CRJC Mount Ascutney Local River Subcommittee

Tuesday, January 14th, 2020
Town of Windsor Community Center
7:00PM

Attendees

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

Michael Metivier (Town of Windsor), Marie Caduto (Watershed Coordinator, VT DEC), Lionel Chute (CRJC Commissioner), Skip Lisle (Beaver Deceiver), Olivia Uyizeye (staff, UVLSRPC)

Minutes

Howland opens the meeting at 7:06 pm.

1. Welcome and Introductions

Howland welcomes representatives and visitors to the meeting. Introductions are made.

2. Speaker – Vermont Basin Plan Updates with Marie Caduto, VTDEC

Caduto introduces the Vermont tactical basin plan process and updates for basin 10, relevant to the subcommittee's area of concern. Basin 10 includes the Ottauquechee, Black, Lower Connecticut and Mill Rivers (see attached presentation slides for full details on the presentation). The plan includes an assessment of water quality, condition, partner organizations, improvement options, goals and problem areas for the basin. The outcome includes a list of projects that would benefit the basin. In Basin 10, there are 38 miles of the Connecticut River mainstem.

VT ANR atlas allows visitors to see data from assessment and monitoring stations together. For example, Lulls Brook has 4 stations that indicate the Brook is in pretty good shape, but still indicates sediment impacts from Tropical Storm Irene. Water bodies are rated as different classes. Potential projects from these assessments include riparian buffers, stormwater management, road/culvert systems, stream stability, and more. The Clean Water Project Explorer allows users to search for projects according to sector – agriculture, development, hazard mitigation, and more. There are 440 potential projects listed in Basin 10. All these projects are voluntary unless there is a regulatory infraction.

Caduto opens up for questions:

- Howland asks if there is something similar in NH. Caduto indicates VRAP is similar, but this is not done everywhere.
- Merritt asks if there are any big changes in the plan from the past. Caduto says she is encouraged by an increase of funds from the state that will allow target projects to get completed.
- O'Neill asks if VT holds any legal responsibility for the Connecticut River. Caduto notes that VT does not regulate the CT River, however, the markers for the state boundaries can sometimes be found in the middle of the river as the River has changed over time.
- Chute asks how much can get done with the new funding. Caduto notes that change will only happen incrementally, but the funds are encouraging. Caduto says they will be looking to prioritize the biggest impacts for the least cost.
- Chute asks if the state has an official position on the impacts of road salt. Caduto says this question is under assessment. They have found that salt goes into the sediment and is released chronically throughout the year, not just during the winter.

Caduto asks that if attendees have projects to add or want to learn more about, to reach out to Caduto. Howland thanks Caduto for the informative presentation.

3. Beaver Deceiver

Lisle gives an overview of his beaver deceiver work. He indicates there are typically 6 to 8 conflict points in every town. At the moment, these conflicts are resolved by killing the beaver (until the next one arrives) and removing debris from the structure. Beavers are a keystone species. Their natural structures act as a sediment sink and improve water quality. Beavers are great explorers; they are physicists, liking unoccupied habitats at low gradients with shallow streams - culverts on roads are a magnet for beavers. Lisle explains that a good quality beaver deceiver can last for around 40 years (see attached handout). The beaver deceiver contributes to maintaining a system and stabilizing the area below the road. It also acts as a nutrient sink.

Lisle notes the importance of education as there is a lot of negativity towards beavers. Standing dead trees show the return of a beaver to good habitat. Locations can vary in quality and may sometimes require the beaver to occupy multiple dams on the landscape. Caduto shares that there are many species that depend on beaver habitat and that beaver created wetlands are very unique.

Lambert references the Andover, NH case study as a way to encourage towns to consider this technique. The case study highlights a success and cost saving potential for towns (see attached article). O'Neill and Merritt discuss working with road crews and road improvement programs. Taylor discusses the experience of Plainfield with the technique. Chute notes that of a possible location that might be appropriate in Unity, NH near the Sullivan County Farm where the road is being impacted by beaver activity. Caduto notes that Transportation Advisory Committees are facilitated by the regional planning commissions; this might be a group to motivate on this topic. Representatives can ask their towns to encourage consideration of the technique.

4. Permit Review
    a. Cornish Covered Bridge

The permit is to protect the bridge from additional scour, with riprap around the abutments and sections of the riverbank. Uyizeye reviews permit details, passing around documentation. O'Neill asks if the bridge will be closed, a big deal. Lambert notes that there is no dewatering of the project area required, which is a good thing.

Taylor makes a motion to approve the permit as described. O'Neill seconds the motion. The vote passes unanimous. Uyizeye will share and submit a comment letter to NHDES with the Subcommittee's decision.

5. November Meeting Minutes and NH Wetland Permit Process

Postponed

6. Stormwater management and/or riparian buffer workshop(s)
    a. Sullivan County Conservation District Projects

Chute presents to the group about a riparian buffer project being planned for spring 2020 in Claremont. It is a section of Spring Farm Brook where the stream is constricted from farm fields on both sides. The landowner is working with Sullivan County Conservation District on a large planting along their section of the riparian buffer area. The owner wants to promote wildlife habitat and an edible landscape. They plan to use a broad variety of plants, including black buckleberry, chokeberry, buttonbush, elderberry, pawpaw, sycamore, silver maple, and more. The area has both wetter and drier sections that allow for different types of plant communities. The first planting is planned for may 2. They are working with school groups and other local organizations.

Chute invites the Subcommittee to participate. This could be a good way to inform the community about the important work being done and how this planting connects. This also connects to the subcommittee's focus on riparian buffer and stormwater management. Chute is very flexible on what kind of involvement the subcommittee could have, such as hosting another planting day, giving a presentation, participating in a planning, or organizing a tour of buffers in the region. Chute indicted that he is willing to support the subcommittee in setting this up, if interest is indicated.

O'Neill notes that it might be good to have something on site. Taylor says this is a good teaching opportunity. Lambert expresses interest in presenting and that she could highlight other projects she is involved in. Further conversation is tabled for the next meeting.

7. Next Meeting Chair

Taylor volunteers to act as the next chair.

8. Adjourn

Manner makes a motion to adjourn. Beach seconds the motion. The motion passes unanimous.

Minutes respectfully submitted by Olivia Uyizeye.

Tactical Basin Plan

Ottauquechee and Black Rivers

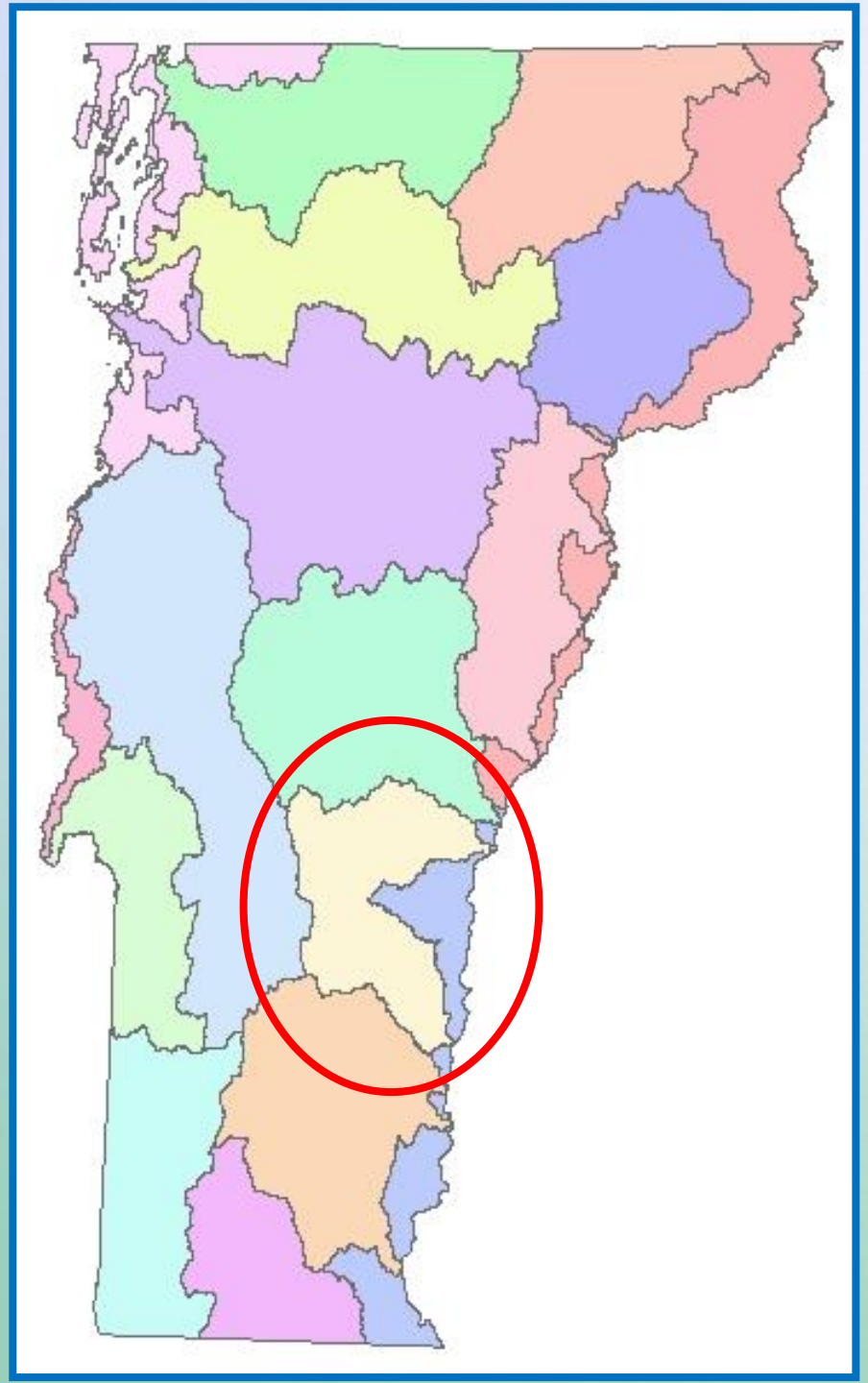
and adjacent

Connecticut River & tributaries


Comtu Falls

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION
WATERSHED MANAGEMENT DIVISION

