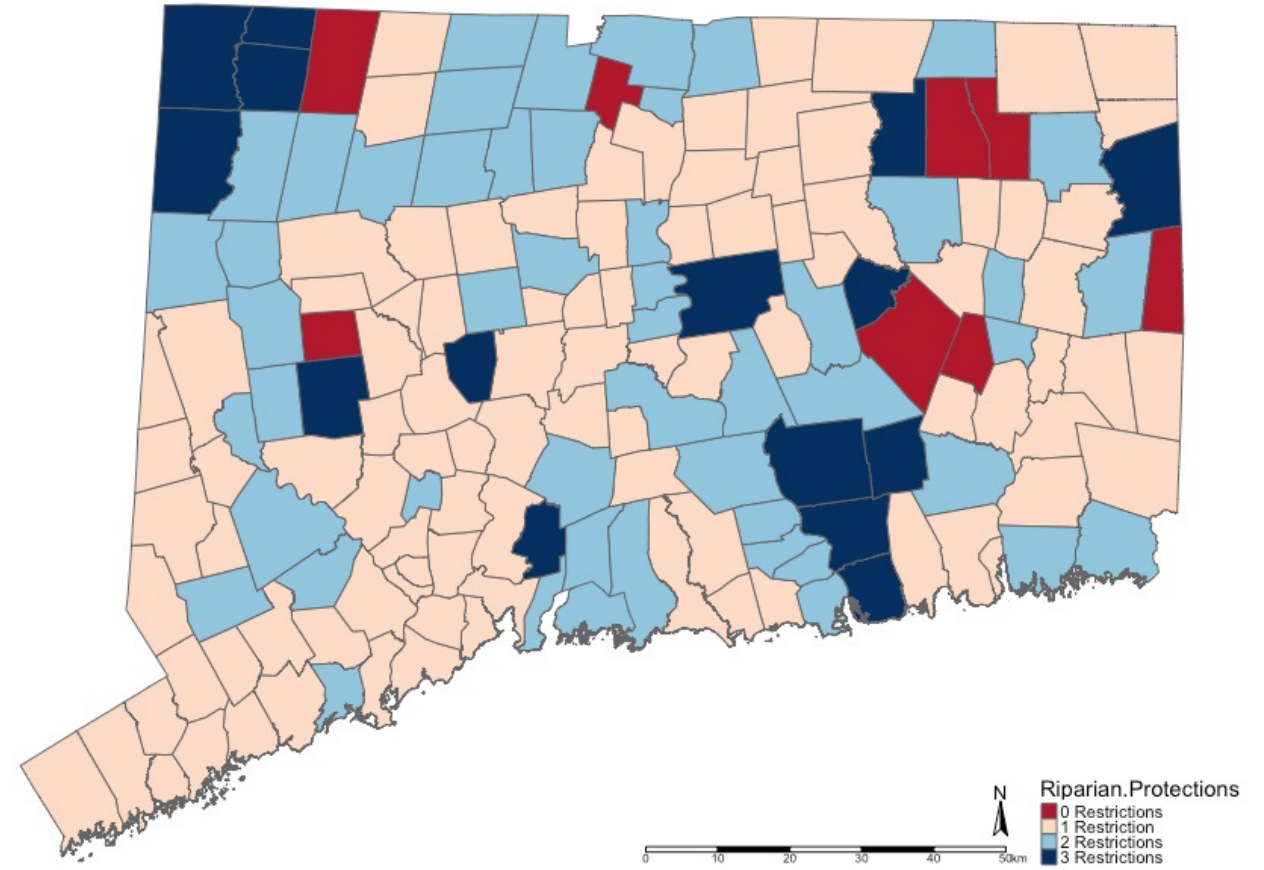


Can we see the impact of these regulations in our current land cover data?

