



Clean Water in Vermont

-Federal and State Policy

-Funding and Financing

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Why We Need Clean Water

- Use and enjoyment of Vermonters
 - Drinking water
 - Swimming
 - Fishing
- Supports tourism, at annual spending of more than \$2.5 billion
 - Lake Champlain a key attraction for visitors
 - Second home-owners in towns bordering the Lake spend \$150 million annually
 - Overnight visitors in Champlain Valley spend over \$300 million annually
- Maintains property values
 - 2016 study by UVM/LCBP found a one-meter drop in water clarity = 37% depreciation for seasonal homes
 - For a \$300,000 property near the lake, a \$111,000 loss
- Integral to the Vermont brand
 - Our environment is our economy

Vermont Has Some Pretty Spectacular Waterbodies



Human Activity Can Harm Our Waters



Water Quality in Vermont



Vermont's waterways vary in quality

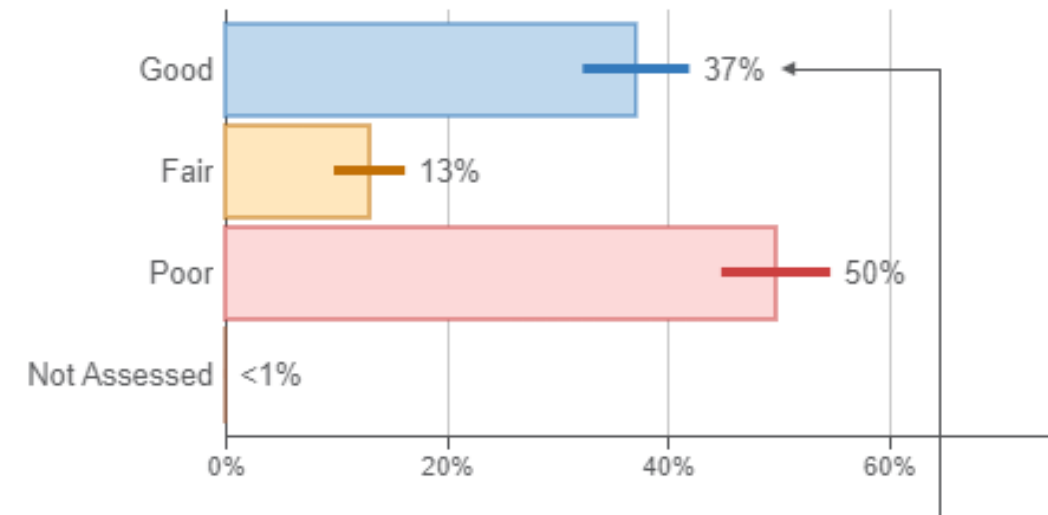
- Many waters are of **exceptional quality** and require **protection**
- Some waters suffer from **excess pollution** and require **restoration**
 - Excess nutrient and sediment pollution is the most common concern
 - » Can create imbalances that impact water quality, including cyanobacteria blooms

Water Quality Concerns Are Not Unique to Vermont

- Nutrient problems exist in many freshwater lakes
 - EPA's 2022 National Lakes Assessment found that nutrient pollution was the most widespread stressor measured
 - Nationwide, 50% of lakes were in poor condition with elevated phosphorus
 - Notable examples include:
 - Lake Pepin, MN
 - Lake Erie
- How does Vermont's response to compare to others?
 - We are taking good, important, meaningful steps
 - Regulatory programs that exceed federal minimums for stormwater and agriculture
 - Significant, dedicated resources (i.e., Clean Water Fund)

Exhibit 23: Phosphorus (Total) Condition (2022)

Percentage of lakes in each condition category nationally



Source: [National Lakes Assessment Report | US EPA](#)

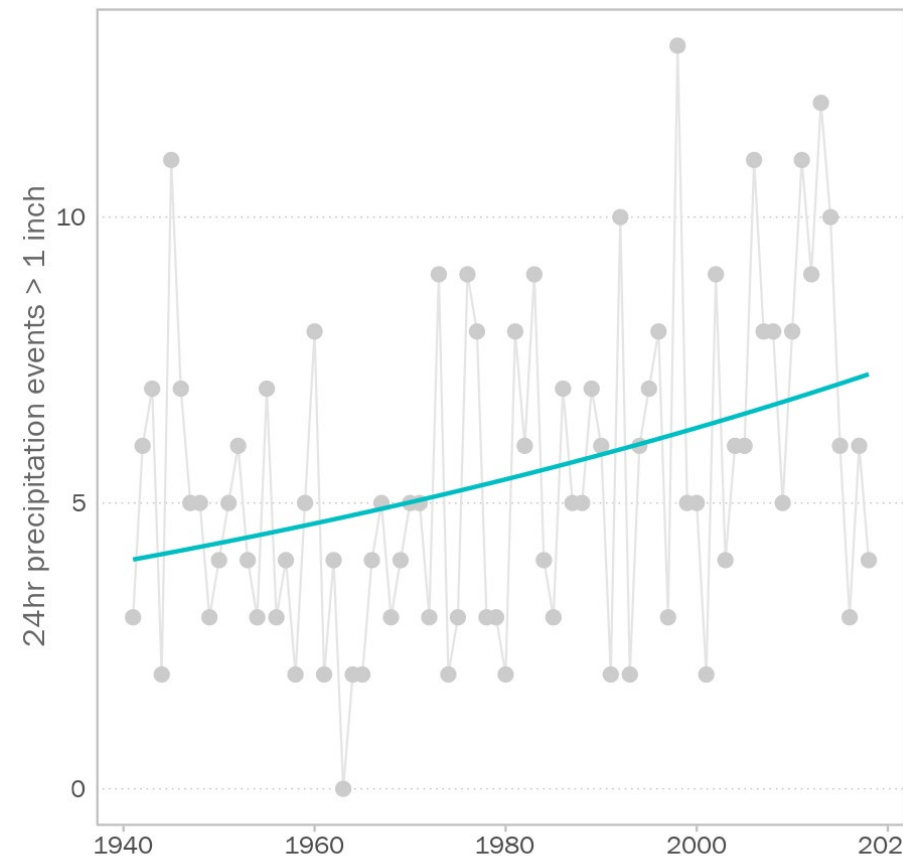
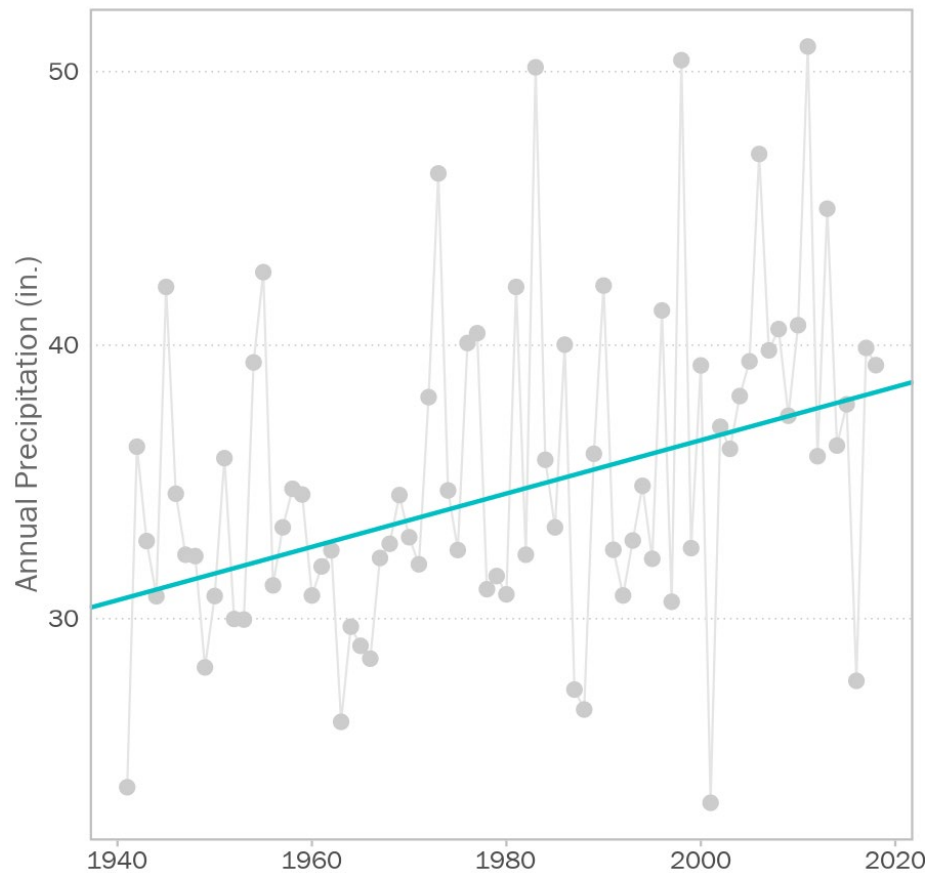
What is Driving Surface Water Pollution in Vermont?

