

An Overview of Vermont's Clean Water Act

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(with credit due to Marli Rupe)



What is a TMDL?

(Total Maximum Daily Load)

- 1. The maximum amount (load) of a pollutant any surface water can receive and still meet its water quality standards**
- 2. An allocation of that maximum amount among all the sources**
 - a. Jurisdictions (e.g., Vermont, New York, Quebec)**
 - b. River basins (e.g., Winooski, Passumpsic, Batten Kill)**
 - c. Point sources**
 - d. Nonpoint sources**

Phosphorus Pollution



Blue-green algae bloom in Missisquoi Bay
Photo by Robert Galbraith

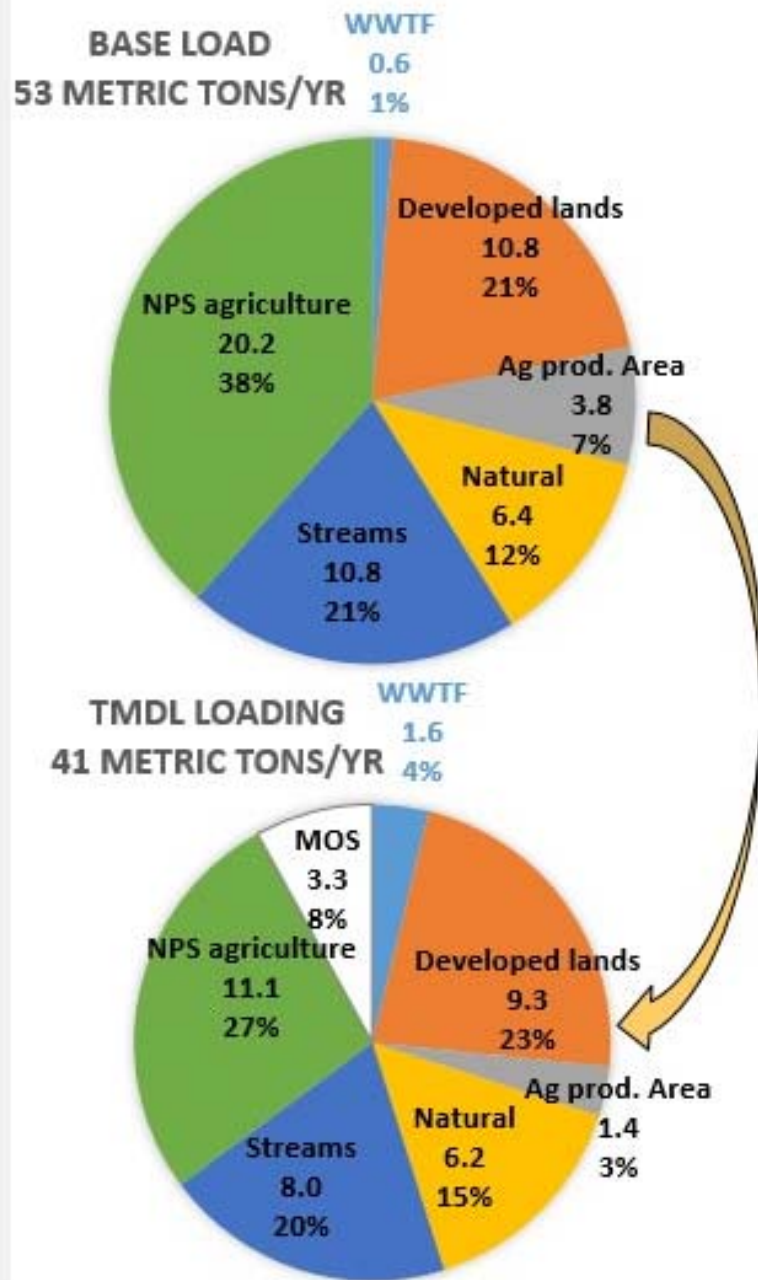
Why We Need Clean Water

- Use and enjoyment of Vermonters
 - Drinking water
 - Swimming
 - Fishing
- Support tourism, at annual spending of \$2.5 billion
 - Vermont's rivers, lakes and ponds are a key attraction for visitors
 - Overnight visitors in Champlain Valley spend over \$300 million annually
 - Day visitors spend \$30 million annually
- Maintain property values
- Integral to the Vermont brand
 - Our environment is our economy