VERMONT
AGENCY OF NATURAL RESOURCES



VERMONT'S RIVER BASINS

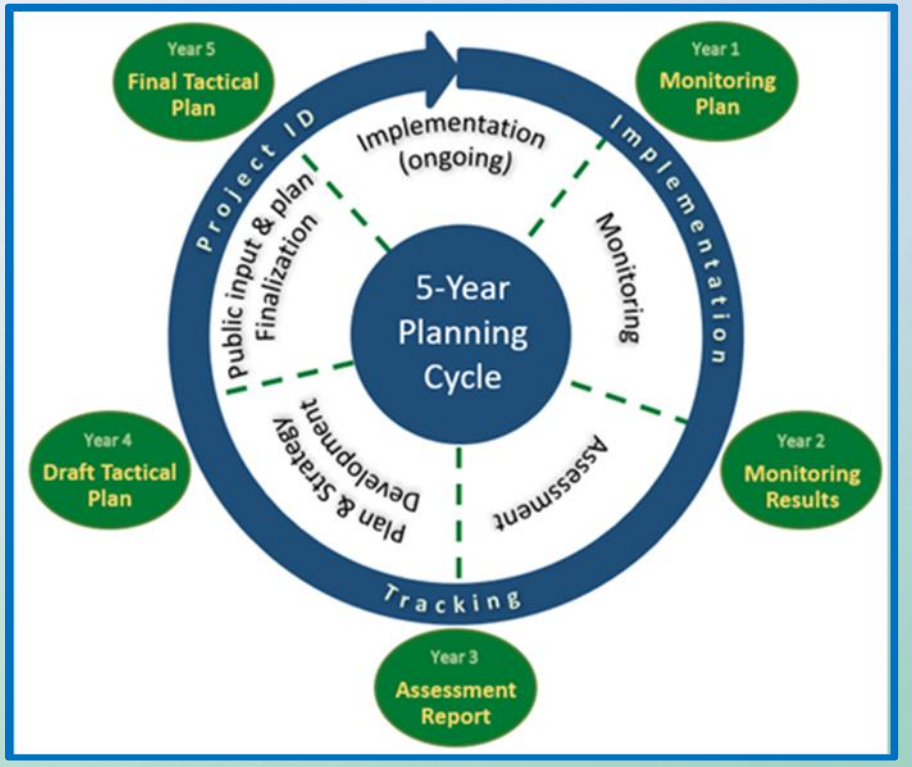
1. Battenkill, Walloomsuc, Hoosic
2. Poultney, Mettawee
3. Otter Creek, Little Otter Creek, Lewis Creek
4. Lower Lake Champlain
5. Upper Lake Champlain
6. Missisquoi
7. Lamoille
8. Winooski
9. White
10. Ottauquechee, Black, Lower Connecticut, Mill Brook
11. West, Williams, Saxtons, Lower Connecticut & tribs
12. Deerfield
14. Stevens, Wells, Waits, Ompompanoosuc, Upper Connecticut
15. Passumpsic
17. Lake Memphremagog

TACTICAL BASIN PLANS ANSWER:

- WHAT IS THE WATER QUALITY AND THE CONDITION OF THE HABITAT
- WHAT NEEDS TO BE DONE TO IMPROVE AND PROTECT WATER QUALITY AND HABITAT
- WHAT ARE THE STRATEGIES THAT CAN BE IMPLEMENTED TO ADDRESS THE PROBLEMS
- WHO ARE THE POTENTIAL PARTNERS AND FUNDING SOURCES
- WHAT ARE THE MANAGEMENT GOALS FOR THE WATERS

BASIN PLANNING PROCESS

- WATER QUALITY MONITORING
- DATA ASSESSMENT
- PLAN DRAFT
- PUBLIC PARTICIPATION
- IMPLEMENTATION OF WATERSHED RESTORATION AND PROTECTION
- EVALUATION



WATER QUALITY MONITORING AND ASSESSMENT

to understand the "health" of our watersheds

- **Physical**
- **Chemical**
- **Biological**

Monitoring is conducted on

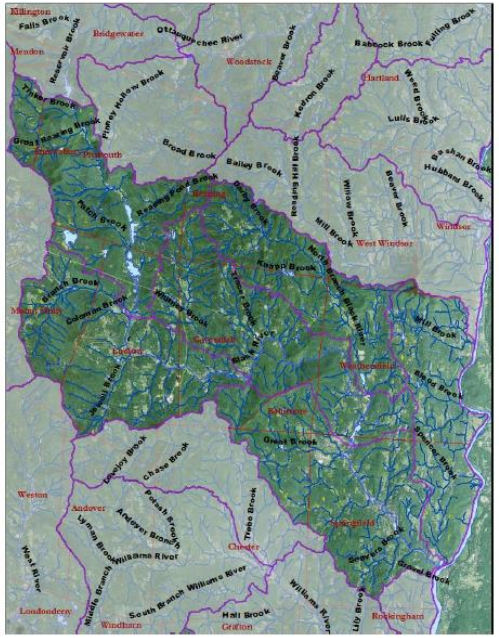
- Rivers & streams
- Lakes & Ponds
- Wetlands

WATER QUALITY ASSESSMENT REPORTS

A COMPILATION AND EVALUATION OF ALL AVAILABLE DATA

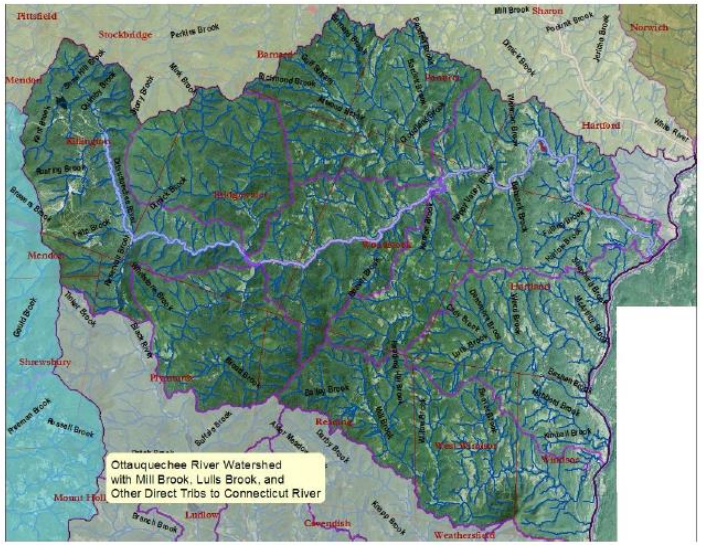
- COMPLETED IN 2016
- IDENTIFIES CAUSES AND SOURCES OF POLLUTION
- LISTS IMPAIRED WATERS
- LISTS HIGH QUALITY WATERS

Black River Watershed
Updated Water Quality/Aquatic Habitat Assessment Report
Including direct tribs to Connecticut River
Mill Brook, Blood Brook, Spencer Brook



Vermont Agency of Natural Resources
Department of Environmental Conservation
Watershed Management Division
Monitoring, Assessment and Planning Program
June 2016

Ottauquechee River Watershed
Updated Water Quality/Aquatic Habitat Assessment Report
Including Mill Brook, Lulls Brook, & other Direct Tribs
to the Connecticut River



Vermont Agency of Natural Resources
Department of Environmental Conservation
Watershed Management Division
Monitoring, Assessment and Planning Program
June 2016