- Sewer overflows?
- Agricultural runoff?
- New construction?

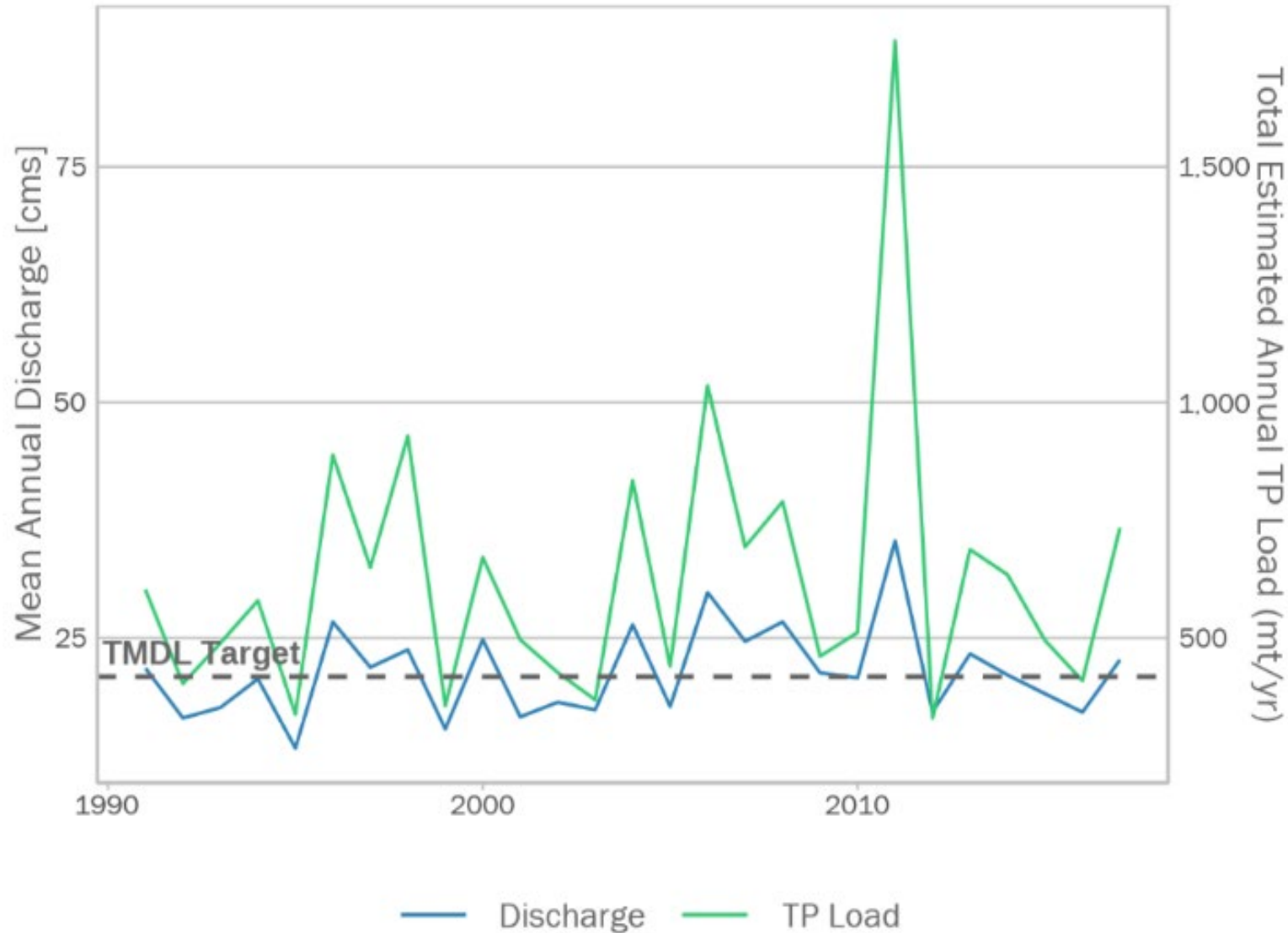
- WEATHER!
 - More rain = more pollution reaching our waterbodies
 - Weather is noisy, so can be hard to detect trends

What is Driving Surface Water Pollution in Vermont?

Significant increases in frequency of intense storms and total annual precipitation.



What is Driving Surface Water Pollution in Vermont?



ANR Programs Support Clean Water



- Environmental permitting programs
- Technical Assistance
- Funding and financing programs



- Habitat Conservation
 - Wetlands
 - Riparian Areas
- Aquatic Organism Passage
- Public Access



- Forestland Conservation
- Management of State Lands
- Technical Assistance to Private Landowners

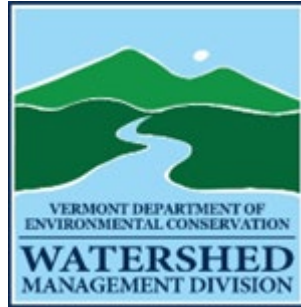
Today's Focus

- Introduction to DEC Programs that Support Clean Water
- Federal Law and State Clean Water Law
- TMDLs; a Tool to Meet Clean Water Objectives
- Resource Programs that Implement TMDLs

- Clean Water Planning
- Funding and Financing Programs
- Communicating Progress

Jason

DEC Programs Support Clean Water



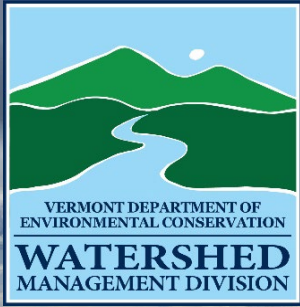
- Lakes, Rivers, Wetlands Programs
- Wastewater, Stormwater and CAFO Discharges
- Monitoring and Assessment



- Watershed Planning
- Clean Water Funding and Financing
- Municipal Clean Water Infrastructure

- Other DEC Divisions also support Clean Water, notably Drinking Water and Groundwater Protection and our Waste Management and Prevention Divisions.

