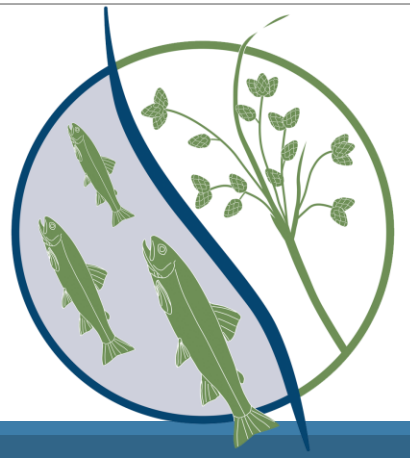
DFG -DER Dam Removal Program

JOSEPH GOULD – DAM REMOVAL PROJECT MANAGER

6/13/2024



Massachusetts Department of Fish and Game

Division of Ecological Restoration

Invested in Nature and Community

Agenda

1. Introduction to DER
2. Dam Removal Program
3. The State of Dams in Massachusetts
4. Why Remove Dams
5. Past Dam Removal Project - Picture Highlights

DFG- Division of Ecological Restoration

DER 3-Branch Programmatic Structure

New

Habitat Restoration Branch	Capacity Building Branch	Technical Services Branch
Dam Removal Program	Culvert Replacement Program	Engineering Services
Wetland Restoration Program	Partnerships Program	Planning Services
Cranberry Bog Restoration Program		

Mission Statement and Approach

DER's mission is to restore and protect rivers, wetlands, and watersheds in Massachusetts for the benefit of **people** and the **environment**.

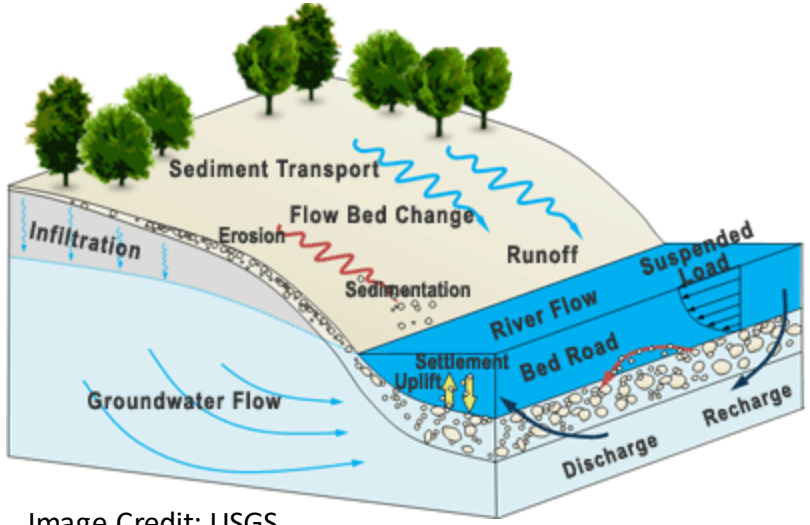


Image Credit: USGS

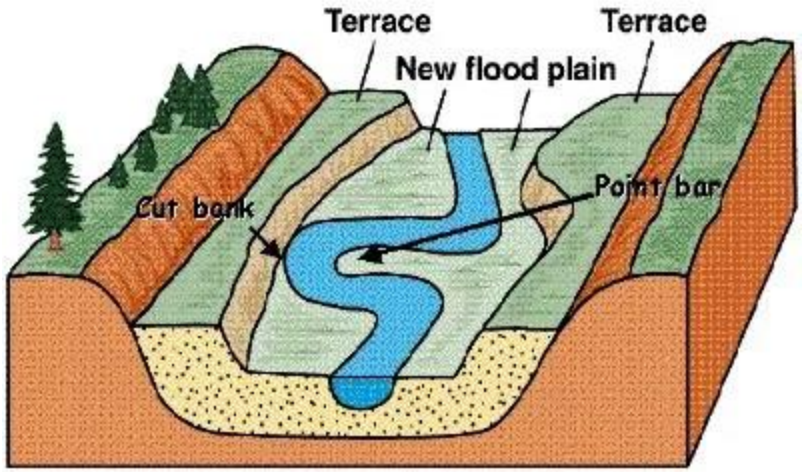


Image Credit: Kent.edu

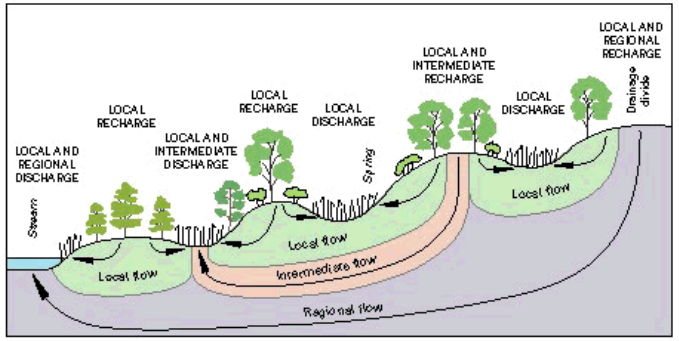


Figure 22. Ground-water flow systems. Local ground-water flow systems are recharged at topographic highs and discharged at immediately adjacent lows. Regional ground-water flow systems are recharged at the major regional topographic highs and discharged at the major regional topographic lows. Intermediate flow systems lie between the other two systems. *(Source: Modified from Winter, 1976.)*

Image Credit: USGS

Process Based Approach to Restoration

Dam Removal Program Services

Dam Reconnaissance

- Feasibility studies for dam owners who are interested in exploring dam removal as an option
- Produces conceptual level design, sediment management recommendation, and cost estimate for removal
- Projects are selected through a competitive RFR

Priority Projects

- A DER project manager is assigned to assist a dam owner with the planning, permitting, and removal of their dam
- Priority projects are eligible for technical and financial assistance from DER
- Projects are selected through a competitive RFR