BASIN 10

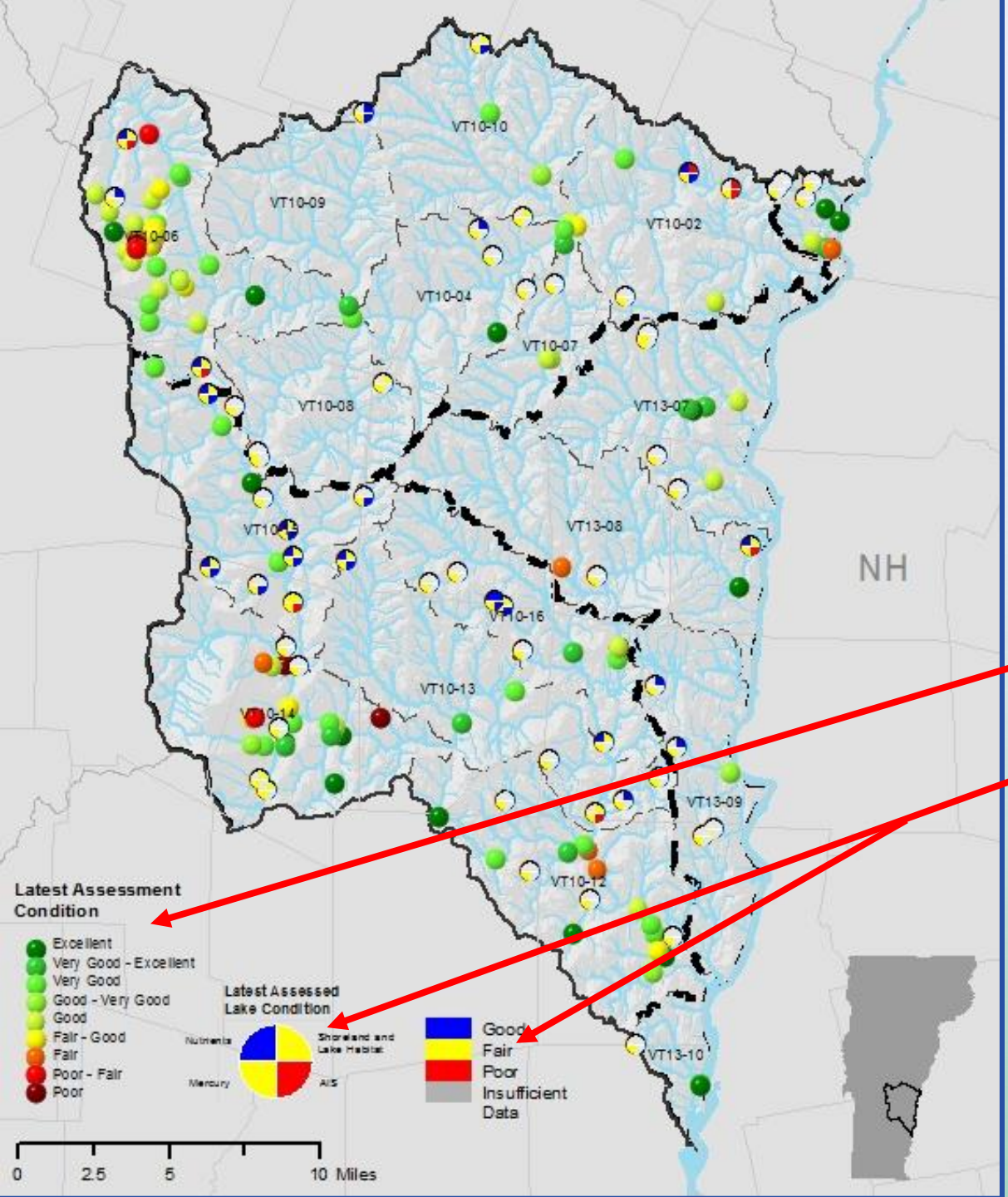
21 VT Towns

Ottauquechee mainstem
- 38 miles long
- 223 sq miles

Black mainstem
- 40 miles long
- 202 sq miles

Connecticut River
- > 38 miles

WATER QUALITY ASSESSMENTS



Monitoring sites on:

Rivers & Streams

Lakes & Ponds

Lulls Brook

Monitoring Site Summary - River/Stream

Lulls Brook

River Mile: 6.8

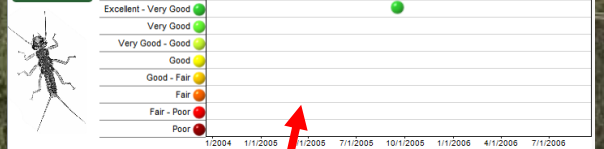
Located just below small private bridge crossing 50m. Off Brownville Road near address # 1092.

Hartland, VT (43.53944, -72.43806)

Macroinvertebrate Assessment

Macroinvertebrate population Assessments are a measure of the biological integrity of the macroinvertebrate community and an indicator of the health of the aquatic biota. (For More Details)

More Info



Monitoring Site Summary - River/Stream

Lulls Brook

River Mile: 5.9

Located upstream of Hartland four corners, just past school.

Hartland, VT (43.54028, -72.42647)

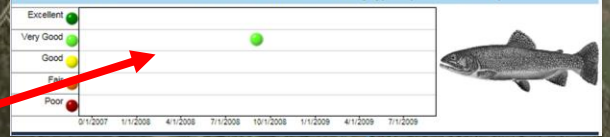
Macroinvertebrate Assessment

Macroinvertebrate population Assessments are a measure of the biological integrity of the macroinvertebrate community and an indicator of the health of the aquatic biota. (For More Details)

More Info

Fish Assessment

Fish populations provide a measurement of the general health of the aquatic biota. Since fish occupy the top of the food web their population integrates the conditions of lower community types. (For More Details)



Monitoring Site Summary - River/Stream

Lulls Brook

River Mile: 6.6

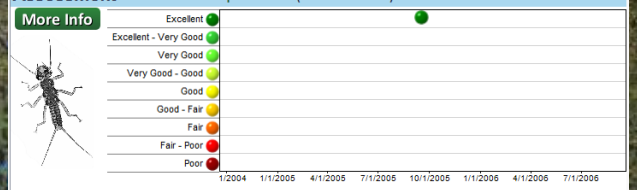
Located off Brownville Road near address # 868, below influence of new leachfield for G.M.Dharma Center.

Hartland, VT (43.53833, -72.43417)

Macroinvertebrate Assessment

Macroinvertebrate population Assessments are a measure of the biological integrity of the macroinvertebrate community and an indicator of the health of the aquatic biota. (For More Details)

More Info



Monitoring Site Summary - River/Stream

Lulls Brook

River Mile: 3.4

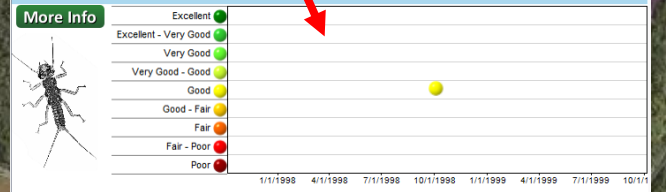
Behind Fire Station in Hartland Four Corners.

Hartland, VT (43.5425, -72.40417)

Macroinvertebrate Assessment

Macroinvertebrate population Assessments are a measure of the biological integrity of the macroinvertebrate community and an indicator of the health of the aquatic biota. (For More Details)