Pete



VTDEC Watershed Management Division

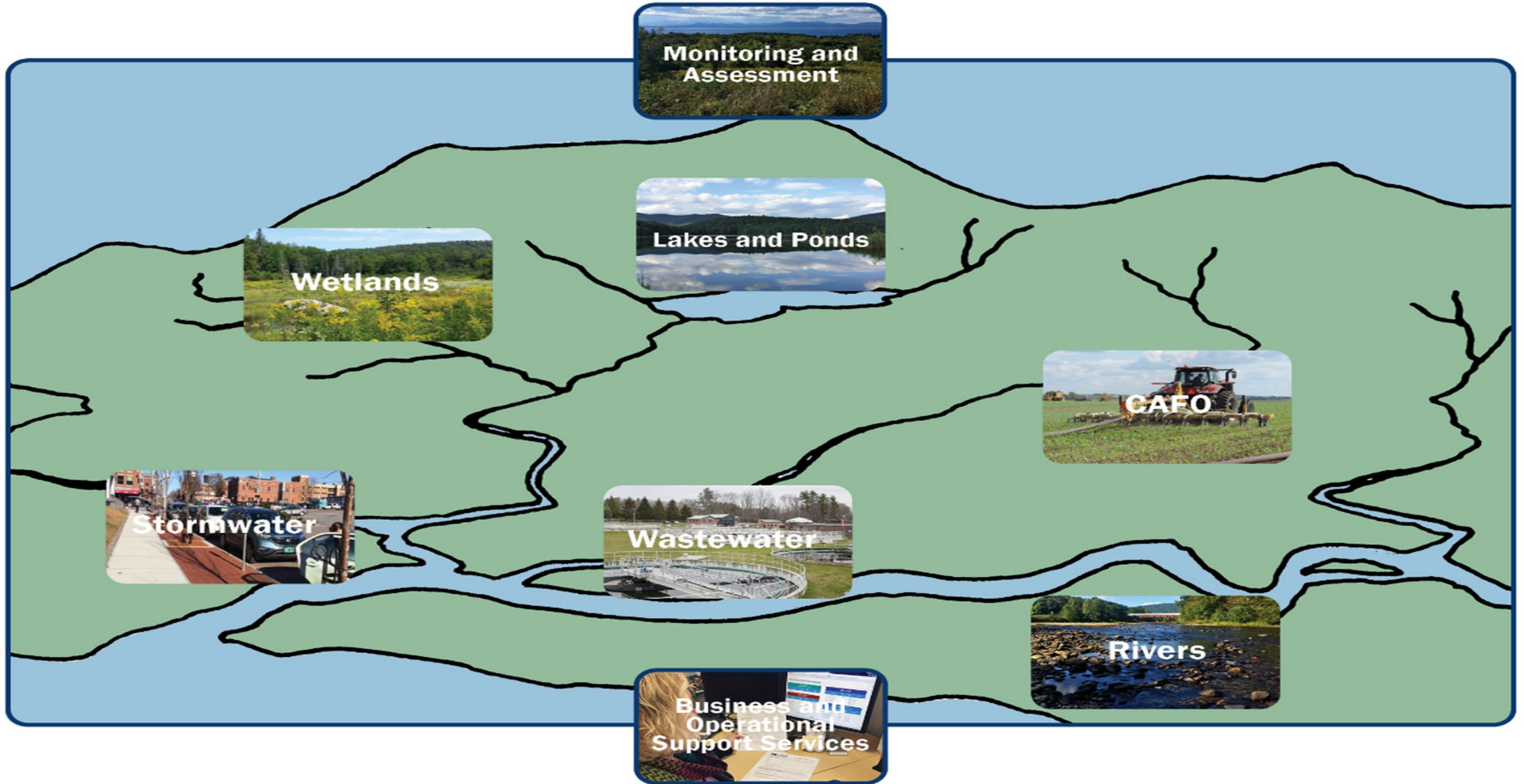
Clean Water Implementation in Vermont

- Watersheds
- Water Quality Standards
- Pollution Pathways and Sources
- Regulation and Permitting
- Priorities

Watersheds

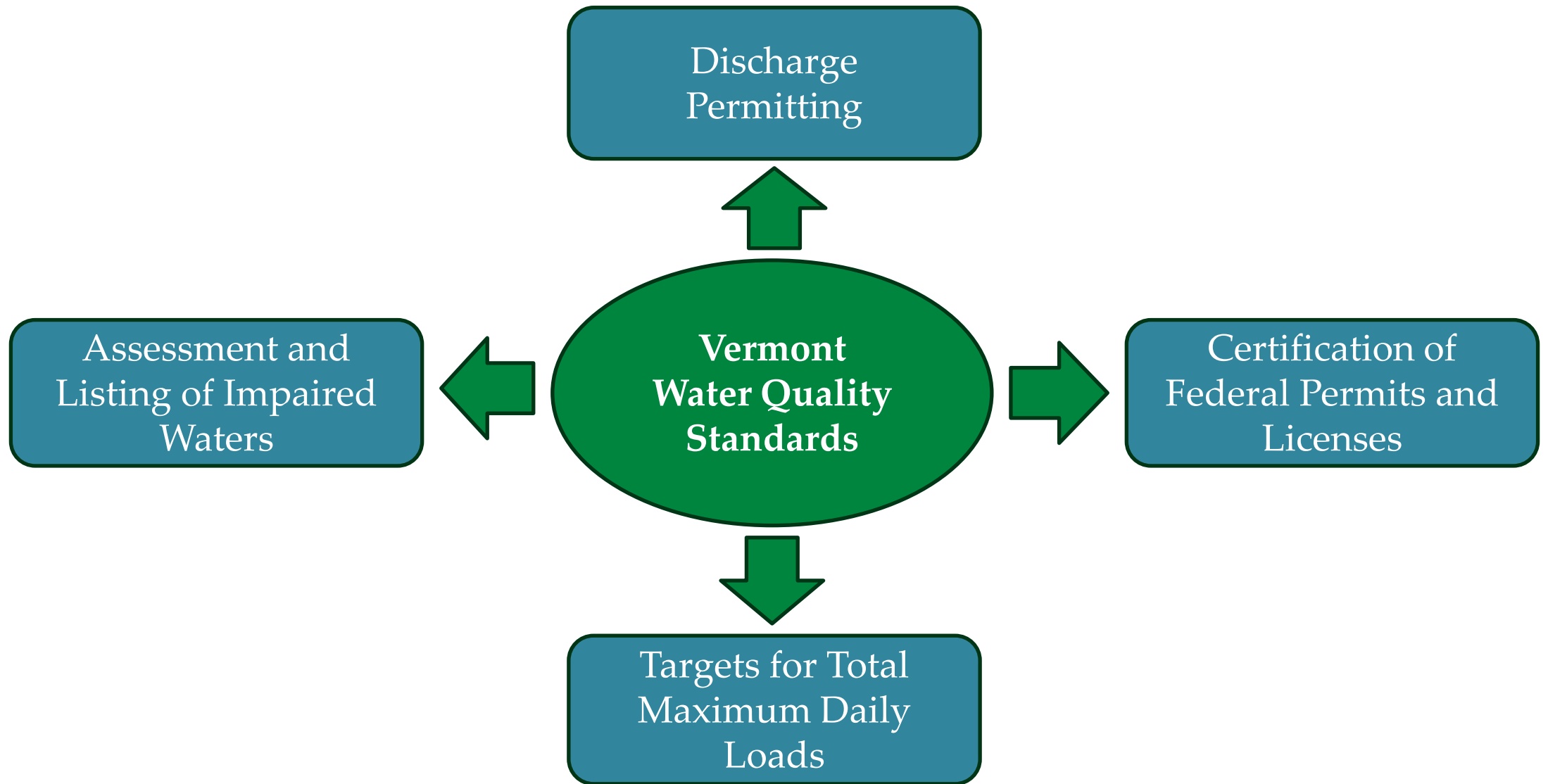
- What are watersheds?
- How activities in a watershed affect quality and quantity
- Why we manage at the watershed level for water resource protection

Watersheds – the foundation of water resource protection



Water Quality Standards

- Designated Uses
- Water Quality Criteria
- Antidegradation Policy



Pollution Pathways and Sources

- Point source vs non-point source pollution
- Piped and pumped
 - Industrial
 - Municipal
- Precipitation driven and diffuse

Federal and State Regulations

- Purposes: Water Quality, Water Resource Protection, Public Safety and Property Protection, Use of Public Waters
- CWA – point source discharges
- CWA – Water Quality Certifications
- Vermont Statutes - Stormwater and Wetlands,
- Vermont Statutes - Act 64 “Vermont’s CWA”
- Vermont Statutes and Rules -Wetland permitting, FHARC, Stream Alteration, Shoreland, Encroachment, UPW

