

CRJC Mount Ascutney Local River Subcommittee

Tuesday, November 13th, 2018

Windsor Welcome Center

7:00PM

Minutes

Attendees

Plainfield	Elise Angelillo		Windsor		
Plainfield	David Taylor		Windsor		
Cornish	Bill Gallagher	X	Weathersfield	Howard Beach	X
Cornish	Colleen O'Neill		Weathersfield	Nancy Heatley	
Claremont			Springfield	Bill Manner	
Claremont			Springfield	Kelly Stettner	
Hartland	Cordelia Merritt	X	Rockingham	Thomas Hernon	
Hartland	Judy Howland	X	Rockingham	Margaret Perry	
Charlestown					
Charlestown					

Erin Rodgers (Trout Unlimited)

Olivia Uyizeye (staff, UVLSRPC)

Minutes

1. Uyizeye opened the meeting at 7:15 and introductions were made.
2. Presentation on Stream Restoration by Dr. Erin Rodgers.

See attached slideshow for further details.

In New England, Trout Unlimited (TU) focuses on their Cold Water Restoration Program with aspects in assessment, restoration and monitoring. The program is funded by “soft money”, primarily donations and volunteer efforts. This program works with towns and residents to prioritize restoration projects through an ecosystem approach. Diverse streams are able to meet the diverse needs of species through the provision of varied habitat types within the stream structure. These restoration efforts help downstream communities with floodplain access and the dissipation of flow, showing that “headwaters matter”. One large emphasis of this program is culverts, impacting how streams are disconnected to begin with where many are undersized, causing scour. Poorly functioning culverts are difficult to scale for fish due to high velocity and low water depth. In VT, 98% of publicly owned culverts have been assessed, while in NH it is approximately 45%.

One main restoration technique used by TU is the reintroduction of wood, which has been removed in past management systems to protect local infrastructure. This wood helps to slow water and create varied habitats in the stream. It is most common in old forests where studies by the US Forest Service have found a significant amount of large woody debris throughout the stream channel. This method could be used on large streams like the Connecticut River.

A local example of restoration using this method is the Nash River. The reintroduction of woody debris showed an increase of nutrient cycling. This method is now being done around Lake Champlain, the Great bay, and Long Island Sound.

Benefits of this reintroduction include: increased nutrient cycling (helps to settle out nutrients by accumulating organic matter and fostering good habitat for microbial decomposers); sediment transport and stream hydraulics

(can structure wood different to foster varied impacts, creating a mosaic of stream bed sedimentation); slow the flow (slow it down and spread it out, increasing floodplain connection and more interaction with biotic material); hyporheic flow (ground water flow that keeps streams colder and filters water through natural methods).

The techniques used for this restoration practice can be generalized into three strategies. Hand placing of woody debris can be done with a large team (at least 10), often volunteers. Chop and drop takes advantage of knowledge and professional tools to use the wood in an area and then relocate it on site. Chop and drop is limited by the growth in the area and the shape/ledge of the stream.

The method can help raise the streambed where it has incised into the landscape.

Erin opens up for comments and questions. Reps reflect on the active TU chapters in the region and the positive impacts when young people engage young. Generally, in most towns 50-60% of culverts are undersized. TU encourages towns to focus on big problem areas and place these areas in their Hazard Mitigation Plan. This creates a support when applying for grants and replacement if damage is done in a big storm and FEMA helps to replace certain structures. There are grants available including the Better back Roads Grant and VTDEC Water Quality Grant. The cost for replacement is largely from labor and construction. Also, increasing issues occur with strategies that take time to establish (such as plantings), due to the shorter lag time between high intensity storms due to climate change.

Merritt asks if Dr. Rodgers has any mission for the group. Dr. Rodgers says to be an active observer of the areas your visit and to contact TU with any potential projects.

3. Minutes: the minutes of the September 11th meeting were approved with edits by motion of Merritt/Howland.

Edits to make: Sylvia Conte should be "Sylvio" Conte. Sullivan County has indeed acquired a stream table and has trained staff on its use. These edits should be reflected in the final minutes.

4. No permits required to review at this time.
5. Water Resources Chapter.

Uyizeye opens the meeting to a discussion. Members discussed the following items. Overall the members felt prepared to prioritize these items at the next meeting in January, and subsequently begin to draft the Chapter.