More Info



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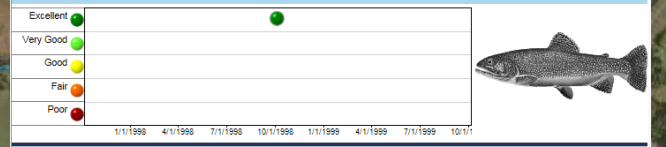
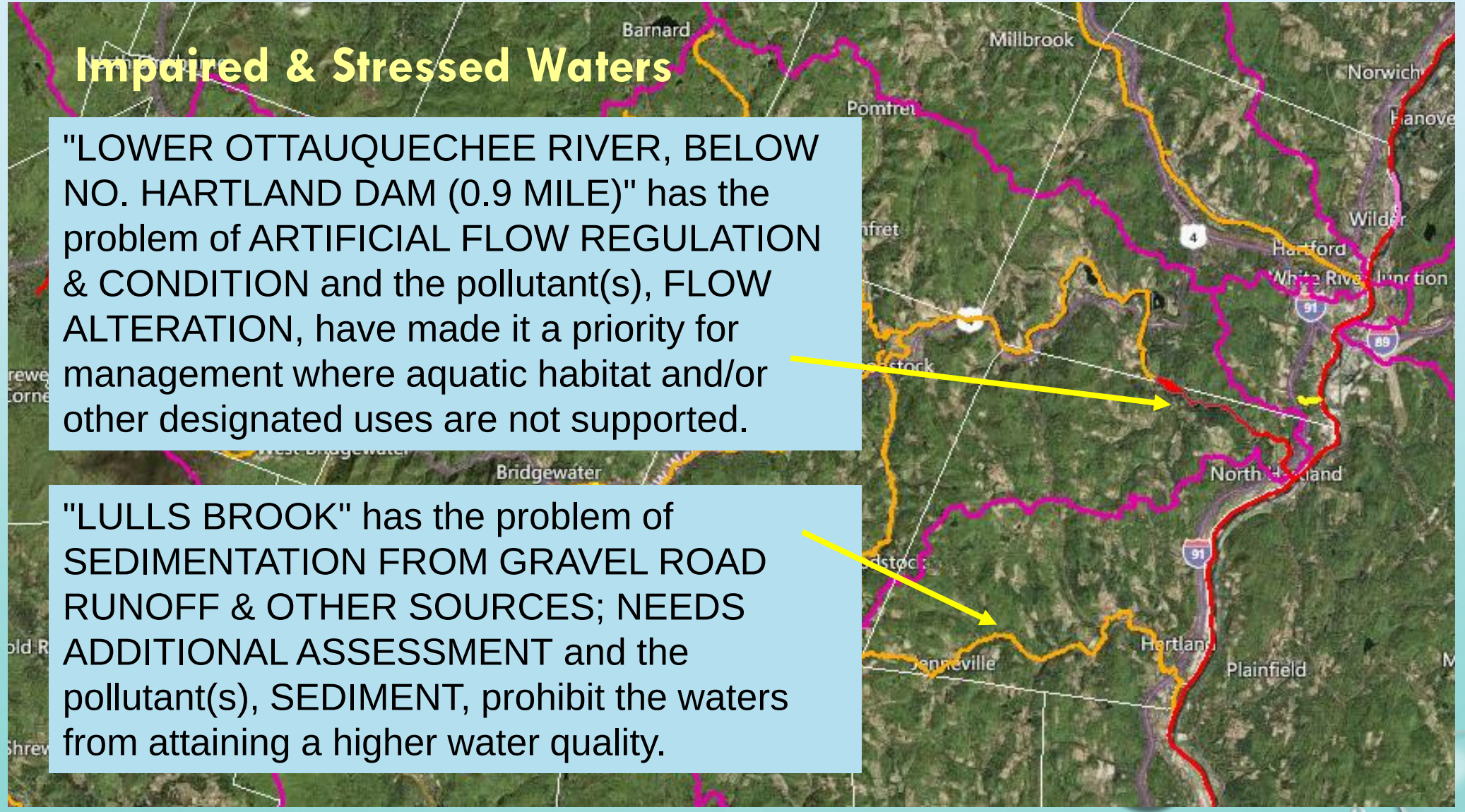


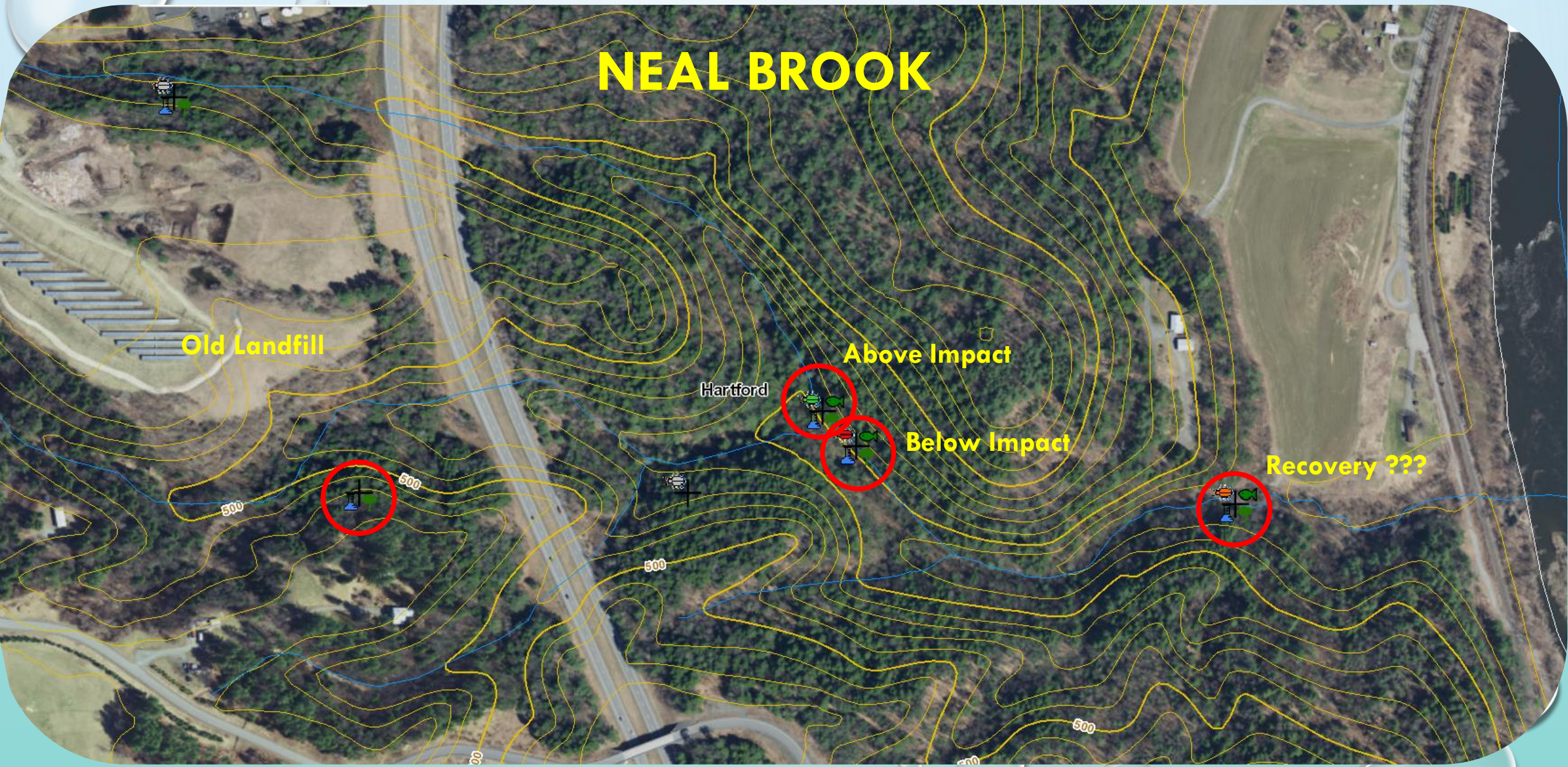
IMPAIRED WATERS

DO NOT MEET VT WATER QUALITY STANDARDS

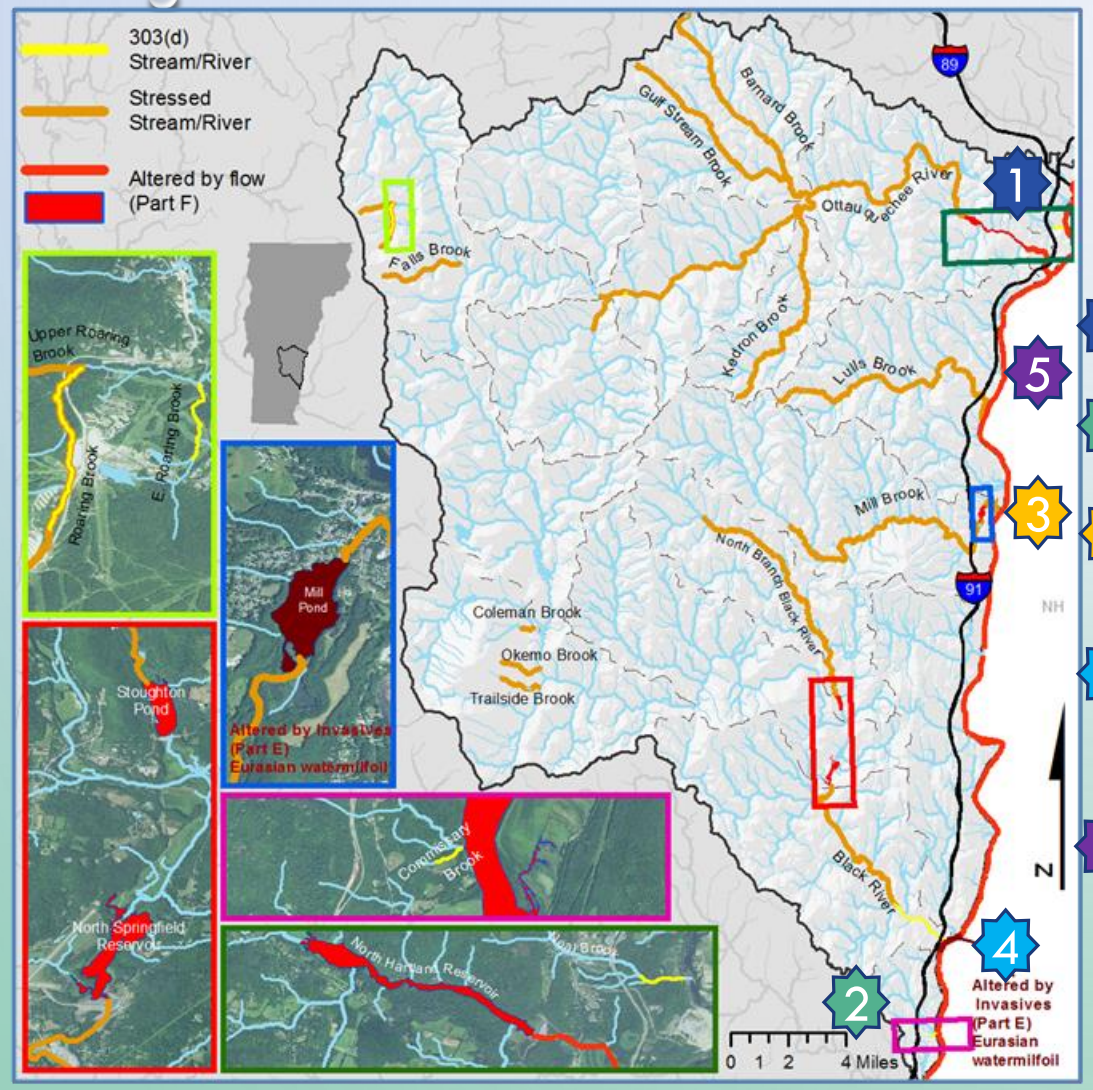
- Watershed plans inventory, assess & develop strategies for impaired waters
- 7 waters have impairments in the Basin 10