TMDLs, Lake Champlain, and Act 64

- TMDL – WQS are not being met – non-support of designated uses
- Lake Champlain TMDL development
 - Large watershed
- Point vs Non-point
 - Knee of the curve for point source gains
- Act 64 components
 - Gaps and financial incentivization
- Implementation
 - Long timeframe
- Neil – funding and tracking

Leading up to Vermont's Clean Water Act (Act 64 of 2015)

2002

- EPA approved a Lake Champlain TMDL for Vermont

2008

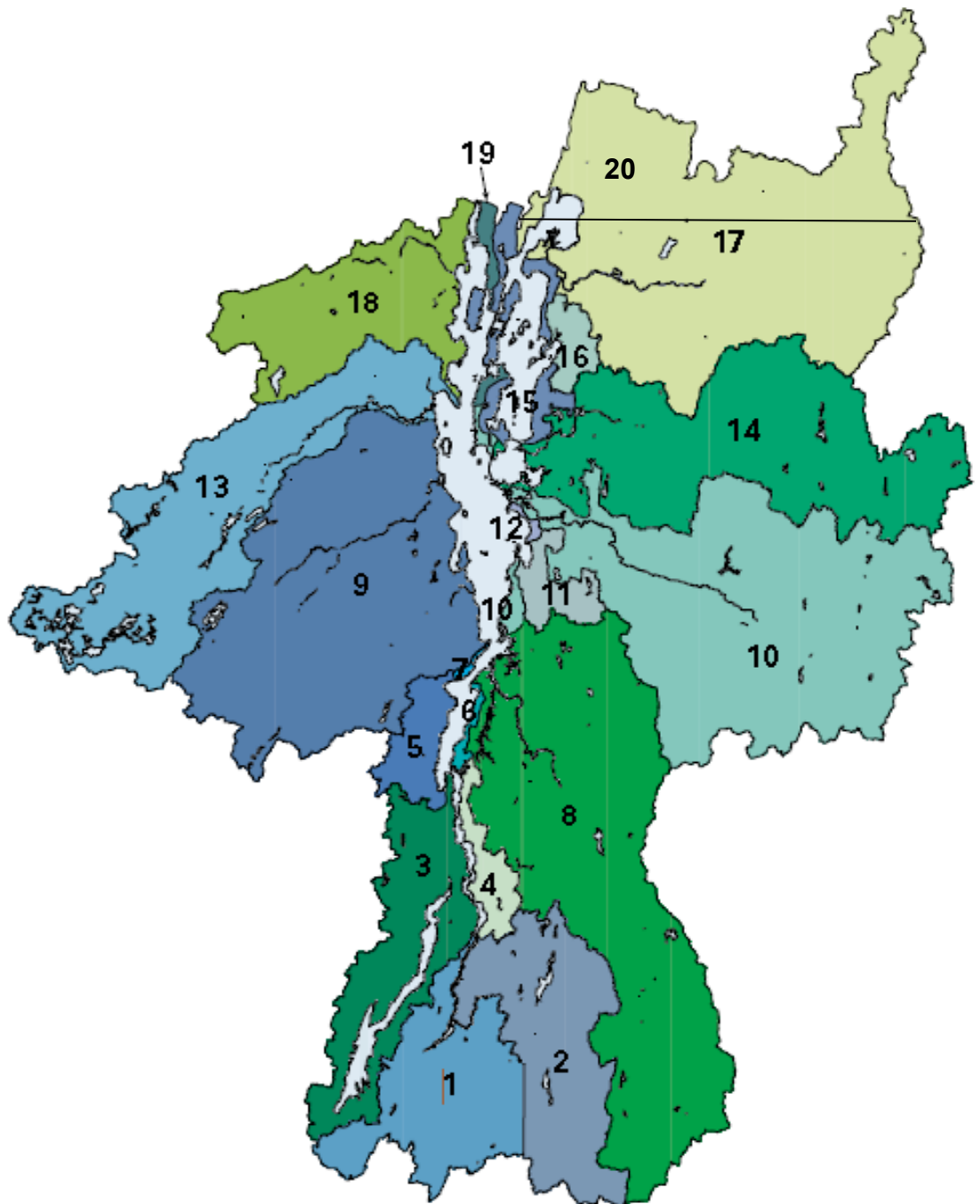
- Conservation Law Foundation challenged the EPA's approval of Vermont's 2002 Lake Champlain TMDL

2011

- Upon re-review EPA disapproved the 2002 TMDL citing a few reasons one of which was the lack of "reasonable assurances." **Reasonable assurances would need to include policy levers and funding** to address non-point source pollution
- EPA led the re-write of the Lake Champlain TMDL, finalized in 2016

2013-
2016

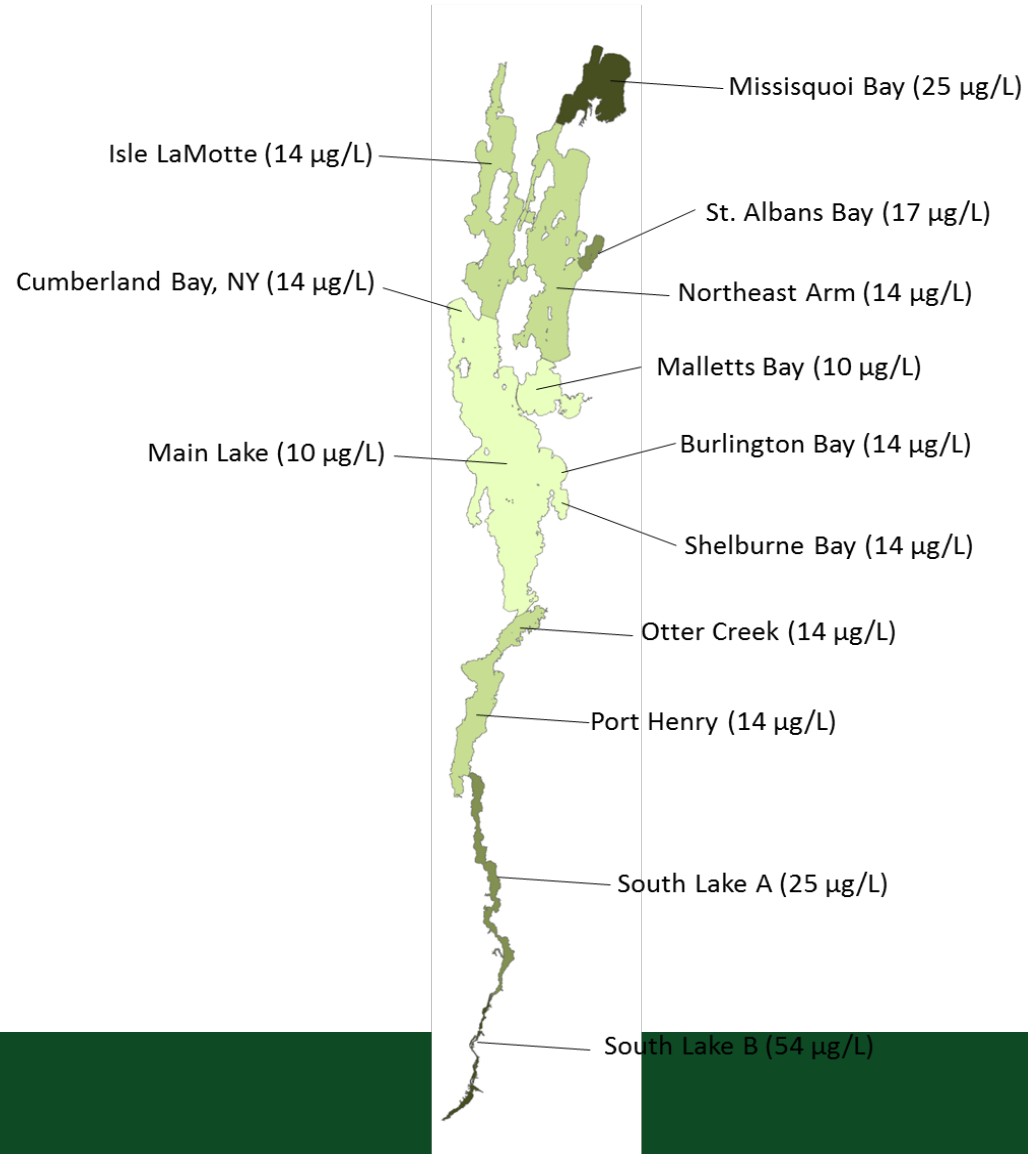
- ANR worked to update the TMDL Phase 1 implementation plan to address programmatic milestones/commitments to implement the TMDL and provide reasonable assurances
 - Plan development included significant public involvement
- Act 64 codified the implementation plan into law



