Wantastiquet Subcommittee
of the Connecticut River Joint Commissions
Thursday, February 13, 2020
Putney General Store, Putney, VT
Meeting Minutes

Attendees

Walpole	Samantha Loch	✓	Westminster	Paul Harlow	
Walpole			Westminster	Jim Calchera	✓
Westmoreland	Perry Sawyer	✓	Putney	Joe Grutta	✓
Westmoreland			Putney		
Chesterfield	Roland Volbehr		Dummerston	Daniel Marx	
Chesterfield			Dummerston	Jack Lilly	
Hinsdale			Brattleboro	Kathy Urffer	✓
Hinsdale			Brattleboro	Michael Fairchild	✓
Vernon	Andy White	✓	Brattleboro (alt)	Michael Donovan	
Vernon					

Marie Caduto (Basin Planner, VTDEC); Margo Ghia (Windham Regional Commission, Planner); Scott Poitras (Eversource); Logan Young (GZA); Olivia Uyizeye (Staff)

Minutes

1. Welcome and Introductions

Uyizeye opens the meeting at 5:35pm. Introductions are made.

2. Speaker – Basin Plan Update (VT) from Marie Caduto (VT DEC)

Caduto introduces herself and indicates she acts as a commissioner for VT to the CRJC. Caduto focuses her presentation on Basin 12, covering the Deerfield River and lower Connecticut tributaries, which is the most relevant to the Wantastiquet region. The notes below are supplemented with the presentation slides, provided by Caduto.

- Basin plan process – 5-year planning process including assessment of water quality and habitat, compilation of monitoring data, compare to previous plan for what was and was not done, draft plan and send out for comment, finalize plan update, implement. Basin 12 is just wrapping up the public comment period.
- All water resources are monitored over time. VTDEC looks at the whole community, using biological, chemical and physical assessment techniques. Biological assessments reflect a broader time of impact or health of the water source. Fish and Game focuses largely on sport species like trout.
- Fish and bug health do not always align, particularly around dam impacts.
- Basin 12 has a significant degree of acid from acid rain that originates from pollution produced in the Midwest.
- Caduto performed a full review of conserved land in this basin, the second most forested basin in the state.

- VTDEC has performed statewide wetlands assessments (score up to 100) for the past 3 years. For those assessed so far in this Basin, the scores are fairly high, lowest 60.
- Basin plan reviews wild and stock fish. Stocked rainbow and brown trout are placed in locations where wild trout would not be, such as waters where temperatures are higher due to exposure or dam regulation of waters. Sawyer comments that there is research being done to find a trout species that can withstand higher temperatures.
- Caduto continues. The plan sets priorities for the basin according to different uses (e.g. fishing, agriculture) and clarifies protections. The plan reviews impaired waters (report to the state every 2 years) and identifies stressed waters that need tracking and intervention so not to become impaired.
- Caduto highlights focus and collaboration with the Long Island Sound to reduce high Nitrogen (from river inputs and 63% from atmospheric deposition) causing hypoxia (or low oxygen) in the Sound. Basin plans will be working to make reductions to impacts from the estimated contributions from these basins.
- Caduto emphasizes Broad Brook as in important cross river/state wildlife corridor, particularly in the face of expected wildlife migrations from climate change.
- Newton brook is agriculturally impaired due to nutrients and sediment. Water testing is performed up to Lilly Pond and then at various spots as it moves downstream.
- Kettle pond (a true kettle pond) is degraded from stormwater runoff and lack of management.
- Wastewater treatment plants in the region are aging out and need a lot of work. Funds are available to some degree from the state loan revolving fund.
- Main partners in the basin are the Windham Regional Commission, Natural Resources Conservation District and Connecticut River Conservancy.
- Caduto encourages towns to take advantage of currently available clean water funds, as these may not be maintained over time.
- Caduto will next be undergoing the planning process from Basin 11, which extends North from the mouth of the West River trough Herricks Cove in Rockingham and up to the mouth of the Black River. Caduto will be looking for LRS input

3. Permit Reviews
    a. Attending Applicant from Eversource on annual vegetation maintenance and ROW inspection on the 381/379 ROW to be submitted as a Statutory Permit by Notification

Young and Poitras pass out permit application details, including map of the proposed areas. The permit asks for LRS approval. The project is for maintenance of the Eversource transmission lines in the vicinity of the Connecticut River from Hinsdale to Brattleboro. The maintenance is on a 3 to 4-year cycle for invasive species. Mowing is performed every 3 years. Hand cutting on the banks of rivers and for the removal of trees is performed every 4 years. Only mechanical and hand methods are proposed as part of this permit.

Calchera asks what type of mower is used. Poitras responds that they use a brontosaurus mower. This mower is not used in areas where there is concern of erosion or impacts to wetlands.

Urffer makes a motion for Uyizeye to sign the permit to allow for submission. Calchera seconds the motion. The vote passes unanimous.

b. NHDOT Bridge Maintenance for Invasives and Poison Ivy using Rodeo (glyphosate), Connecticut River in Walpole

Uyizeye summarizes permit that intends to use spot spraying of glyphosate for invasive species maintenance near bridges. Uyizeye also shares comments shared by other LACs - Ashuelot, Contoocook and North Branch Rivers LAC:

i. make sure the applicator is licensed with NH Ag or the appropriate agency;
ii. we understand that there will remain a buffer between the treated areas and the river bank itself, please confirm;
iii. avoid spraying during breezy or windy days to help prevent overspray reaching unintended areas or the river;
iv. spray the minimum required;
v. while we have concerns regarding use of chemicals over mechanical means, we understand the importance of maintaining road/bridge infrastructure to protect the safety of the motoring public.

Calchera notes this is standard maintenance for bridges by the state. Glyphosate is presently on uncertain ground, with some recommending it and others expressing concern and discouraging its use. Urffer notes that the comments provided by other LACs are appropriate. Fairchild indicates that there is not enough clarity and information on glyphosate, but that he is generally against chemical use. Calchera notes that poison ivy is difficult to manage safely with manual methods. White says it is important to keep the glyphosate out of the river. Urffer and Grutta discuss that the chemical can get moved around from wind and rain. Reps agree on the importance of having a licensed sprayer who is fluent in best management practices to minimize risk.

Calchera makes a motion to write a comment letter reinforcing the comments made by other LACs. White seconds the motion. The vote passes unanimous.

a. Westmoreland Shoreland Standard (On Hold)

Uyizeye notes this permit has not been made available and cannot be discussed at this meeting without further detail.

4. Approve Meeting Minutes (September and January)

Urffer makes a motion to approve the minutes as is from September and January. White seconds the motion. The vote passes unanimous.

5. Subcommittee Priorities
    a. Connecticut River water quality testing. VRAP meeting.

Urffer informs the LRS that a representative from NHDES Volunteer River Assessment Program (VRAP) has been scheduled with the LRS to provide training on Tuesday, March 31, 5-7pm. The Mount Ascutney LRS should also be invited. The data collected as part of this program on the Connecticut River can be shared with VTDEC basin planners, including Marie Caduto, to incorporate into their assessment.

Loch suggests inviting students who work with the Cold River LAC on their VRAP program. These students are very knowledgeable. Reps agree to also invite conservation commissions and select boards. Suggested meeting locations are the Butterfield Library in Westminster and the

school auditorium in Walpole School. Uyizeye will work to firm up a convenient location and draft a flyer for distribution.

6. Next Meeting Location and Date

It is agreed that the next full business meeting will take place in early May in order to be prepared for VRAP sampling in the Spring.

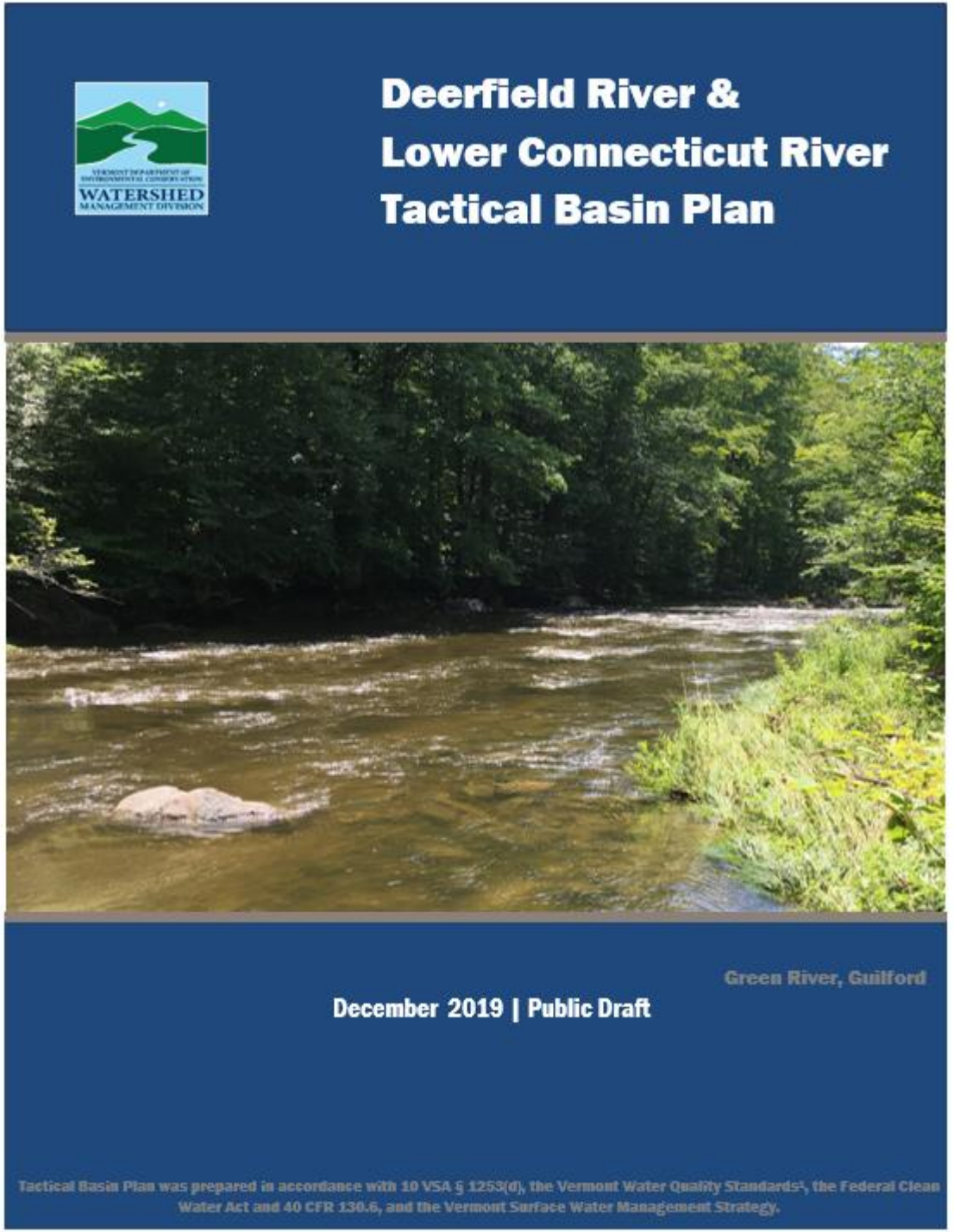
7. Subcommittee Chair Options

Uyizeye informs the group that it is difficult to take minutes and facilitate meetings simultaneously, and asks the LRS to resolve the open chair position. Uyizeye shares options for this role, including one chair, co-chairs and rotating chairs. Representatives agree to start with rotating chairs. This will require the LRS to decide at the end of every meeting, the chair for the next meeting. It is agreed to have a short business meeting before or after the March 31 VRAP event to select a chair for the May meeting.

8. Other Updates & Business
9. Adjourn

Calchera motions to adjourn the meeting. Urffer seconds. The motion passes unanimous. Meeting is adjourned.

Minutes respectfully submitted by Olivia C. Uyizeye



BASIN 12 TACTICAL BASIN PLAN 2019

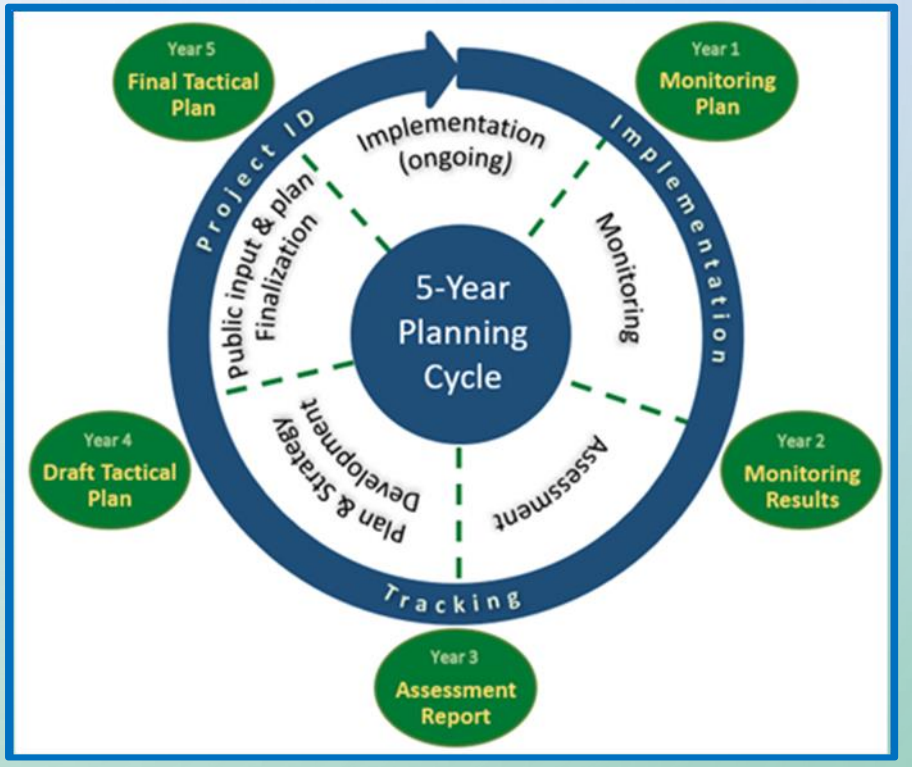
Marie Levesque Caduto
Watershed Coordinator

Water Investment Division

"Planning, financing, building, and reporting on water infrastructure to support clean water for all Vermonters."