Town Wide Weighted CCI Category



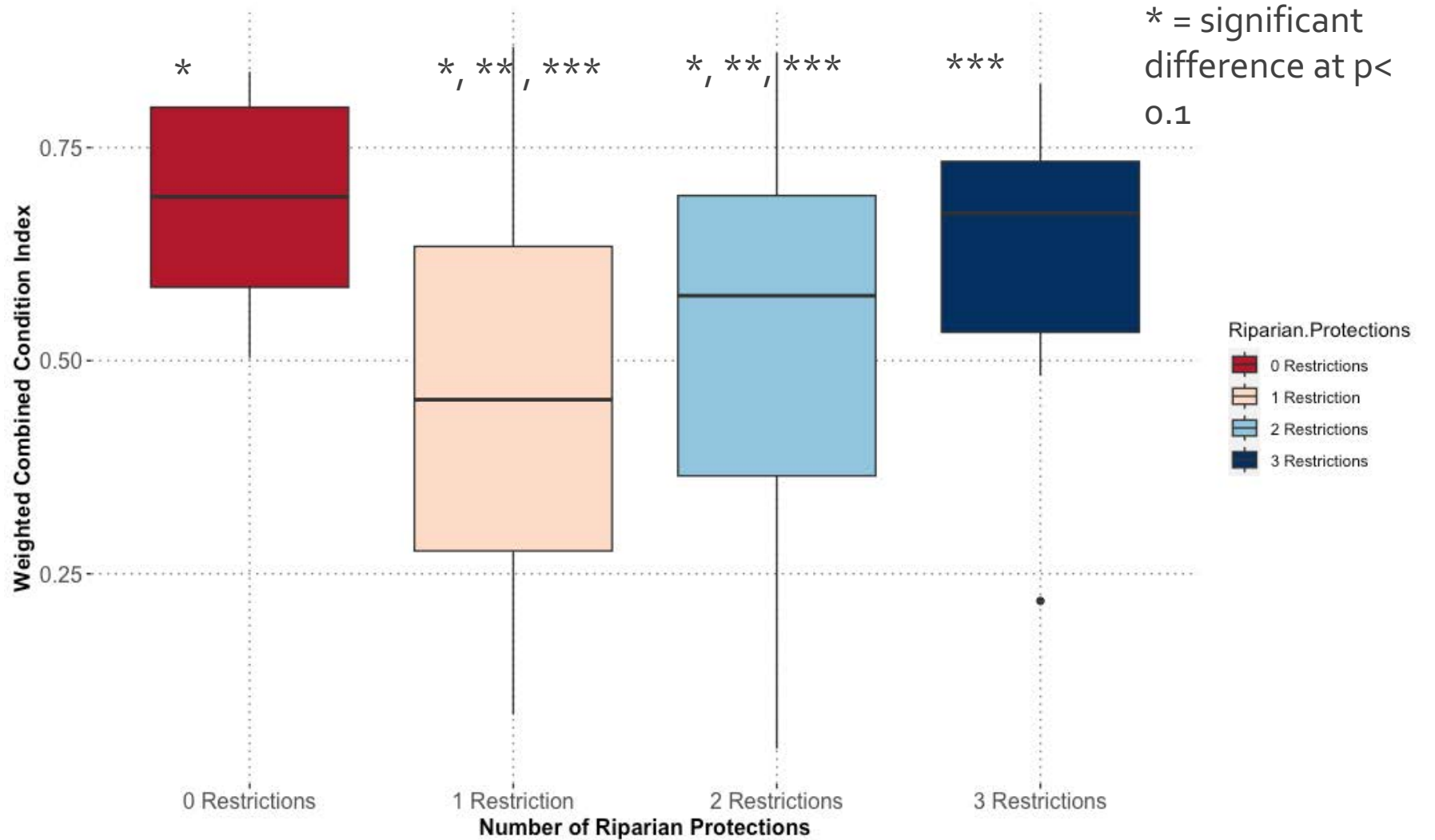
Town Restrictions on Activities within Riparian Buffers



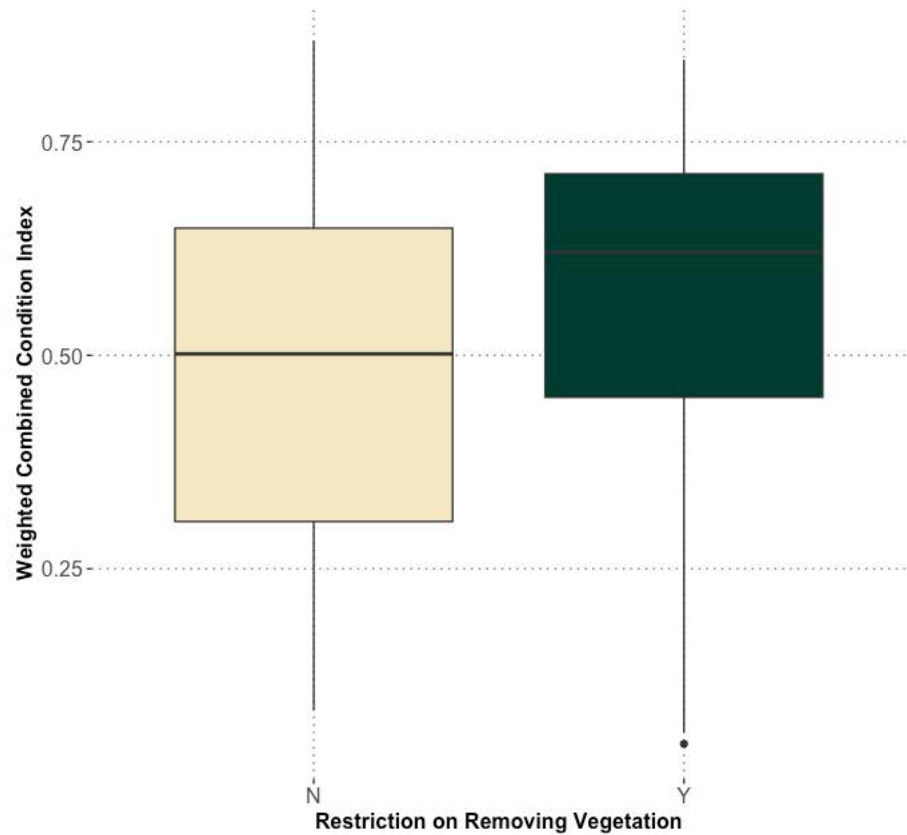
Differences in Combined Condition Index between towns with varying levels of protection