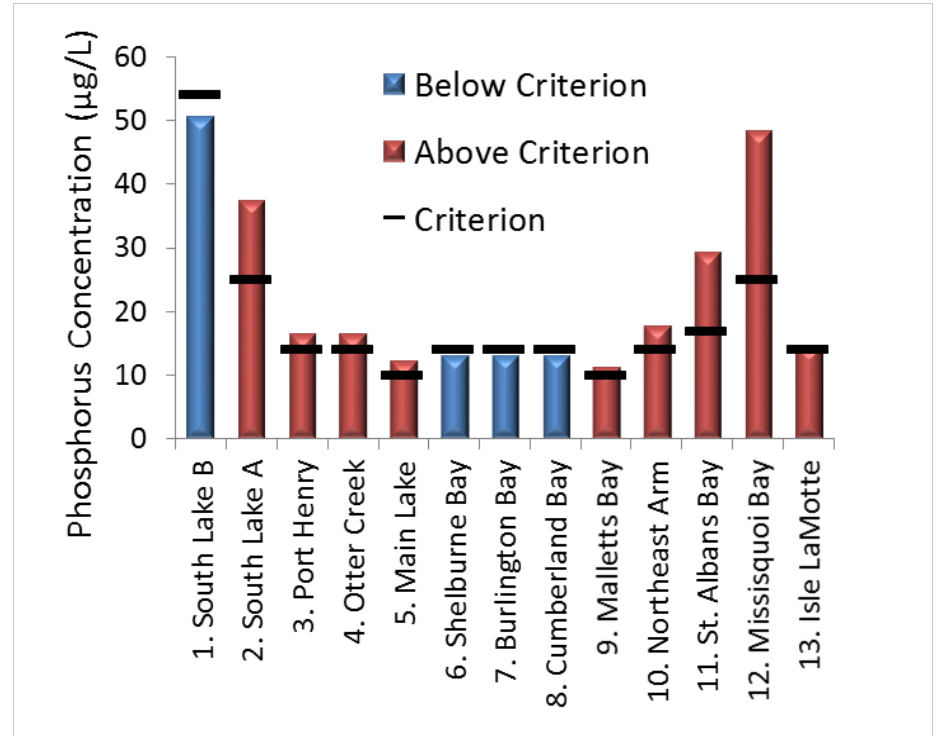
Lake Segment Watersheds

1. South Lake B, NY
2. South Lake B, VT
3. South Lake A, NY
4. South Lake A, VT
5. Port Henry, NY
6. Port Henry, VT
7. Otter Creek, NY
8. Otter Creek, VT
9. Main Lake, NY
10. Main Lake, VT
11. Shelburne Bay, VT
12. Burlington

Lake Champlain Phosphorus Management Segments and Vermont Water Quality Standards for Phosphorus

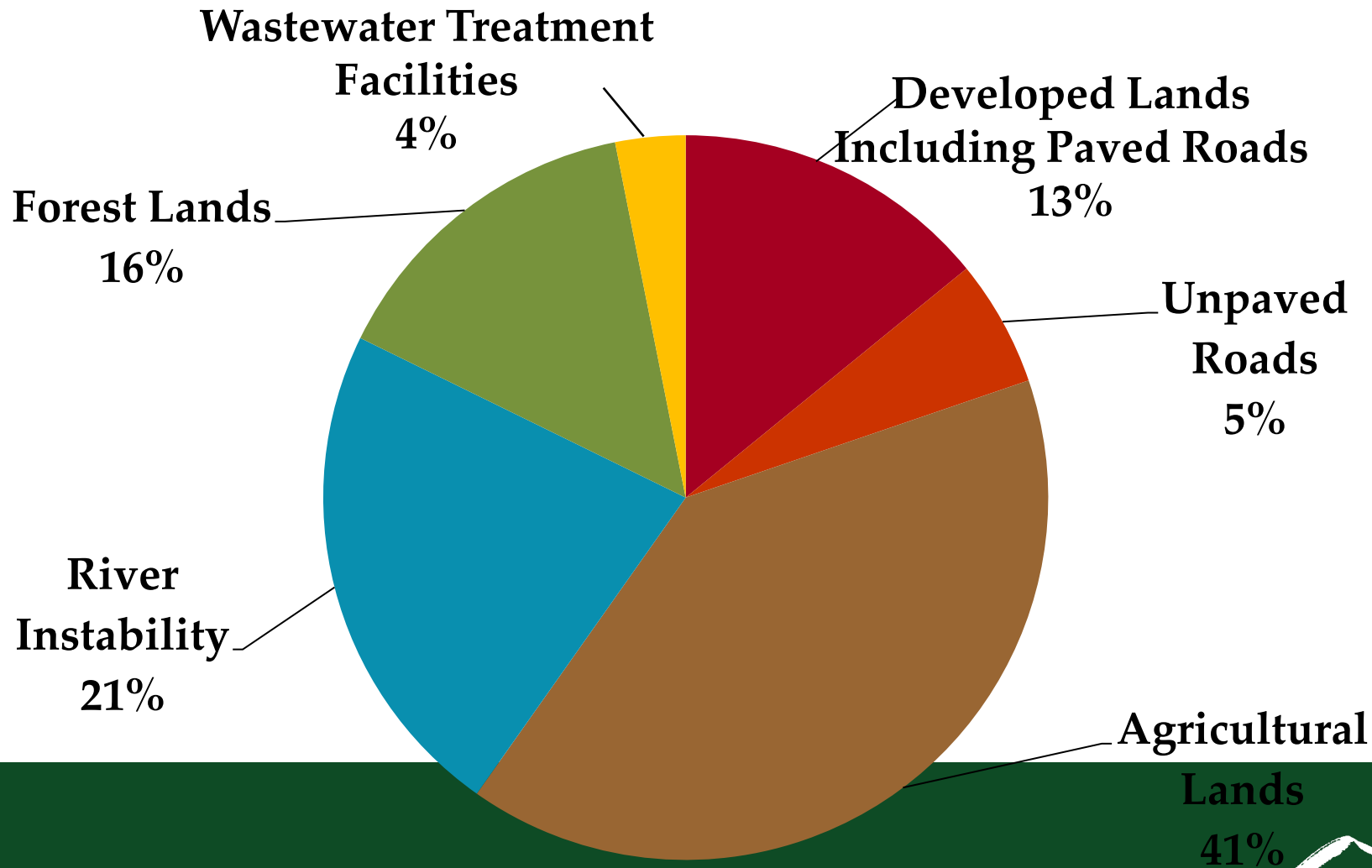


Current Phosphorus Concentrations



Vermont Phosphorus Sources to Lake Champlain

2001-2010 Base Loads



$$\text{TMDL} = \text{WLA} + \text{LA} + \text{MOS}$$

Total Maximum Daily Load
(Total Loading Capacity)

Wasteload Allocation
("Point Sources")

Load Allocation
("Nonpoint sources")

Margin of Safety

Expressed at the lake segment level (e.g., Main Lake; St. Albans Bay).