- Members agreed that education and outreach are most suited to be the primary focus. There is no need to be the expert to put on these events, but simply have the energy.
 - Young people do not allow for an immediate response, but a long term investment. Schools can be difficult to work with at times because of the strict curriculum guidelines teachers need to work by. Sometimes the curricular component only fits at certain grade levels.
 - There are ways to get around the high costs of putting on community educational events. Sponsors to support events are likely available, such as the Weathersfield Conservation Commission.
 - In person events need the right hook for good attendance. It is worth working with groups that are looking for speakers (e.g. rotary club, Lions).
- Members agreed that the group is already active in their respective towns and this may simply continue (#3 from July List)

6. Other Business

Uyizeye shares the LAC Newsletter with reps who might find workshops and event details interesting. This included a public hearing and comments on the Instream Flow Program.

Members discussed Jim McClammer's summary of the Dam Relicensing process.

7. The next meeting will be held on January 15th at 7:00 PM at the Windsor Welcome Center. A snow date has been requested for the following week, January 22nd. Uyizeye will confirm this option with the Windsor Welcome Center.
8. Meeting adjourned by motion of Merritt/Beach at 9:05 PM.

Minutes respectfully submitted by Olivia Uyizeye.

Addressing Aquatic Habitat & Flood Resiliency

February 25, 2019 ~ CRJC, Lyme, NH



Erin Rodgers, PhD

TU – Western New England Project Coordinator

Erin.rodgers@tu.org

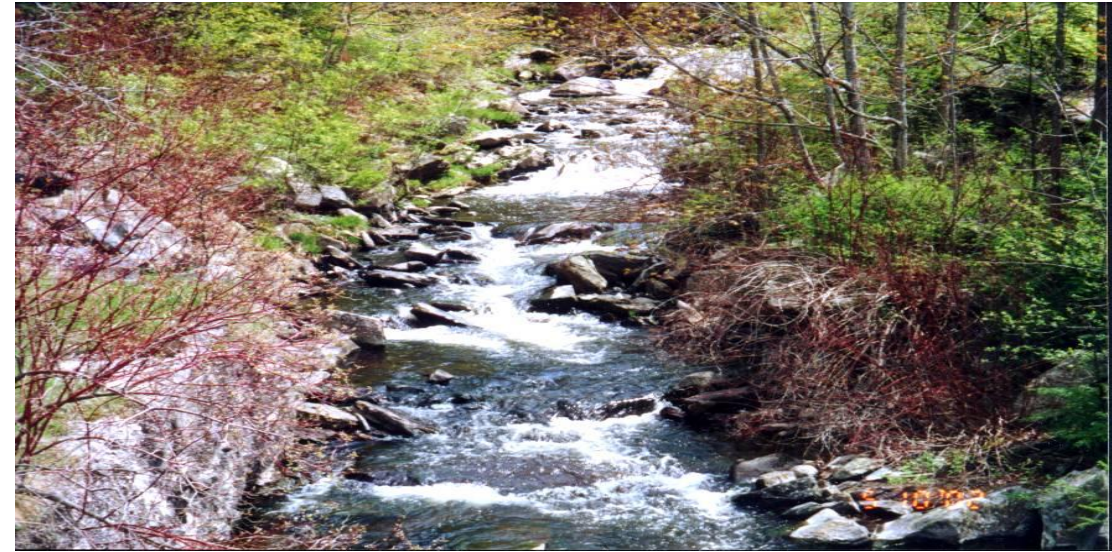


Stream Connectivity & Habitat Development

- In-stream Assessments
- Culvert Replacement & Dam Removal
- Large Wood Habitat Restorations
- Prioritization of project sites
- Stream Bank stabilization
- Restoration Monitoring

We focus on the ecosystem to reduce vulnerability

- Improve habitat connectivity; allowing access to larger number of interconnected stream miles
- Focus on habitat ~ species diversity & productivity