BASIN PLANNING PROCESS

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



WATER QUALITY MONITORING AND ASSESSMENT

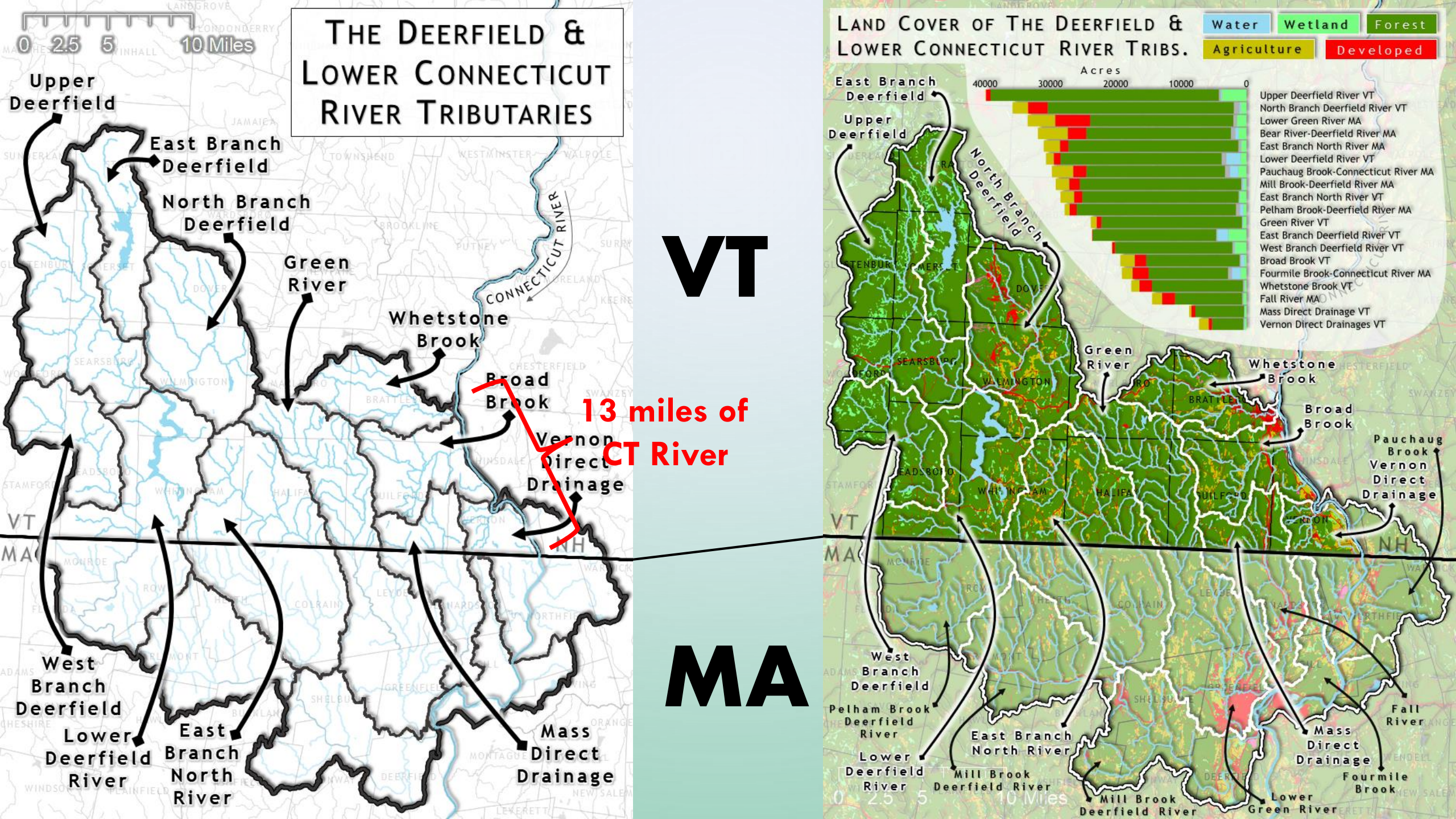
to understand the "health" of our watersheds

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

WATER QUALITY ASSESSMENT REPORTS

Monitoring is conducted on

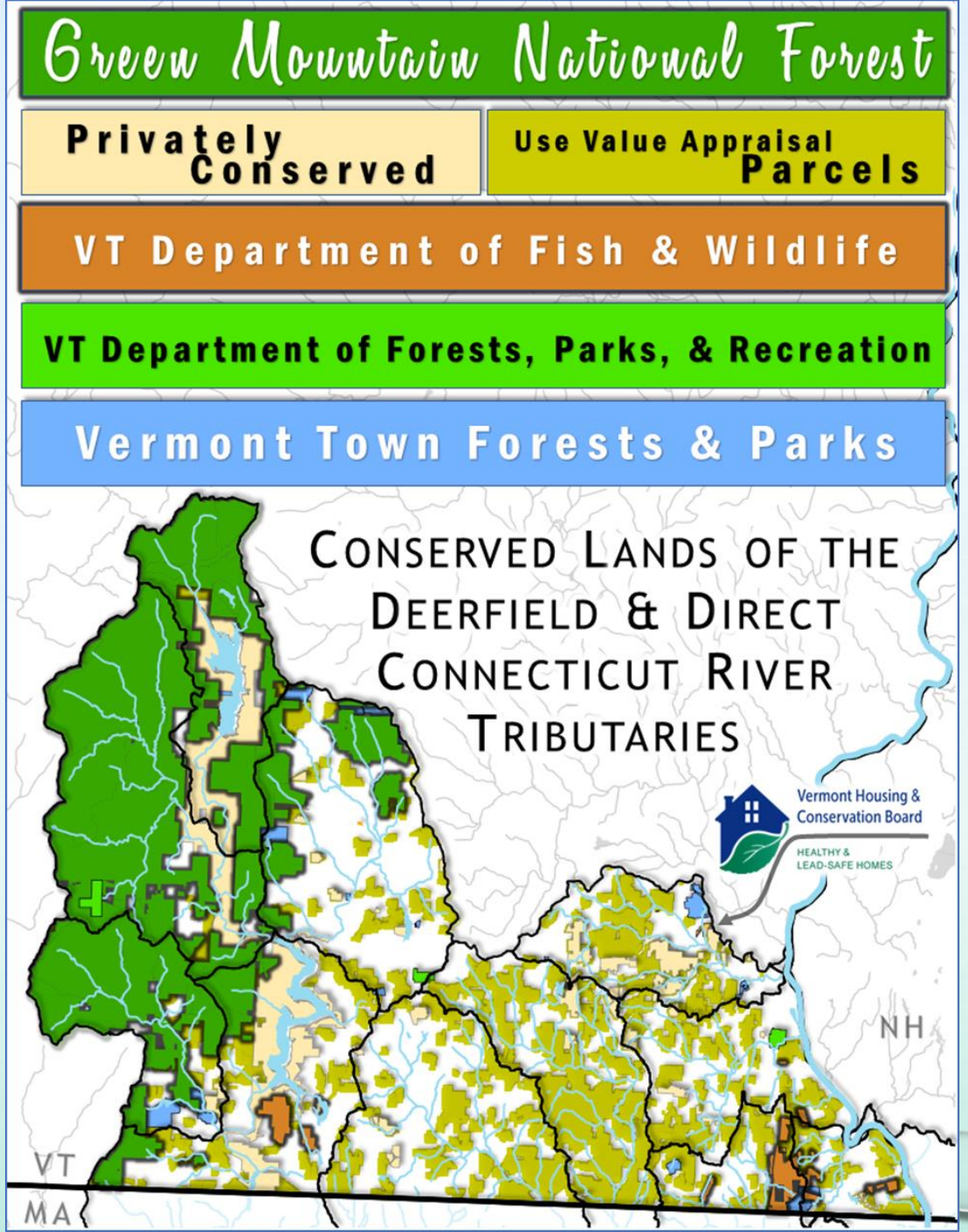
- Rivers & streams
- Lakes & Ponds
- Wetlands


0 2.5 5 10 Miles
The Deerfield & Lower Connecticut River Tributaries
Upper Deerfield
East Branch Deerfield
North Branch Deerfield
Green River
Whetstone Brook
Broad Brook
Vernon Direct Drainage
CONNECTICUT RIVER
VT
MA
NH
13 miles of CT River
West Branch Deerfield
Lower Deerfield River
East Branch North River
Mass Direct Drainage
Land Cover of The Deerfield & Lower Connecticut River Tribs.
Water
Wetland
Forest
Agriculture
Developed
Acres
40000
30000
20000
10000
0
Upper Deerfield River VT
North Branch Deerfield River VT
Lower Green River MA
Bear River-Deerfield River MA
East Branch North River MA
Lower Deerfield River VT
Pauchaug Brook-Connecticut River MA
Mill Brook-Deerfield River MA
East Branch North River VT
Pelham Brook-Deerfield River MA
Green River VT
East Branch Deerfield River VT
West Branch Deerfield River VT
Broad Brook VT
Fourmile Brook-Connecticut River MA
Whetstone Brook VT
Fall River MA
Mass Direct Drainage VT
Vernon Direct Drainages VT
Pauchaug Brook
Pelham Brook Deerfield River
Mill Brook Deerfield River
Fall River
Fourmile Brook
Lower Green River
0 2.5 5 10 Miles

Basin 12 is the

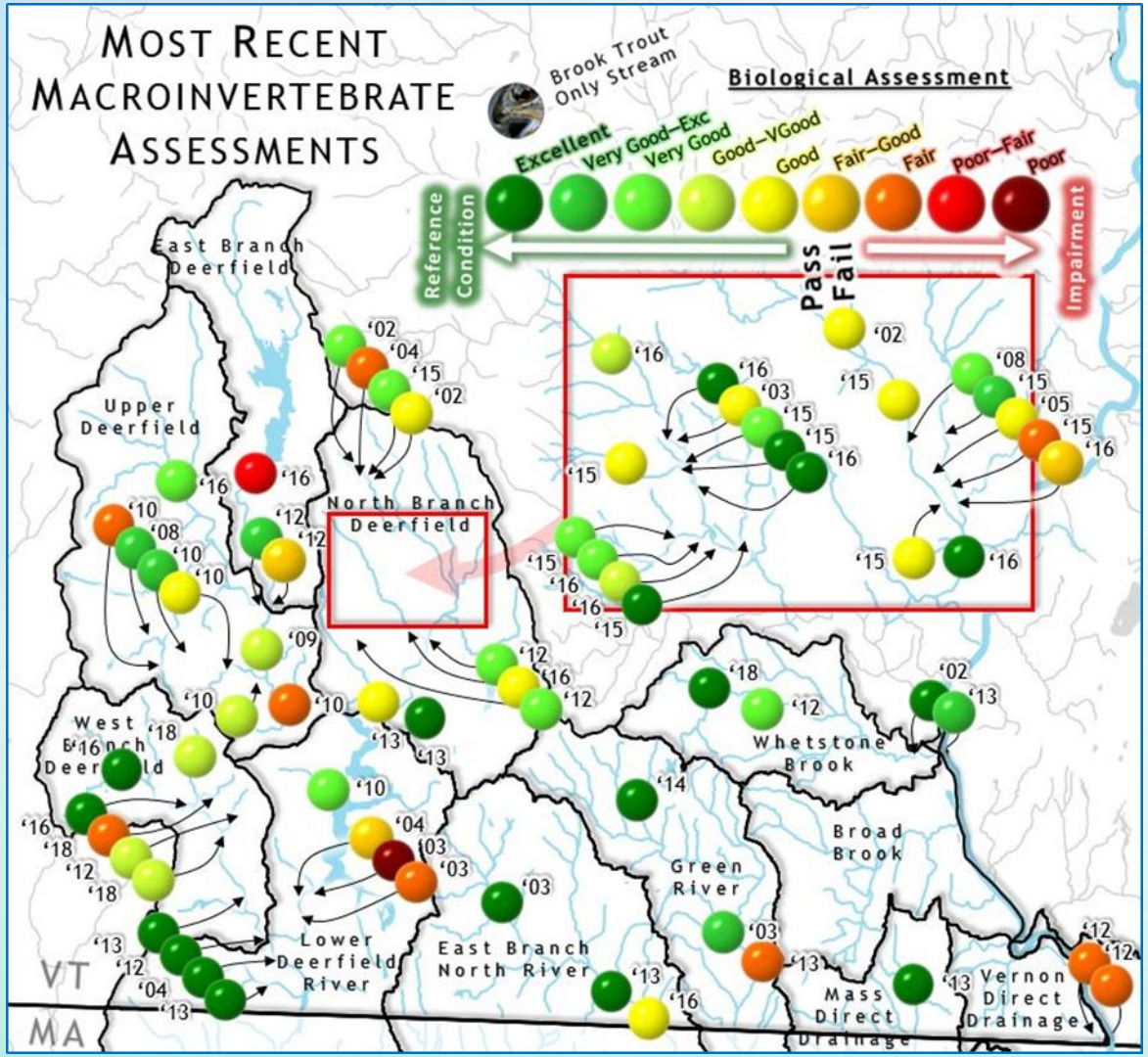
- second most forested
- least developed
- least cultivated basin