Achieved by federally required permits or other regulations.

Examples

- Wastewater discharges
- Concentrated Animal Feeding Operations (CAFOs)
- Construction stormwater
- Municipal Separate Storm Sewer Systems (MS4s)
- Combined Sewer Overflow (CSOs)
- State and local roads
- Developed land stormwater

Achieved by regulatory or non-regulatory methods. Requires "reasonable assurances."

Examples

- Agricultural runoff
- River channel instability
- Forest runoff

Explicit 5%. Accounts for uncertainty.

Aggregated into "Developed Land" WLA

TMDL Percent Reduction Requirements*

Lake Segment	Permitted Wastewater Loads	Developed Land	Agricultural Production Areas	Forest	Streams	Agricultural Nonpoint	Total Overall
1. South Lake B	0%	24%	80%	60%	31%	59%	43%
2. South Lake A	0%	21%	80%	5%		59%	53%
3. Port Henry		11%	80%	5%		20%	16%
4. Otter Creek	0%	22%	80%	5%	40%	47%	25%
5. Main Lake	61%	24%	80%	5%	29%	47%	21%
6. Shelburne Bay	64%	21%	80%	5%	55%	20%	13%
7. Burlington Bay	67%	38%	0%	0%		0%	31%
9. Malletts Bay	0%	26%	80%	5%	45%	24%	18%
10. NE Arm		10%	80%	5%		20%	13%
11. St. Albans Bay	59%	10%	80%	5%	55%	34%	24%
12. Missisquoi Bay	52%	30%	80%	60%	65%	83%	64%
13. Isle LaMotte	0%	12%	80%	5%		20%	12%
Total	42%	24%	80%	23%	43%	52%	34%

*EPA August 2015 Draft Lake Champlain TMDLs, Table 8.

The Vermont Clean Water Act (Act 64, 2015)

- Stormwater Runoff Management
- Road-Related Stormwater Management
- Agricultural Water Quality
- River Corridor Protection and Restoration
- Forest Management
- Increased Revenues
- Clean Water Fund

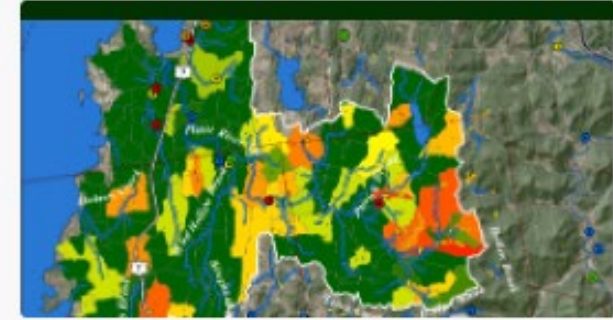
Water Investment Division Programs Support Clean Water



CLEAN WATER INITIATIVE PROGRAM



WATER INFRASTRUCTURE FINANCING PROGRAMS



WATERSHED PLANNING PROGRAM

Clean Water Fund Administration

Tracking and Accounting

Performance Reporting

State Revolving Loan Fund
Administration

Infrastructure Financing and
Planning Assistance

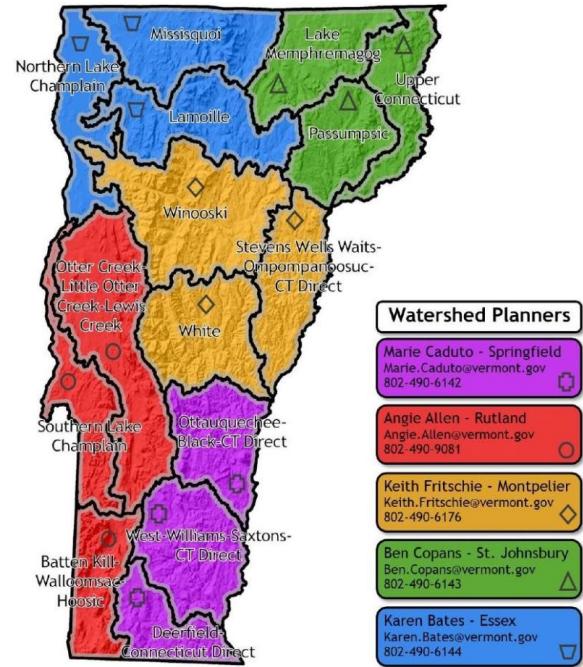
TMDL Projections

TMDL "Accountability
Framework"