OTTAUQUECHEE RIVER WATERSHED



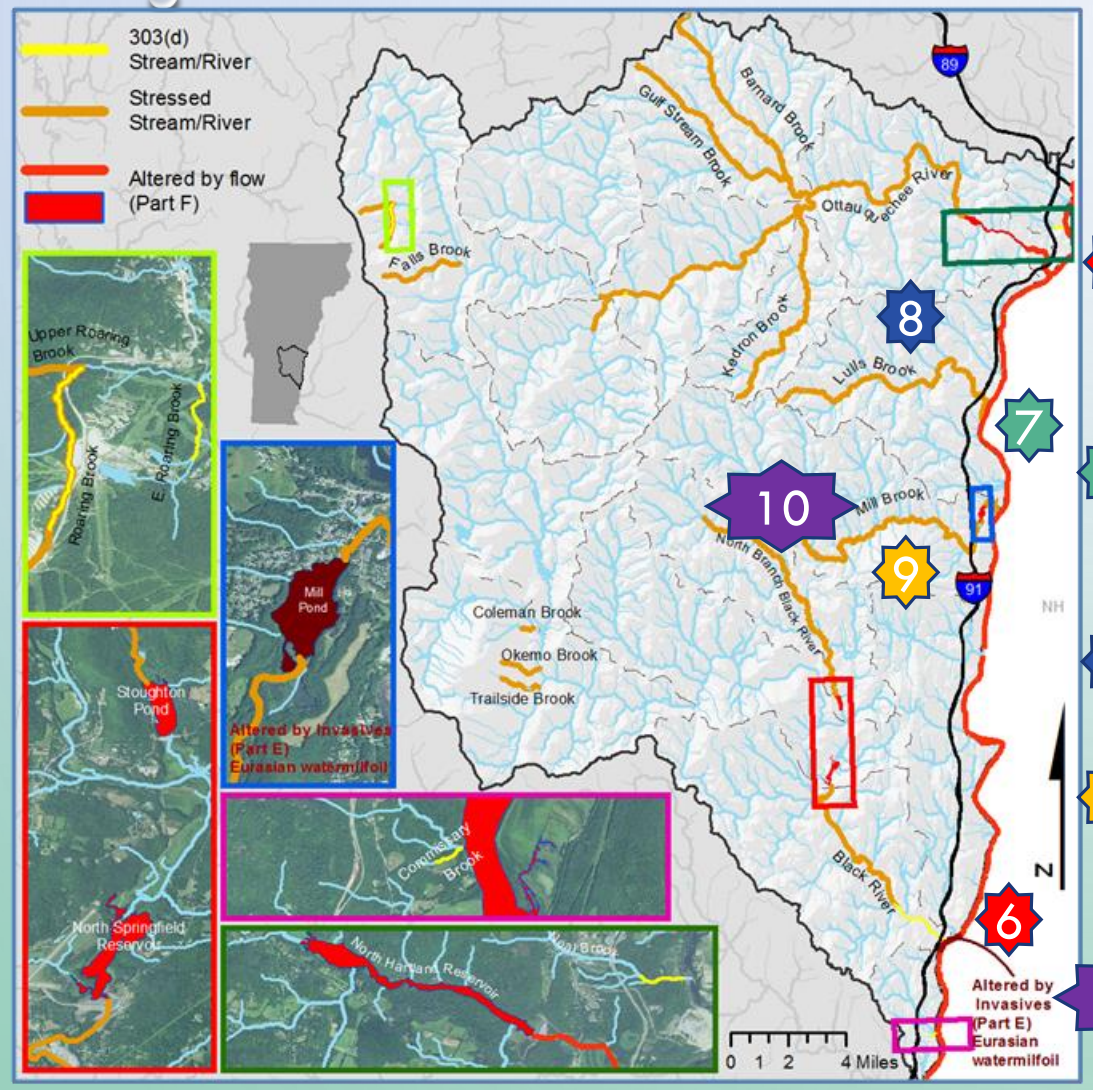

NEAL BROOK
Old Landfill
Hartford
Above Impact
Below Impact
Recovery ???
500
500
500
500

IMPAIRED & STRESSED WATERS



Waterbody	Mileage & Status	Pollutant(s)	Primary Stressor	Use Affected	Problem / Source	Proposed Actions
CONNECTICUT RIVER						
1 Neal Brook	Mouth to RM 0.4 *Impaired*	Metals		ALS	Macroinvertebrates Impacted by Landfill Drainage	Implement leachate control and remediate stream impacts
2 Commissary Brook Tributary	Mouth to RM 0.2 *Impaired*	Sediment		AES, ALS	Bank Failure and Erosion Due to Past Clay Mining	Address mass failure
3 Mill Pond (Kennedys Pond) (Windsor)	14 acres *Altered*			AES, ALS, CR, 2CR	Locally abundant Eurasian Watermilfoil growth	Develop and implement an invasive species management plan
4 Connecticut River	Hoyts Landing & Wilder Dam TransCanada Launches *Altered*			AES, ALS, CR, 2CR	Locally abundant Eurasian Watermilfoil growth	Develop and implement an invasive species management plan
5 Connecticut River	20.5 Miles Wilder Dam to Ascutney Village *Altered*			ALS	Artificial Flow Condition, Fluctuating Flows Associated with Hydropower Production; FERC License Expires In 2018	Currently under review for FERC re-licensing; pursue conservation flows through appropriate state regulatory processes

IMPAIRED & STRESSED WATERS



Waterbody	Miles & Status	Pollutant(s)	Primary Stressor	Use Affected	Problem / Source	Proposed Actions
Connecticut River	21.5 Miles Above Bellows Falls Dam *Altered*			ALS	Water Level Fluctuation at Dam; Dewatered Shorelines/Wetlands; FERC License Expires In 2018	Currently under review for FERC re-licensing; pursue conservation flows through appropriate state regulatory processes
Connecticut River	Above Bellows Falls Dam to Springfield *Altered*			AES, ALS	Reservoir Water Level Fluctuation at Dam; Destabilized Eroding Streambanks; Observed Impacts to Skitchewaug Archeological Site; Site Rip-Rapped; FERC License Expires In 2018	Currently under review for FERC re-licensing; pursue conservation flows through appropriate state regulatory processes
Lulls Brook	8.0 Miles *Stressed*	Sediment		AES, ALS	Sedimentation from Gravel Road Runoff & Other Sources; Needs Additional Assessment	Complete Road Erosion Inventory and implement priority projects
Mill Brook	1.0 Miles Mill Pond Dam to Conn Rv *Stressed*	Sedimentation, Stormwater		ALS, AES	Impoundment De-Silting, Developed Land Runoff	Scope and implement priority projects identified in the River Corridor Plan
Mill Brook	8.6 Miles Willow Brook confluence to Mill Pond *Stressed*	Sediment, Habitat Alteration		ALS	Streambank Erosion, Road Maintenance & Runoff; Biological community not meeting expectations.	Scope and implement priority projects identified in the River Corridor Plan; complete Road Erosion Inventory and implement priority projects

WATERSHED PROTECTION

Reclassification

Use	A1	B1	B2
Aquatic Biota	Excellent - Natural Condition	Very Good - minor change	Good - moderate change
Aquatic Habitat	Natural Condition	Very Good - minor change	Good - moderate change
Aesthetics	Natural Condition	Very Good	Good
Boating	Excellent - maximum extent without degradation	Very Good - maximum extent with no more than minor degradation	Good - meets hydrological criteria
Fishing	Salmonid population in Natural Condition	Salmonid population in Very Good Condition	Salmonid population in Good Condition
Public Water Supply	(A2) Uniformly excellent character, highly suitable	---	Suitable with treatment
Swimming	Excellent	---	Good