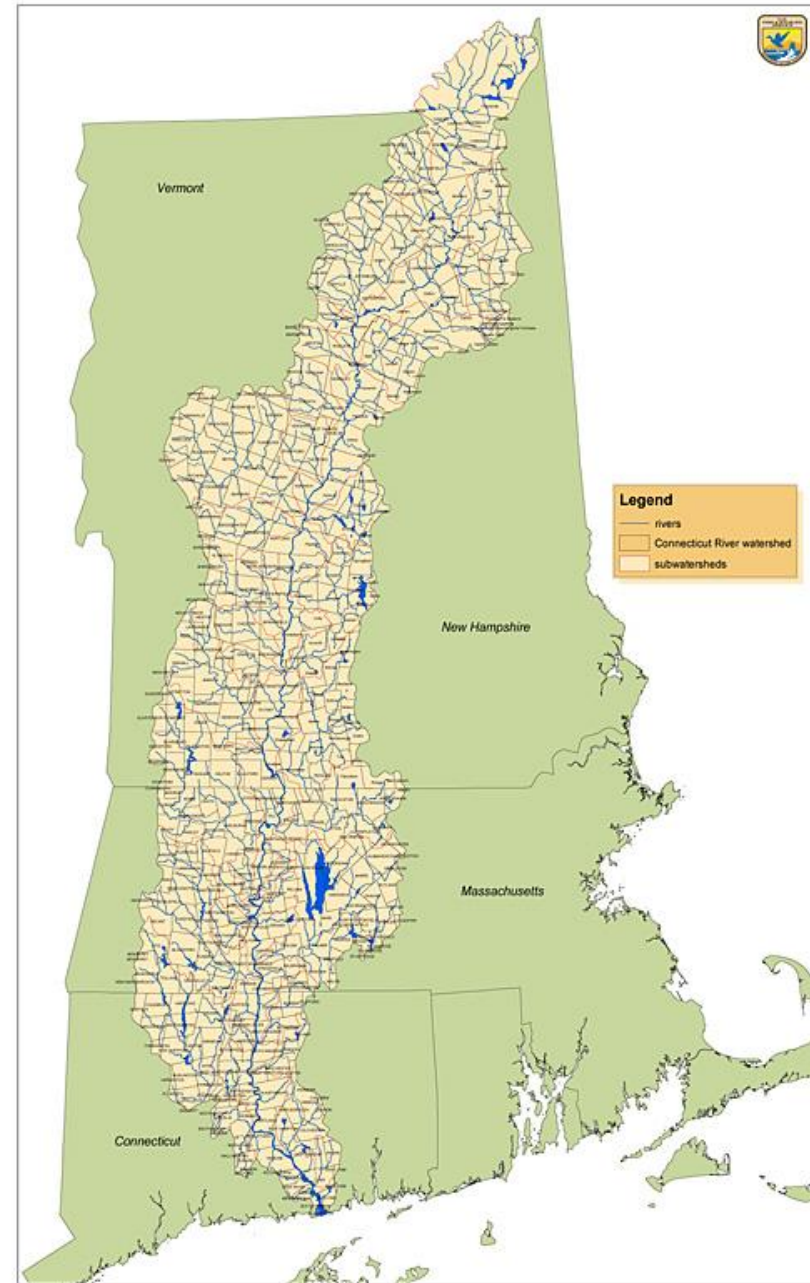
The goal of ecosystem restoration efforts



- Improve aquatic biodensity and diversity
- Influence spawning potential by developing pool-riffle complexes
- Improve mobility within tributaries to offer thermal refugia
- Re-engage floodplain access where appropriate ~ slow water velocities down
- Improve water quality & retain nutrients throughout the system

Headwaters Matter

- 410mi of Connecticut River
- Thousands of miles of tributaries



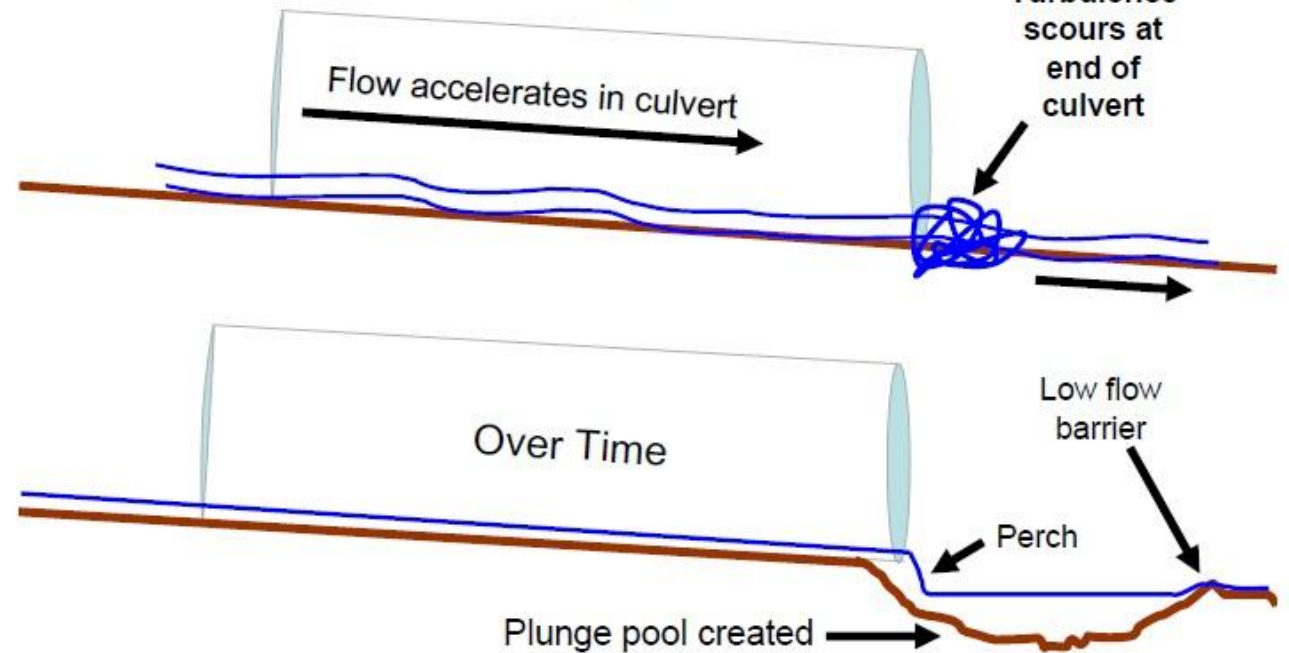
How the stream channel disconnect begins