Dam Removal Program

Team

Chris Hirsch
Joseph Gould
Susie Bresney

Accomplishments

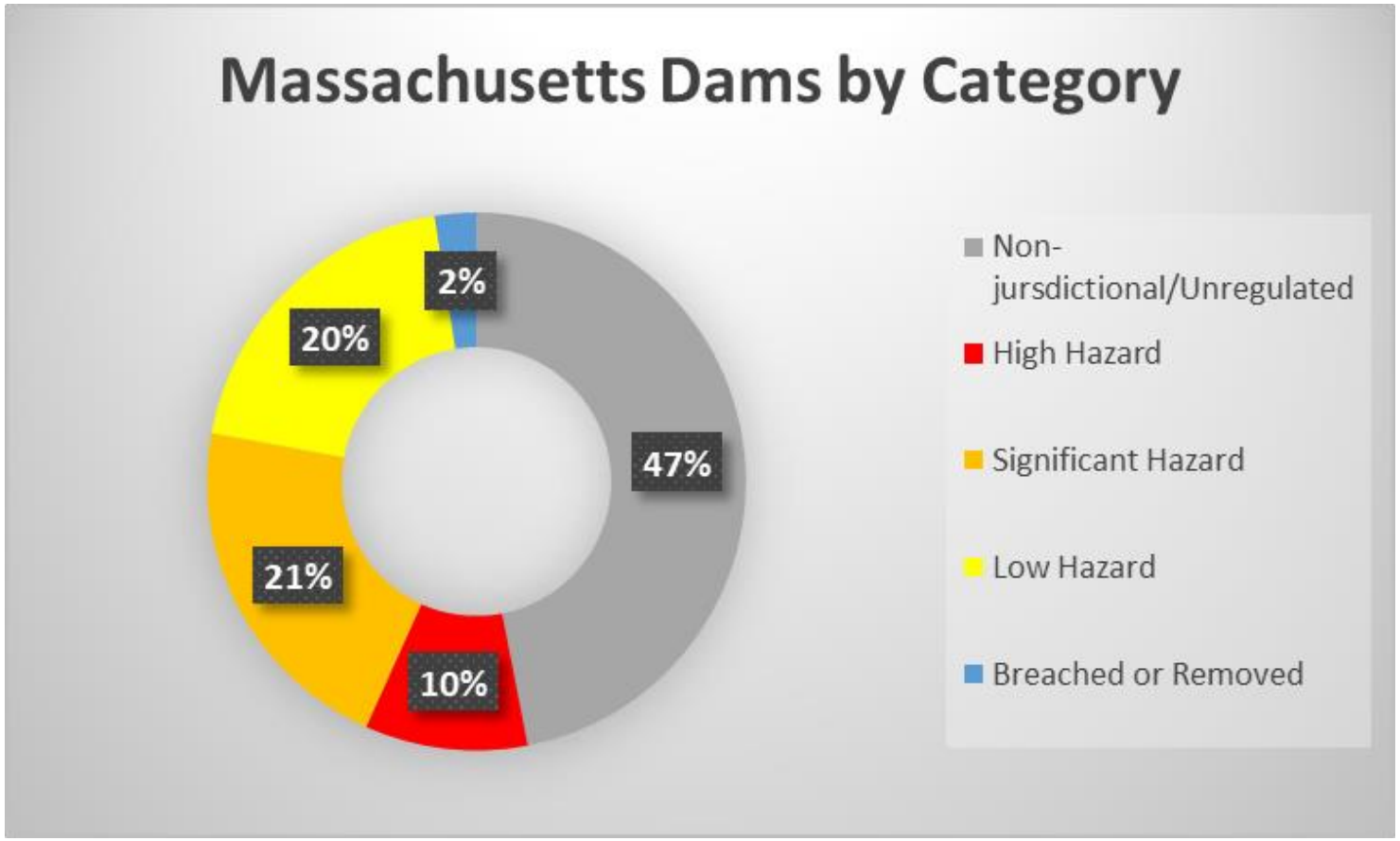
- Over 50 dams removed
- Reconnected 100's of river miles
- Currently 22 active projects

Armstrong Dam – Braintree Photos DER

Tel-Electric Dam – Pittsfield photo DER

Upper Roberts Meadow – Northampton photo DER

The State of Dams in Massachusetts



Over 3000 dams in Massachusetts

Many were built for mills, factories, and things like ice harvesting that are no longer around

541 Dams (~18%) are in poor or unsafe condition

Source: ODS Inventory Report 4/14/2022

How Dams Impact Rivers

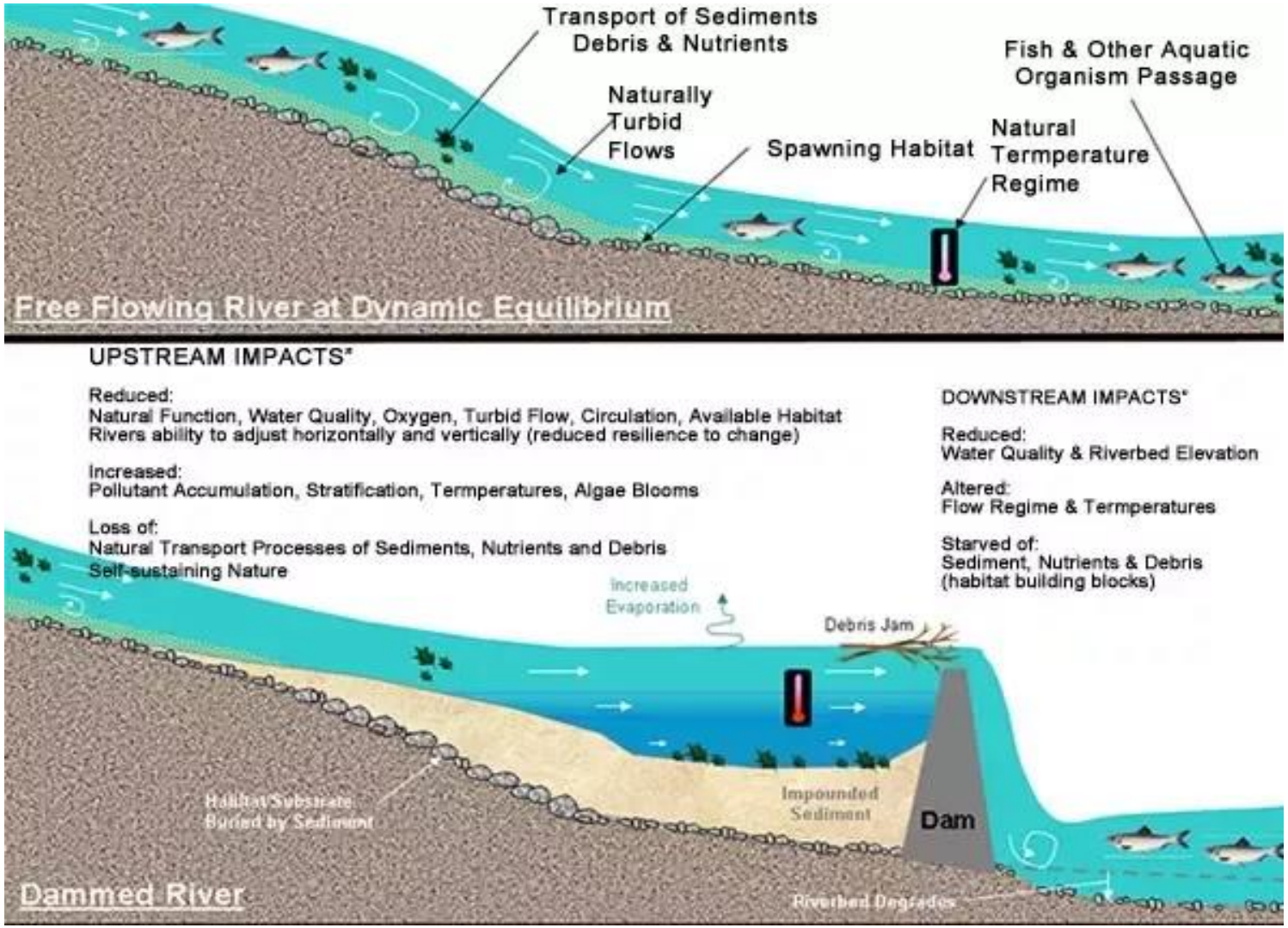


Image Credit : Laura Wildman P.E.