Tactical Basin Planning

Tactical Basin Planning

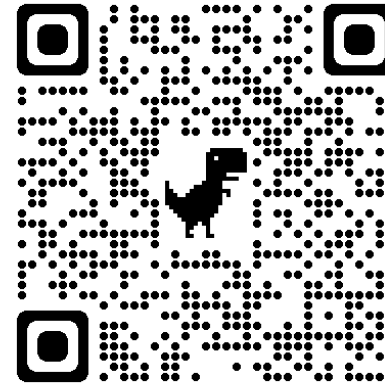
The watersheds



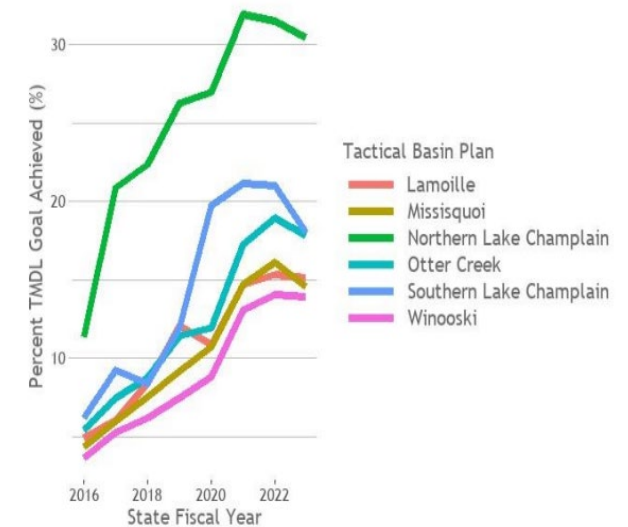
The Process



The Plans



The Outcomes

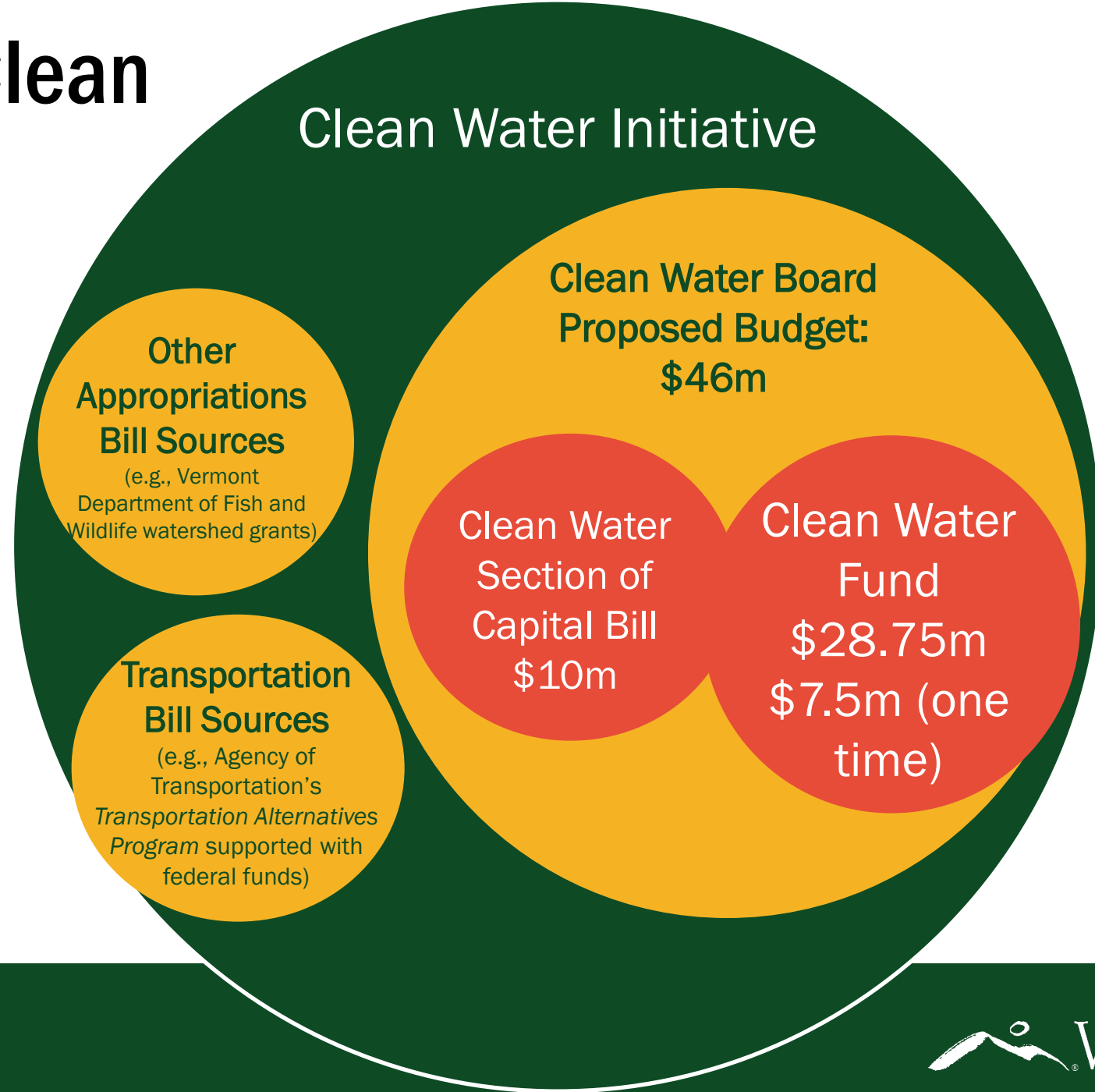


State Funds for Clean Water

Directed by Clean Water Board, and Subject to Annual Appropriation.

Clean Water Fund
- Base and One-Time

Capital Bill Sections 9-10.
- Federal Match
- Municipal Pollution Control Grants



Statutory Priorities for State Clean Water Funding

Tier 1	Tier II	Tier III	Other Priorities
<ul style="list-style-type: none">- Agricultural WQ Programs- Clean Water Service Providers- Basin Planning- Enhancement and Protection Projects- Partner Organization Capacity	<ul style="list-style-type: none">State and Municipal Clean Water ProjectsInnovative Projects	<ul style="list-style-type: none">Privately-owned Stormwater Projects	<ul style="list-style-type: none">Federal Matching Funds for InfrastructureMunicipal Pollution Control GrantsLakes in Crisis

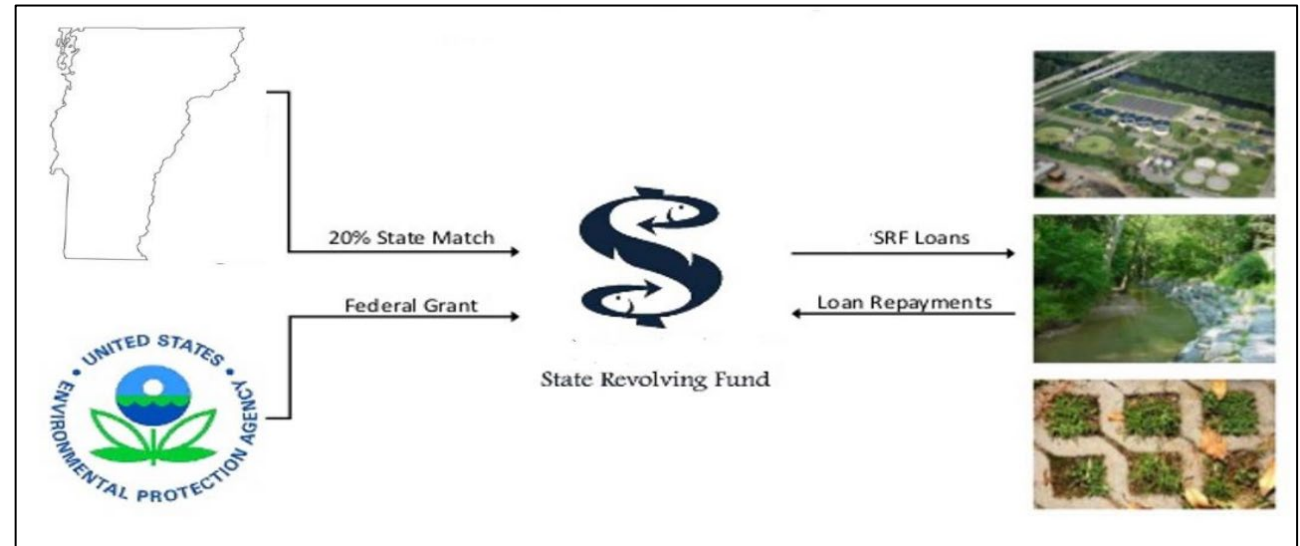
Statutory link here: [10 V.S.A. Chapter 37, Sections 925-928, and Chapter 47, Sections 1387-1389a](#)

Federal Funds for Clean Water

Clean Water Infrastructure Projects	Natural Resources and Conservation Projects
Clean Water State Revolving Loan Fund <ul style="list-style-type: none">- Base- Bipartisan Infrastructure Law	Lake Champlain Basin Program
US Dept. of Agriculture <ul style="list-style-type: none">- Rural Development and Rural Utilities- Natural Resources Conservation Service	US Dept. of Agriculture <ul style="list-style-type: none">- Natural Resources Conservation Service
American Rescue Plan Act	Federal Highway Administration
Congressionally Directed Spending	Federal Emergency Management Agency <ul style="list-style-type: none">- Resilience

The Clean Water State Revolving Loan Fund

- Annual appropriations for base and “BIL”
- Loans range from ~\$20K to > \$15M
- Wastewater and Stormwater Primarily, and other project types also eligible.
- Planning, Design and Construction Loans available.
- Loan Subsidy is available to public borrowers.