A2 Water Supply

A(2) to B(1) or A(1)

Ottauquechee River	Approx. Miles/Acres
Spring and unnamed tributary to the Ottauquechee River. Abandoned - Village of North Hartland water source. A spring and unnamed tributary to the Ottauquechee River and all waters within its watershed upstream of the water intake. The spring and brook are located approximately 1 mile north-northwest of North Hartland Village.	0.3 mile
Cox, Vondell, and Carlton Hill Reservoirs. Cox and Vondell – Emergency; Carlton Hill – Abandoned - Village of Woodstock (WSID 5342) water sources. Cox, Vondell, and Carlton Hill Reservoirs in the Town of Woodstock and all waters within their watersheds.	2.5 miles (Stream only)
Wright, Upper Hurricane, and Lower Hurricane Reservoirs. Abandoned - Hartford Town (WSID 5319) water sources. Wright, Upper Hurricane, and Lower Hurricane Reservoirs and all waters within their watersheds in the Town of Hartford.	10.4 acres
Black River	
Springfield Reservoir Brook. Abandoned - Village of Springfield water source. Springfield Reservoir Brook and tributaries and all waters in its watershed upstream of Springfield Reservoir.	1.8 miles
Springfield Reservoir and tributaries. Abandoned - Village of Springfield water source. Springfield Reservoir and all waters within its watershed.	9.8 acres
Unnamed tributary to Mill Brook. Abandoned - Village of Ascutney water source. Unnamed tributary to Mill Brook and all waters in its watershed above the water intake. The unnamed tributary is the first tributary to Mill Brook in the Town of Weathersfield.	1.7 miles

WATERSHED PROTECTION

Outstanding Resource Waters

Waterbody	Location	Comments:	
ORW	***These waters display outstanding qualities based on one or more of 14 features***		
			ORW Feature
North Branch Ottauquechee River	Bridgewater, Killington - All	Fish habitat and fishery recreation	1, 4, 12
Buttermilk Falls, Branch Brook	Ludlow		7, 8, 12
Cavendish Gorge, Black River	Cavendish		7, 8, 12
Comtu Falls, Black River	Springfield		7, 8

specific exceptional natural, recreational, cultural, or scenic values

- 1. EXISTING WATER QUALITY AND CURRENT WATER QUALITY CLASSIFICATION;
- 2. THE PRESENCE OF AQUIFER PROTECTION AREAS;
- 3. THE WATERS' VALUE IN PROVIDING TEMPORARY WATER STORAGE FOR FLOOD WATER AND STORM RUNOFF;
- 4. THE WATERS' VALUE AS FISH HABITAT;
- 5. THE WATERS' VALUE IN PROVIDING OR MAINTAINING HABITAT FOR THREATENED OR ENDANGERED PLANTS OR ANIMALS;
- 6. THE WATERS' VALUE IN PROVIDING HABITAT FOR WILDLIFE, INCLUDING STOPOVER HABITAT FOR MIGRATORY BIRDS;
- 7. THE PRESENCE OF GORGES, RAPIDS, WATERFALLS, OR OTHER SIGNIFICANT GEOLOGIC FEATURES;
- 8. THE PRESENCE OF SCENIC AREAS AND SITES;
- 9. THE PRESENCE OF RARE AND IRREPLACEABLE NATURAL AREAS;
- 10. THE PRESENCE OF KNOWN ARCHEOLOGICAL SITES;
- 11. THE PRESENCE OF HISTORIC RESOURCES, INCLUDING THOSE DESIGNATED AS HISTORIC DISTRICTS OR STRUCTURES;
- 12. EXISTING USAGE AND ACCESSIBILITY OF THE WATERS FOR RECREATIONAL, EDUCATIONAL, AND RESEARCH PURPOSES AND FOR OTHER PUBLIC USES;
- 13. STUDIES, INVENTORIES AND PLANS PREPARED BY LOCAL, REGIONAL, STATEWIDE, NATIONAL, OR INTERNATIONAL GROUPS OR AGENCIES, THAT INDICATE THE WATERS IN QUESTION MERIT PROTECTION AS OUTSTANDING RESOURCE WATERS; AND
- 14. EXISTING ALTERATIONS, DIVERSIONS OR IMPOUNDMENTS BY PERMIT HOLDERS UNDER STATE OR FEDERAL LAW.

WATERSHED PROTECTION

Waterbody	Location	Comments:
Wetlands	***These waters should be assessed for potential reclassification to Class 1 or 2***	
Black Pond	Plymouth	
Beaver Pond	Weathersfield	
Killington Flats		Extensive wetlands with many strong wetland functions due to the stream (e.g., erosion control, flood storage, fish habitat, wildlife habitat) and a strong aesthetic value due to their visibility from a public road
Lake Ninevah contiguous		
Eshqua Bog		High recreational and educational value, Showy Lady-slipper, Yellow Lady-slipper, northern bog orchid, green orchid, Labrador tea, cotton grass, pitcher plants, showy lady's slippers, larches, buckbean

WATERSHED RESTORATION AND PROTECTION

PROJECTS THAT REDUCE NONPOINT SOURCE POLLUTION

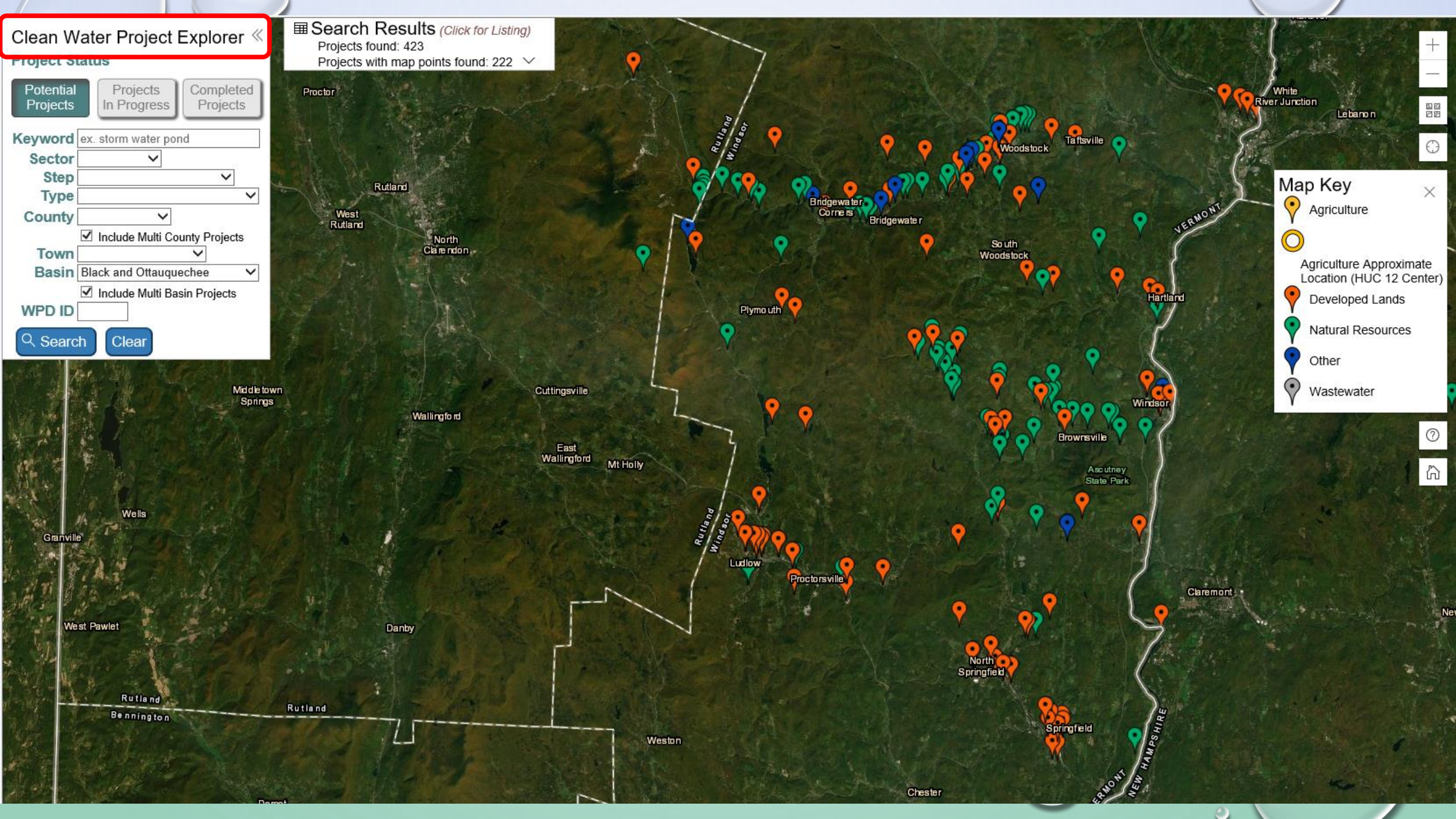
- Riparian buffer plantings
- Stream stability restoration projects
- Road, bridge & culvert improvements
- Agricultural Best Management Practices (BMPs)
- Stormwater Management
- Logging/silviculture Accepted Management Practices (AMPs)
- Construction site erosion controls