Towns with no protections have similar CCI as towns with maximum protections

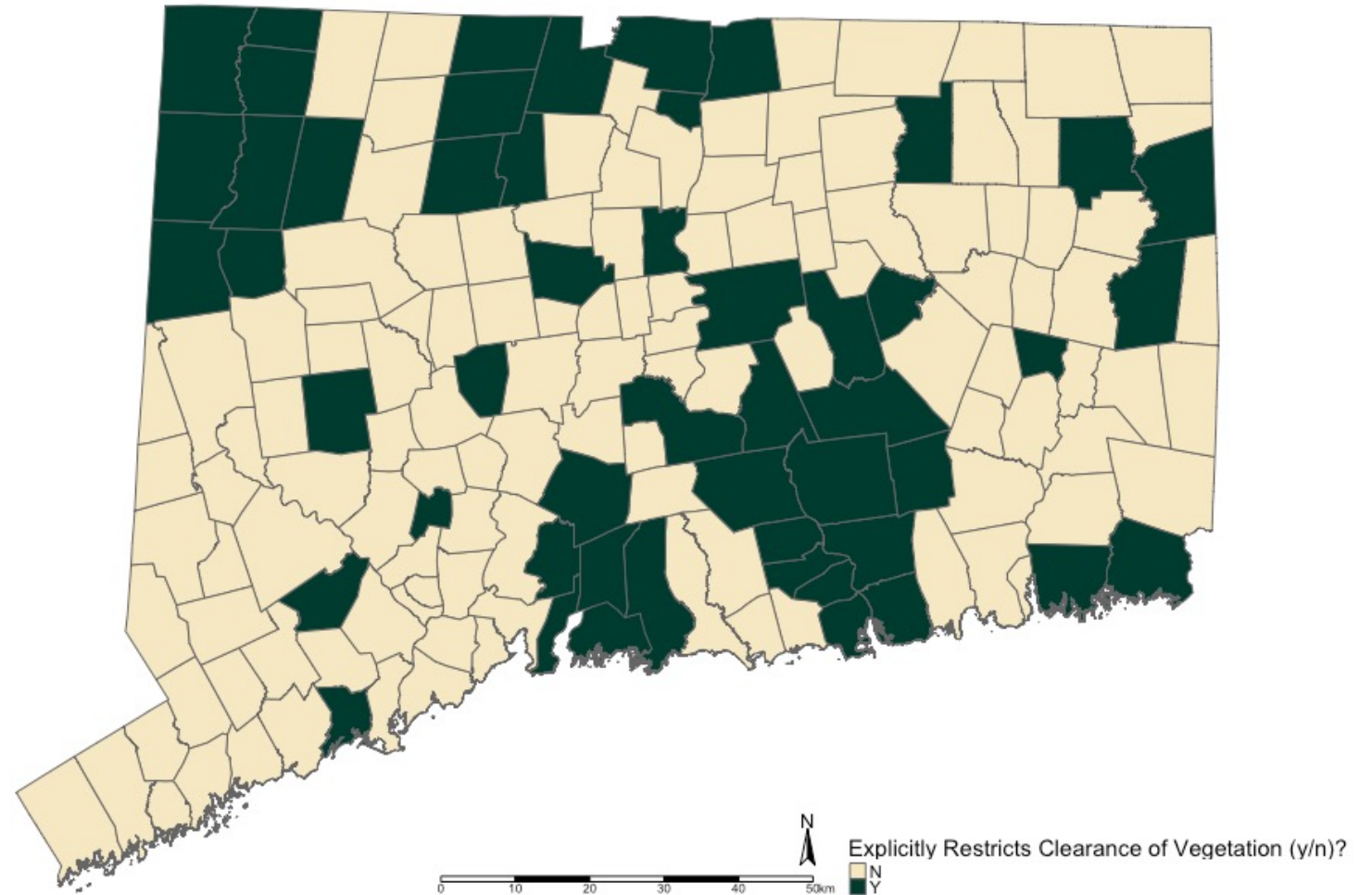
Towns with 3 protections have higher CCI than those with 2 or 1.



Differences between towns appear to be driven by having explicit restrictions on removing vegetation.