How undersized culverts constrict stream flow and become perched



Culvert that does not span the channel set at stream grade



Wood is Good



But it's missing!

Historically, 175-250 pieces of large wood per mile

Land use changes = hydrologic changes

What wood does in the stream



- Increases nutrient cycling and retention
- Creates necessary habitat for invertebrates, fish, and aquatic mammals
- Improves sediment transport and sorting
- Creates diverse stream hydraulics
- Increases stream channel roughness
- Improves flood dynamics and access to floodplains
- Improves hyporheic flow and groundwater access

- Ultimately trying to mimic natural in-stream wood

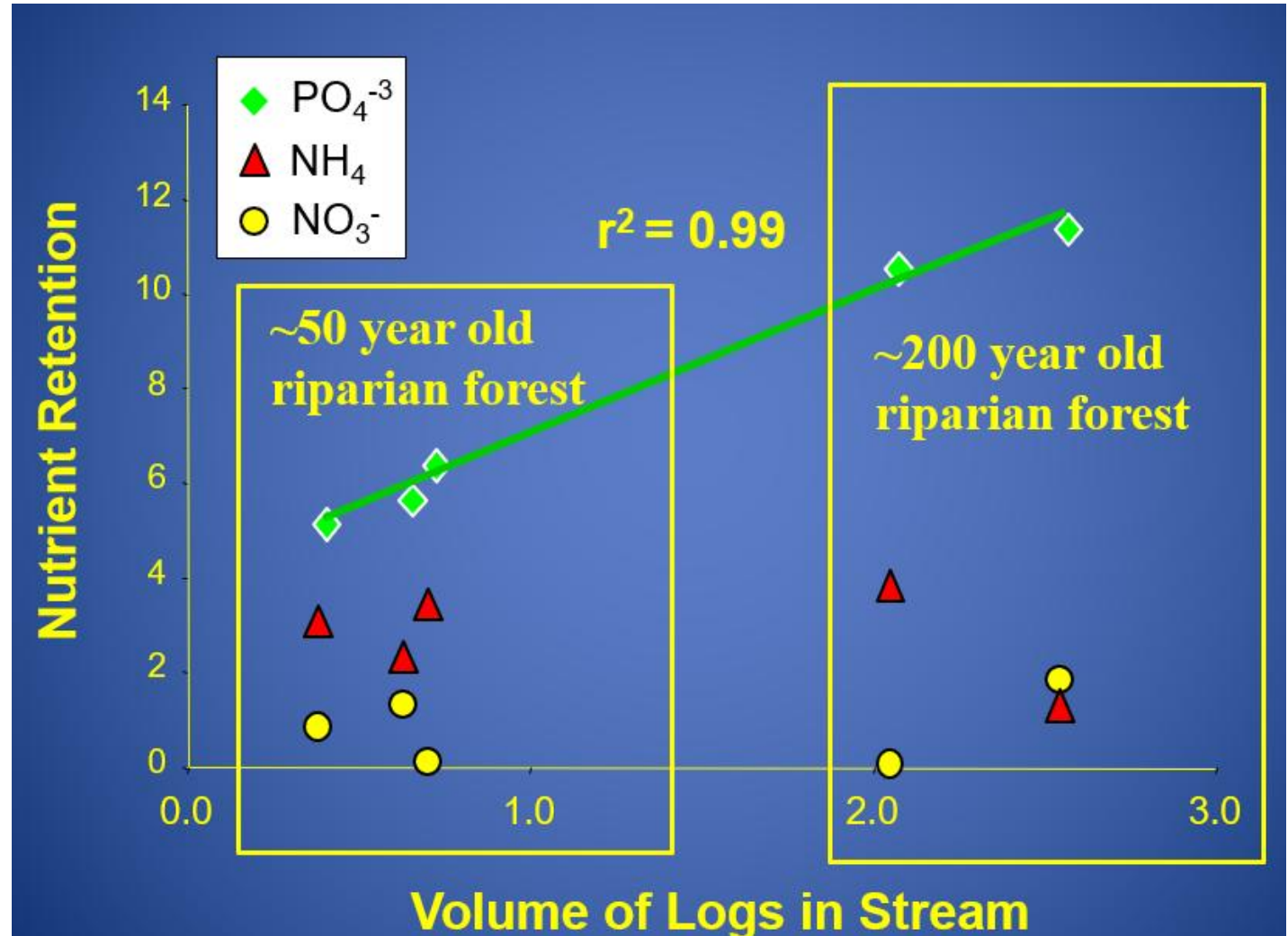


Nutrient Cycling and Retention

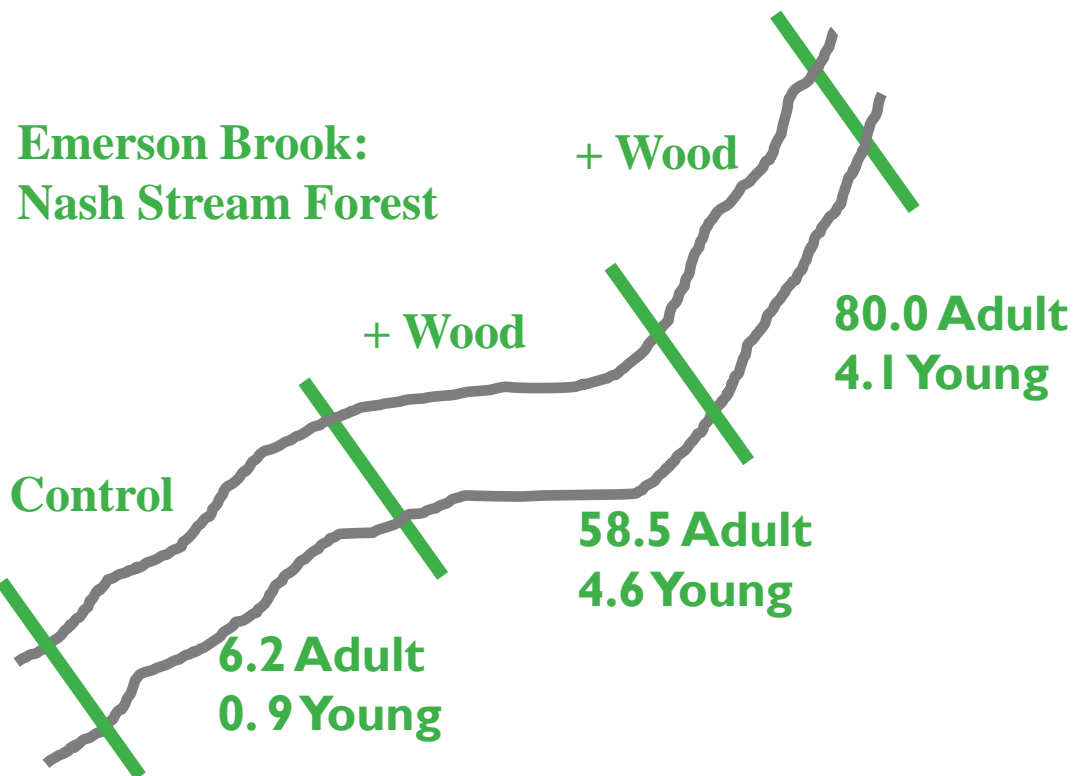
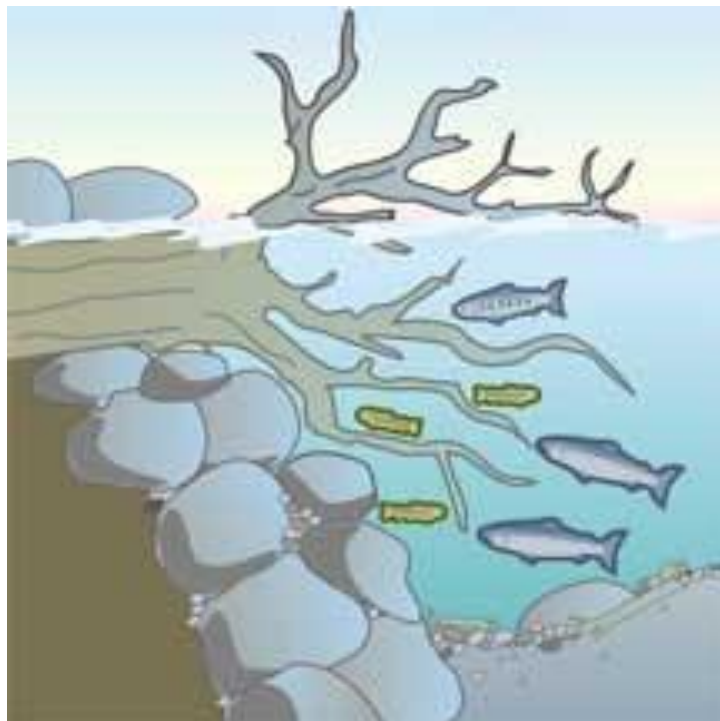