SUMMARY OF IMPLEMENTATION PROJECTS

Strategies	Priority Subbasin or Town	Stressor(s) addressed	Potential Partners
AGRICULTURE: Implement BMPs			
Increase outreach and technical assistance through workshops and trainings for farmers, ag contractors and technical service providers	Basin-wide	Land erosion, nutrients, pathogens	UVM Ext., NRCDs, AAFM, NRCS
Implement livestock exclusion practices	Kedron Brook	Land erosion, nutrients, pathogens	NRCDs, AAFM, NRCS
Increase farm buffer establishment along surface waterways and upland wetlands	Kedron Brook, No. Branch Black, Twentymile Stream	Land erosion, nutrients, pathogens, temperature	NRCDs, AAFM, NRCS
Establish long-term funding for projects like 'Trees for Streams'	Basin-wide	Land erosion, nutrients, pathogens, temperature	VDEC, NRCDs, AAFM, NRCS
Expand small farm NMP development courses and workshops, trainings for farmers, manure applicators and technical service providers	Basin-wide	Nutrients, pathogens	UVM Ext., NRCDs, AAFM, NRCS
Increase the use of cover crops	Basin-wide	Land erosion, nutrients, pathogens	UVM Ext., NRCDs, AAFM, NRCS
Identify areas in need of AEM assessment and additional BMP practices	Kedron Brook, No. Branch Black, Twentymile Stream	Land erosion, nutrients, pathogens	NRCDs, AAFM, NRCS
Provide technical assistance to the equine community to increase participation in nonpoint source pollution prevention	Kedron Brook, Mill Brook	Land erosion, nutrients, pathogens, temperature	UVM Ext., NRCDs, AAFM, NRCS
Continue outreach to farmers on the RAPs.	Basin-wide	Land erosion, nutrients, pathogens, temperature	NRCDs, AAFM
Acquire RCE on farmland located on alluvial fans	Kedron Brook/Ottauquechee confluence, Hubbard Brook, No. Branch Black, Twentymile Stream, Mill Brook	Flood resiliency	VLT, VRC, UVLT

SUMMARY OF IMPLEMENTATION PROJECTS

FLOW ALTERATION: Restore natural flows
FOREST MANAGEMENT: Abate soil erosion
HAZARD MITIGATION & FLOOD RESILIENCY: Decrease threats to human safety and property damage
IMPAIRED & STRESSED WATERS: Improve water quality and habitat restoration
RIVER CORRIDOR: Reach stream equilibrium and flood resilience
SHORELANDS: Protect and restore
STORMWATER: Reduce pollutants and volume
SURFACE WATER PROTECTION: Restore and reclassify
WETLANDS: Protect and restore


Clean Water Project Explorer
Project Status
Potential Projects
Projects In Progress
Completed Projects
Keyword
ex. storm water pond
Sector
Step
Type
County
Include Multi County Projects
Town
Basin
Black and Ottauquechee
Include Multi Basin Projects
WPD ID
Search
Clear
Search Results (Click for Listing)
Projects found: 423
Projects with map points found: 222
Map Key
Agriculture
Agriculture Approximate Location (HUC 12 Center)
Developed Lands
Natural Resources
Other
Wastewater
Proctor
Rutland
West Rutland
North Clarendon
Middletown Springs
Wallingford
Cuttingsville
East Wallingford
Mt Holly
Plymouth
Bridgewater Corners
Bridgewater
Woodstock
Taftsville
South Woodstock
Hartland
Windsor
Brownsville
Ascutney State Park
White River Junction
Lebanon
VERMONT
Ludlow
Proctorsville
Claremont
North Springfield
Springfield
NEW HAMPSHIRE
Chester
Weston
Danby
West Pawlet
Wells
Granville
Rutland
Bennington
Rutland
Rutland
Windsor

WATERSHED PROJECTS DATABASE

WDP

Projects

Name | Status | FED Step
Project Type | County | Grant Number
Basin Plan: Basin 10 & 13 - Black, Ottauquechee | Town | Project ID
Grade Type | Grade

Search | Clear | Add | To Report

Partner with willing landowners

		ID	Project Name	Project Type	Status	FED Step	Grant Number(s)
Edit	View	18	Kedron Brook Agricultural Nutrient Management Planning and Flood Resiliency	Agricultural Pollution Prevention - Implementation	Funded		2016-ERP-1-23
Edit	View	84	Pinney Hollow Brook Floodplain and Streambed Restoration Design	Floodplain/Stream Restoration - Preliminary Design	Completed		2015-ERP-1-09
Edit	View	85	Projects to Address Sediment Sources in the Upper Black River Watershed	Floodplain/Stream Restoration - Implementation	Completed		2015-ERP-2-14
Edit	View	86	Pingree Flats Floodplain Restoration	Forestry - Implementation	Funded		2015-ERP-2-05
Edit	View	130	Stream Geomorphic Assessment along Valley Street, Springfield	Stream Geomorphic Assessment Phase 2	Funded		2016-ERP-1-06
Edit	View	228	Mill Brook Stream Geomorphic Assessment	Stream Geomorphic Assessment Phase 2	Completed		2013-ERP-1-20
Edit	View	238	Statewide Trees for Streams/Riparian Buffer Restoration, 2014-2015	River - Planting	Completed	3	2014-ERP-2-01
Edit	View	266	Ottauquechee Floodplain Abutment Removal	Floodplain/Stream Restoration - Implementation	Completed		2014-ERP-2-03
Edit	View	272	Black River Corridor Easements	River Corridor Easement - Implementation	Completed		2013-ERP-3-06.3
Edit	View	273	Pingree Flats Riparian Corridor Easement	River Corridor Easement - Implementation	Completed		2014-ERP-3-04
Edit	View	2149	Springfield Transfer Station Infiltration-Detention Basin	Stormwater - Final Design	Pending Closeout		2017-ERP-2-05
Edit	View	2150	West Windsor Firehouse Dam Removal	Dam Removal - Implementation	Funded		2017-ERP-2-06
Edit	View	2171	Clinton Street Combined Sewer Overflow Abatement	Stormwater - Preliminary Design	Grading Started	1	
Edit	View	2173	Pingree Flats Wetland Restoration	Wetland Restoration - Final Design	Grading Started	2	
Edit	View	2180	Lincoln Street gully remediation	Floodplain/Stream Restoration - Preliminary Design	Grading Started	1	
Edit	View	2181	Hartland floodplain restoration and riparian buffer restoration	Floodplain/Stream Restoration - Preliminary Design	Grading Started	1	
Edit	View	2182	Killington Town Visitor's Center Park & Ride Stormwater Mitigation	Stormwater - Preliminary Design	Grading Started	1	
Edit	View	2391	Baltimore Road - Replace culvert	Floodplain/Stream Restoration - Implementation	Grading Started	3	
Edit	View	2695	Springfield Transfer Station Infiltration-Detention Basin Implementation	Stormwater - Implementation	Grading Started	3	
Edit	View	2697	Hartford Stormwater Master Plan - Basin 9	Stormwater Master Planning	Grading Started		
Edit	View	2704	Billings Farm Sediment Attenuation RCE	River Corridor Easement - Implementation	Not Graded	3	
Edit	View	2705	Riparian Buffer Planting - Woodstock	River - Planting	Not Graded	3	
Edit	View	2706	Riparian Buffer Planting - Woodstock	River - Planting	Not Graded	3	
Edit	View	2707	Riparian Buffer Planting - Woodstock	River - Planting	Not Graded	3	
Edit	View	2708	Riparian Buffer Planting - Woodstock	River - Planting	Not Graded	3	
Edit	View	2709	Riparian Buffer Planting - Woodstock	River - Planting	Not Graded	3	
Edit	View	2710	Gully Restoration College Hill Rd	Stormwater - Preliminary Design	Not Graded	1	

- 440 PROJECTS
- 4 AGRICULTURE
- 10 DAM REMOVALS
- 168 FLOODPLAIN/ STREAM RESTORATIONS
- 3 FORESTRY
- 18 HAZARD MITIGATION
- 32 PLANTINGS
- 47 RC EASEMENTS
- 36 ROAD PROJECTS
- 90 STORMWATER
- 10 WQ PROTECTION
- 14 WETLAND PROJECTS

PLAN AVAILABLE AT:

VT DEC WEBSITE:

HTTPS://DEC.VERMONT.GOV/WATER-INVESTMENT/WATERSHED-PLANNING

OR

CALL

802-289-0633

MARIE.CADUTO@VERMONT.GOV

Andover, New Hampshire

CASE STUDY

How a town saved thousands of dollars on road-maintenance costs and made peace with its beavers

Photo: Cheryl Reynolds

Perfect damming sites, unprotected culverts will always be re-dammed.

