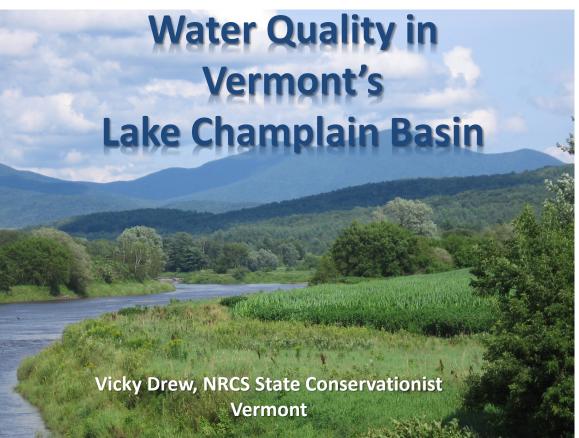
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NRCS

United States Department of Agriculture

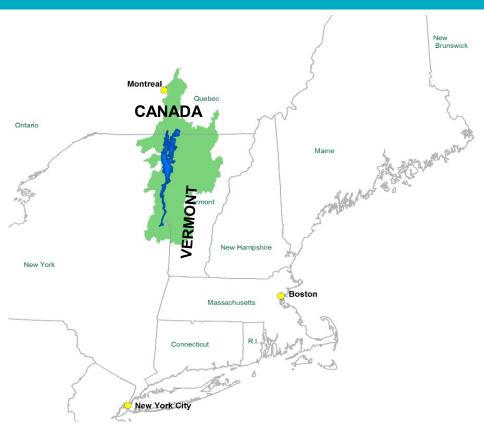






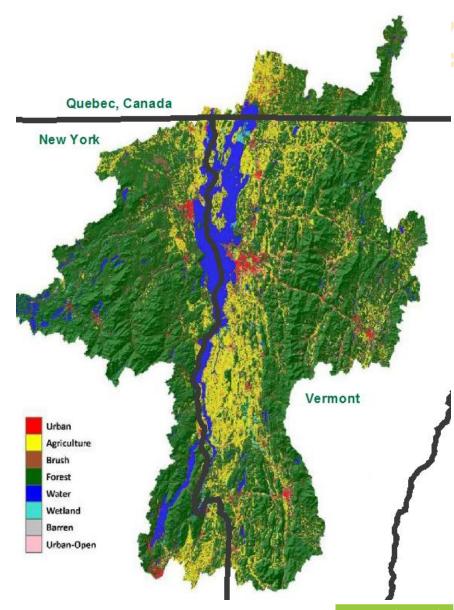


Lake Champlain Watershed



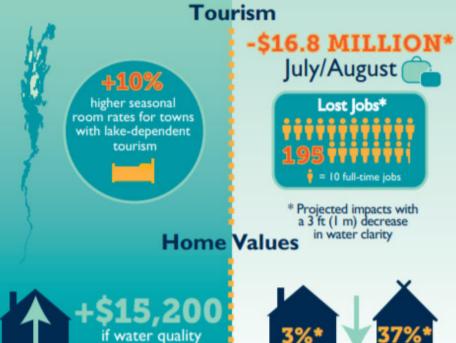
Watershed Area

56% in Vermont37% in New York7% in Quebec

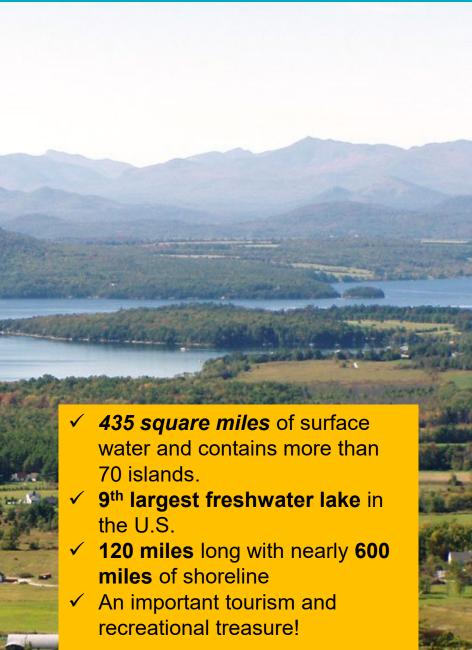




THE ECONOMIC IMPACT OF CLEAN WATER Lake Champlain generates \$300 MILLION in VT tourism each year improves Secchi disk depth measures the clarity of water, which is an indicator of water quality. **Tourism** -\$16.8 MILLION* July/August



Lake Champlain Watershed





Lake Champlain Watershed





- ✓ Heavy clay lacustrine soils
- ✓ Short growing season (150 days near the lake and 105 days in higher terrain)
- √ 35% prior converted wetlands
- ✓ OVER 70 PERCENT of agriculture in Vermont is dairy





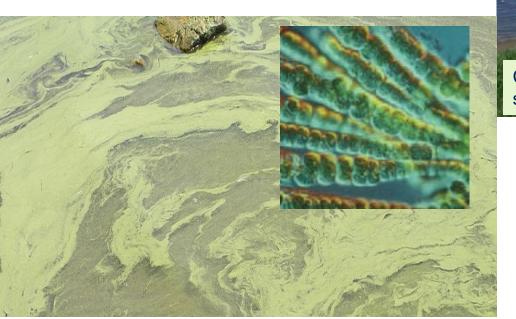






Too Much Phosphorus...

- Algae blooms
- Some types of algae, such as bluegreen algae (cyanobacteria), can produce toxins called cyanotoxins.
- These toxins have been known to kill fish and dogs, and can make a person ill (or worse) if swam in or swallowed.