Retains nutrients, removing them from the water column

Important for downstream reaches in larger basins, eg. Lake Champlain, Great Bay, Long Island Sound

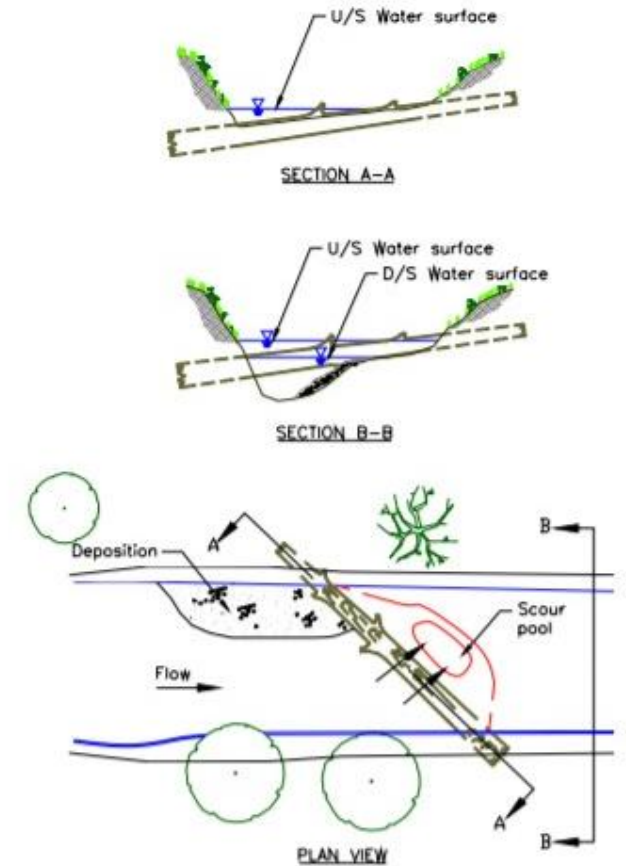
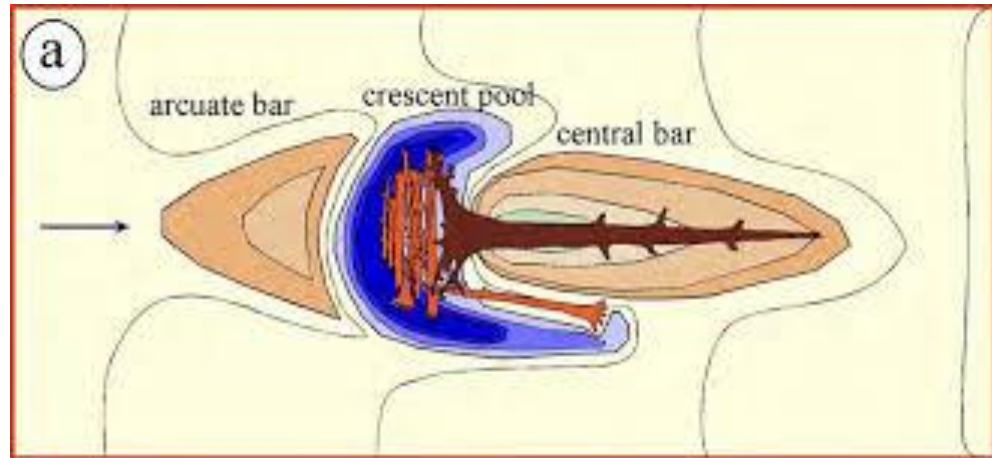