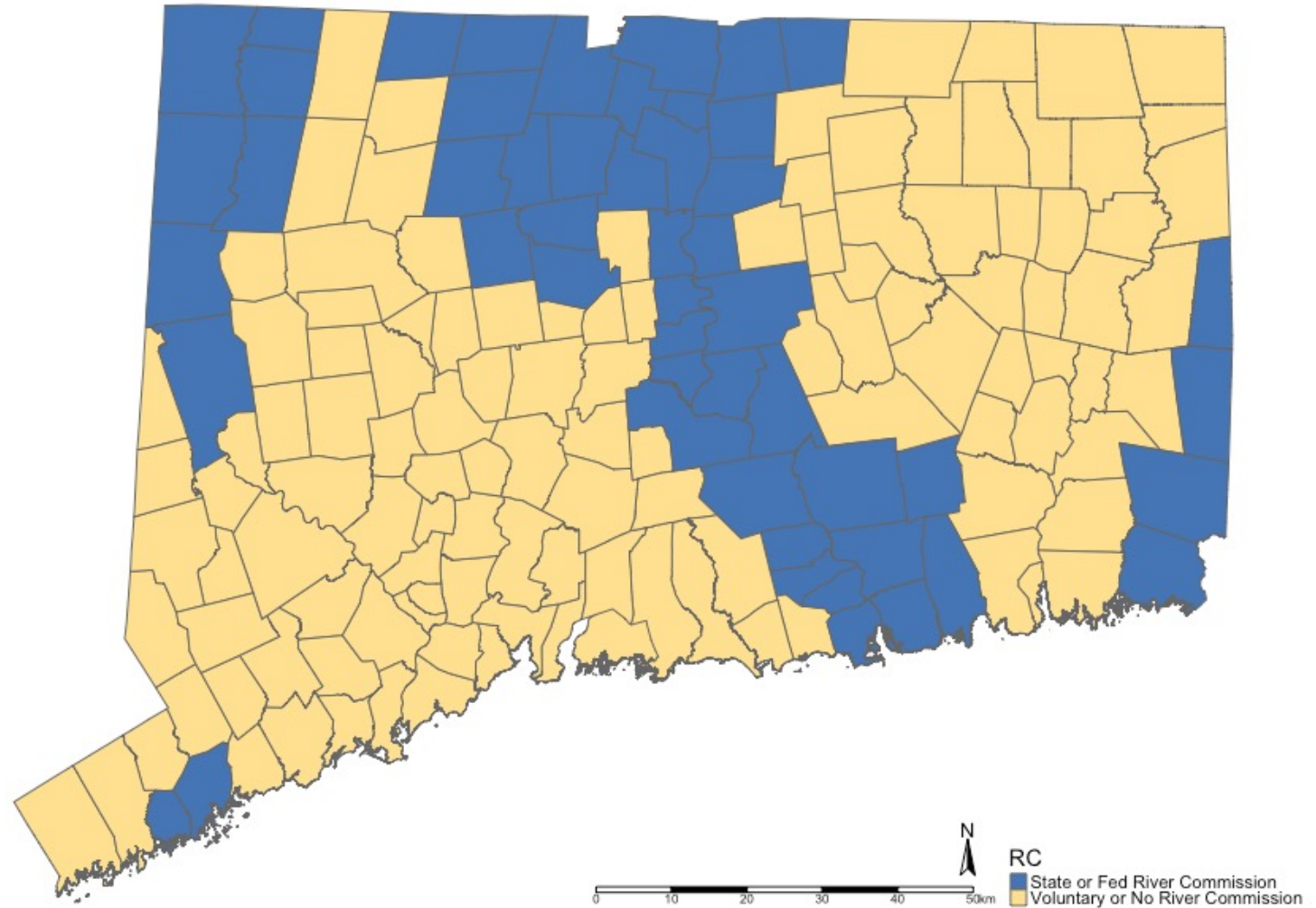


Sig diff at $p < 0.05$



The role of State and Federal River Commissions?

- No discernable difference in CCI between towns with river commissions or coordinating committees (Housatonic, Upper and Lower CT and Farmington, Wood and Pawcatuck, Eight and Five Mile)
- River commission towns have varying levels of protection
- Is there a role for integrated planning concepts?

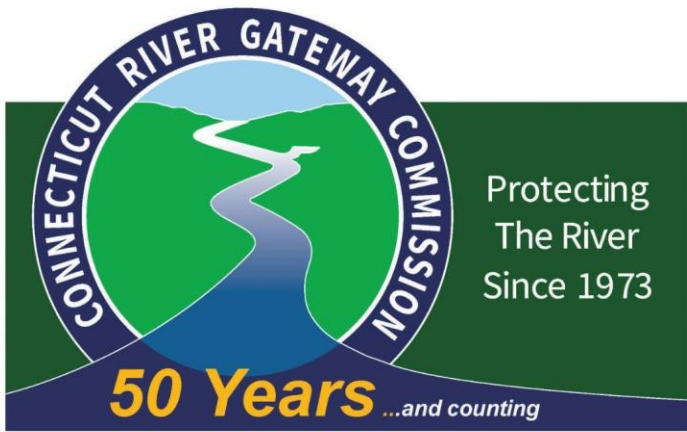


Towards Integrated Watershed Planning and Design?

- In CT, current zoning protections appear to be effective, and a mix of pro-active planning and restoration will be necessary to protect and restore riparian areas, and we will need to work across scales to do so effectively
- **Combine open space networks, flood hazard reduction, active transportation, urban green infrastructure, stormwater, LID, and site design, with food systems and working landscapes?**
 - **One conceptual framework to accomplish these planning goals is that of Natural or Green Infrastructure, and increasingly Nature Based Solutions**

Green infrastructure (GI) refers to a system of interconnected ecosystems, ecological–technological hybrids, and built infrastructures providing contextual social, environmental, and technological functions and benefits. As a planning concept, GI brings attention to how diverse types of ecosystems and built infrastructures function in relation to one another to meet socially negotiated goals. (Grabowski et al. 2023)

Next steps – restoration guidance, model regulations, and coordinating with watershed groups, COGs, and Land Trusts!