Benefits of Dam Removal - Ecological

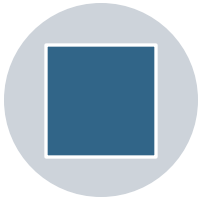
RESTORES NATURAL SEDIMENT TRANSPORT REGIME

RESTORES NATURAL THERMO-REGULATION

INCREASES BENTHIC BIODIVERSITY IN THE IMPOUNDMENT

INCREASES HABITAT CONNECTIVITY

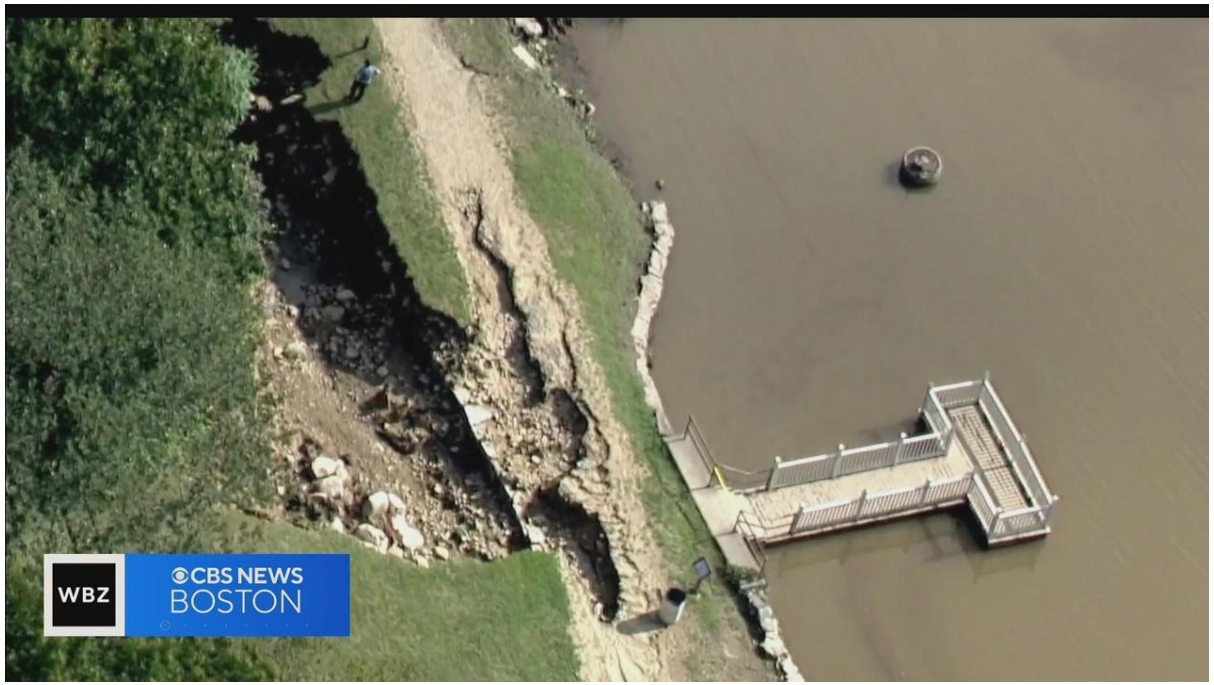
IMPROVES WATER QUALITY AND DISSOLVED OXYGEN



OTHERS?

Benefits of Dam Removal – Public Safety

- Reduce Flood Elevations up stream
- Reduce flooding risk downstream
- Protects nearby infrastructure



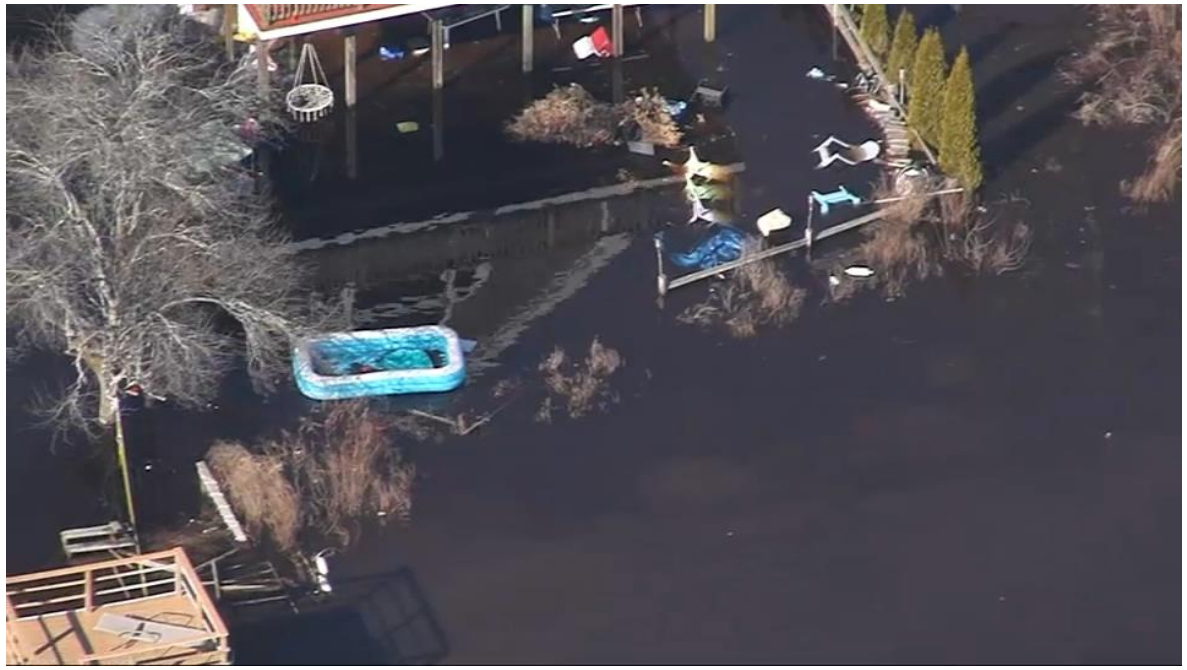
Barrett Park Pond Dam near breach in Leominster Image credit:WBZ Boston

Dam Breach flooded road downstream in Bridgewater Image Credit: WBZ Boston

Benefits of Dam Removal - Owner

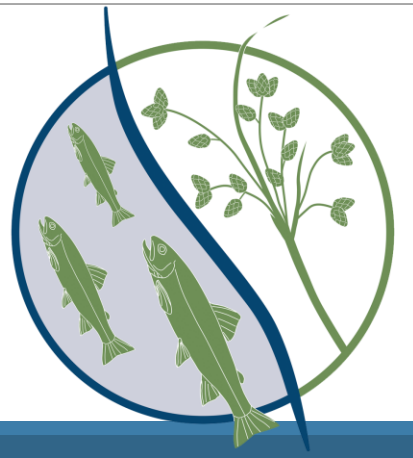
- Elimination of Flood Damage Liability
- Elimination of Attractive Nuisance Liability
- Elimination of Inspection and Maintenance Burden
- Saves money in the long term