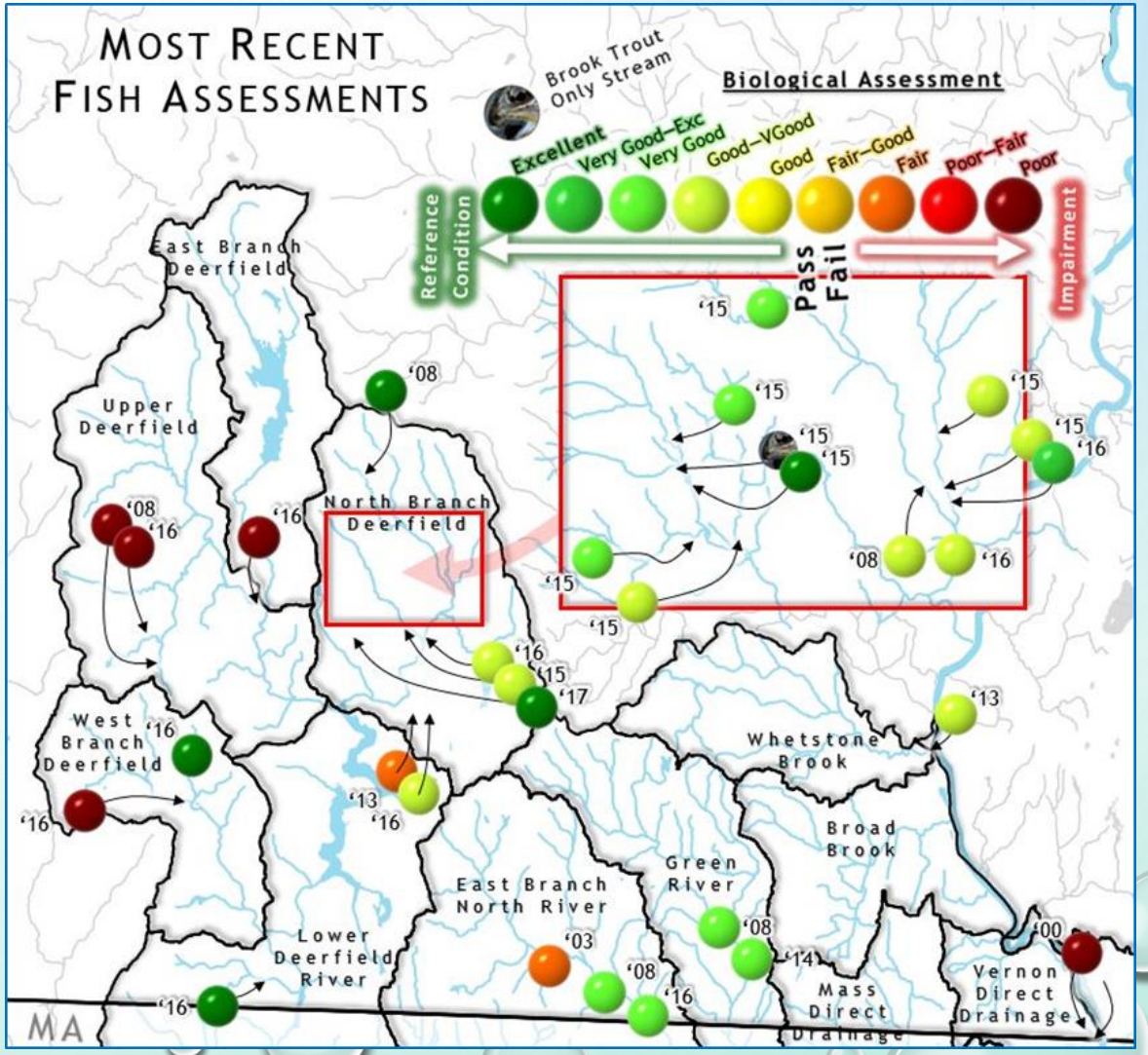
in the State of Vermont



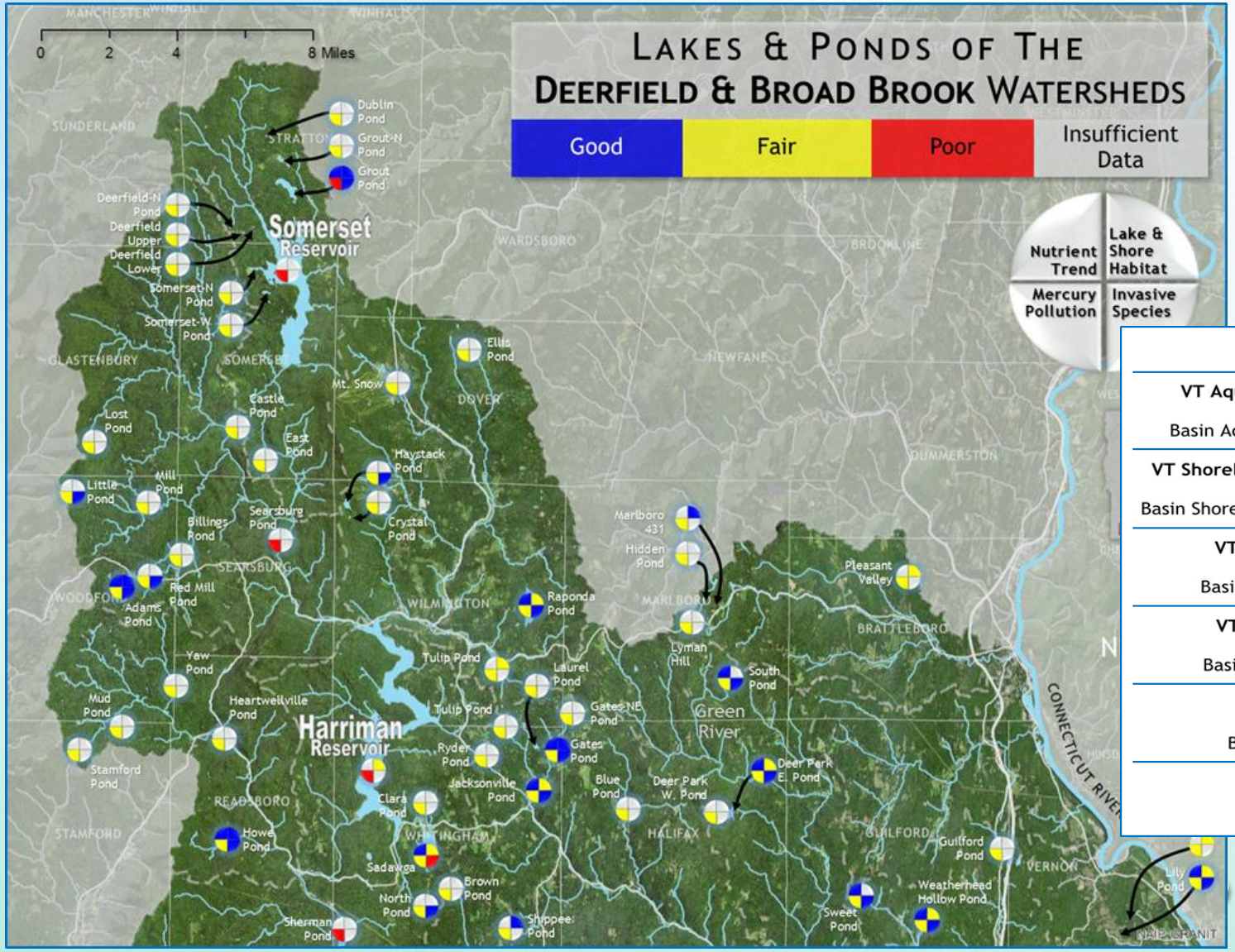
Extensive conserved lands leave only 40% of the entire Basin without some level of protection

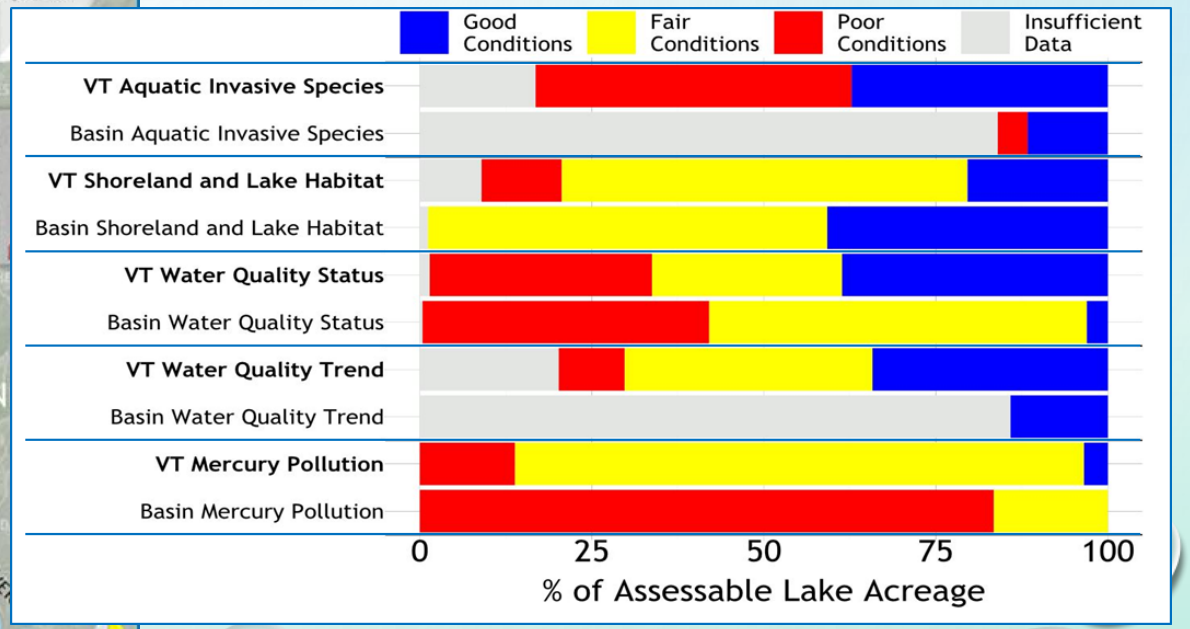
CONDITION OF RIVERS





CONDITION OF LAKES AND PONDS

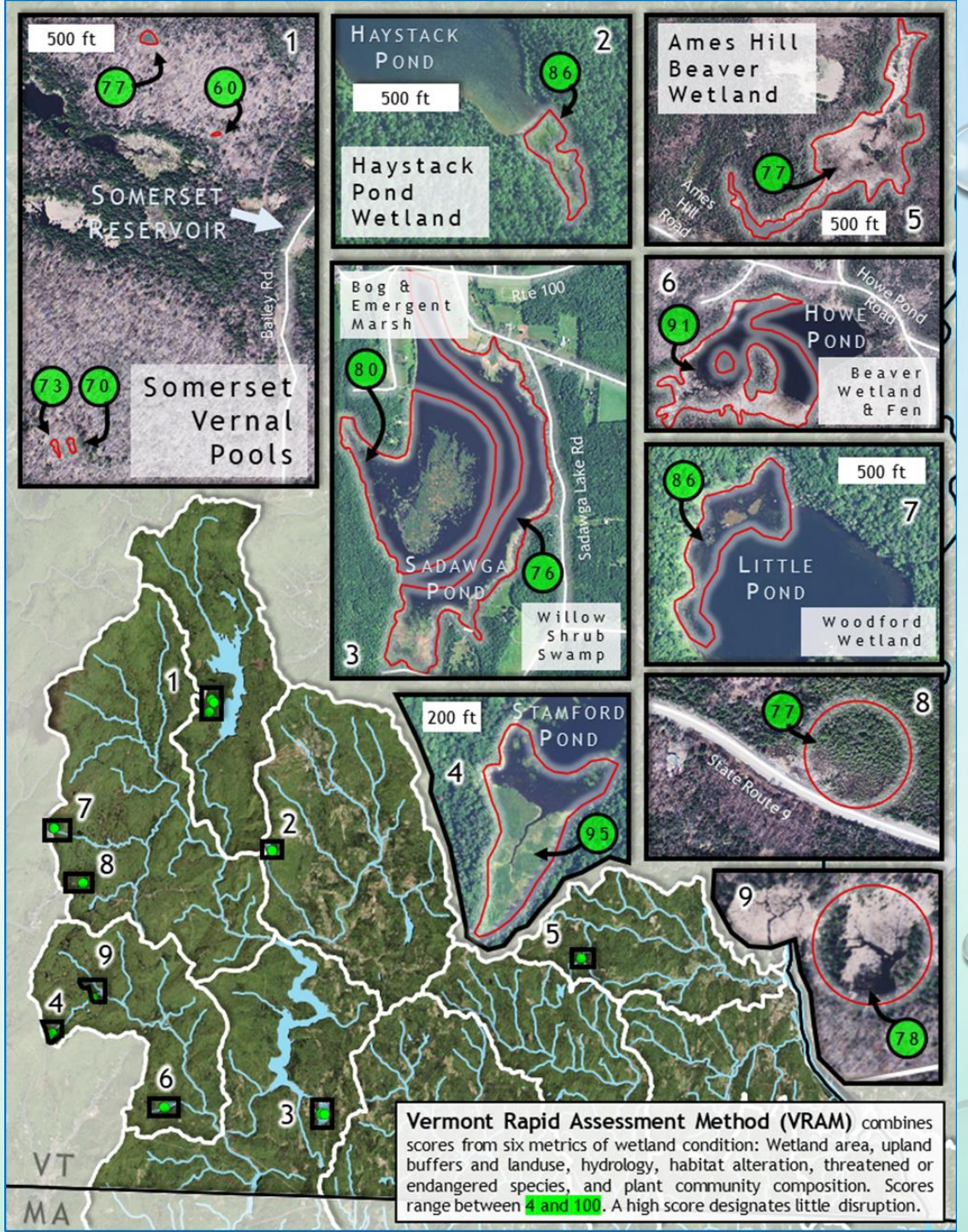




CONDITION OF WETLANDS

The Vermont Rapid Assessment Methodology (VRAM) is used to assess for quality. Scores = 4 - 100

Those assessed in Basin 12 have ranked along the upper end of the scale, indicating higher quality and little disturbance.



CONDITION OF FISHERIES

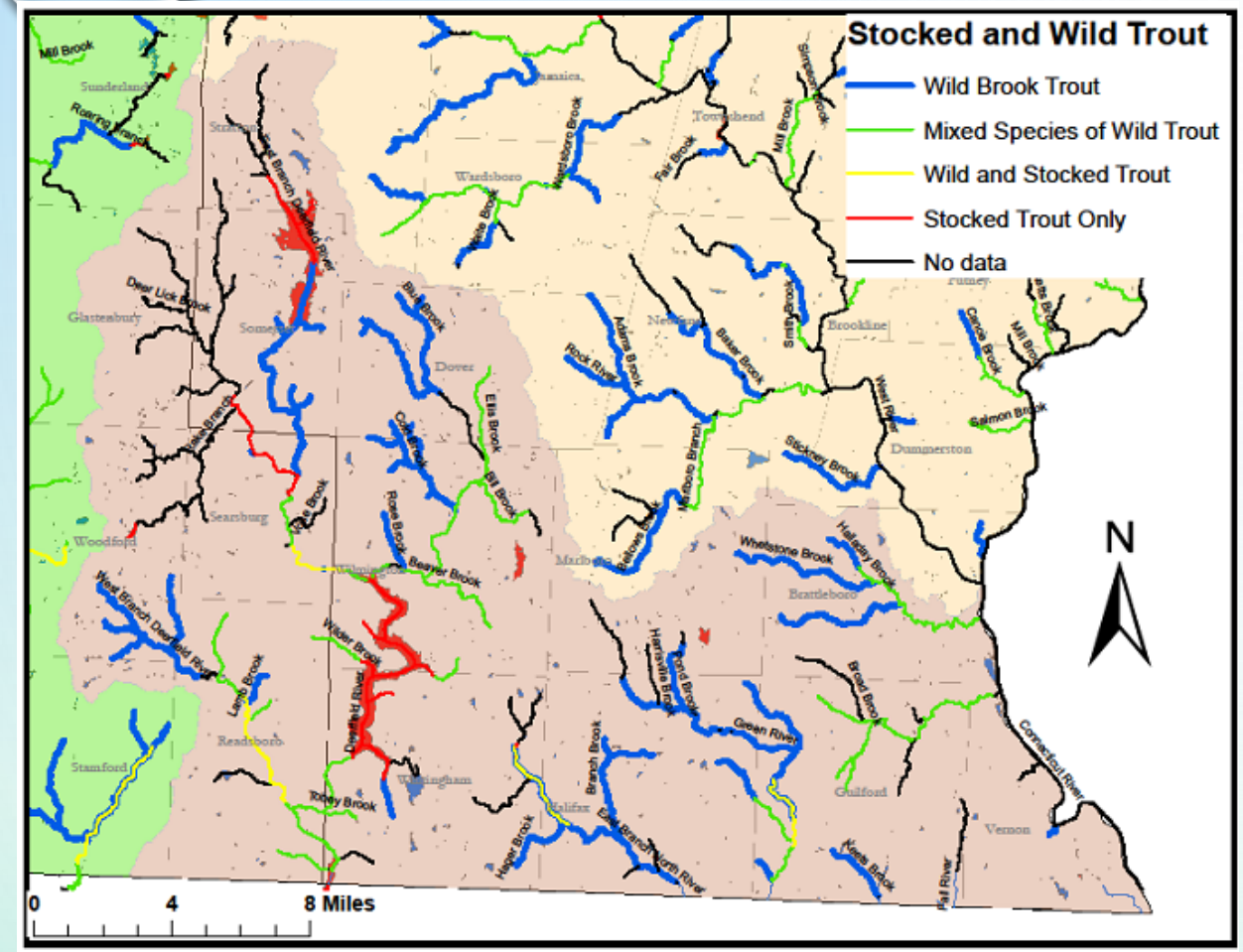


Figure 2. Streams providing habitat for trout within the Deerfield watershed.