Increased Habitat



Fish cluster around large in-stream wood and in pools
So large in-stream wood creating pools = doubly good

Sediment Transport & Stream Hydraulics

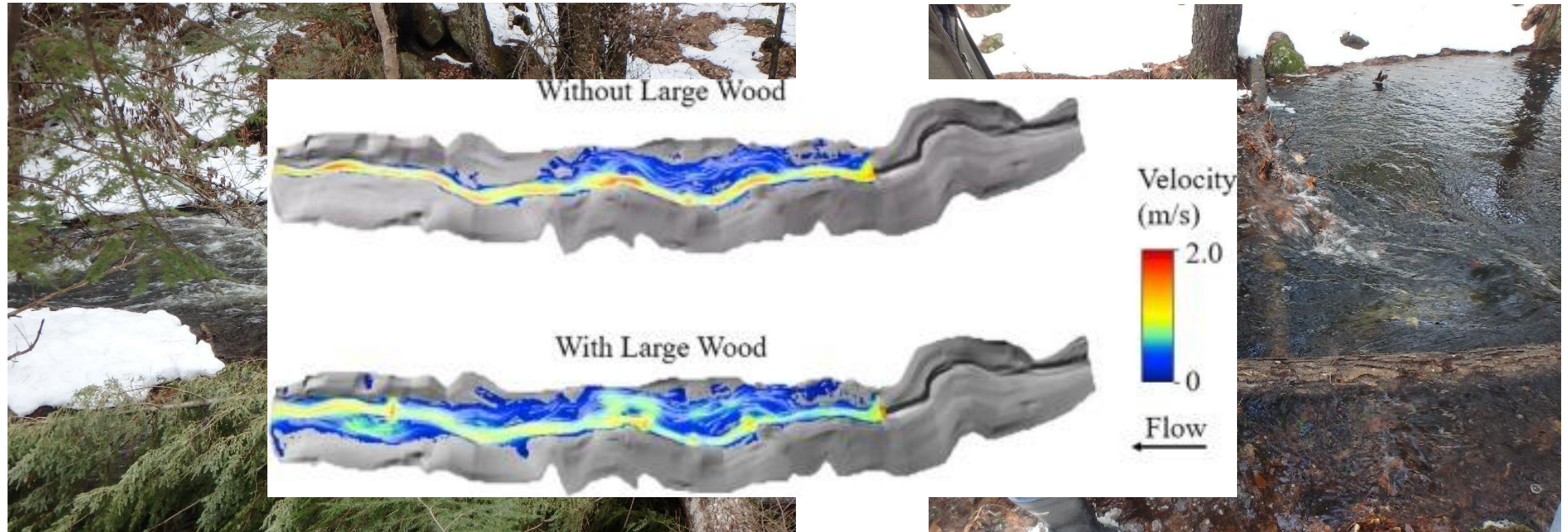


Sediment retention & scour pools

Sediment sorting – gravel beds important for spawning

Stream bank protection

Slow the Flow



Particularly important during high-flows and floods
Attenuates flood peaks, pushes water out of channel
Recent paper by TNC and USFS on CT River Floodplains

Floodplain Connectivity



Sediment retention raises channel bed
Reduces channelized flows & pushes flow out of banks
Otter Creek/Middlebury example