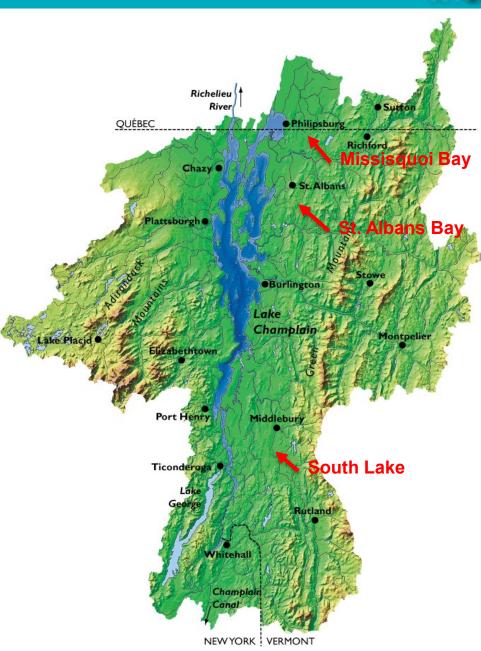
Compounds produced by the algae can trigger skin irritations and gastro-intestinal illness

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Algae Bloom Hot Spots





- Blooms Occurring in Shallow and Warm Lake Segments with High Phosphorus Inputs
- Frequent and Severe Summer Blooms in
- ✓ St. Albans Bay
- ✓ Missisquoi Bay
- ✓ South Lake
- Main Lake Blooms are rare and not severe



History of Water Quality Efforts in Vermont

1990-Federal Legislation





Lake Champlain Basin Act passed

- ■Increased coordination of conservation in basin basin plan and steering committee
- ■Funded through EPA and GLFC \$13 million/year (includes \$6 million that will likely go to State of VT for TMDL implementation, plus additional funds directly to New York).

1995

1980-Multiple NRCS land treatment watershed projects

Vermont adopts Accepted Agricultural practices and regulations on Large Farm
 Operations (this is also when the winter manure spreading ban was first enacted.)

2002

• 1st TMDL approved by EPA - required an overall reduction in NPS P load of 27%

2006

Vermont enacts regulations on Medium Farm Operations

2004-2014

0

• NRCS obligated over \$40 million for water quality practices in the Lake Champlain basin

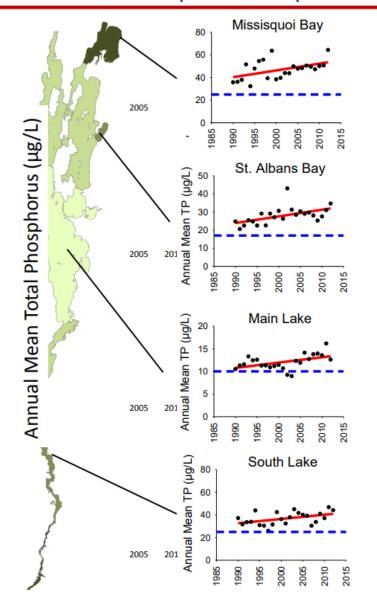


Water Quality Trends

Trends in Lake Champlain Phosphorus Concentrations







Trend lineWater quality standard





Public Pressure Builds



- Conservation Law Foundation files lawsuit against EPA in 2008
- Movie "Bloom" released in November, 2010.
- EPA formally revokes approval of first TMDL in January, 2011
- Public outcry focused on all government agencies to "do more"
- Widespread opinion that voluntary approach to conservation would never work
- Farmers who have followed NRCS recommendations question the effectiveness of conservation practices installed in the past

State of VT, NRCS, and all partners are under fire to demonstrate success in efforts to improve water quality





TMDL and State Actions

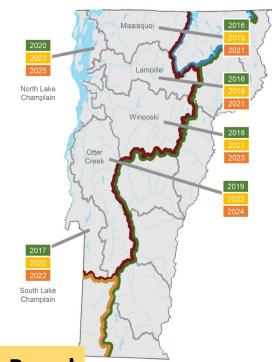
- 2011- EPA revoked its prior approval of the Vermont portion of the TMDL and developed a new TMDL base on up-to-date water quality data and modeling techniques
- 2015-Act 64 signed into law in June; initiated RAP's (Required Agricultural Practices)
- 2016-New Phosphorus TMDL (approved June 17th)
- 2016-New state RAP initial rule published
- 2018- State RAPs revised and published Nov. 23 (with tile drain revisions)

Lake Champlain TMDL accountability framework schedule by Tactical Basin Plan watershed (phase 2 implementation)

Tactical Basin Plan (phase 2 implementation plan) published

Interim report card period ends

Final report card period ends

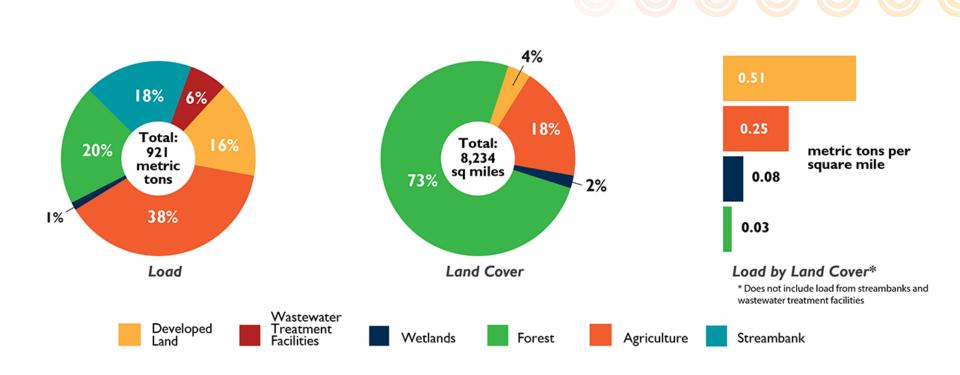


Act 64 passed by the legislature in 2015 established a **Clean Water Board** and Act 76 of 2019 established **Clean Water Service Providers** spread throughout the state to address non-regulated NPS pollution.

Approximately **\$9.6 million** each year goes to the Vermont Agency of Ag and Vermont Housing & Conservation Board for ag related clean water work.