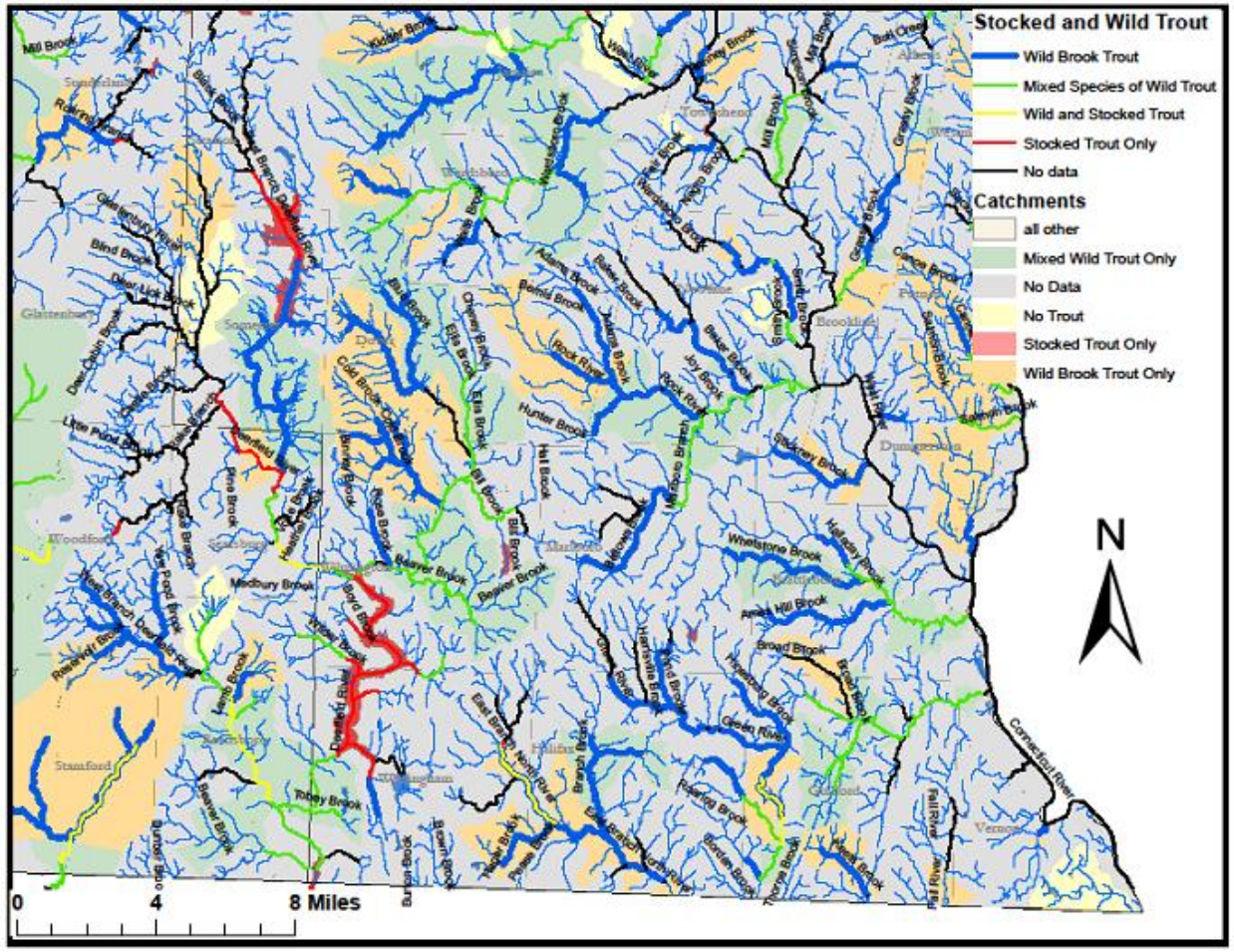
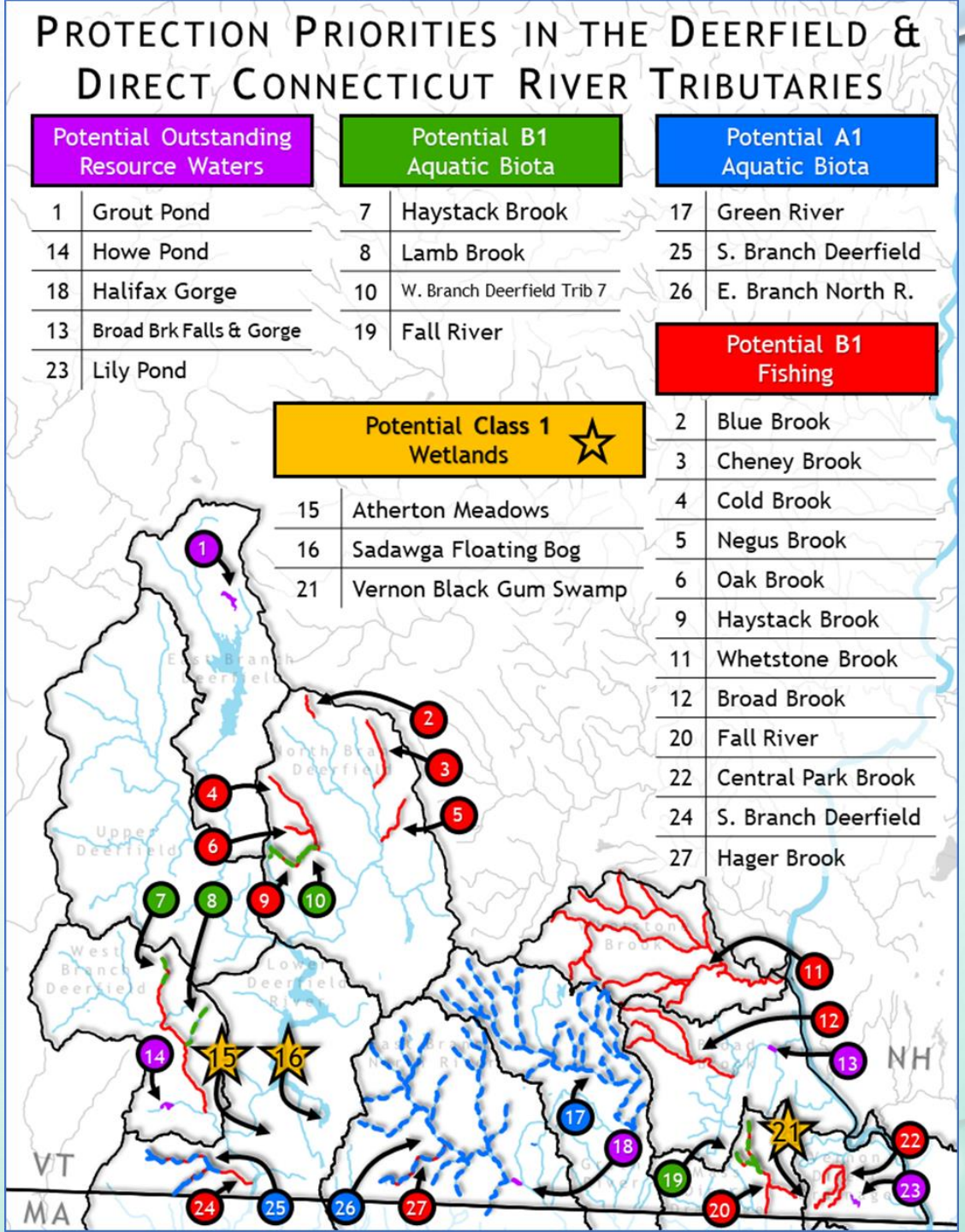


Figure 3. Catchments providing habitat for wild trout.

- TROUT PRODUCTION - LIMITED DUE TO NATURAL CAUSES -WATER CHEMISTRY, STREAM TEMPERATURES, AND IN CERTAIN AREAS BY FLOW ALTERATIONS AND POST-IRENE ALTERATIONS
- TRIBUTARY STREAMS PROVIDE GREATER TROUT ABUNDANCES

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

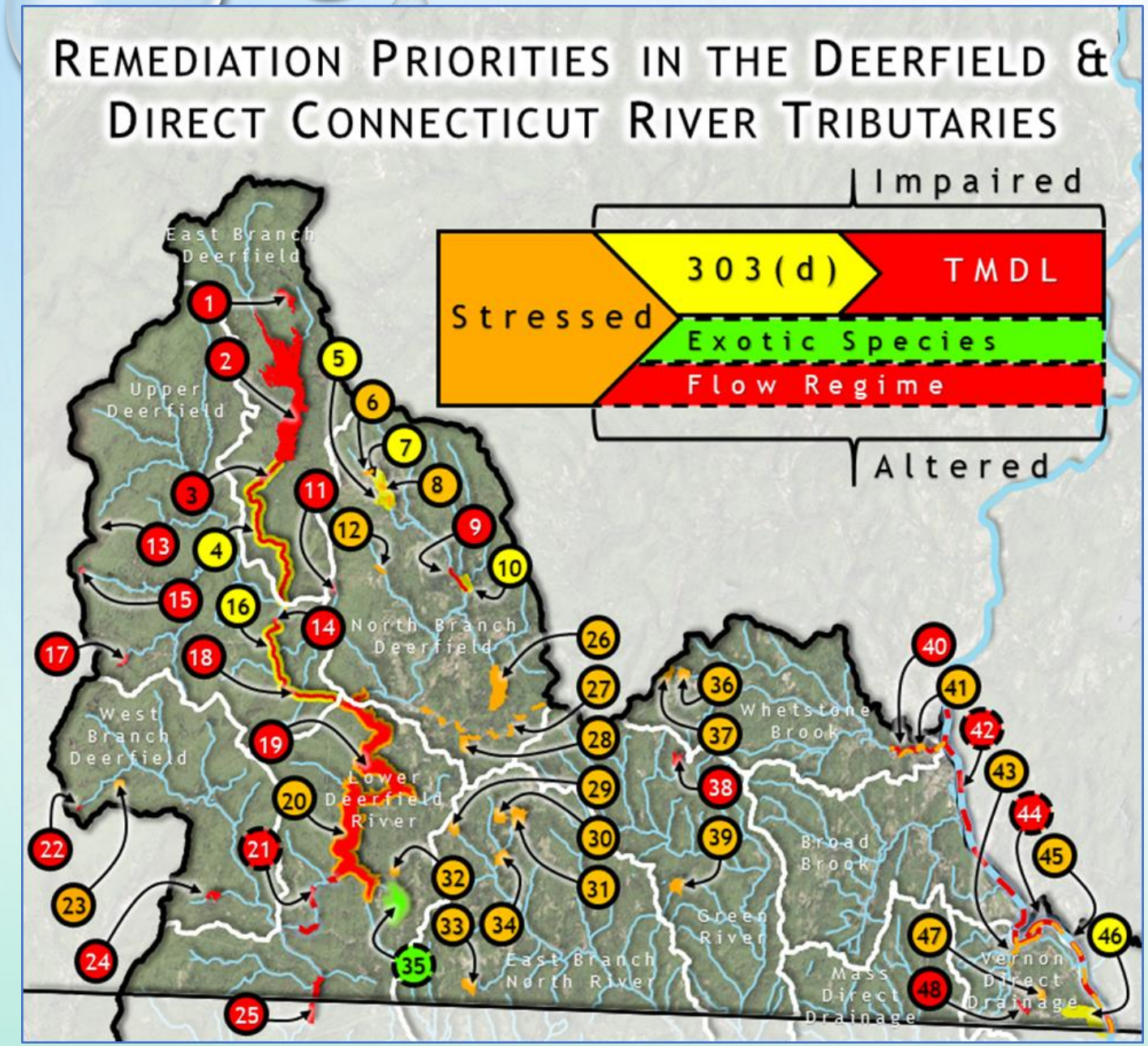


IMPAIRED WATERS

DO NOT MEET VT WATER QUALITY STANDARDS

- Watershed plans inventory, assess & develop strategies for impaired waters

Remediation Priorities in the Deerfield & Direct Connecticut River Tributaries



Stressed

Map ID	Name	Pollutant/Problem	List
6	BASELODGE TRIBUTARY, FROM MOUTH UP 0.2 MILES	PHYSICAL ALTERATION,SEDIMENTATION	Stressed
8	NORTH BRANCH DEERFIELD RIVER, SNOW LAKE TO TANNERY BROOK RD	PHYSICAL ALTERATIONS, TEMP	Stressed
12	OAK BROOK, MOUTH TO HEADWATERS	ACID DEPOSITION	Stressed
20	HARRIMAN RESERVOIR (WHITHM)	ACID DEPOSITION	Stressed
23	MUD POND (WOODFD)	ACID DEPOSITION	Stressed
25	SOUTH BRANCH DEERFIELD RIVER, UP FROM SHERMAN RES	ACID DEPOSITION DEPOSITION	Stressed
26	LAKE RAPONDA	ACID DEPOSITION	Stressed
27	BEAVER BROOK	PHYSICAL ALTERATION, SEDIMENT	Stressed
28	SPRUCE POND (WILMTN)	ACID DEPOSITION	Stressed
29	RYDER POND	ACID DEPOSITION	Stressed
30	LAUREL POND	ACID DEPOSITION	Stressed
31	GATES POND	ACID DEPOSITION	Stressed
32	CLARA POND	ACID DEPOSITION	Stressed
33	SHIPPEE POND	ACID DEPOSITION	Stressed
34	JACKSONVILLE	ACID DEPOSITION	Stressed
36	MARLBORO-431;	ACID DEPOSITION	Stressed
37	HIDDEN POND	ACID DEPOSITION	Stressed
39	DEER PARK POND	ACID DEPOSITION	Stressed
41	WHETSTONE BROOK, BEND NW OF LIVING MEM PARK DOWN	SEDIMENTS, FLOW	Stressed
43	CENTRAL PARK BROOK	ACID DEPOSITION	Stressed
45	CT RIVER, BELOW VERNON DAM	TRITIUM	Stressed
47	VERNON HATCHERY;	ACID DEPOSITION	Stressed

303(d)

Map ID	Name	Pollutant/Problem	List
4	EAST BRANCH DEERFIELD RIVER, BELOW SOMERSET DAM, 5.2 MILES	ACID DEPOSITION	303(d)
5	IRON STREAM, TRIB TO JACKS BROOK (0.3 MILE)	IRON	303(d)
7	NO. BRANCH DEERFIELD RIVER, TANNERY BRK RD TO 0.2 MI ABOVE SNOW LAKE	STORMWATER, TEMPERATURE	303(d)
10	ELLIS BROOK, MOUTH TO RM 0.5	NUTRIENTS	303(d)
15	UPPER DEERFIELD RIVER, BELOW SEARSBURG DAM, 3.6 MILES	ACID DEPOSITION	303(d)
46	NEWTON BROOK, MOUTH TO RM 2.0	SEDIMENT, NUTRIENTS	303(d)