Image credit: Rob Goebel, Indianapolis Star



Dam Breach flooded back yards in Bridgewater-Image Credit WBZ Boston

Past Dam Removal Project – Picture Highlights



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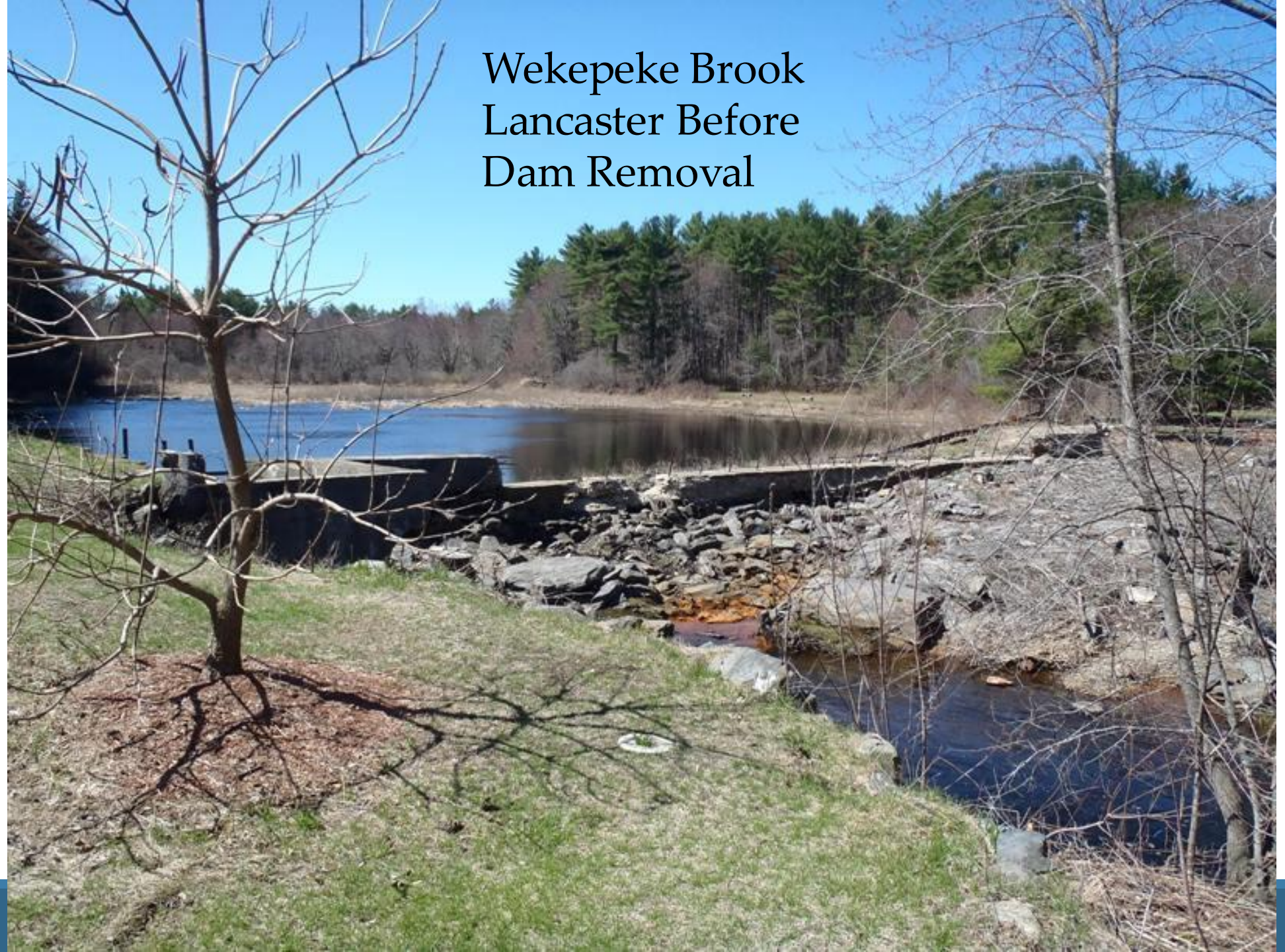
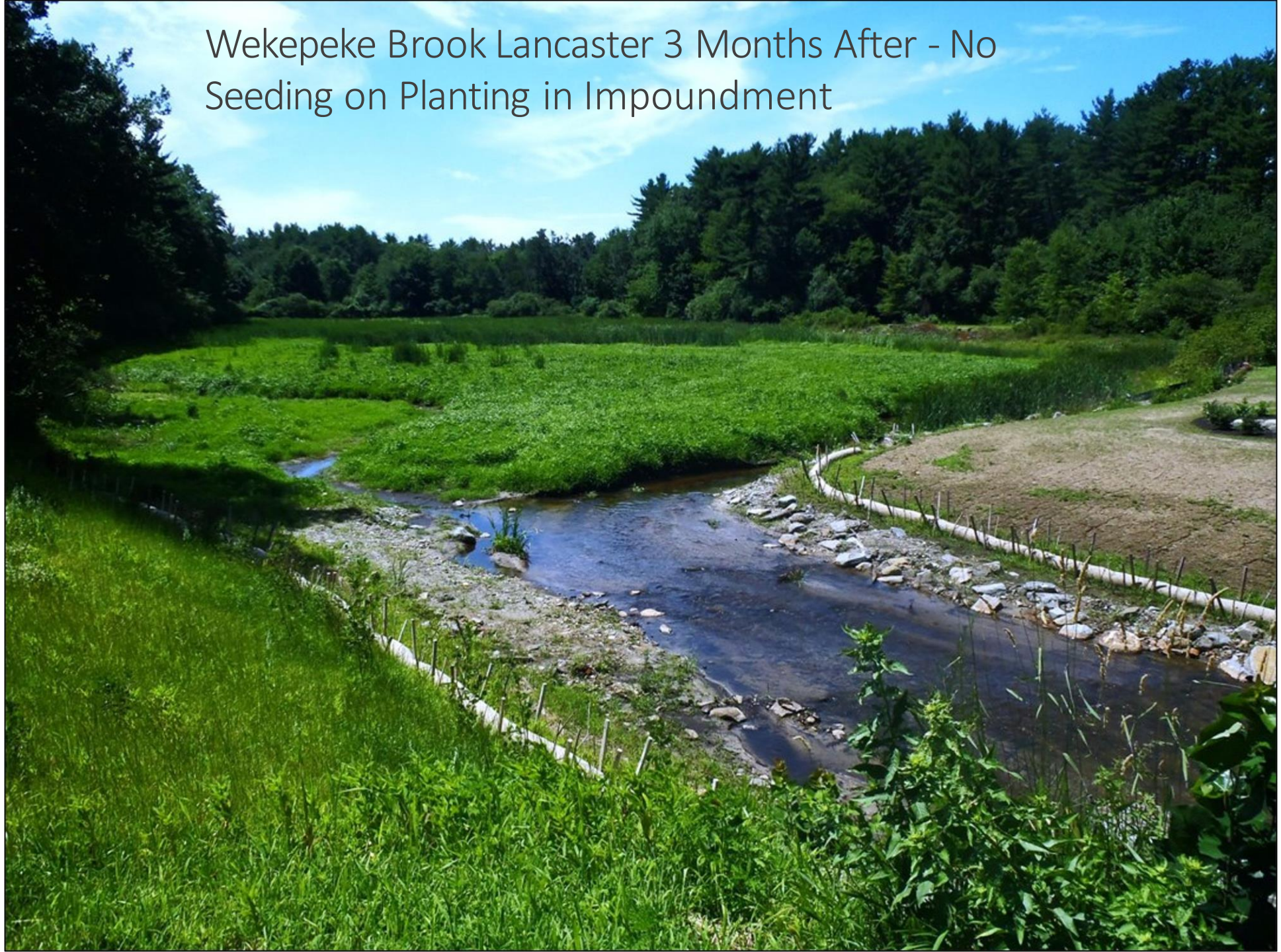
Sucker
Brook, Pepperell –
Dam Removal
Day, No Seeding or
Planting in
Impoundment