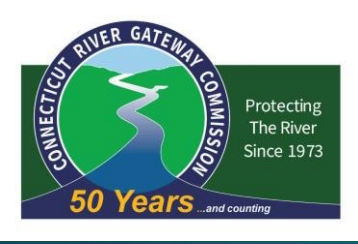


Alan N. Ponanski, Esq.
Rules Committee Chairman

2024 Connecticut Land Conservation Conference
Wesleyan University

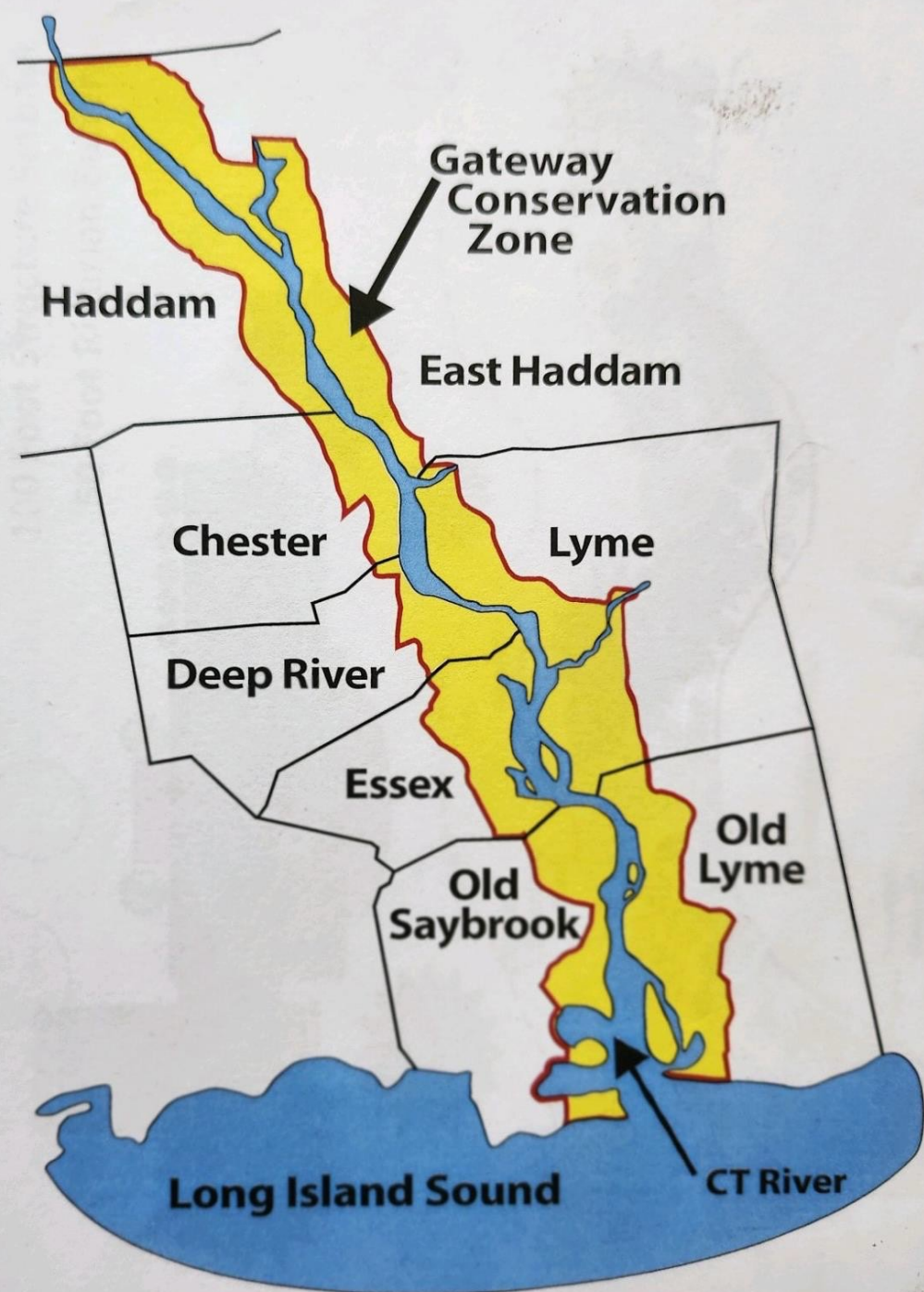
Connecticut River Gateway Commission

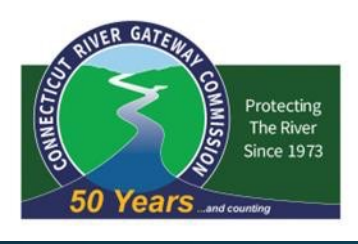
Protecting Riparian Buffers



Creation of the Conservation Zone

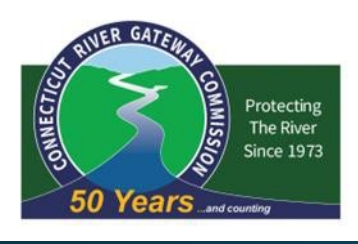
- 1973: The Connecticut General Assembly authorized the Connecticut River Gateway Conservation Zone, recognizing the Connecticut River Estuary as a unique and precious resource for the entire state (Connecticut General Statutes, C.G.S. Sec. 25-102 c)
- **Purpose:** To protect the natural, historic and aesthetic resources of the lower Connecticut River in the Conservation Zone, nearly 30,000 acres from ridge top to river's edge.
- **Zone:** Encompasses Connecticut River shoreline in Chester, Deep River, East Haddam, Essex, Haddam, Lyme, Old Lyme and Old Saybrook.





The member municipalities voted overwhelmingly to join this effort to protect the Connecticut River Valley:

- By guiding future development through common zoning, planning and development criteria.
- Adopting a 100-foot structure setback & a 50-foot riparian buffer to protect the river's edge in the Conservation Zone.