TMDL

Map ID	Name	Pollutant/Problem	List
1	GROUT POND (Stratton)	MERCURY, ACID DEPOSITION	TMDL
2	SOMERSET RESERVOIR (Somerset)	ACID DEPOSITION, MERCURY	TMDL
3	EAST BRANCH DEERFIELD RIVER, BELOW SOMERSET DAM	MERCURY	TMDL
9	NO. BRANCH, DEERFIELD RIVER, VICINITY OF WEST DOVER	E. COLI	TMDL
11	HAYSTACK POND (Wilmington)	ACID DEPOSITION	TMDL
13	LOST POND (Glastenbury)	ACID DEPOSITION	TMDL
14	SEARSBURG RESERVOIR (Searsburg)	MERCURY	TMDL
15	LITTLE POND (Woodford)	ACID DEPOSITION	TMDL
17	ADAMS RESERVOIR (Woodford)	ACID DEPOSITION	TMDL
18	UPPER DEERFIELD RIVER, BELOW SEARSBURG DAM	MERCURY	TMDL
19	HARRIMAN RESERVOIR (Whitingham)	MERCURY	TMDL
22	STAMFORD POND (Stamford)	ACID DEPOSITION	TMDL
24	HOWE POND (Readsboro)	ACID DEPOSITION	TMDL
26	SHERMAN RESERVOIR (Whitingham)	MERCURY	TMDL
38	SOUTH POND (Marlboro)	ACID DEPOSITION	TMDL
40	WHETSTONE BROOK - BRATTLEBORO	E. COLI	TMDL
48	LILY POND (Vernon)	ACID DEPOSITION	TMDL

Exotic Species | Flow Regime

Map ID	Name	Pollutant/Problem	List
35	SADAWGA POND	LOCALLY ABUNDANT EWM GROWTH.	Exotics
21	LOWER DEERFIELD RIVER BELOW HARRIMAN RESERVOIR (3.5 MILES)	HYPOLIMNETIC WATER RELEASE	FLOW
42	CT RIVER, ABOVE VERNON DAM	WATER LEVEL FLUCTUATION AT DAM	FLOW
44	CT RIVER, BELOW VERNON DAM (5.5 MILES)	FLUCTUATING FLOWS BY HYDROPOWER	FLOW
21	LOWER DEERFIELD RIVER BELOW HARRIMAN RESERVOIR (3.5 MILES)	HYPOLIMNETIC WATER RELEASE	FLOW

TOTAL MAXIMUM DAILY LOAD PLANS

ACID:

- Adams Reservoir
- Howe Pond
- Little Pond
- Stamford Pond

MERCURY:

- Searsburg Reservoir

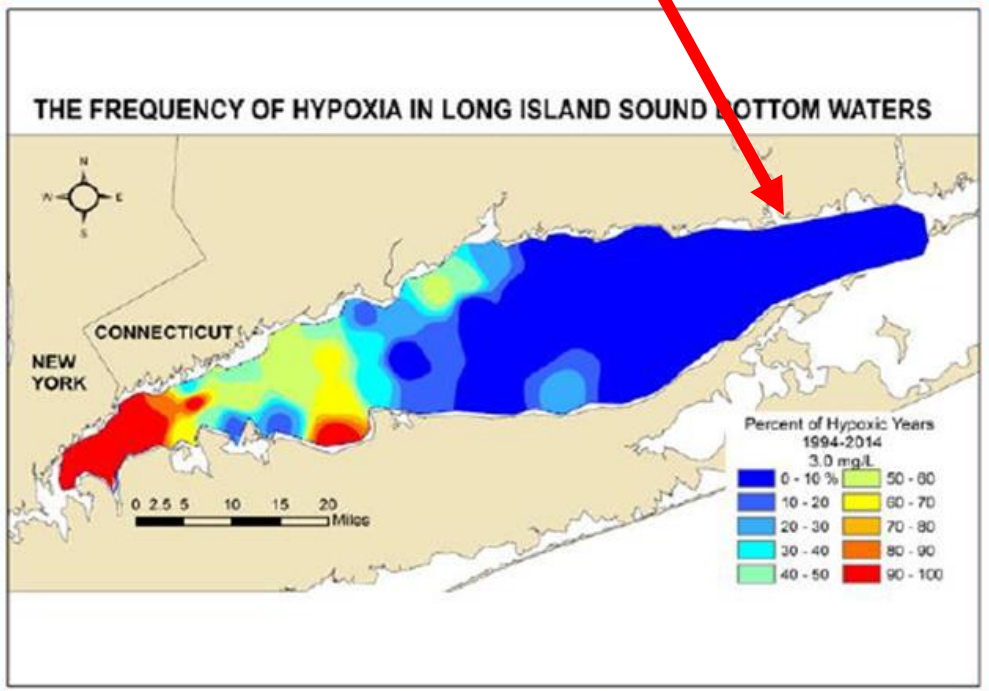
Sub-watershed	Date	Coverage
TMDLs		
Vermont Statewide TMDL for Bacteria-Impaired Waters	2011	
North Branch-Deerfield	2011	
Whetstone Brook	2011	
TMDL for 30 Acid Impaired Lakes	2003	
TMDL for 7 Acid Impaired Lakes	2004	
TMDL for 2 Acid Impaired Lakes	2012	
Vermont - Mercury	2007	Statewide
Long Island Sound Dissolved Oxygen TMDL	2000	Multi-state
Vermont Enhanced Implementation Plan	2013	
Northeast Regional Mercury Total Maximum Daily Load	2007	Multi-state
Mount Snow Resort Water Quality Remediation Plan	2011	Mt Snow Resort
Mount Snow Carinthia Iron Stream Remediation Plan	2015	Mt Snow Resort

11 Lakes

4 Lakes

LONG ISLAND SOUND DISSOLVED OXYGEN TMDL

CT River



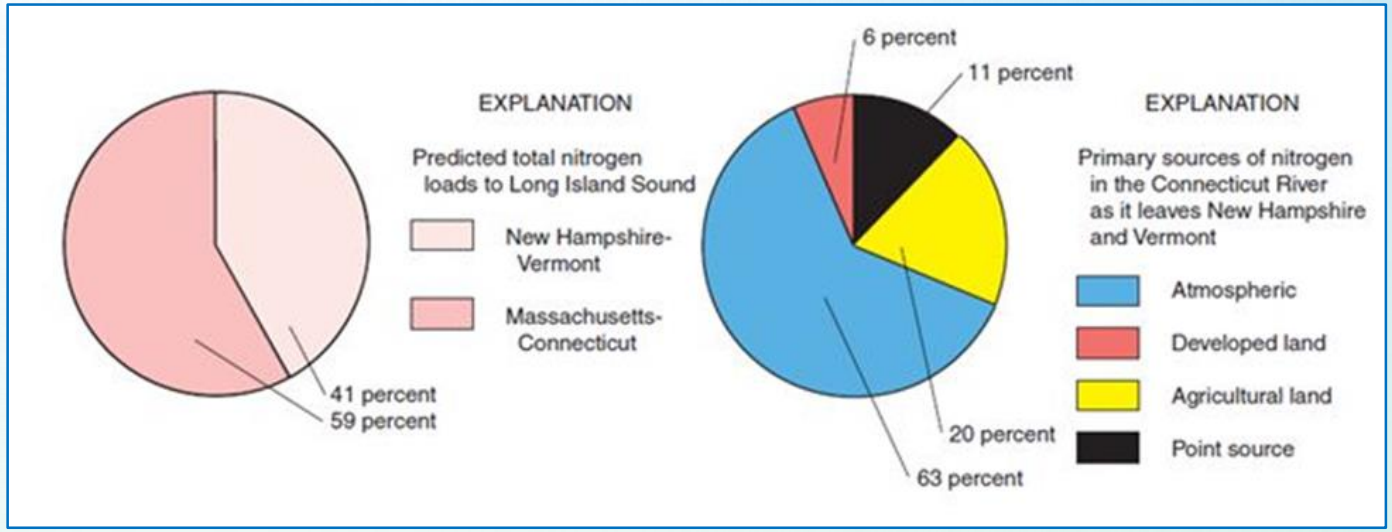
July 14 & 15, 2015

University of Connecticut's Avery Point Campus, Groton, Connecticut

Compiled By:

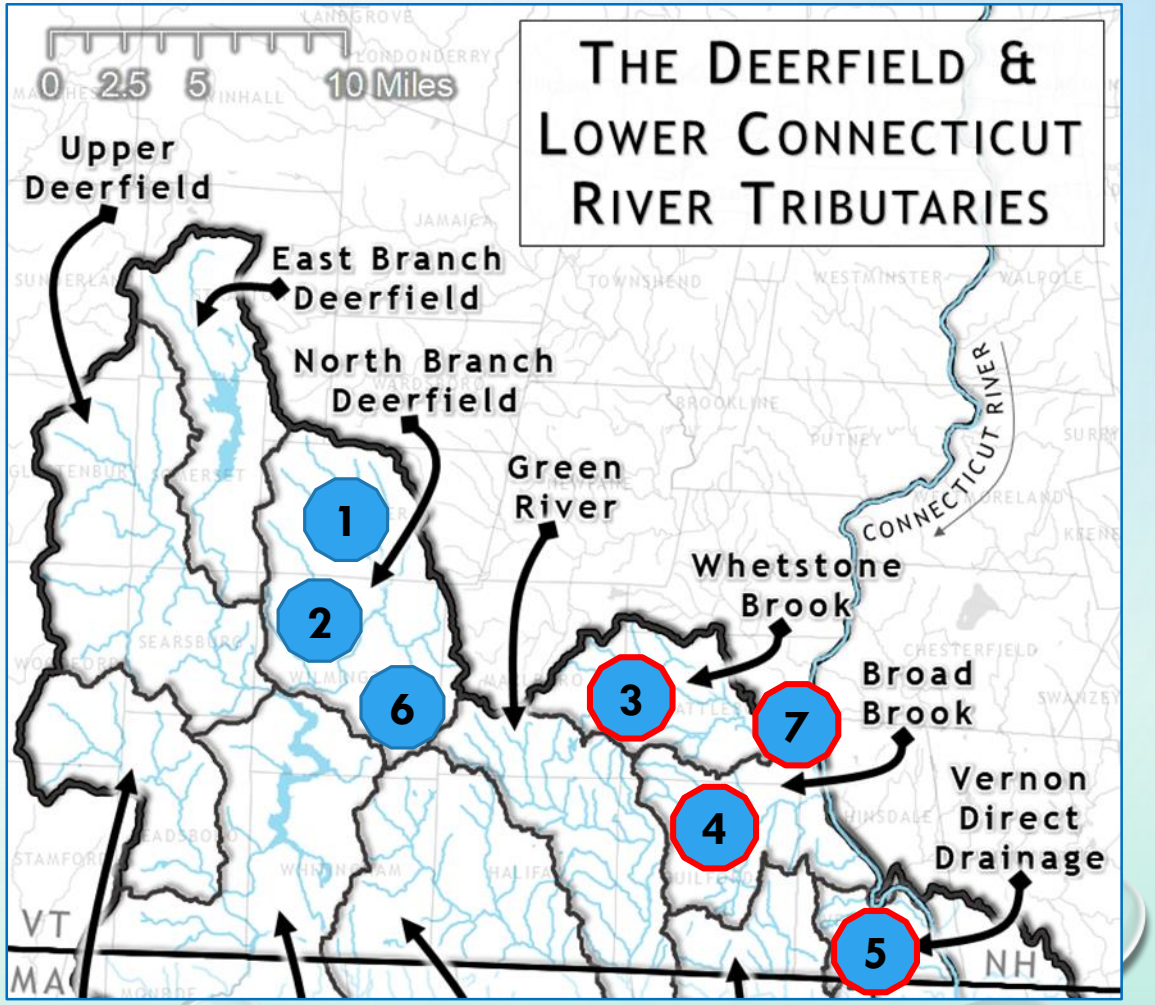
Jason Krumholz, Ph.D., NOAA Liaison to the Long Island Sound Study

Emily Bird, Environmental Analyst, NEIWPCC

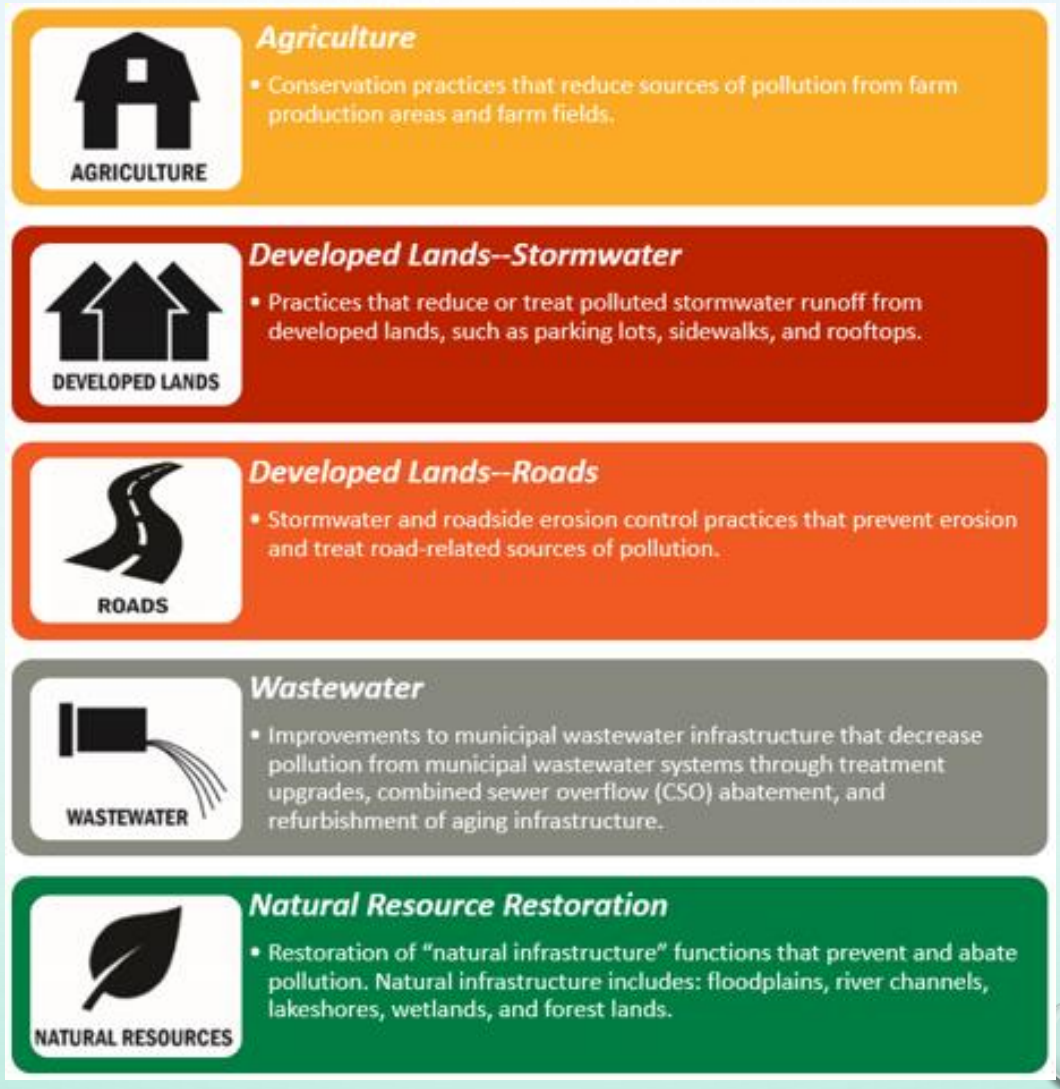


RESTORATION PRIORITIES

Sub-watershed	Restoration Focus	Land Use Sector
North Branch Deerfield River	Address bacteria TMDL, stormwater TMDL and altered flows	Land Development, Snow Making, Agriculture, Wastewater
Cold Brook	Address development and stormwater runoff & altered flows	Land Development, Snow Making
Whetstone Brook	Address bacteria TMDL and stormwater runoff	Land Development, Roads
Broad Brook	Improve important wildlife connectivity to CTR & NH at the landscape scale	Natural Resources
Newton Brook	Address nutrients & sediment from agricultural inputs	Agriculture
Lake Raponda	Work with community to assess lake conditions and implement restoration projects	Land Development, Roads, Natural Resources
Kettle Pond	Work to address stormwater inputs degrading the pond	Land Development