Sucker Brook, Pepperell – 3-4 Month After Dam Removal


Sucker Brook, Pepperell - After 1 year. No Seeding or Planting in Impoundment

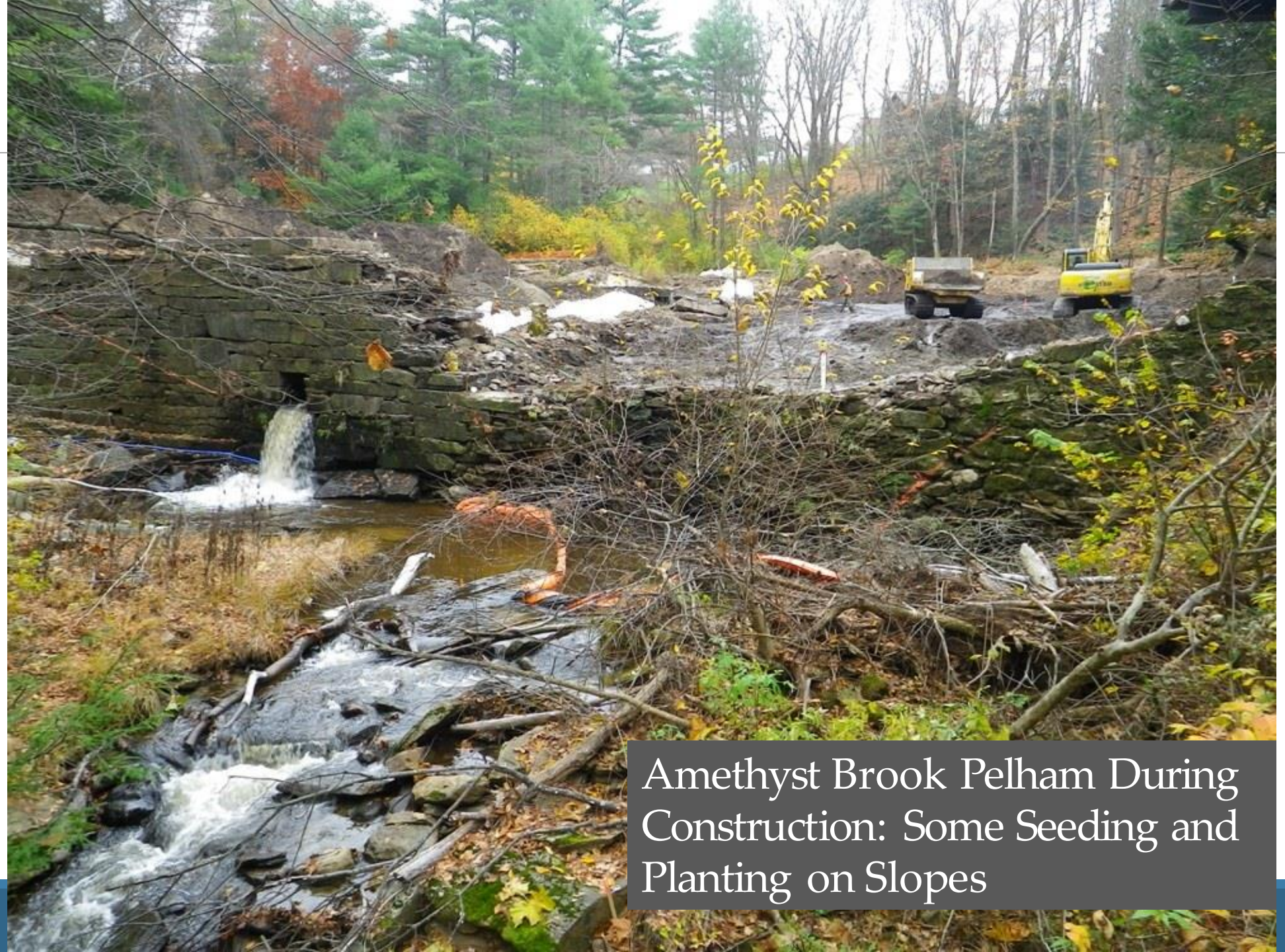

Wekepeke Brook
Lancaster Before
Dam Removal

Wekepeke Brook Lancaster Before- No Seeding or Planting in the Impoundment


Wekepeke Brook Lancaster 3 Months After - No Seeding on Planting in Impoundment

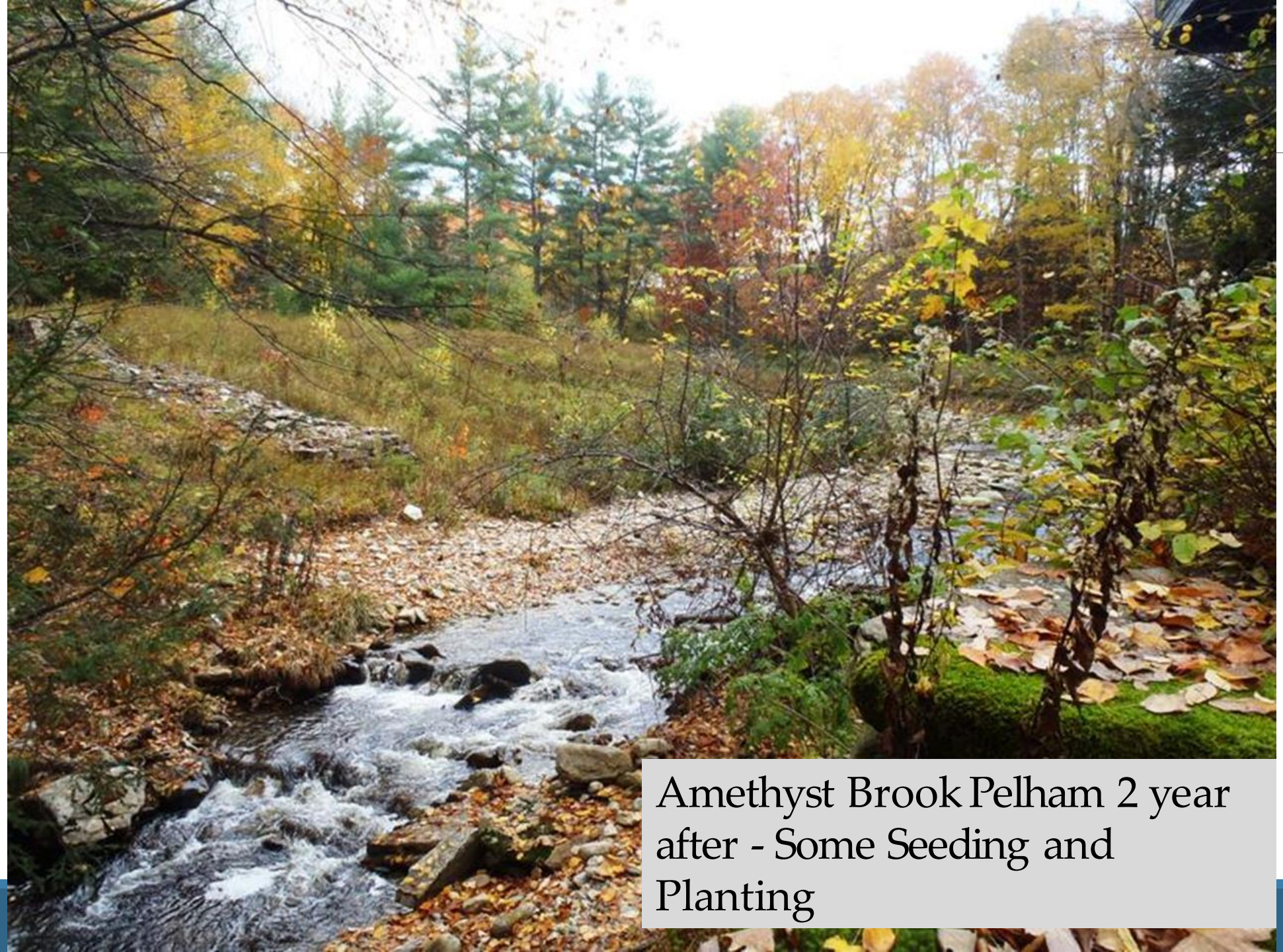

Wekepeke Brook Lancaster After
1 year-No Seeding or Planting in
Impoundment

Amethyst Brook Pelham Before Construction: Some Seeding and Planting on Slopes



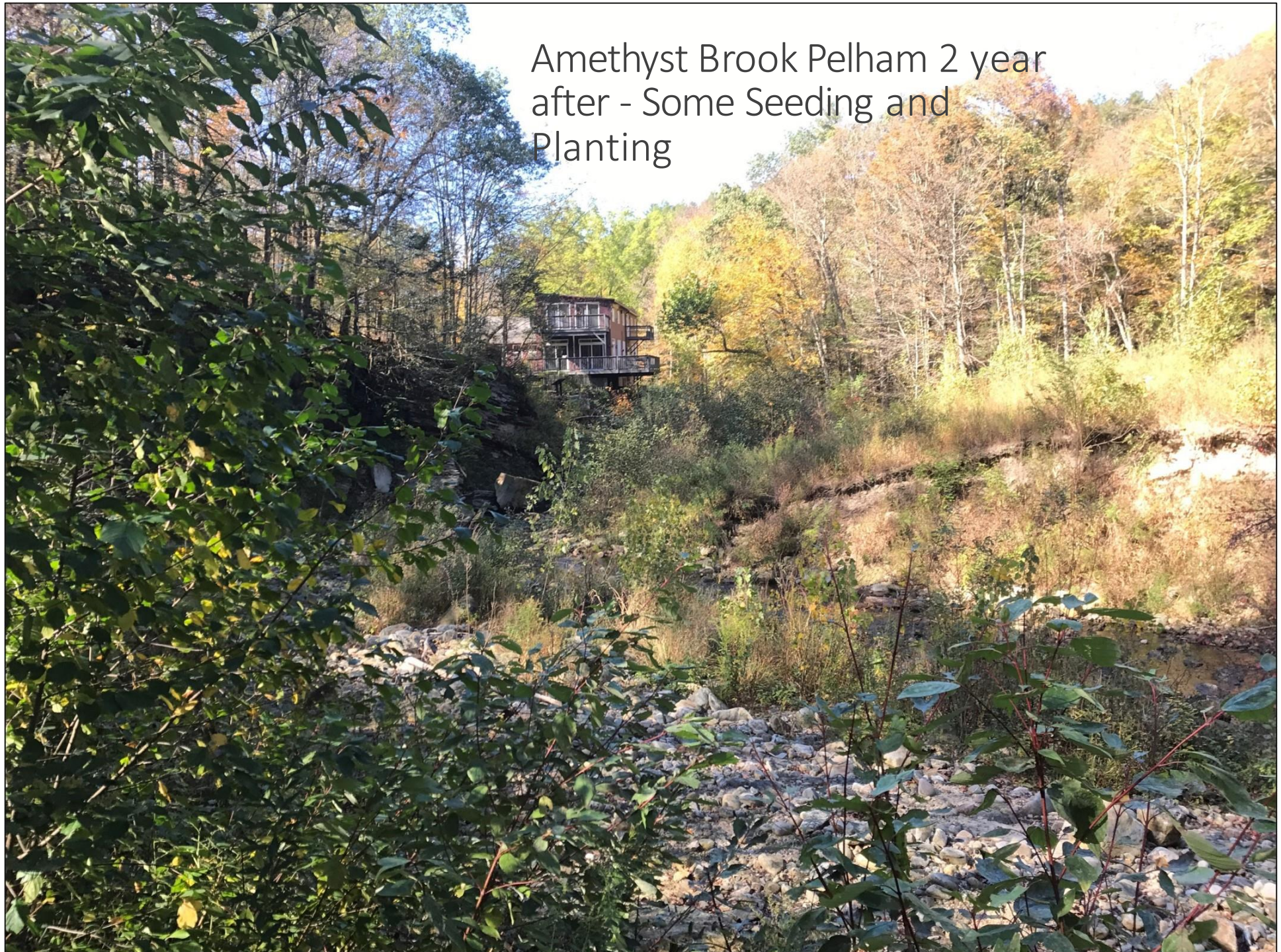
Amethyst Brook Pelham During Construction: Some Seeding and Planting on Slopes