P Loading to the lake by land use



Annual phosphorus loading and land cover in the Lake Champlain Basin

Source: Lake Champlain Basin Program 2018 State of the Lake Report





Phosphorus Load Reductions by Lake Segment

Lake Segment	Total Overall	Wastewater ¹	Developed Land ²	Forest	Streams	Agricultural Nonpoint
01. South Lake B	41.4%	0.0%	21.1%	40.0%	46.7%	62.9%
02. South Lake A	55.5%	0.0%	18.1%	5.0%		62.9%
03. Port Henry	55.4%		7.6%	5.0%		62.9%
04. Otter Creek	23.6%	0.0%	15.0%	5.0%	40.1%	46.9%
05. Main Lake	20.5%	61.1%	20.2%	5.0%	28.9%	46.9%
06. Shelburne Bay	11.6%	64.1%	20.2%	5.0%	55.0%	20.0%
07. Burlington Bay	31.2%	66.7%	24.2%	0.0%		0.0%
09. Malletts Bay	17.6%	0.2%	20.5%	5.0%	44.9%	28.6%
10. Northeast Arm	12.5%		7.2%	5.0%		20.0%
11. St. Albans Bay	24.5%	59.4%	21.7%	5.0%	55.0%	34.5%
12. Missisquoi Bay	64.3%	51.9%	34.2%	50.0%	68.5%	82.8%
13. Isle La Motte	11.7%	0.0%	8.9%	5.0%		20.0%
TOTAL	33.7%	42.1%	20.9%	18.7%	45.4%	53.6%





VT's Required Ag Practices (RAPs)

- Any farm with \$2,000 gross income in an average year will be expected to follow the RAPs.
- Any farm of 4 acres or more that grows crops or holds four horses, or five bovine,
 or 100 laying hens, or 15 swine, or various other numbers of other species.
- All Certified Small Farm Operations (CSFO), Permitted Medium (MFO), and Permitted Large farms(LFO) shall develop and implement a field by field NMP consistent with NRCS 590 or equivalent.
- All fields receiving mechanical application of manure shall be soil sampled at least once in every five years. CSO, MFO, and LFO farms shall soil sample every 2 years.
- Manure shall not be applied to annual croplands where the average field slope exceeds 10% slope, unless a permanently vegetated buffer zone of 100 feet adjacent to downslope surface water has been established.
- Adjacent surface waters shall be buffered from cropland by 25 feet of perennial veg.
- Ditches shall be buffered from croplands by 10 feet of perennial vegetation and 25'
 where determined to potentially transport significate waste or nutrients to
 surface water consistent with the USDA 590 standard nutrient management req.



NRCS efforts over the past five years

- ✓ Strengthen Partner Coordination
- Improve Understanding of the Problem
- **✓ Target Resources**
- ✓ Accelerate Implementation through Increased Funding and New Initiatives
- ✓ Foster Innovation
- Improve On Farm Planning, Accountability and Tracking









Keys to Success: Partner Coordination

Purpose: to promote greater and more efficient cooperation among partners in Vermont on addressing agricultural water quality concerns.



ermont Agricultural
Water Quality Partnership



Between the

United States Department of Agriculture, Natural Resources Conservation Service (NRCS)

Vermont Association of Conservation Districts (VACD)

Vermont Agency of Agriculture, Food and Markets (VAAFM)

United States Fish &Wildlife Service (USFWS)

University of Vermont Cooperative Extension (UVM Extension)

United States Department of Agriculture, Farm Service Agency (FSA)

Vermont Agency of Natural Resources, Department of Environmental Conservation (VANR- DEC)

Lake Champlain Basin Program (LCBP)

Vermont Housing and Conservation Board (VHCB)

This Memorandum of Understanding (MOU) is made and entered into by and between the NRCS, VACD, VAAFM, USFWS, UVM Extension, FSA, VANR-DEC, LCBP and the VHCB, hereinafter referred to as "the Parties."

Authorities

CTA – Soil and Water Conservation; 16 U.S.C. 590a-590f, 590q, CFDA 10.902 EQIP - Environmental Quality Incentives Program; 16 U.S.C. 3839aa 3839aa-9, CFDA 10.912 ACEP ALE/WRE - Agricultural Conservation Easement Program 16 U.S.C. 3865 et seq., CFDA 10.931

Purpose

The purpose of this MOU is to strengthen cooperation among the Parties that result in coordinated interagency delivery of agriculture-related technical and/or financial conservation assistance to private landowners in Vermont, to achieve measurable water quality and wildlife habitat improvements in the most efficient, cost-effective way possible, and provide the best possible service experience for farmers and other private landowners.

III. Background

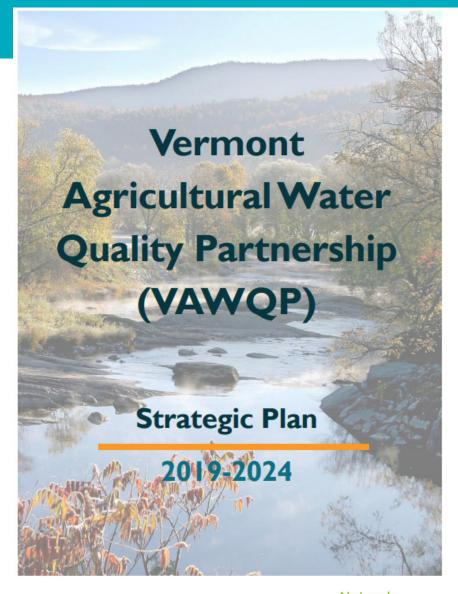
On November 5, 1990, the Lake Champlain Special Designation Act was signed into law. It was sponsored by Senators Leahy and Jeffords from Vermont and Senators Moynihan and D'Amato from New York. The goal of the Special Designation Act was to bring together government agencies and other organizations with diverse interests in the Lake to create a comprehensive pollution prevention, control, and restoration plan for protecting the future of Lake Champlain and its surrounding watershed. The Act specifically required federal agencies to examine water quality, fisheries, wetlands, wildlife, recreational, and cultural resource issues in the Basin. As result of this legislation the Lake Champlain Basin Program was established in 1991 and an initial plan for the Basin was developed.