STRATEGIES TO ADDRESS POLLUTION BY LAND USE SECTOR



Agriculture

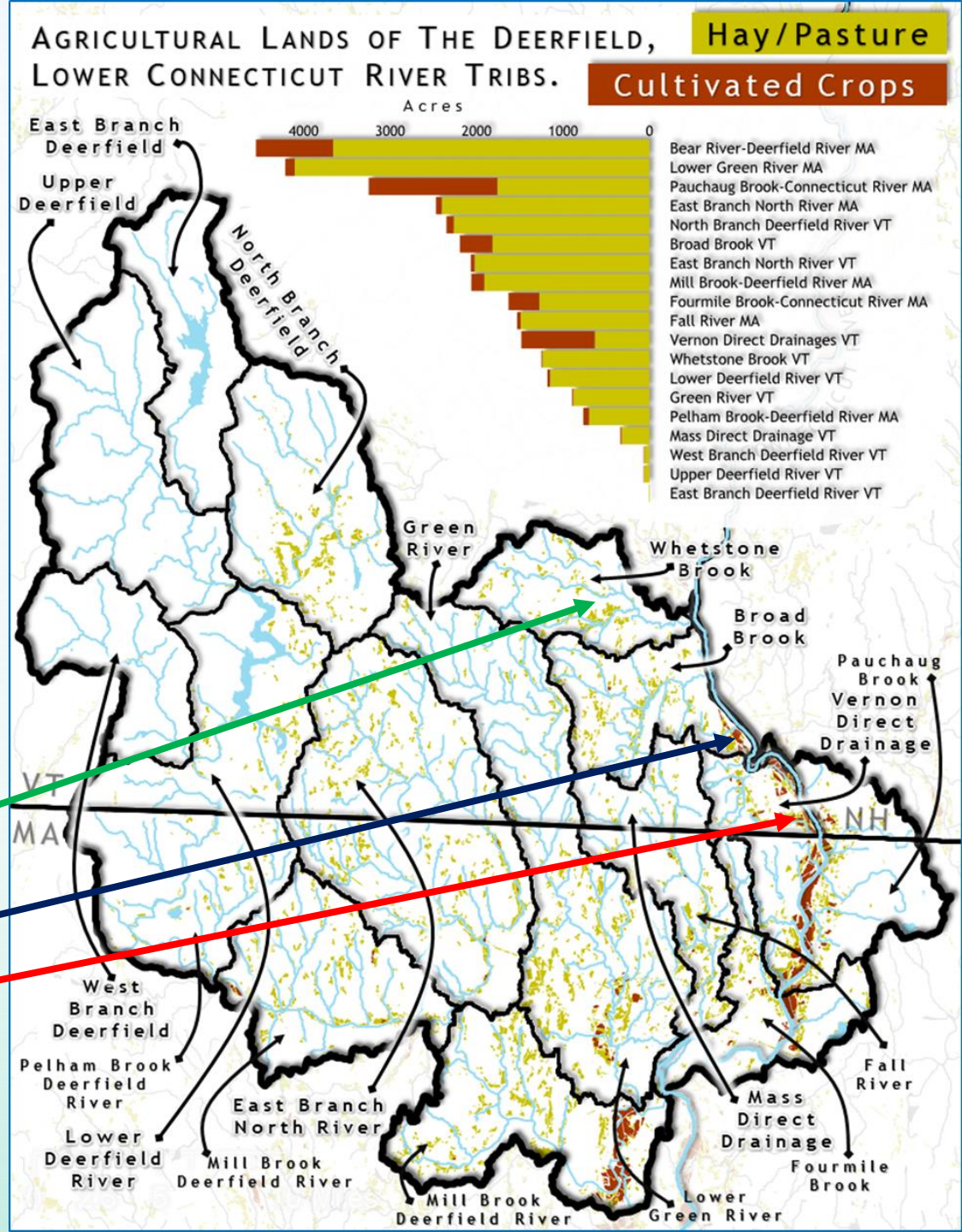
- Conservation practices that reduce sources of pollution from farm production areas and farm fields.

Clean Water Goals for Agriculture

- Agriculture runoff
- Nutrient loading (in local waters and as per the LIS-TMDL).
- Lack of riparian buffers
- General water quality and human health issues (e.g. E. coli, cyanobacteria)
- Streambank erosion

Priority areas for agricultural work include:

- Ellis Brook
- North Branch Deerfield River
- Whetstone Brook
- Connecticut River
- Newton Brook



Developed Lands--Stormwater

- Practices that reduce or treat polluted stormwater runoff from developed lands, such as parking lots, sidewalks, and rooftops.

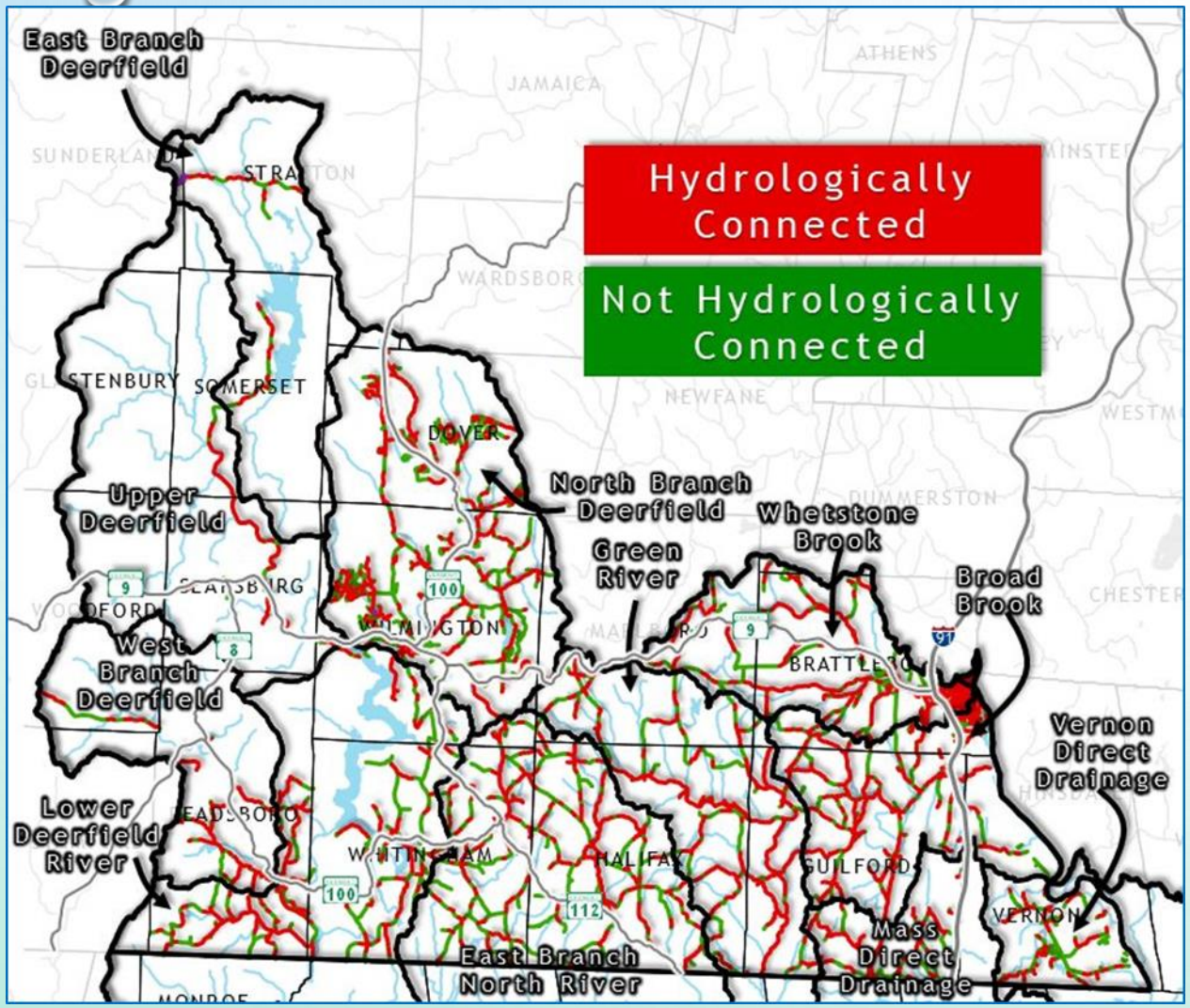
Clean Water Goals for Stormwater:

- Develop and implement SWMPs for Brattleboro, Dover, Wilmington and Hermitage Resorts
- Implement treatment recommendations in the town Stormwater Reports and WQRPs
- Decrease stormwater discharges to Kettle Pond
- Address gully erosion due to stormwater discharge points

Developed Lands--Roads

ROADS

- Stormwater and roadside erosion control practices that prevent erosion and treat road-related sources of pollution.



Clean Water Goals for Roads:

- Complete REIs for all towns
- Implement priority practices in target watersheds that will result in the biggest water quality benefits
- Increase municipal participation in Better Roads & Grant-In-Aid funding
- Conduct outreach on private roads and driveway BMPs
- Provide technical assistance to towns on project development and prioritization for WQ benefit
- Implement projects to address Class 4 road & legal trail erosion
- Priority watersheds for implementation:
  - Whetstone Brook, Green River, East Branch North River

MRGP Segment Priority Counts

Municipality	Total Road Miles[1]	Hydrologically Connected Segment Count[1]	Inventoried Segments	Meets Standards			REI Status
				Fully	Partially	Does Not	
Brattleboro	93	1076[1]	566	262	118	149	underway
Dover	61	474	0	250	121	103	COMPLETE
Dummerston	66	6[1]	1	1			COMPLETE, Report pending
Glastonbury[2]	Exempt	0					EXEMPT
Guilford	76	806	0				planned 2020
Halifax	70	535	0				COMPLETE
Marlboro	56	197	0				planned 2020
Readsboro	43	438	398	206	124	68	underway
Searsburg	6	73	73	13	34	26	underway
Somerset[2]	Exempt	71					EXEMPT
Stratton	28	34[1]	0				COMPLETE
Sunderland[1]	31	6[1]	6	4	2	0	COMPLETE
Vernon	25	164	162	112	35	15	COMPLETE
Whitingham	64	396	0				not scheduled
Jacksonville Village	-	37	0				---
Wilmington	74	597	597	339	168	90	field work compete 2018, report pending
Woodford	9	24[1]	0				not scheduled

[1] portion of town in Basin 12

[2] unorganized towns are exempt from MRGP

Wastewater

- Improvements to municipal wastewater infrastructure that decrease pollution from municipal wastewater systems through treatment upgrades, combined sewer overflow (CSO) abatement, and refurbishment of aging infrastructure.

Six municipal wastewater treatment facilities and two industrial facilities process more than 6.6 billion gallons of wastewater per year.

Clean Water Goals for Wastewater:

- Reduce the nitrogen load from municipal wastewater discharges which are predicted to account for 9% of Vermont's total discharge to the Connecticut River.
- Conduct planning and feasibility studies for small communities without wastewater systems
- Upgrade wastewater facilities for nitrogen reduction
- Increase funding of the State Revolving Fund programs to meet statewide wastewater control needs, including Long Island Sound nitrogen control needs
- Encourage communities to invest in protection of future water supply source waters