Amethyst Brook Pelham During Construction: Some Seeding and Planting on Slopes



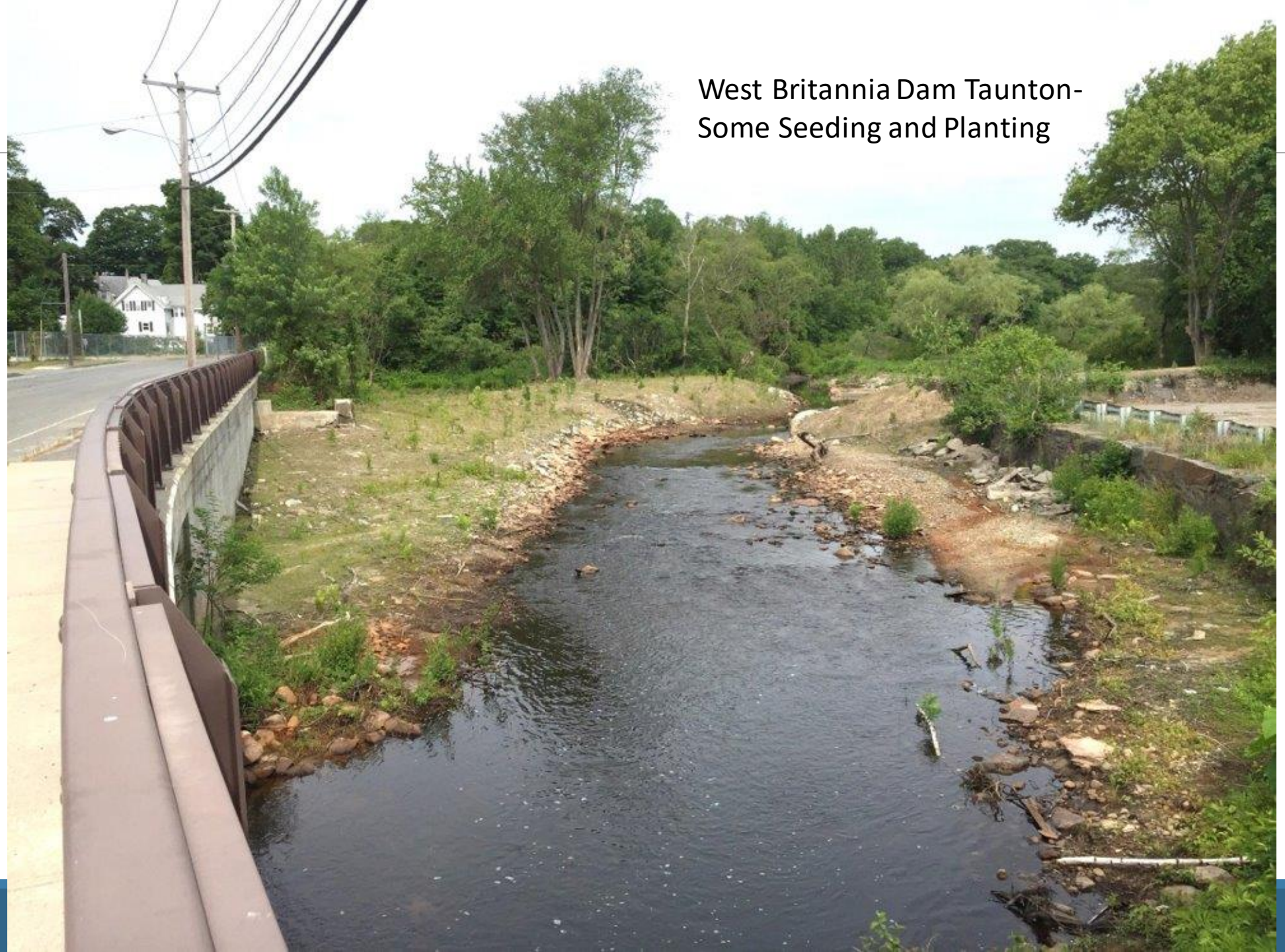
Amethyst Brook Pelham 2 year after - Some Seeding and Planting