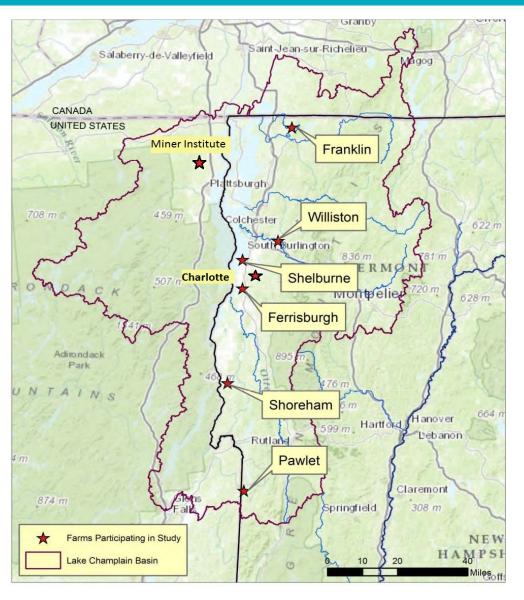
VAWQP objectives

- Build a stronger collaboration
- Identify, connect, share and coordinate research and learning across VAWQP partners and others
- Utilize research and learning to evaluate, adjust, and innovate on specific practices and tools across the partners
- Ensure training of staff across partner organizations
- Create consistent, coherent, meaningful messages for Partner staff, farmers, and the public
- Align Tactical Basin Planning and prioritization efforts and ensure effectiveness of jointly targeted watershed strategies.









Edge of Field Monitoring

- Seven projects on 8 farms started in 2012, two new projects in 2015
- Focused on practices important for VT with little or no data on practice effectiveness;
- Practices included cover crops, reduced tillage systems, sediment basin, manure incorporation on hayland, drainage water management, cover crops and a grassed waterway
- Now have baseline and treatment data
- University of Vermont Extension continues with three more projects and a total of 17 monitoring stations at the EOF.



Summary of Edge of Field P results













- ✓ Number of surface flow events were limited (about 12 per year) and of short duration (a few hours to a few days)
- ✓ Loading of TP was 60 percent higher from cornfields vs. hayfields
 - TP EMC on cornfields ranged from 323 to 1,126 ug/l
 - TP EMC on hayfields ranged from 249 to 548 ug/l
- ✓ Hayfields had a higher percentage of soluble P in runoff (84 percent vs. 43) percent)
- ✓ Overall, approximately 65 percent of the P in surface runoff was in the dissolved form (TDP)
- ✓ Highest single EMC of TP and TDP was from a hayfield (15,560 ug/l), but even then 98% of the manure p stayed on the field
- ✓ Strong correlation between soil p levels and EMC p.







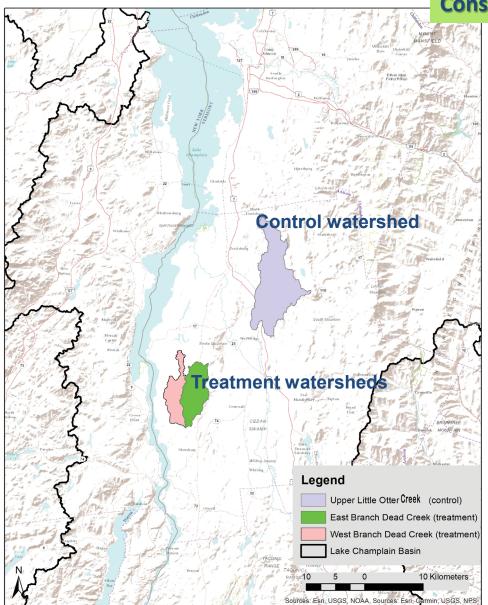
Water Quality Science Meeting, April 30-May 2, 2019

Name	Organization						
Vicky Drew	VT NRCS State Conservationist						
John Thurgood	VT NRCS ASTC Field Operations						
Joe Buford	VT NRCS State Resource Conservationist						
Marli Rupe	VT DEC, Agricultural Section Chief						
Laura DiPietro	VAAFM, Director of Water Quality						
Ryan Patch	VAAFM, Deputy Director of Water Quality						
Judson Peck	VAAFM, Water Quality Division						
Kaitlin Hayes	VAAFM, Water Quality Division						
Chuck Ross	UVM Extension, Director						
Dan Lerner	UVM Extension, Associate Director						
Heather Darby	UVM Extension Agronomist						
Jeff Carter	UVM Extension Agronomist						
Josh Faulkner	UVM Extension, Farming and Climate Change Program Coordinator						
Don Ross	UVM Research Professor, Plant and Soil Science						
Jill Arace	VACD, Executive Director						
Jeff Farber	VACD, Conservation Programs Manager						
Tom Morris	UCONN Extension, Professor Plant and Soil Scientist						
Kevin King	USDA ARS, Soil Drainage Research Leader and Ag Engineer						
Dana Ashford-Kornburger	Acting Director, Ecological Sciences Division						
	National Nutrient Management Specialist						
	Ecological Sciences Division, NRCS NHQ						
Karma Anderson	NRCS Water Quality Specialist						
Lisa Duriancik	NRCS CEAP Watersheds Leader						
Glenn Stanisewski	NRCS Soil Scientist, CEAP Modeling Team						
Jan Surface	NRCS National Water Quality Specialist						
Joe Bagdon	Environmental Risk Analysis Specialist						
	National Water Quality and Quantity Team, Amherst, MA						
Ray Bryant	USDA ARS, Research Soil Scientist						
Doug Smith	USDA ARS, Research Soil Scientist						
Chad Penn	USDA ARS, Soil Scientist						
Jim Wallace	Newtrient						
Bob Thompson	VT NRCS State Conservation Engineer						
Laura Klaiber	Miner Institute, Research Scientist						
Dave Braun	Stone Environmental, Senior Water Resources Scientist						
Mike Winchell	Stone Environmental, Vice President, Senior Environmental Modeler						
Don Meals	Environmental Consultant						
Matthew Vaughn	Lake Champlain Basin Program Technical Coordinator						
Eric Howe	Lake Champlain Basis Program, Program Director						
Emily Bird	VT DEC, Environmental Analyst						
Ethan Swift	VT DEC Watershed Management Division Program Manager						
Kip Potter	NRCS ACES						
Sandra Primard	NRCS State Agronomist						
Lee Norfleet	NRCS Model Team Leader						
Reed Sims	VT NRCS GIS Specialist						
Nina Gage	VAAFM, Water Quality Division						
Chris Gross	Beltsville, MD, National Nutrient Management Specialist,						
Eric Hesketh	National Agricultural Pesticide Risk Analysis (NAPRA) Team, NRCS Mass						



Lake Champlain Basin

Conservation Effects Assessment Project (CEAP)



- In 2019, selected as new paired watershed study under NRCS CEAP Watershed Program.
- UVM Extension in the lead, with support from NRCS, VT Agency of Agriculture, VT Dept of Environmental Conservation, VT Association of Conservation Districts and USGS.