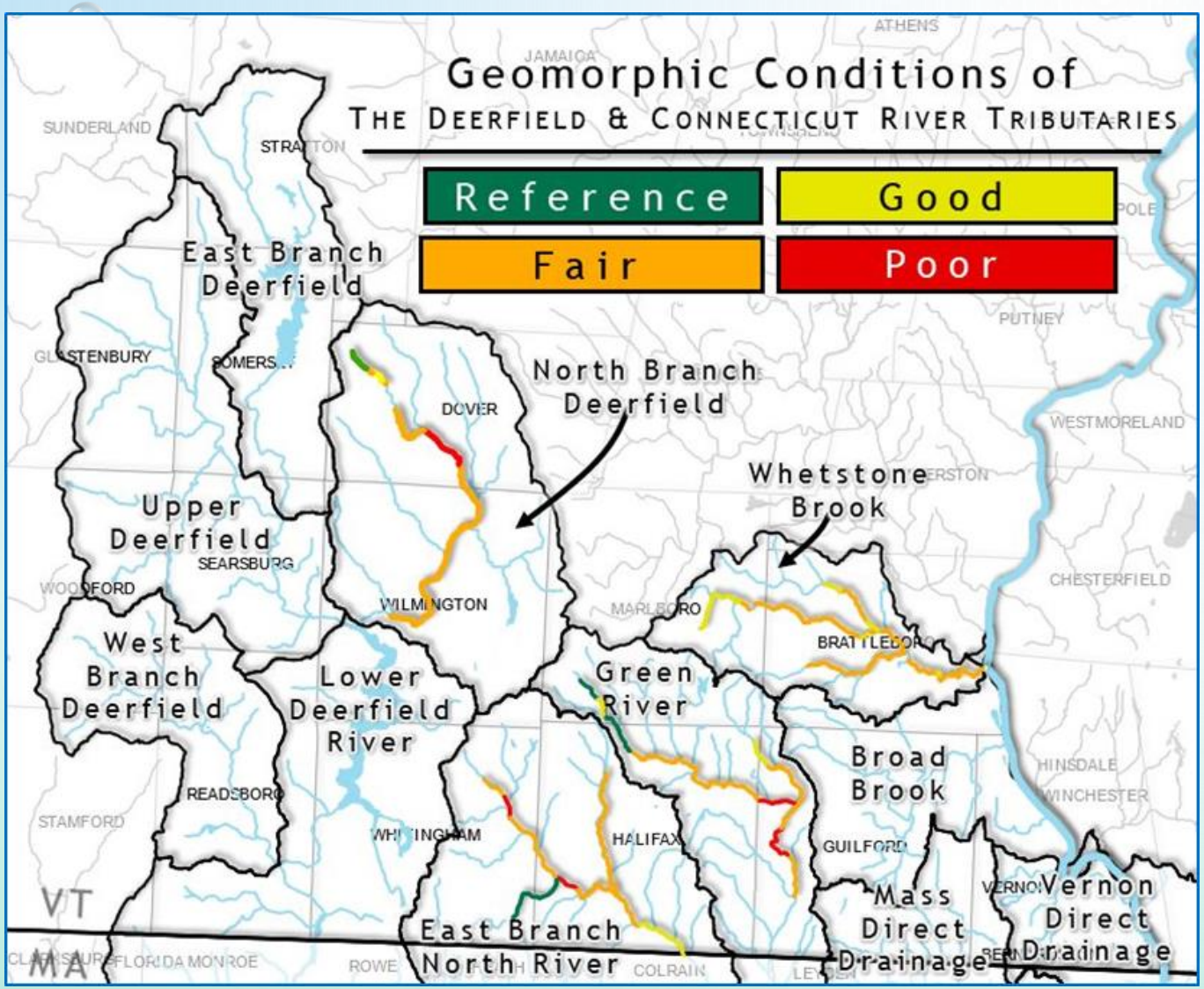
Facility (permit ID)	Permit effective date	Planned permit re-issuance year	Permitted flow (MGD)	IWC* 7Q10 /LMM	Current Percent of Design Flow (2017)	Treatment type	# of CSOs	Receiving water
Brattleboro (3-1242)	2016	2021	3	0.004 / 0.001	44%	RBC	0	CT River
Cold Brook FD 1 (3-1296)	2017	2019	.028 (direct discharge flow)	0.047 / 0.005	Have not reached capacity that necessitates a direct discharge. In 2018, the facility processed 4.7 MGD at the Haystack treatment system and 7.1 MGD at the Golf Course system.	Aerated lagoons and indirect spray disposal fields	0	Indirect - Rose and Haystack Brooks Direct – North Branch of the Deerfield
NorthStar Nuclear Decommissioning Company LLC (formerly Entergy Nuclear VT Yankee) (3-1199)	Original effective date: 2017 (transfer of ownership in 2019)	2022	4.3	XX	84%	*None*	0	CT River
Long Falls Paperboard, LLC (formerly FiberMark) (3-1136)	2012	Expired 2017	2	0.003 / 0.001	62%	Primary clarification/ aerated stabilization	0	CT River
Readsboro (3-1215)	2015	2020	0.075	0.004 / 0.002	47%	Aerated lagoons	0	Deerfield River
Whitingham (3-1229)	2013	2019	0.012	NA[1]	62%	RBC	0	Harriman Reservoir
Whitingham-Jacksonville (3-1230)	2014	2019	0.05	0.120 / 0.032	37%	RBC	0	East Branch North River
Wilmington (3-1281)	2018	2023	0.135	0.166 / 0.024	59%	RBC and aerated lagoons	0	North Branch Deerfield River

** Instream Waste Concentration – or the proportion of river flow at lowest base (7Q10) and low median monthly (LMM) flow attributable to discharge, for the facility design flow. Note that the IWC is specific to the flow of receiving water.*

[1] *Facility discharges to a reservoir; dilution statistics for stream not applicable.*

Natural Resource Restoration

- Restoration of "natural infrastructure" functions that prevent and abate pollution. Natural infrastructure includes: floodplains, river channels, lakeshores, wetlands, and forest lands.



Clean Water Goals for Rivers:

- Work toward equilibrium
- Increase floodplain access
- Remove unneeded dams
- Remove Snow Lake dam at Mt Snow
- Protect floodplains and river corridors from conversion & development
- Focus on protection of alluvial fan areas
- Focus restoration work on reaches with High to Extreme Sensitivity ratings
- Restoration of Birge Street parcel, Brattleboro

LAKE	TOWN	ACTION
Lily Pond	Vernon	Protection
Kettle Pond	Brattleboro	Stormwater treatment
Sadawga Lake	Whitingham	Protection & Invasives control
Jacksonville Pond	Whitingham	Reduce phosphorus
Lake Raponda	Wilmington	Erosion control

Clean Water Goals for Lakeshores:

- Conduct LakeWise Action Plan Assessments
- Establish a Lake Wise Leader to communicate with shoreland neighbors what lake-friendly practices and shoreland management looks like along the shore, and to serve as the point person for communicating with the staff of the Lake Wise Program. Establish volunteer Lay Monitoring and Volunteer Invasive Patroller Programs;
- Conduct septic systems and maintenance outreach to shoreland owners through Septic Socials;
- Restore living shorelands along lakes
- Protect Lily Pond
- Encourage landowners to form lake associations and join the Federation of Vermont Lakes and Ponds (FOVLAP)

Lake Raponda

Clean Water Goals for Wetland Restoration:

- Assess areas of prior converted wetland and hydric soils for restoration
- Implement wetland restoration as sites and opportunities are identified

Wetlands to Assess
Atherton Meadows (Whitingham)
Lake Sadawga floating bog (Whitingham)
Lily Pond (Vernon)
Vernon Black Gum Swamps (Vernon)

Black Gum Swamp - Vernon

Clean Water Goals for Forest Restoration:

- Decrease discharges from forestry operations through continued implementation of AMPs, outreach and training, and the use of portable skidder bridges
- Prevent stream erosion and improve resiliency on working lands through riparian restoration; logging road restoration; and stream crossing improvements which include installing properly sized structures or structure removal.
- Protect forest habitat, biodiversity, and drinking water sources

Green River Floodplain Restoration


Fowlers Toad

Spotted Turtle


American Shad

Photos: USFWS

Clean Water Goals for Climate Change Adaptation:

- Support efforts, such as state, federal, regional and international Climate Change Action Plans to reduce greenhouse gas emissions in the Northeast and climate change risks to SGCN
- Monitor habitat conditions & effects of stressors on habitats; restore critical habitats or ameliorate threats when/where opportunities arise to secure/restore numbers of SGCN populations & targeted abundance levels
- Conserve known habitat through fee simple purchase, development rights or easements, management agreements, and education of private landowners and managers regarding appropriate management
- Continue to document species distribution in Connecticut River Valley with targeted searches of potential sites, and sites where previously reported
- Map species habitat including connectivity of patches
- Work to maintain connectivity with populations to the south in Massachusetts.
- Consider reintroduction or augmentation from closest healthy source
- Maintaining and enhancing extant populations is always a priority and should be continued
- Monitor species distribution and relative abundance of populations

PLAN IMPLEMENTATION

Summary of Implementation Actions

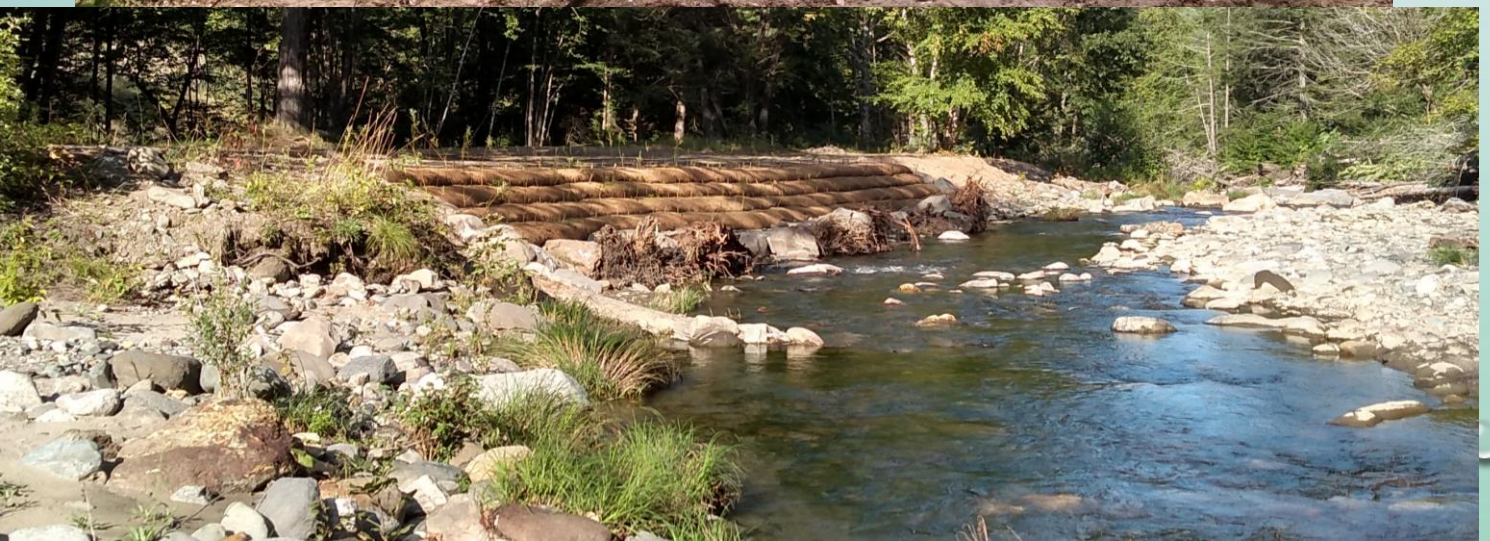
Strategies	Priority Areas	Town	Partners	Funding
AGRICULTURAL LANDS				
Increase outreach and technical assistance through workshops and trainings for farmers, ag contractors and technical service providers on the new RAPs, improving soil health, implementing conservation field practices			UVM Ext., NRCDs, AAFM, NRCS	
Implement livestock exclusion practices	Newton Brook	Vernon	NRCDs, AAFM, NRCS	
Increase farm buffer establishment along surface waterways and upland wetlands	North Branch Deerfield, Newton Brook, Whetstone Brook, Connecticut River	Wilmington, Vernon, Brattleboro	NRCDs, AAFM, NRCS	
Support small farm NMP development and implementation through courses and trainings for farmers, manure applicators and technical service providers			UVM Ext., NRCDs, AAFM, NRCS	
Establish long-term funding for agricultural buffer projects			VDEC, NRCDs, AAFM, NRCS	
Increase the use of cover crops			UVM Ext., NRCDs, AAFM, NRCS	
Develop and host educational workshops directed to horse, beef, and small animal operations			UVM Ext., NRCDs, AAFM, NRCS	
Identify areas where water quality will most benefit from farm inspections and assistance	North Branch Deerfield, Newton Brook, Whetstone Brook		NRCDs, AAFM, NRCS	
Increase regional equity of State and Federal agricultural funding distribution			AAFM, NRCS	
Acquire RCE on lands located on alluvial fans			VLT, VRC, UVLT	

Strategies	Priority Areas	Town	Partners	Funding
DEVELOPED LANDS / STORMWATER				
Conduct stormwater master planning to identify and prioritize actions	North Branch Deerfield, Cold Brook, Whetstone Brook	Brattleboro, Dover, Mount Snow, Hermitage	RPCs, NRCDs, municipalities, ski resorts	
Implement priority project identified in these plans		Brattleboro, Dover, Mount Snow, Hermitage	North Branch Deerfield ski resorts	
Identify and mitigate sources of bacteria causing impairment	North Branch Deerfield, Whetstone Brook	Dover, Wilmington, Brattleboro	VDEC, municipalities	
Address stormwater runoff entering Kettle Pond		Brattleboro	WCNRCD, municipality	
Address stormwater runoff entering Whetstone Brook	Whetstone Brook	Brattleboro	WCNRCD, municipality	
Address stormwater runoff discharges from ski area development impairing water quality	North Branch Deerfield, Cold Brook	Dover, Wilmington	Municipalities, ski resorts	
Implement required actions to mitigate impairments addessed in the Mt Snow WQRPs	North Branch Deerfield, Baselodge trib,utary	Mt Snow Resort	Mt Snow Resort	
Conduct outreach to landowners scheduled to fall under the 3-acre stomwater rule			RPCs, NRCDs, VDEC	
DEVELOPED LANDS / ROADS				
Assist municipalities to control runoff from gravel and paved roads: implement road assessment protocol to assist with prioritization; provide technical and financial resources to assist with implementation; implement Municipal Roads General Permit (MRGP)			RPCs, NRCDs, municipalities	BR, GIA
Complete REIs in remaining towns		Dover, Guilford, Marlboro, Whitingham Woodford	RPCs, municipalities	BR
Assist towns with support and training on data collection methods and uploading data into MRGP database			RPCs, VDEC	
Increase municipal participation in BR & GIA funding: assist in project prioritization and project proposal development			RPCs, NRCDs, municipalities, VDEC	
Implement projects to address Class 4 road & legal trail erosion			NRCDs, municipalities	Work Crew Block Grant
Conduct outreach on BMPs for private roads and driveways			RPCs, NRCDs	
Replace geomorphologically incompatible culverts and bridges			VTrans, municipalities	Structures
WASTEWATER				
Reduce the nitrogen load from municipal wastewater discharges to address the LIS-TMDL			Municipalities	CWSRF
Conduct wastewater planning and feasibility studies for small communities without municipal systems			VDEC	CWSRF

Strategies	Priority Areas	Town	Partners	Funding
NATURAL RESOURCE RESTORATION: Rivers, Lakes, Wetlands & Forests				
RIVERS: Work toward stream equilibrium and flood resilience				
Increase the number of river and floodplain restoration projects to re-establish connections to floodplains	reaches with High to Extreme Sensitivity ratings		NRCDs, RPCs	
Increase River Corridor Easements which incorporate channel management, riparian buffer provisions and flood resiliency	Green River, East Branch North River		VRC, VLT, TNC	
Increase buffer plantings	Newton Brook, Whetstone Brook		NRCDs, watershed assoc's	
Remove dams, esp. High Hazard dams			CRC, RPCs, dam owners	
Protect floodplains and river corridors from conversion & development			VRC, VLT, TNC	
Increase buffer plantings			NRCDs, watershed assoc's	
Restore floodplain of Birge Street parcel	Whetstone Brook	Brattleboro	NRCDs, watershed assoc's	
SHORELANDS: protect and restore				
Promote & Implement the Lake Wise Program to encourage lake-friendly shoreline property maintenance	All Lakes & ponds		lakeshore owners, lake assoc's	
Establish Lay Lake Monitoring on appropriate lakes and ponds	Sadawga, Grout, Howe, Lily		lakeshore owners, lake assoc's	
Work to control riparian and aquatic invasive plants	All Lakes & ponds		lakeshore owners, lake assoc's	
Work to protect Lily Pond			lakeshore owners, VANR, municipality	
WETLANDS: protect and restore				
Restore degraded wetlands for habitat and water quality improvement		Vernon	AAFM, VDEC, NRCDs, watershed assocs	
Assess areas of prior converted wetland and hydric soils for restoration			AAFM, VDEC, NRCDs, watershed assocs	
Implement wetland restoration as sites and opportunities are identified			AAFM, VDEC, NRCDs, watershed assocs	
Assess wetlands for potential reclassification	see Table 6	Towns experiencing strong development pressure	VDEC - Wetlands	
Map unmapped wetlands		Wilmington, Dover and Vernon	VDEC - Wetlands, RPCs	