Riparian Buffer Regulation

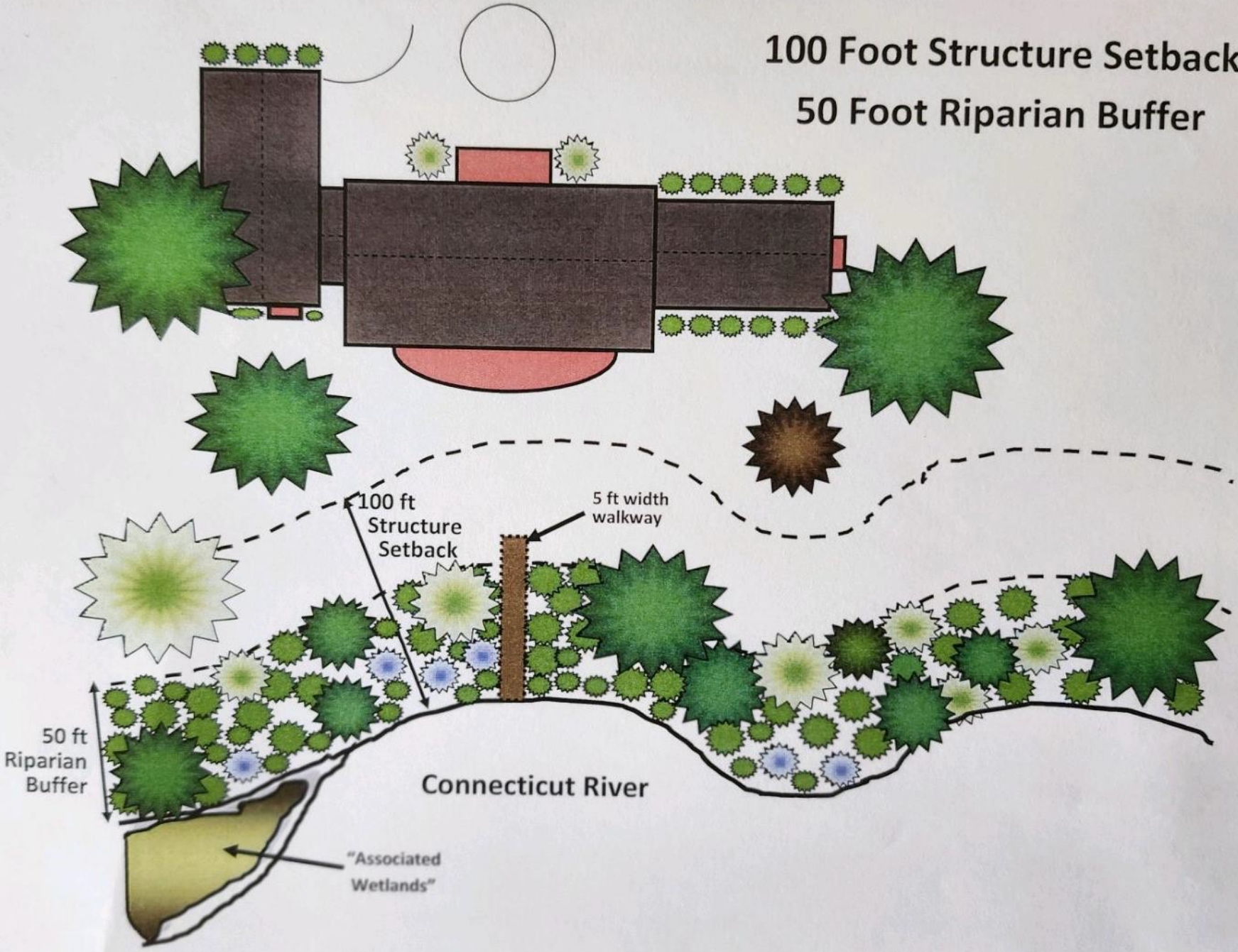
The 50-foot riparian buffer standard requires that:

- All vegetation be retained within a minimum of 50 feet of the Connecticut River, its tributaries, and marshes in the Zone.
- Vegetation includes understory and mature trees.

Purpose:

- To protect and enhance water quality;
- To preserve the natural river appearance as development continues

100 Foot Structure Setback
50 Foot Riparian Buffer



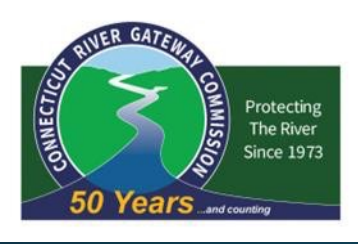
100 ft
Structure
Setback

5 ft width
walkway

50 ft
Riparian
Buffer

Connecticut River

"Associated
Wetlands"