The stacked practices to be investigated Avoid, Control, Trap=ACT

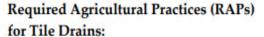
Avoid: Manure P-removal technology, prior to field application

Control: Suite of Soil Health Management Practices (SHMP) in the field (exact practices TBD with farmer and stakeholder group, but will likely include cover crops and no-till).

Trap: Phosphorus Ditch Filter for surface runoff, and tile drainage Phosphorus Filter for subsurface runoff.







Field Stacking of Manure:

On non-NRCS approved manure stacking sites, manure or ag waste cannot be stacked within 100 feet of subsurface tile drainage without a variance from the Secretary of Agriculture.

Nutrient Management Planning:

All LFO, MFO, and CSFO farms which have cropland with soil analyses demonstrating greater than 20 parts per million (ppm), phosphorus must apply nutrients at less than UVM phosphorus crop removal rates on those fields with 'pattern tile drainage' (applicable only to operations required to obtain a 590 Nutrient Management Plan: CSFO, MFO, and LFO).



Concentrated feeding areas of unimproved barnyards and unimproved feedlots shall not be sited over subsurface tile drainage unless other site-specific standards are approved by the Secretary.

Vegetated Treatment Areas:

New vegetative treatment areas for agricultural wastes shall not be installed within 200 feet upslope of a subsurface tile drain and new subsurface drainage shall not be installed within 200 feet downslope from an existing vegetative treatment area.

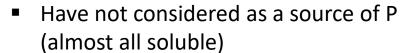
Rodent Guards:

Subsurface tile drainage installed or modified after January 1, 2019 shall have a rodent guard installed at the outlet of the subsurface tile drainage system.

Surface Inlets:

For all farming operations subject to this Rule, no new installations of surface inlets shall be located within or adjacent to cropland. For the purposes of this section, surface inlets do not include drainage controls such as diversion structures or grade stabilization practices approved by the Secretary.





- In 2018, the VT Required Ag Practices were amended to include controls for subsurface tile drains.
- Tile Drainage being installed at an increased rate
- New Tile Drainage Systems now spaced as close as 20 ft.
- Now looking at practices to control P from tile
- Extension starts Discovery Farm in 2020 to research impacts of tile drain to water quality coupled with stacked in field practices.









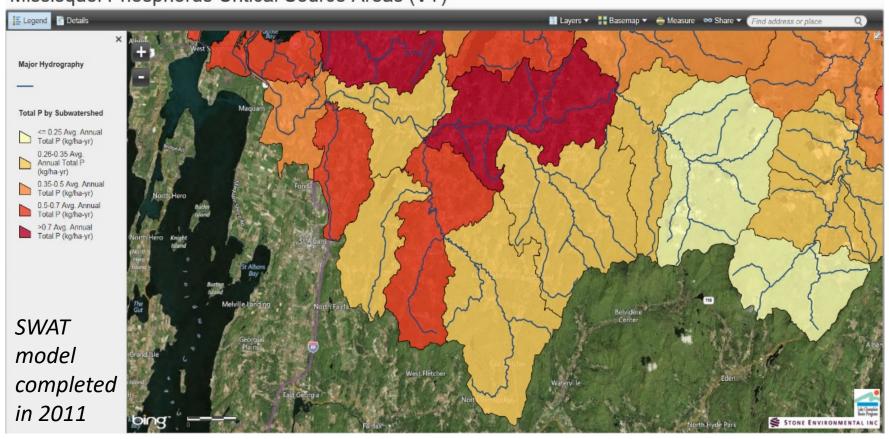




Keys to Success: Targeting the areas most in need

SWAT: Soil and Water Assessment Tool

Missisquoi Phosphorus Critical Source Areas (VT)



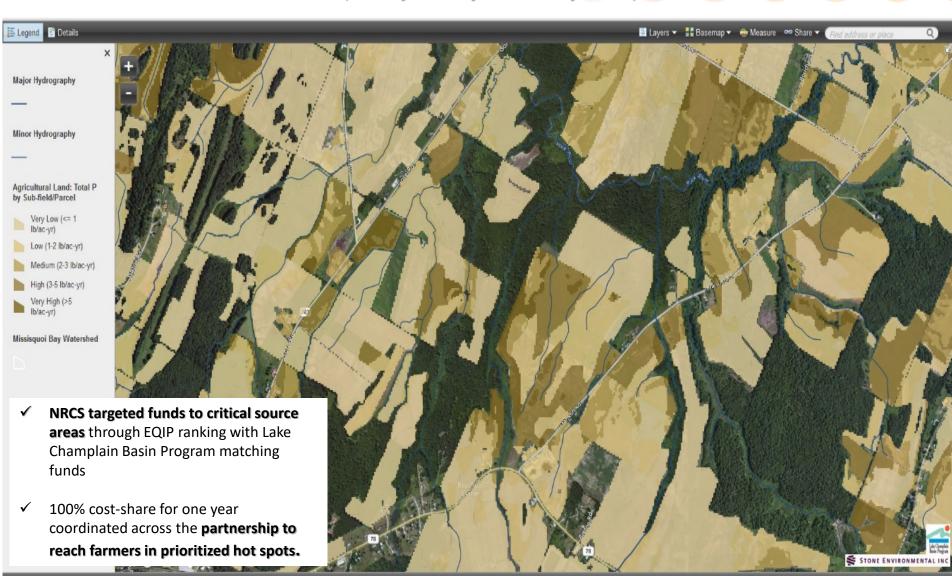




Keys to Success: Targeting the areas most in need

SWAT-Field Level P Loading

(74% of P load from 24% of Fields)