Strategies	Priority Areas	Town	Partners	Funding
FISHERY: protect and restore				
Implement strategic wood addition projects on:			TU, VDFW, USFS	
• East Branch of the Deerfield below Somerset Dam				
• Deerfield mainstem above Rake Branch				
• Rake Branch				
• Deer Cabin, Deer Lick, Blind and Glastonbury				
• Heather Brook and within Vose Brook				
Repair and maintain fish ladder at Green River Crib Dam			Community org	
FOREST MANAGEMENT: abate soil erosion				
Protect headwater streams and sensitive upland surface waters			DFPR, USFS, VLT	
Conduct outreach on AMPs and forest BMPs			DFPR, NRCDs	
Better manage forest road runoff through adherence to AMPs and site restoration			DFPR, landowners	
Continue and expand the Portable Skidder Bridge Program			NRCDs	
CLIMATE CHANGE ADAPTATION: mitigate potential impacts of climate change on species survival				
Support efforts, such as state, federal, regional and international Climate Change Action Plans to reduce greenhouse gas emissions in the Northeast and climate change risks to SGCN	Connecticut River valley		ANR, RPCs, NRCDs, USFWS	
Conserve known habitat of SGCN through fee simple purchase, development rights or easements, management agreements, and education of private landowners and managers regarding appropriate management	Connecticut River valley		ANR, RPCs, NRCDs, USFWS	
Work to maintain connectivity with populations to the south in Massachusetts	Connecticut River valley		ANR, RPCs, NRCDs, USFWS	
HAZARD MITIGATION & FLOOD RESILIENCY				
Increase outreach and training for municipalities on ERAF and river corridor protections			VDEC-Rivers, RPCs	WQ Planning
Increase funding for technical assistance and incentives for municipalities to enhance flood resiliency			VEM, VDEC-Rivers	
Remove sewer lines from hazardous locations including streambeds	Whetstone Brook	Brattleboro	Municipalities, VDEC - FED	CWSRF
Buy-out properties that are highly vulnerable to flooding from willing sellers	Green River, East Branch North River, Whetstone Brook		VEM, FEMA, RPCs	FEMA, HMP, PDHMP
Assess dams for structural integrity: prioritize High and Significant Hazard dams for removal or repair			VDEC - FED	FEMA, HMP, PDHMP
Create & implement Emergency Action Plans for all High and Significant Hazard dams			RPCs, VDEC - FED	
Implement infrastructure project at Jacksonville Municipal Center	East Branch North River	Jacksonville village	RPCs, VDEC, municipality	FEMA, HMP, PDHMP

Strategies	Priority Areas	Town	Partners	Funding
FLOW ALTERATION: Restore natural flows				
Work with dam operators to mitigate flow variations and work toward run-of-river management	Connecticut River, Deerfield River		Great River Hydro	
SURFACE WATER PROTECTION: Restoration and Reclassification				
Monitor and assess waters with no or outdated data	see Table 18		VDEC	
Work with partners to submit applications for reclassification	see Tables 3 & 4		RPCs, NRCDs, municipalities	
Evaluate waters for ORW designation	see Table 5		VDEC	
Evaluate waters for Class 1 Wetland designation	see Table 6		VDEC - Wetlands	



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

WPD TO DO LIST

Proposes

- AGRICULTURAL POLLUTION PREVENTION - 1
- DAM REMOVAL – 1
- FLOODPLAIN/STREAM RESTORATION – 32
- HAZARD MITIGATION – 3
- INVASIVES CONTROL – 1
- RIVER PLANTING – 21
- RIVER CORRIDOR EASEMENT – 19
- RIVER CORRIDOR PLAN - 2
- RIVER PROJECT IDENTIFICATION - 1
- ROAD PROJECT – 12
- STORMWATER – 5
- WQ SAMPLING & PROTECTION – 5
- WETLAND MAPPING – 1
- MISC. – 4

TOTAL PROPOSED

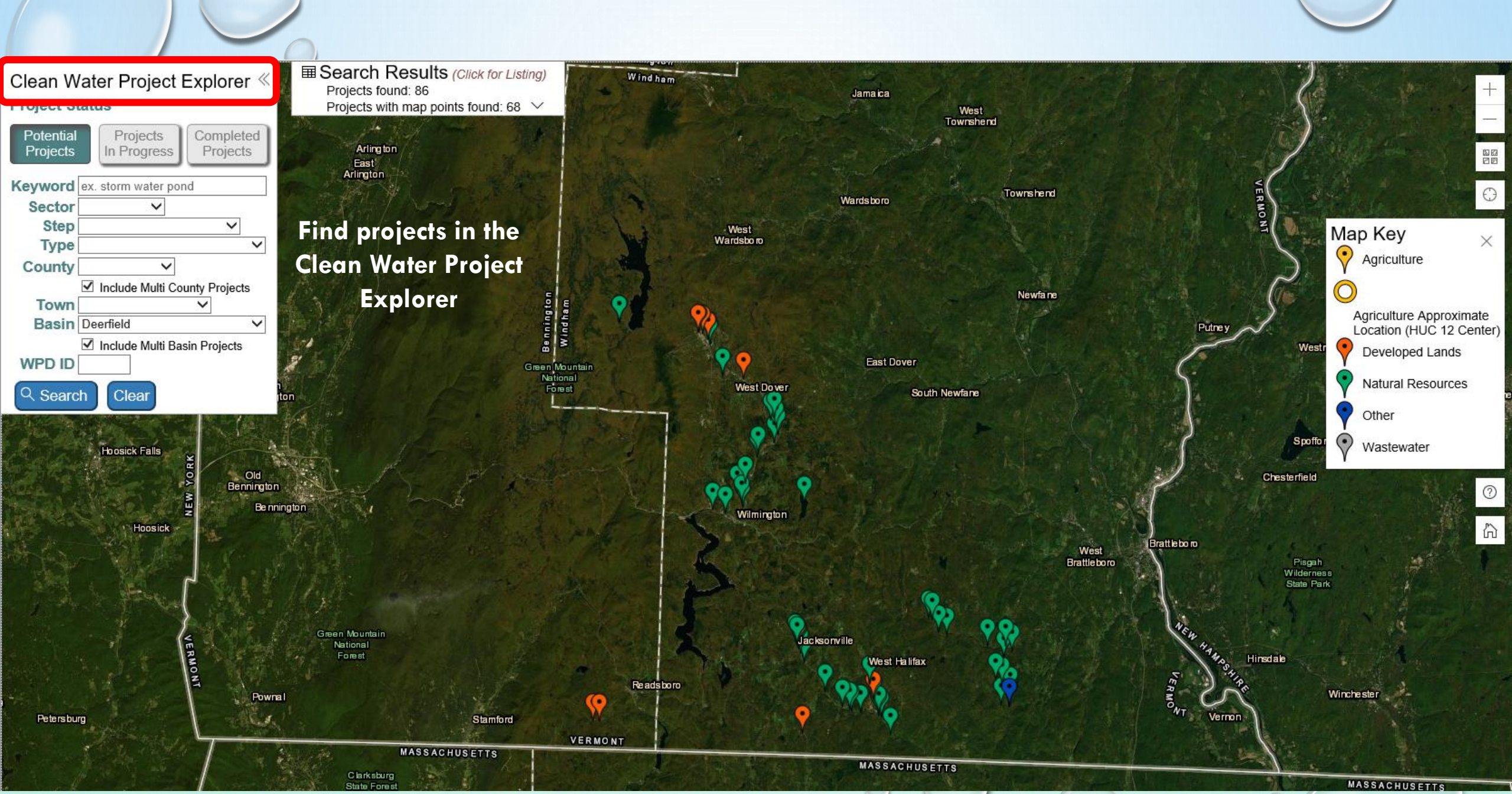
108

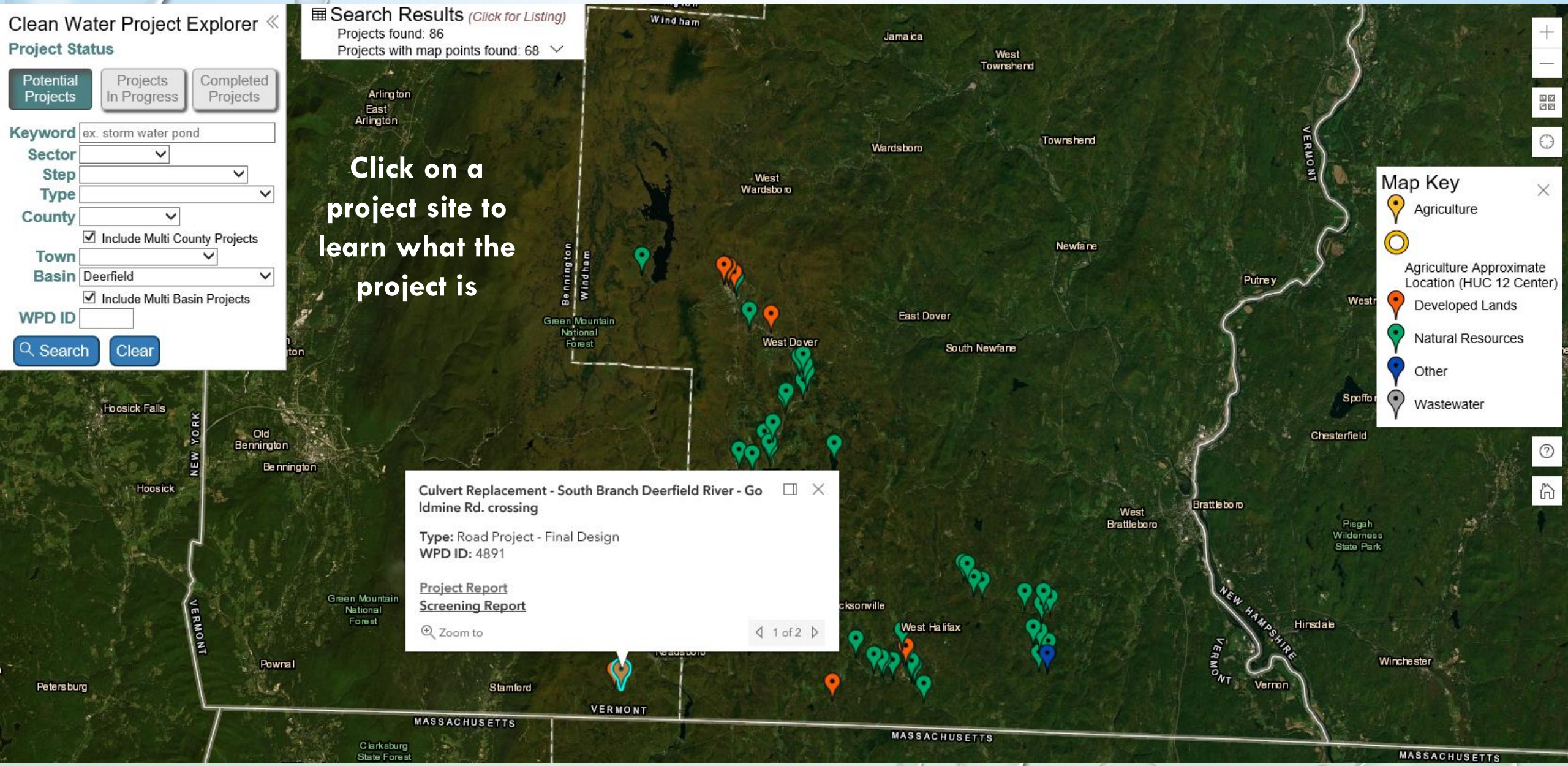
Completed / Funded

- AGRICULTURAL POLLUTION PREVENTION - 0
- DAM REMOVAL – 0
- FLOODPLAIN/STREAM RESTORATION – 4
- HAZARD MITIGATION – 0
- INVASIVES CONTROL – 0
- RIVER PLANTING – 3
- RIVER CORRIDOR EASEMENT – 4
- RIVER CORRIDOR PLAN - 2
- RIVER PROJECT IDENTIFICATION - 1
- ROAD PROJECT – 1
- STORMWATER – 2
- WQ SAMPLING & PROTECTION – 2
- WETLAND MAPPING – 1
- MISC. – 3

TOTAL COMPLETED

23


Clean Water Project Explorer
Potential Projects
Projects In Progress
Completed Projects
Keyword
ex. storm water pond
Sector
Step
Type
County
Include Multi County Projects
Town
Basin
Deerfield
Include Multi Basin Projects
WPD ID
Search
Clear
Search Results (Click for Listing)
Projects found: 86
Projects with map points found: 68
Find projects in the Clean Water Project Explorer
Map Key
Agriculture
Agriculture Approximate Location (HUC 12 Center)
Developed Lands
Natural Resources
Other
Wastewater
Windham
Jamaica
West Townshend
Arlington
East Arlington
Wardsboro
Townshend
West Wardsboro
Newfane
Putney
East Dover
West Dover
South Newfane
Wilmington
Chesterfield
Brattleboro
West Brattleboro
Pisgah Wilderness State Park
Hoosick Falls
Old Bennington
Bennington
Hoosick
Green Mountain National Forest
Jacksonville
West Halifax
Readsboro
Hinsdale
Winchester
Vernon
Pownal
Petersburg
Stamford
Clarksburg State Forest
VERMONT
NEW YORK
NEW HAMPSHIRE
MASSACHUSETTS


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
Deerfield
Include Multi Basin Projects
WPD ID
Search
Clear
Search Results (Click for Listing)
Projects found: 86
Projects with map points found: 68
Click on a project site to learn what the project is
Culvert Replacement - South Branch Deerfield River - Goldmine Rd. crossing
Type: Road Project - Final Design
WPD ID: 4891
Project Report
Screening Report
Zoom to
1 of 2
Map Key
Agriculture
Agriculture Approximate Location (HUC 12 Center)
Developed Lands
Natural Resources
Other
Wastewater
Windham
Jamaica
West Townshend
Arlington
East Arlington
Wardsboro
Townshend
West Wardsboro
Newfane
Putney
East Dover
West Dover
South Newfane
Green Mountain National Forest
Hoosick Falls
Old Bennington
Bennington
Hoosick
Chesterfield
Brattleboro
West Brattleboro
Pisgah Wilderness State Park
West Halifax
Hinsdale
Winchester
Vernon
Pownal
Petersburg
Stamford
Clarksburg State Forest
VERMONT
NEW YORK
NEW HAMPSHIRE
MASSACHUSETTS

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