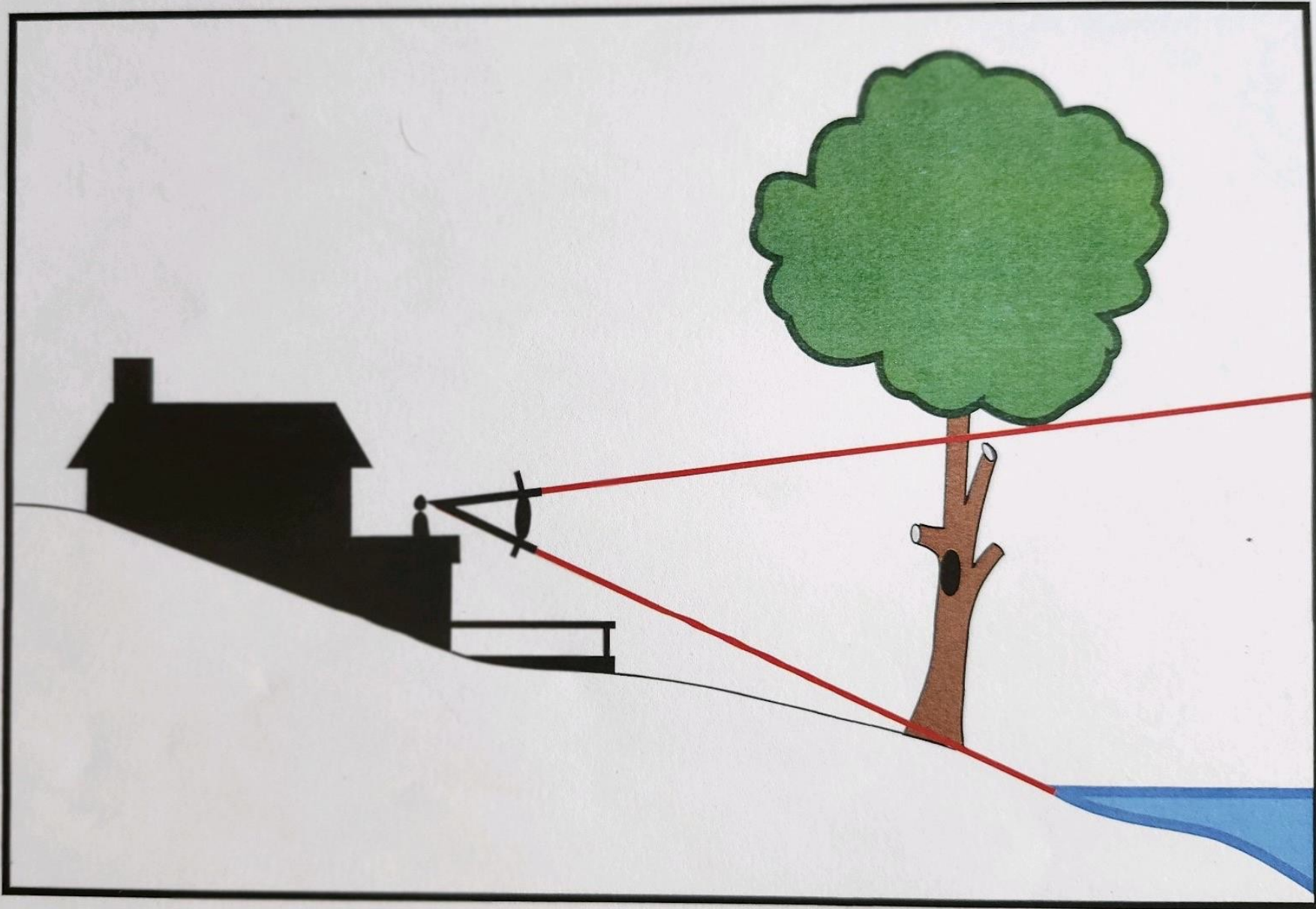


Riparian Buffer Exceptions

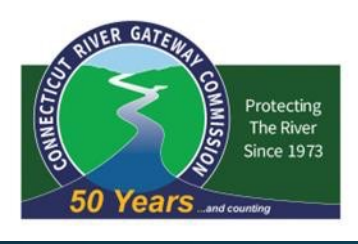
Waterfront property owners:

- May clear a 5-foot path through the buffer to gain access to the water.
- Are permitted to remove the limbs on the lower third of mature trees to gain river views.

Note: This limited pruning, often called “limbing up,” allows property owners to retain their views, while neighbors and river users continue to enjoy the natural vegetation.



View corridor after removing limbs on the lower 1/3 of the tree



Riparian Buffer Coordination

Critical to protecting the riparian buffers and the “natural and traditional riverway scene” are coordinated efforts by the Connecticut River Gateway Commission Staff and:

- Property owners;
- Land use staff in member towns;
- The engineers and architects employed in the lower CT River valley.

Gateway staff offer development suggestions so that owners can enjoy their property while preserving the beauty of the Connecticut River valley.

















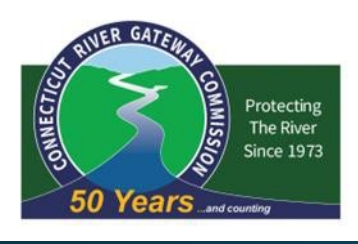






Riparian Buffer Expansion : A Case Study

- **Citing CGS Section 25-102h, the Old Saybrook Zoning Commission (ZBA) requested Gateway review a variance application with special use exception to permit the demolition of an existing structure and then rebuild a new house using the existing foundation which encroaches 5 feet into the 100-foot Structural Setback.**
- **Applicant met with Gateway several times, understood Gateway's mission and used feedback from those meetings to design a house that protected the 100-foot setback by modifying the foundation.**
- **Applicant agreed to use plantings expanding the Riparian Buffer along the tidal wetland boundary and in the yard to soften the view of the property from the river.**
- **Gateway advised the ZBA that those modifications counterbalanced any potential adverse impacts on the natural and traditional riverway scene on the Connecticut River.**

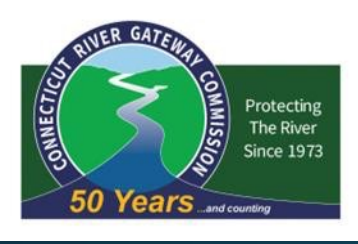


For that project, Gateway also requested Old Saybrook ZBA impose the following conditions:

1. The south-side wing of the house remain a single story.
2. Preserve existing trees on the property.
3. Use dark roofing materials and earth tones on the house.
4. Minimize lighting used and use Dark Sky compliant lighting fixtures.
5. Use diverse native plants in the landscaping and Riparian Buffer.
6. Use low reflective glass in the windows.