Keys to Success: Targeting resources

- 2015-A Steering Committee selected priority watersheds
- NRCS developed a watershed level resource assessment and plan including P loading and reduction estimates
- Local Workgroups developed Tactical Action Plans that identified specific implementation needs and goals

Strategic Implementation Plan for Agriculture in the Rock River Watershed,

Franklin County, Vermont - Draft



Prepared By; USDA/NRCS Colchester, VT June 2015

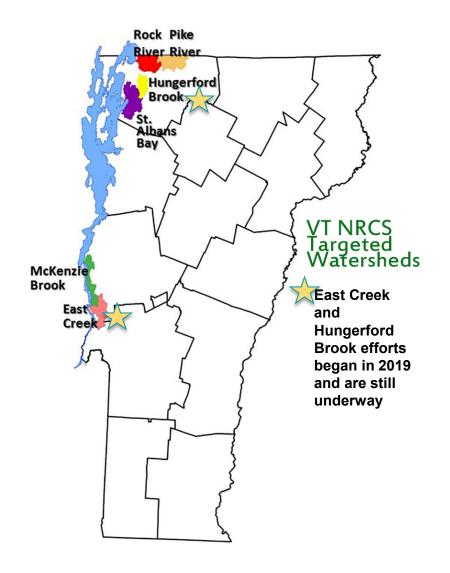


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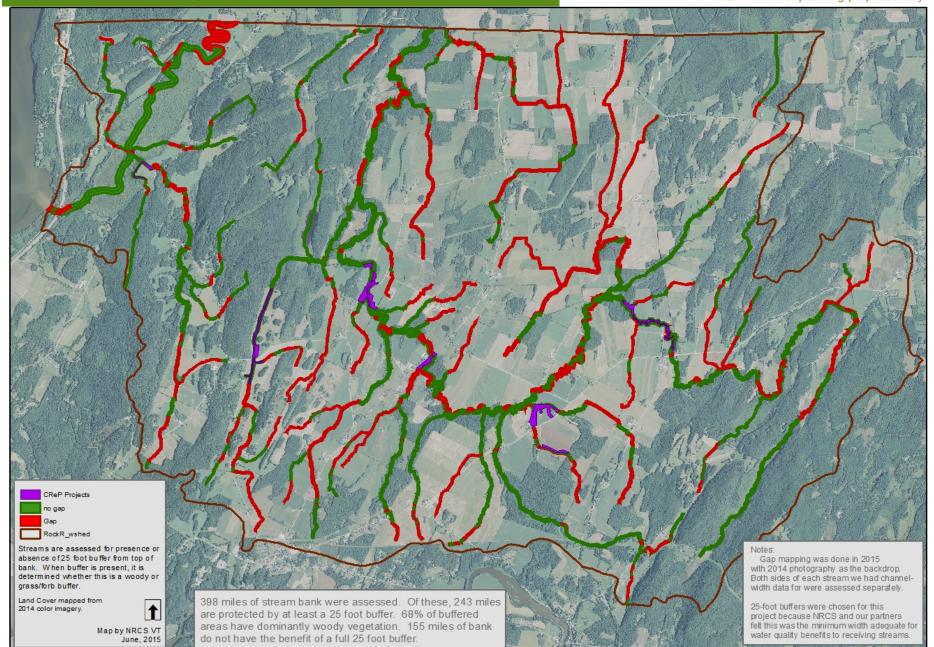




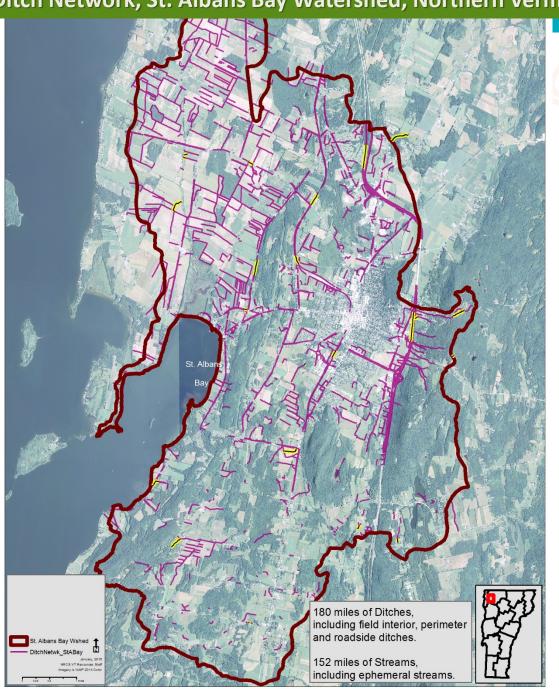
Focused on watersheds that were

- Most impaired
- In the public eye
- Long term water quality monitoring data
- Six watersheds received prioritized financial and technical assistance over a four-year time span.
- The goal is to apply the most appropriate conservation measures in the most critical areas to achieve water quality improvement.
- Nearly ½ of EQIP funds were focused in these priority areas.
- Each watershed project includes an agreement with a local partner for coordination, education and outreach, and farmer assistance





Ditch Network, St. Albans Bay Watershed, Northern Vermont



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Watershed specific action plans