SMALL TOWN, COSTLY PROBLEM

Andover sits at the base of Ragged Mountain in central New Hampshire. The town's 2,500 residents value its rich network of streams, ponds, and lakes. So does a healthy population of beavers.

Dams built by beavers in eight of the town's road culverts were a perpetual problem. When dams plugged culverts, waters rose and flooded roadways. The heavy equipment required to remove the dams cost $125 hour. Clearing a single culvert often took several hours. Exhorbitant costs were also incurred to repair degraded roads.

THE HIGH COSTS OF TRAPPING BEAVERS AND CLEANING CULVERTS

For decades Andover's selectmen and road agents took the traditional approach to the conflict. They hired trappers to kill beavers and contractors to clear culverts. The figures below approximate the costs of trapping, culvert cleaning, and minor repairs.

AVERAGE ANNUAL COST PER CULVERT	ANNUAL COST OF EIGHT CULVERTS	10-YEAR COST	30-YEAR COST
$2,000	$16,000	$160,000	$480,000

Ram-rodding a clogged culvert on Elbow Pond Rd.

Clockwise from upper left: Skip Lisle, Beaver Deceiver™ inventor; John Thompson, Road Agent; Vicky Mishcon, Select Board Chair; Nan Kaplan, Conservation Commission.

SEARCH FOR A NEW DIRECTION

The traditional approach was inefficient, unpopular, and costly. In a never-ending cycle, new beavers moved in to replace those killed. Public disdain for trapping kept growing. In addition, beavers, an animal of unequalled ecological value, were routinely eliminated from local ecosystems. Non-lethal control methods were considered, but most state transportation and fish and game officials advised against them because they believed success rates were low.

In the fall of 2006 Nan Kaplan, a member of Andover's Conservation Commission familiar with the town's predicament, read an article about wildlife biologist Skip Lisle, inventor of the Beaver Deceiver™ and other "flow devices." Kaplan had a hunch he could deliver a solution, and she pressed town officials to meet with him.

"The town has spent thousands on cleaning culverts and replacing gravel. How about spending a small amount on a solution? These flow devices will work! The Conservation Commission is willing to expend our own funds to prove it."

Nan Kaplan (from a 2006 letter to the Select Board)

SKILL OVERCOMES SKEPTICISM

In 2007 board members met Lisle and were impressed by his designs, knowledge of beaver behavior, and track record. They didn't call on him, however, until a vital thoroughfare—Elbow Pond Road—washed out after the culverts were once again dammed. Rebuilding the road cost the town $48,000.

With their patience and budget exhausted, the board hired Lisle to protect its investment. **Despite beavers remaining active at the site, the Beaver Deceivers™ have prevented any damming, flooding, or other beaver-related problems for more than a decade.**

Lisle at Elbow Pond Road.

"We haven't spent a penny cleaning culverts in that area since the Beaver Deceivers went in," says Mishcon, Select Board Chair.

CONCEPT PROVEN, CONFLICT SOLVED

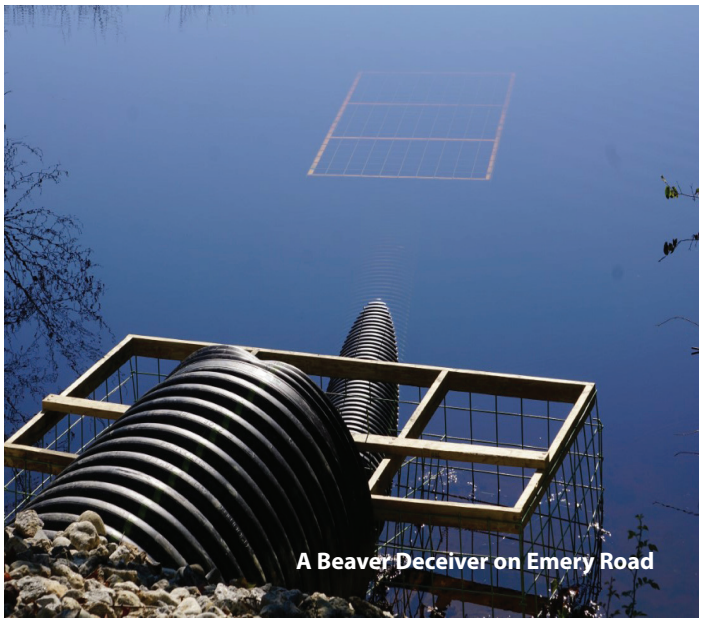
"Elbow Pond" proved so successful the board decided to beaver-proof all of the town's conflict points. By 2017 Lisle had protected all eight threatened culverts.

With its roads and culverts safe from beaver damming and damage, the town will save a lot of money in coming decades. By choosing flow devices over traditional management, Andover expects to save approximately $130,000 over a ten-year period, and nearly $500,000 over a thirty-year period. **Extrapolated across a given county or state, the potential savings represented by the use of properly designed, high-quality flow devices could be breathtaking.** In addition, there are many nearby wetlands worth hundreds of thousands of dollars in ecological and hydrological services that would drain if beavers were killed and their dams not maintained.

AN ENDURING REMEDY AT A FRACTION OF THE COST OF A "KILL" STRATEGY

TOTAL COST OF FLOW DEVICES AT EIGHT CULVERTS	ESTIMATED 30-YEAR BUDGET FOR MAINTENANCE*	30-YEAR TOTAL COST OF FLOW DEVICES	30-YEAR TOTAL COST OF TRADITIONAL METHODS	30-YEAR SAVINGS FROM FLOW DEVICES
$23,000	$25,000	$48,000	$540,000	$492,000

*The lifespan of Lisle's flow devices is estimated at 30 to 40 years.



A Beaver Deceiver on Emery Road

FIND OUT MORE TAKE A TOUR

Officials from towns, DOTs and conservation commissions are welcome.

To visit Andover Beaver Deceiver™ sites, or for more information about the town's experience, please contact:

Vicky Mishcon
vlmishcon@comcast.net
Home: 603-735-6402

For more information about Beaver Deceivers™ contact:

Skip Lisle
www.beaverdeceivers.com
skip@beaverdeceivers.com
Cell: 802-289-2899
Home: 802-843-1017

"I was skeptical, but not anymore. The key to our success has been Skip's unique skill and knowledge. He adjusts his work to the site and uses strong materials. I hope we will always have a line item in our budget for flow devices."

John Thompson
Road Agent

"There are two options: Endlessly kill beavers and clean culverts, or install a high-quality flow device. They both cost money, but we have all kinds of evidence that the first method does not work. The second does work, and it is far less expensive."

Vicky Mishcon
Select Board Chair

"Beavers are a native, keystone species that create, maintain, and improve wetlands. The best way to maximize hydrological values and to improve the health and productivity of watersheds is to take measures to keep live beavers in them."

Skip Lisle, M.S.
President
Beaver Deceivers International

The Valley Green Journal

Grassroots connections – agriculture, communities, nature

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New State-of-the-Art Beaver Deceiver in Marlboro VT

By Jan Lambert

A win-win solution to human-beaver conflict is installed in front of a road culvert in Marlboro VT, thanks to local collaboration and the skills of Skip Lisle, inventor of Beaver Deceiver™ flow devices, which solve the problem of beaver dams blocking road culverts and cause flooding.

Lisle emphasizes that the community will benefit greatly from the devices that will allow the beavers to maintain beneficial wetlands, so important for wildlife habitat and the regulation of water in the landscape. A special bonus to Marlboro is that the beavers will be able to restore a fire pond that was historically used by the fire department. After the beavers were previously destroyed, the pond had drained—but now is being refilled. *(See more details in caption.)*

Jan Lambert photo

This very sophisticated Beaver Deceiver™ flow device installed recently by Skip Lisle on Adams Crossroad in Marlboro VT, incorporates new features that maximize benefits for both humans and wildlife, and beautifully illustrates our mission, "Beavers As Partners". The beavers are building a new dam behind the fencing that protects the entrance of the culvert, and Skip is providing branches to hasten their progress, as the new dam will raise the pond to a higher level so that it may be used by the town's fire department. The large white pipe will be underwater at that point and will prevent the pond from rising high enough to flood the road. The new decking is for the use of firefighters to reach the water. To the left of the deck is a wildlife passageway so that beavers, snapping turtles and other wildlife can pass through the culvert unharmed. For more information on Beaver Deceivers™, visit www.beaverdeceivers.com .

Like this article?

Find more at www.valleygreenjournal.com .

MISSION STATEMENT: **Our mission is to foster grassroots connections, locally and globally, to help grow caring communities based on sustainable agriculture; we emphasize living in concert with nature and conserving lands, waters, and wildlife.**