Landscape Architectural Plans
100 ...
DATE: 11-19-02





Conclusion:

Gateway Has Successfully Protected & Enhanced Riparian Buffers

- **Gateway expects applicants for variance to respect the preservation practices put in place by Gateway Standards including planting and encouraging growth of natural riparian vegetation along waterways to improve the ecological health of the CT River.**
- **Gateway staff seek to help applicants for variance achieve their development goals while balancing the legal requirements for preserving/enhancing riparian buffers and the beauty of the river valley.**
- **Due to this expectation and cooperation, Gateway has successfully guided hillside/waterfront development to reduce its visual impact while protecting and planting riparian buffers.**



For more information:

- **Connecticut River Gateway Commission:** www.ctrivergateway.org;
contact@ctrivergateway.org;
- **Connecticut River Coastal Conservation District** <https://www.conservect.org/ctrivercoastal/>
Middletown
- **CT SeaGrant Healthy Coastal Ecosystems** <https://seagrant.uconn.edu/focus-areas/healthy-coastal-ecosystems/>
- **Living Shoreline** – informational articles below
 - <https://www.nhregister.com/shoreline/article/Living-shoreline-in-Old-Saybrook-among-16692399.php>
 - <https://www.ctpublic.org/news/2021-07-28/living-shorelines-becoming-more-common-in-ct-for-erosion-control>





Riparian Buffers: A Lightning Round Policy and Regulatory Assessment

Alicea Charamut

Executive Director, Rivers Alliance of Connecticut



Buffers and Setback Standards in New England

Riparian Setback Standards Adopted by New England States: The Case for Riparian Corridor Protections by WestCOG

Appendix 3: Riparian Setback Standards Adopted by New England States: 2021

State	State Law Establishing Buffer Zone	State Law Establishing Minimum Setbacks
Connecticut (1995)		
Regulate activities adjacent to wetlands**	No	No
Regulate activities Adjacent to Rivers and Streams**	No	No
Maine (2002)		
Regulate activities Adjacent to Wetlands		75
Regulate Shore lands of Rivers		250
Regulate activities Adjacent to Streams		75
Principal Structure Setback 12 Significant River Segments		125
Shore & Protection Sub-Dist. Rivers draining 50 sq. miles+		250
Massachusetts (1996)		
River Front protection corridor for perennial streams	200	
River Front protection in 14 designated Urban Areas	25	
New Hampshire (1988, 1990)		
State established buffer zone	250	
Setbacks for 4th order streams and Higher		150
Setbacks for Primary Structures on 1st to 3rd order Streams		50
Setbacks for Accessory Structures		20
Setback for Woodland Buffer*		50
Setback for controlled release fertilizers		25
Setback for all other fertilizers		50
Setbacks for New Auto Junk Yards***		50/250
Setbacks for applicator license applied Pesticides		50

Rhode Island (2015)****		
Buffer zones for Swamps of 3 acres or more	100	
Buffer zones for Marshes of 1 acre or more	100	
Buffer for Rivers, Streams & Intermittent streams < 10 ft. wide	100	
Buffer for Rivers, Streams & intermittent streams > 10 ft. wide	200	
20 Designated Drinking Water Supply Reservoirs	200	
Rivers in watershed of public drinking water supply reservoirs	200	
76 Designated Rivers in Regions 1&2	200	
33 Designated rivers in Regions 1&2	150	
All Streams in River Protection Zones 1&2	100	
Swamps & Marshes of any size in Urban region	100	
3 Designated rivers in Urban region	150	
14 designated rivers in Urban region	100	
Ponds contiguous to river in public drinking water watershed	100	
15 designated Ponds greater than 10 acres	50	
Vermont (2015)		
Setback from streams less than 2 square mile watershed		50
Setback from streams more than 2 sq. mi watershed		100

*25% of woodland buffer between 50 & 150 feet remains unaltered (RSA 483-B:(V)(b))

**Buffer zone recommendations established by CTDEP policy in 1997.

***Auto Junk yards on streams (1st to 3rd order) designated before 2015 are setback 50 ft. On streams designated after 2015, auto junk yards are setback 250 ft.

**** Rhode Island's wetland regulations implement a 2015 law. Table reflects the final rule.



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.



HB 5218 - AN ACT CONCERNING THE ESTABLISHMENT OF RIPARIAN BUFFERS AND REVISION OF CERTAIN INLAND WETLANDS PROVISIONS

- Reminds DEEP that green infrastructure funds for stormwater can and should be used to incentivize and establish riparian buffers.
- Directs DEEP to develop mandatory setbacks.
- Directs DEEP to update the comprehensive training program
- Raises the bar on training for commission members.



Contact Information



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Questions & Comments(?)



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Land Conservation Council

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General Conference Evaluations



Workshop Evaluations