Hyporheic Flow

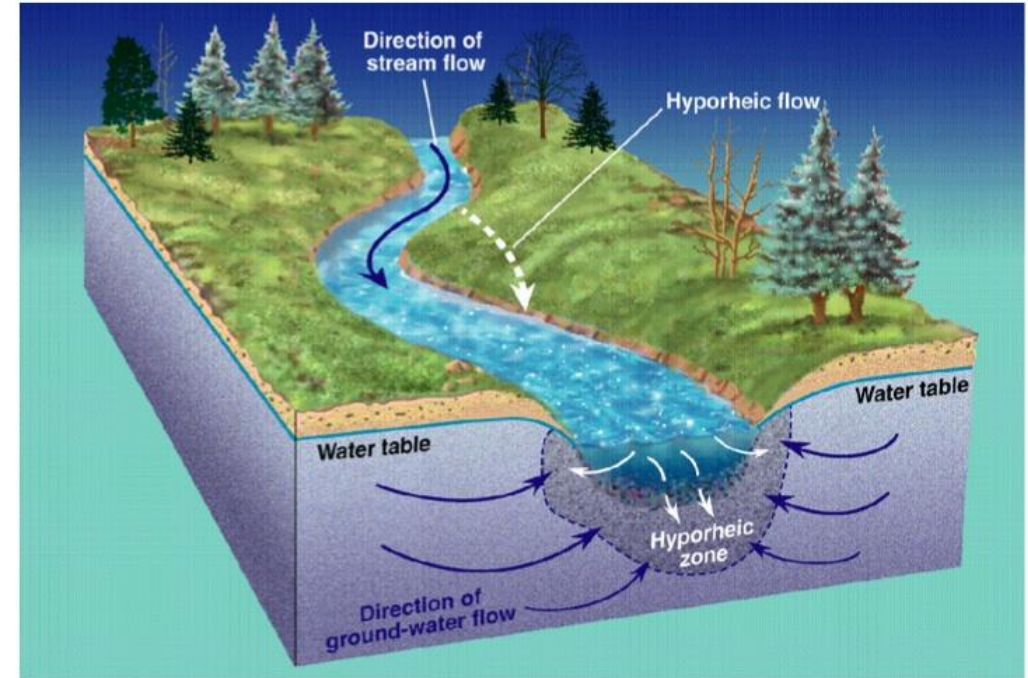
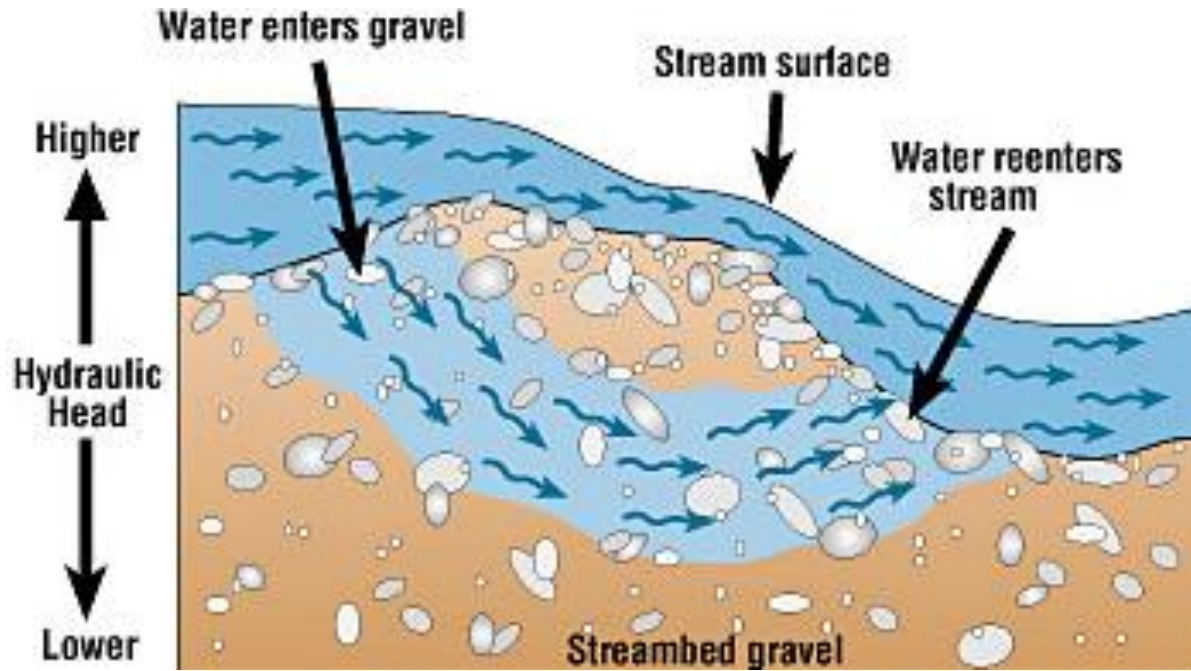


Figure 1.1 Illustrative representation of the GW/SW interface and hyporheic zone. (Reproduced with permission of USGS).

Sinuosity and in-stream wood increase water flowing through ground

Overall cooling effect on water temp

Hand-placing Large Wood



Smaller pieces of wood, measured to fit the channel
Can carry in from greater distance from the stream
Great volunteer activity

Chop and Drop



Assisted with a grip-hoist
Often layering multiple trees to pin in place
Very site-limited

Mobile vs immobile wood

Constructed Jams and Stabilization



Large wood jams

Failing bank stabilization in high-power streams

White River Restoration is an excellent example

White River Partnership & USFS



Community Workshops and Education



Questions Welcomed



Erin Rodgers, PhD

TU – Western New England Project Coordinator

erin.rodgers@tu.org