Amethyst Brook Pelham During Construction: Some Seeding and Planting on Slopes

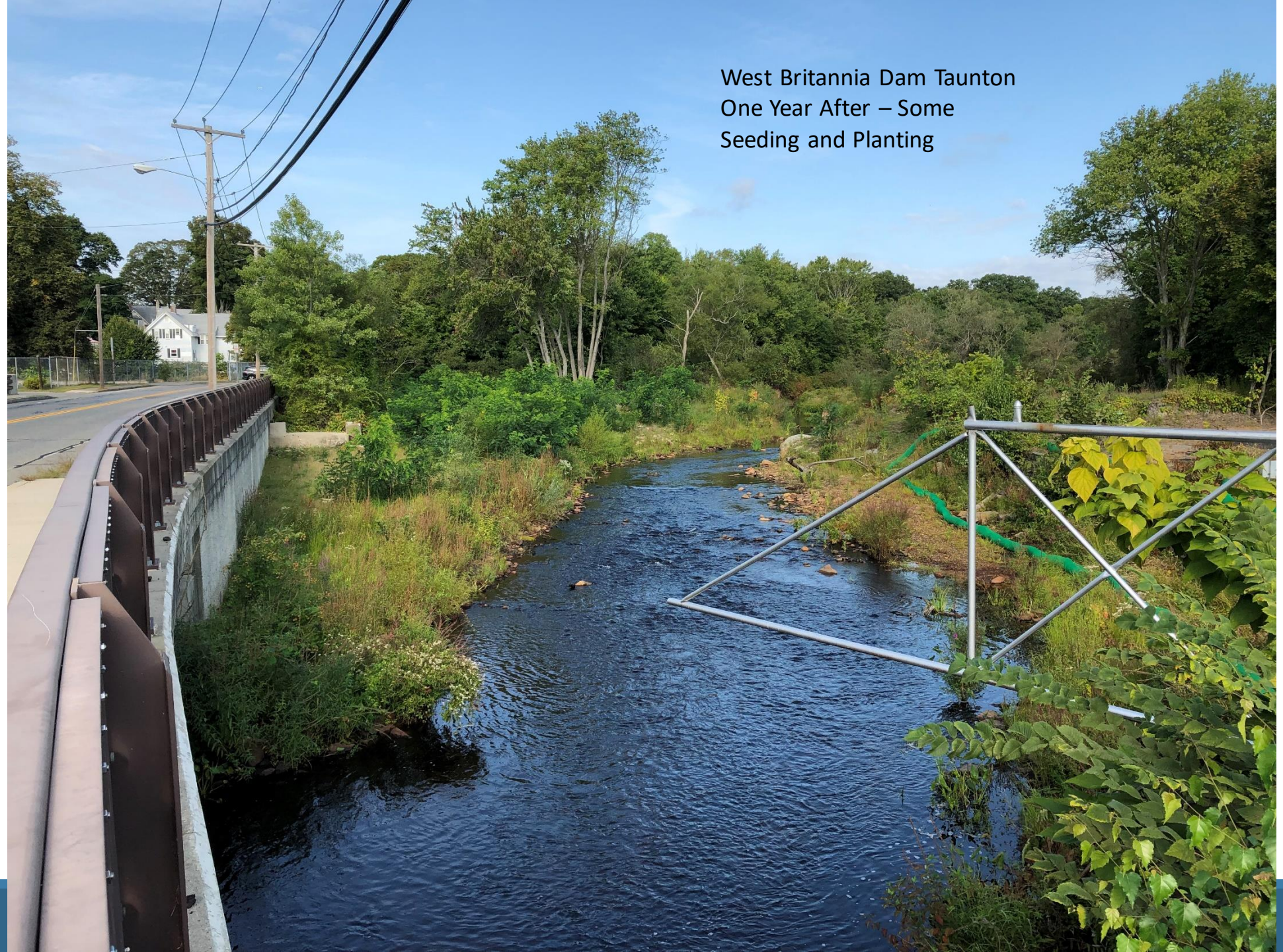

Amethyst Brook Pelham 2 year after - Some Seeding and Planting

West Britannia Dam, pre-removal

West Britannia Dam Removal, 2018



West Britannia Dam Taunton- Some Seeding and Planting

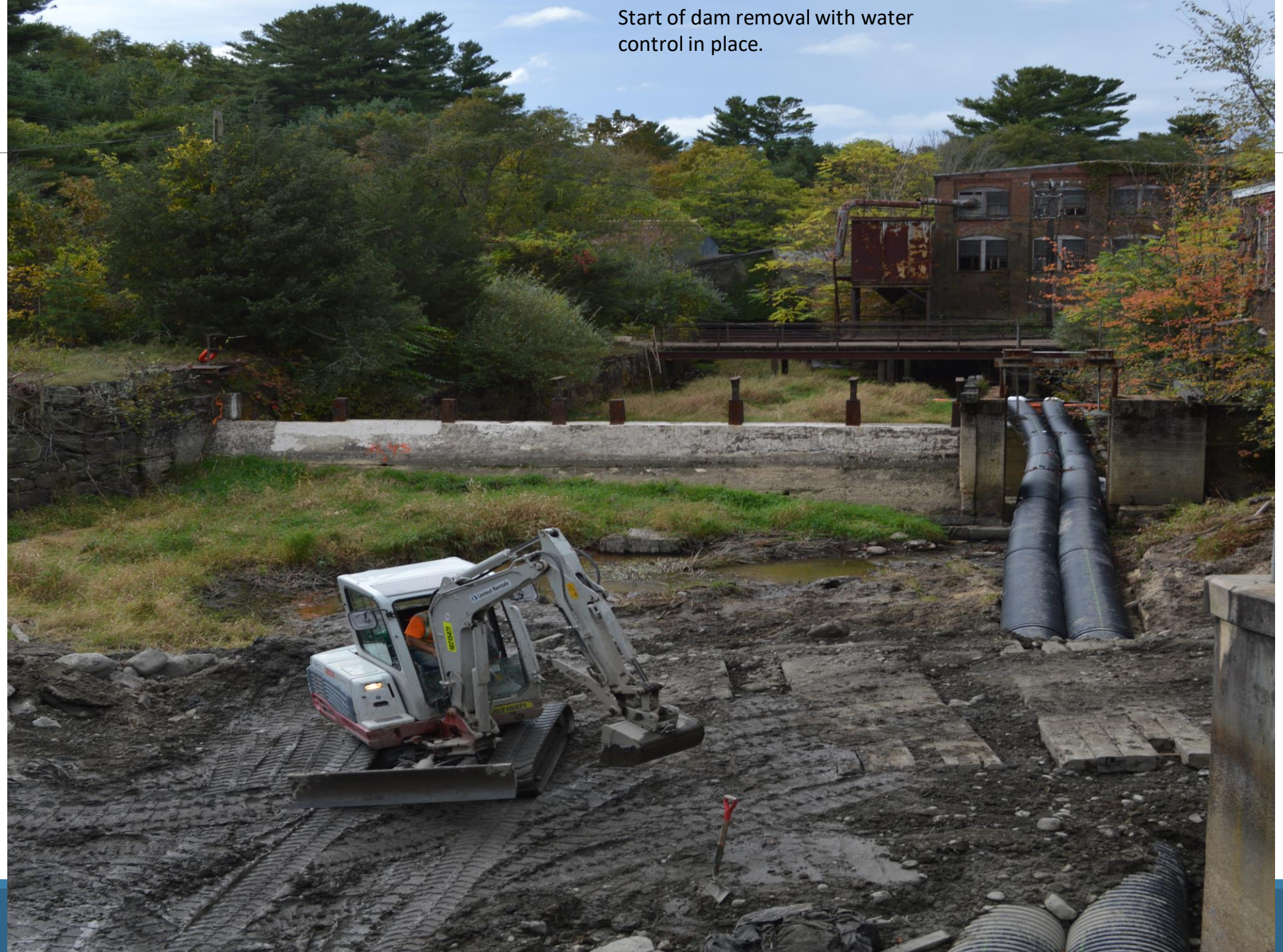

West Britannia Dam Taunton
One Year After – Some