Figure 23 – Action Plan, Responsibility and Timeline

Action Plan for Rock River Watershed Project								
Strategy I: Locally- Led/Farmer Engaged Conservation								
Actions:	Description	Who is responsible?	When Begin	When End				
Farmer to Farmer Meetings.	Two kitchen/shop meetings will be held with small groups of farmers to encourage EQIP applications.	FNLC will organize. NRCS will attend. Other partners may be asked to present material	03/15/16	11/30/16				
Active involvement of producers in watershed planning process. Identify and invite Conservation leaders to participate on the watershed action team.	Attempt to get 2 or 3 farmers in the watershed to take an active role in the planning and implementation of the action plan.	Watershed action team. Team members need to be covered by the 1619 agreement with NRCS to preserve PII.	03/01/16	04/30/16				
Educate farmers about technical and financial assistance available to reach conservation goals	This could be completed at the kitchen meetings or with factsheets and farm visits.	FNLC, NRCS, FSA, USF&W, UVM Extension, VT Agency of Agriculture	03/15/16	11/30/16				
Create "farm neighborhood" peer- to-peer farmer education, networking and mentoring groups/pairs	Explore a method of matching farmers who have adopted conservation practices with those who are interested in starting to use them.	FNLC	03/15/16	12/31/16				
Sponsor Educational meetings and demonstrations at farms on conservation practices.	Have at least one meeting per year to provide education and demonstrations on conservation practices such as no-till seeding,	UVM EXT and other partners.	05/01/16	12/31/20				

















Priority Watersheds Estimated Ag Phosphorus Loadings and Targeted Reductions

Watershed Name	Watershed Area (acres)	Total Estimated Ag P Loading (lbs /yr)	TMDL Reduction Goal	Ag P Reduction Goal (lbs /yr)	Project Goal (Ibs/yr) (% of TMDL goal)	NRCS Estimated Cost of Project Implementation		
Rock River	22,743	19,248	83%	15,976	7,700 (40%)	\$8,518,000		
Pike River	25,088	9,599	83%	7,967	5,200 (65%)	\$9,938,000		
St. Albans Bay	33,515	23,047	35%	8,066	7,000 (87%)	\$7,764,000		
McKenzie Brook	21,222	43,276	60% 29,966		13,000 (50%)	\$10,753,000		
Hungerford Brook	12,534	4906	85	4170	2,500 (40.5%)	\$8,775,689		
East Creek	20,553	14,429	63%	9,090	2,600 (28%)	\$1,075,000		



Keys to Success: Local Action Teams

✓ Locally-led farmer engagement

-Farmer-to farmer meetings with NRCS, UVM, and key partners

✓ Enhanced Technical Assistance for Farmers

- -Develop watershed specific action plan to identify four key strategies
- -Develop a plan of delivery for technical assistance
- ✓ Financial Assistance for Farmers through Targeting
- Outreach and Education
 - -Watershed specific fact sheets with key contacts listed (partners and NRCS)
 - -Include state cost share availability
 - -Initiate one-on-one contact with farmers to explain goals and options.
 - -Develop farmer success stories and promote positive work being accomplished in the watershed
 - -Demonstration farms to illustrate conservation practices and benefits.
 - -Soil health signage to celebrate and recognize stewardship
- ✓ Local Leadership and Coordination

-Funding support to "work" the Action Plan







Accelerating Implementation

Actual EQIP obligations* per fiscal year toward the Lake Champlain Action Plan by targeted watershed

	N1 x 1										1.2	
Subaccounts/watershed		2015		2016		2017		2018		2019	T	OTAL
		Year 1		Year 2		Year 3		Year 4		Year 5		ACTUAL
LC Watersheds	\$	5.839	\$	5.021	\$	5.788	S	6.048	\$	5.75	\$	28.449
Rock River	\$	0.206	\$	0.210	\$	0.605	S	0.530	\$	0.462	\$	2.014
McKenzie Brook			\$	0.501	\$	0.197	\$	0.724	\$	0.648	\$	2.071
Pike River			\$	0.118	\$	0.441	\$	0.085	\$	0.083	\$	0.727
St. Albans Bay			\$	1.038	\$	0.705	S	0.357	\$	0.489	\$	2.589
Hungerford Brook									\$	0.316	\$	0.316
East Creek									\$	0.033	\$	0.033
EQIP General	\$	0.538	\$	0.054	\$	0.399	\$	0.381	\$	0.371	\$	1.743
DEC RCPP-EQIP	\$	0.009	\$	0.840	\$	2.585	\$	1.403	\$	1.223	\$	6.060
VACD RCPP-EQIP	\$	0.070	S	0.185	\$	0.036	S	0.008			\$	0.299
Subtotal	\$	6.663	\$	7.968	\$	10.756	\$	9.536	\$	9.379	\$	44.301
						•						

^{*}millions of dollars

Secretary Vilsack Announced \$45 million for Lake Champlain (2014)

- Funding allocated over a 5-year period (2015-2019).
- Targeted 75% of all EQIP funds to strategic watersheds and rest of Lake Champlain basin.





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^{**}planned



Outcomes

Watershed	Annual Phosphorus Loading Reduction Goal	P-Reduction in 2020 (lbs)
Rock River	7,700	3,419
Pike River	5,200	2,904
St. Albans Bay	7,000	3,863
McKenzie Brook	13,000	9,518
Hungerford Brook	2,500	1,832
East Creek	2,600	4,013









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Keys to Success: Accelerating Implementation

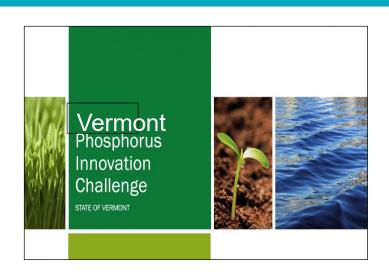
- Vermont Association of Conservation
 District's project targets nutrient
 management planning on small farms
 in the Basin (\$800,000)
- Vermont Department of Environmental Conservation targets P reduction in 3 challenged watersheds (\$16 million + \$10 million renewal)
 - -Combo of EQIP, ag easements, and wetland restoration
 - -Success measured using APEX tools and other methods
 - -Incorporates pilot testing of VT Environmental Stewardship Program
 - -Heavily focused on water quality improvements on conserved farms