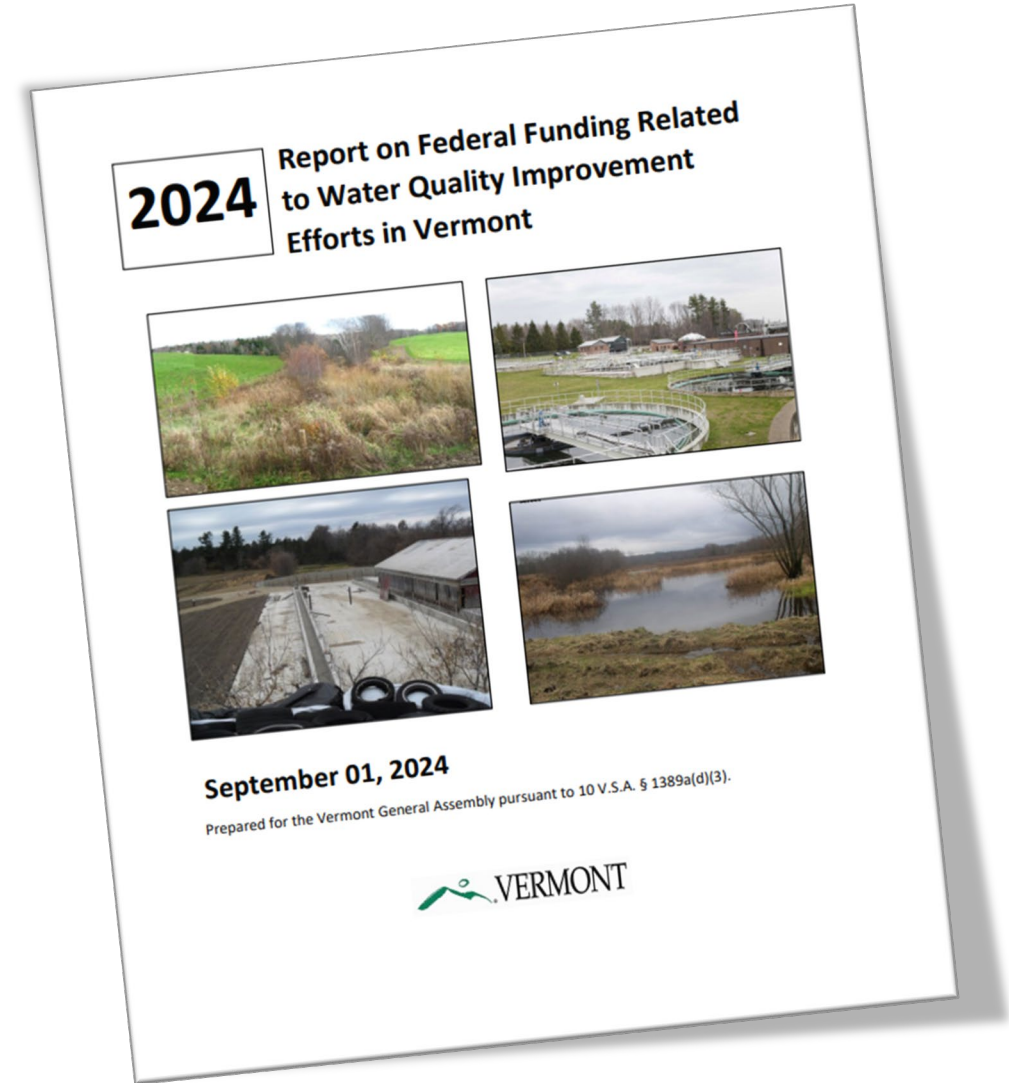


Annual Federal Funds Report

Catalogues Incoming Funds from:

- USEPA
- USDA-RD
- Federal Highway Administration
- US Treasury
- [Link to the Report](#)

“For SFY2025/FFY2024, the total federal funding catalogued by this report is \$119,125,885.”

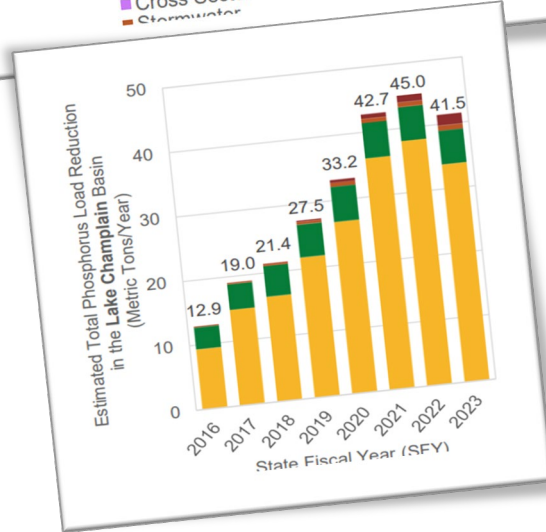
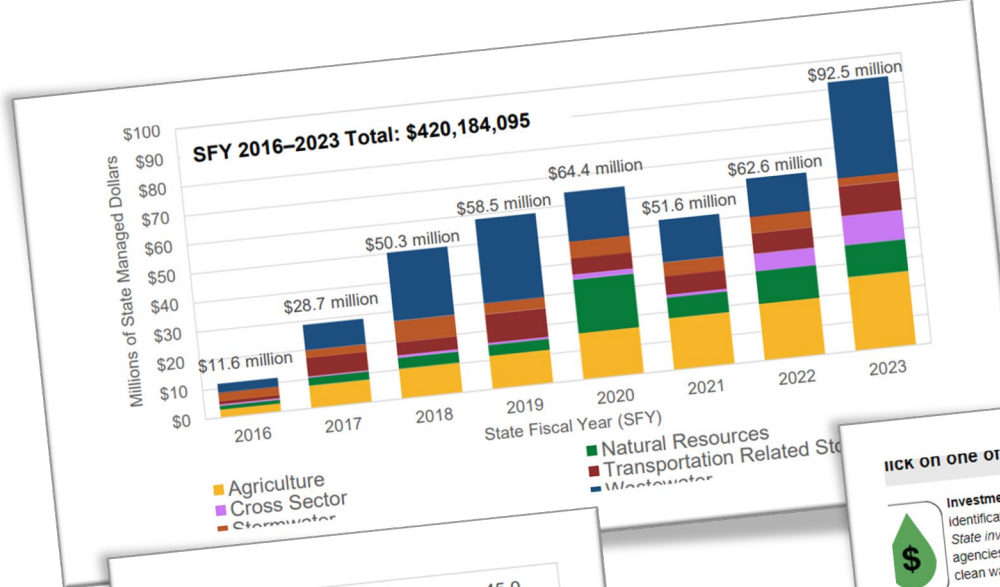


Reporting Progress

Vermont Clean Water Initiative 2023 Performance Report

Cover photo image descriptions (clockwise from top left):
 Stone-lined ditch implementation in Troy, funded through Grants-in-Aid in partnership with the Town of Troy / Half-acre buffer planting along the Stone River in Guilford, funded through the Capital Fund in partnership with the Connecticut River Conservancy / Lamoille River basin planted with cover crops, implemented by the Agency of Agriculture, Food & Markets with Lake Champlain Basin Program funds / Missisquoi River / French Hill block culvert removals, funded by the Clean Water Fund in partnership with the Department of Forest, Parks, and Recreation

AGENCY OF ADMINISTRATION
 AGENCY OF AGRICULTURE, FOOD & MARKETS
 AGENCY OF COMMERCE & COMMUNITY DEVELOPMENT
 AGENCY OF NATURAL RESOURCES
 AGENCY OF TRANSPORTATION



Click on one of the measure icons below to view the data!

- Investment measures** show how Vermont invests in clean water projects from identification and planning through design, implementation, and maintenance. State investments are dollars obligated or awarded by State of Vermont agencies. Federal investments included in this report are dollars awarded to clean water projects through the Lake Champlain Basin Program.
- Project output measures** quantify the results of clean water projects. Output measures are standardized across programs based on project type to consistently summarize the results of funding and regulatory efforts.
- Pollutant reduction measures** are estimated nutrient (phosphorus) load reductions achieved by clean water projects modeled at the individual project level. Modeled pollution reduction estimates are based on the total pollutant load of the area treated and the expected pollutant reduction efficiency of the project.
- Cost effectiveness measures** return on investment, or dollars spent on project implementation per unit of pollution reduced. Cost effectiveness considers the total estimated pollutant reduction of the project for its anticipated functional life and total investment spent on implementation of the project.
- Education measures** summarize state efforts to support identification, development, and implementation of clean water projects. The State of Vermont and its partners deliver education through outreach events like workshops, trainings, and public meetings as well as targeted, one-on-one technical

The [new 2024 CW Performance Report](#) will post 1/15/25.

To learn more...

- Ask us back.
- Visit: [Water Investment Division Website](#)
- Contact: Key WID Staff:
 - Clean Water Budget and Programs: Emily Bird
 - Clean Water State Revolving Loan Fund and Pollution Control Grants: Eric Blatt
 - Tactical Basin Planning: Ethan Swift
 - Federal Funding Programs: Neil Kamman
- Feel free to contact us at firstname.lastname@vermont.gov