Seeding and Planting

Mill River Taunton Before - Some Seeding and Planting

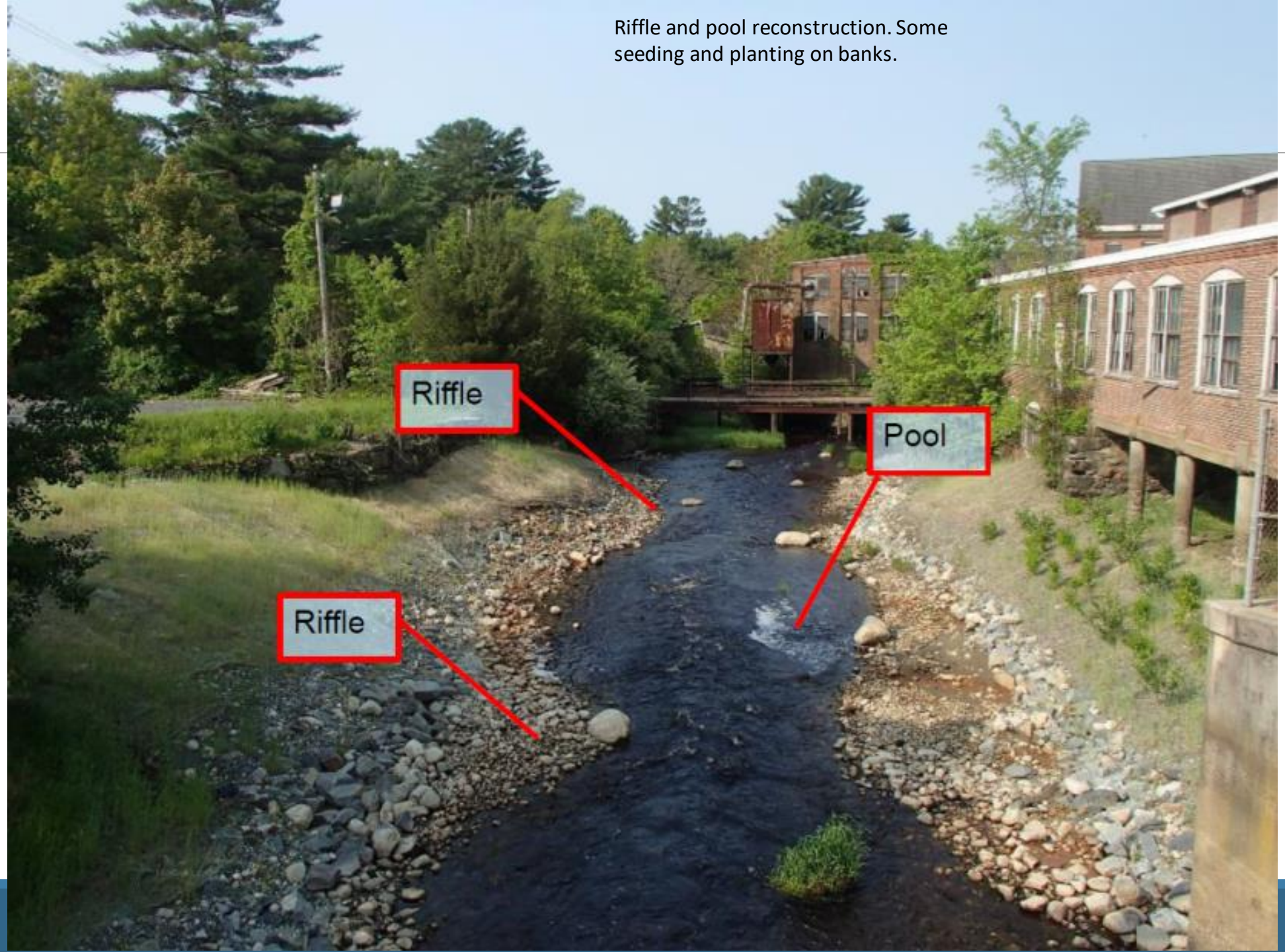

Mill River Taunton 2 Years After - Some Seeding and Planting

Cotton Gin Dam Removal, Bridgewater

Start of dam removal with water control in place.



Riffle and pool reconstruction. Some seeding and planting on banks.



Thank you!

Joseph Gould
Fish & Game, DER
joseph.gould@mass.gov