Keys to Success: Fostering Innovation







PILOT PROGRAM IN PROGRESS

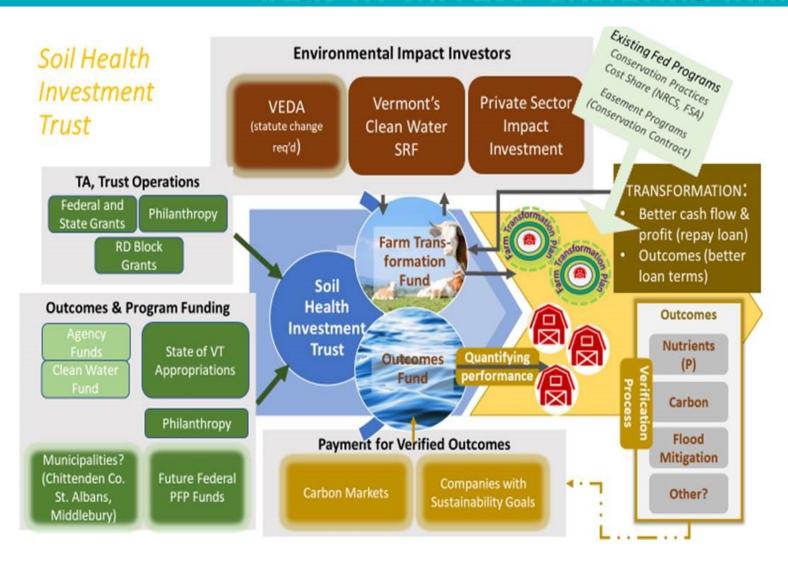








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Funding provided by NRCS through a 2019 Conservation Innovation Grant (CIG)





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VPFP Vermont Pay-For-Phosphorus Program



- P-reductions will be modeled using the FarmPREP tool
- Pays on results improving cost-effectiveness and accelerating implementation
- Flexibility for farms to manage fields how they choose
- Complements existing State and Federal assistance programs (e.g. EQIP, FAP)
- Statewide voluntary program available to eligible farms
- Incentive payments for program enrollment regardless of farm performance

Funded by NRCS through a 2020 RCPP Alternative Funding Arrangement (AFA) Grant.





Keys to Success: Tracking and Accountability

Partner Shared Database

- Shared among partners who are signatories to State Water Quality MOA (and 1619 agreements)
- Intended to be a complete repository of farm and conservation data for the State
- Prevents "double counting" of practices
- Used to track and access progress, including for watershed modelling efforts

Vermont Farm Prep (Farm Phosphorus Reduction Planner)--Specific to Vermont soils, weather, and cropping systems

- Integrated web-based application, to help farmers, technical crop consultants, and stakeholders easily
 evaluate the impacts of field-level best management practices on farm scale phosphorus (P) loss
 reductions and identify modifications to field operations to achieve water quality targets
- Brings the power of the USDA Natural Resource Conservation Service's farm-scale water quality model, the Agricultural Policy Environmental eXtender model (APEX), to a much broader audience

BATT (BMP Accounting and Tracking Tool)

- Aligns with the State of Vermont tracking and accounting process for pollutant reduction measures of estimated nutrient load reductions achieved by clean water projects
- The Clean Water Initiative report covers State Fiscal Year (SFY) 2016 through 2020 with data collected from a variety of sources including state funding programs, regulatory programs, and federal funding programs.
- Lake Champlain TMDL Progress Report summarizes progress made across state and federal funding programs and regulatory programs implementing the Phosphorus Total Maximum Daily Loads (TMDLs) for Vermont Segments of Lake Champlain.



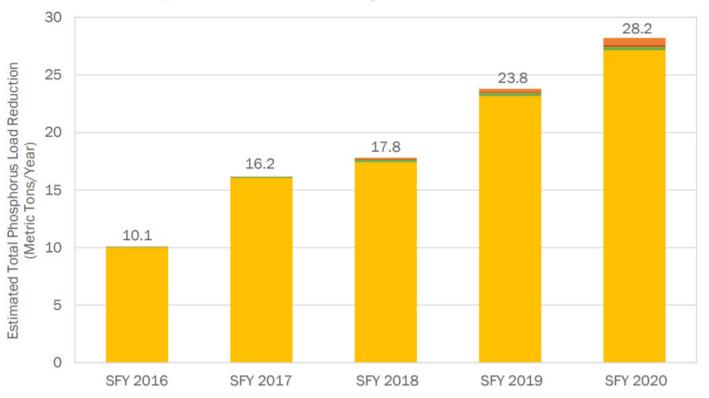




Outcomes

Estimated Total Phosphorus Load Reductions by Land Use Sector

■ Natural Resources









Annual estimated total phosphorus load reductions (metric tons per year) associated with clean water projects/activities in the Lake Champlain basin completed/in effect SFY 2016-2020 shown by land use sector.

Estimated 28.2 metric ton total phosphorus load reduction achieved as of SFY 2020, representing 13 percent of the phosphorus reduction required for Lake Champlain to meet State of Vermont water quality standards by 2038.

■ Developed Lands (Stormwater) ■ Developed Lands (Roads)

Natural Resources Conservation Service



Agriculture



Outcome: A Comprehensive, Adaptable and Efficient Strategic Plan for Implementation



Water Quality
MOU, crosstraining, RCPP
projects for water
quality

Understand the Problem

CEAP, Science of Water Quality Meeting, CIG, EOF Monitoring, Tile Drainage

Tracking and Accountability

Partner Database, APEX, Water quality monitoring, FarmPREP, BATT

The Issue

Excessive phosphorus in Lake Champlain from ag sources

Target Resources

SWAT and CSA's,

Strategic Watershed Approach

Foster Innovation

CIG, VESP, CEAP, and VPIC

Accelerate Implementation

RCPP, Secretary Vilsack's Commitment, Vermont Clean Water Fund





Lessons Learned

- ✓ Check assumptions on nutrient loss pathways
- ✓ Use most effective conservation practices to address loss pathways
- ✓ Pay for coordination at the local level— it won't happen automatically
- ✓ Target, target, target
- ✓ Involve partners at every level leadership down to action teams
- ✓ Enable and support peer to peer (farmer to farmer) exchange of ideas
- ✓ Regularly assess and track progress, and adapt accordingly
- ✓ Let science drive policy and decision making
- ✓ Farm viability and state of farm economy will affect rate of progress





It Takes a Conservation Partnership

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Thank you to our partners!

Water Quality Partnership





Natural Resources Conservation Service

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