Lake Memphremagog Statistics

- 687 square mile watershed
 - 71% (VT); 29% (Quebec)
 - Nearly $\frac{3}{4}$ of the surface area of the Lake is in Quebec
- 31 miles long
- Maximum depth of 350 feet
 - 3rd deepest lake in Vermont
- Drinking water source for 200,000 people, mostly in Quebec



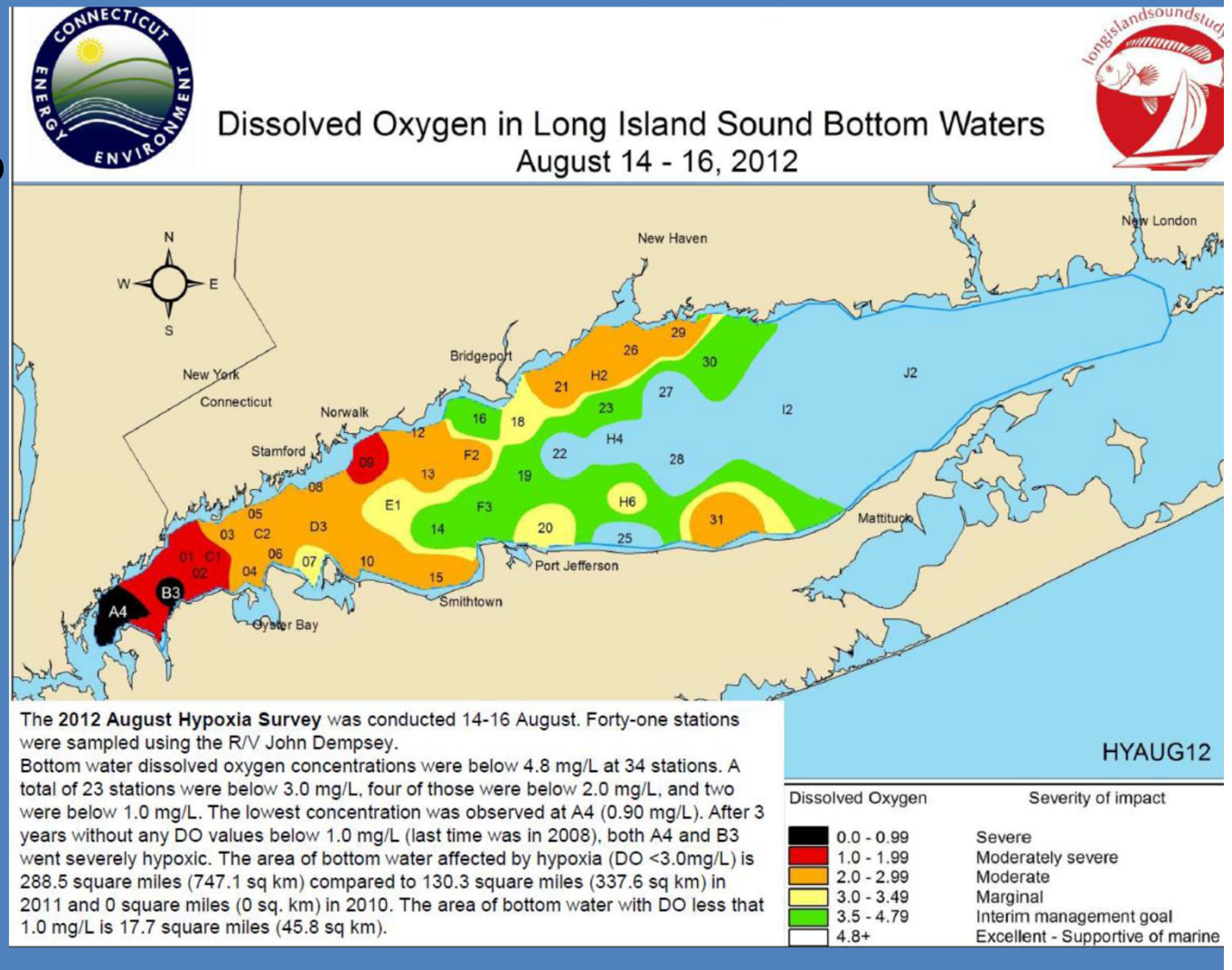


**29% phosphorus
reduction needed in
Lake Memphremagog**



Long Island Sound nitrogen TMDL

- Basin-wide load reduction target is 58.5%
- New TMDL study underway to update Vermont's share of required reductions



A little Lake Champlain history....

1996 – Lake Champlain Management Conference
Phosphorus Reduction Agreement

2002 – Lake Champlain TMDL (VT and NY)

2010 – Revised Lake Champlain Implementation Plan

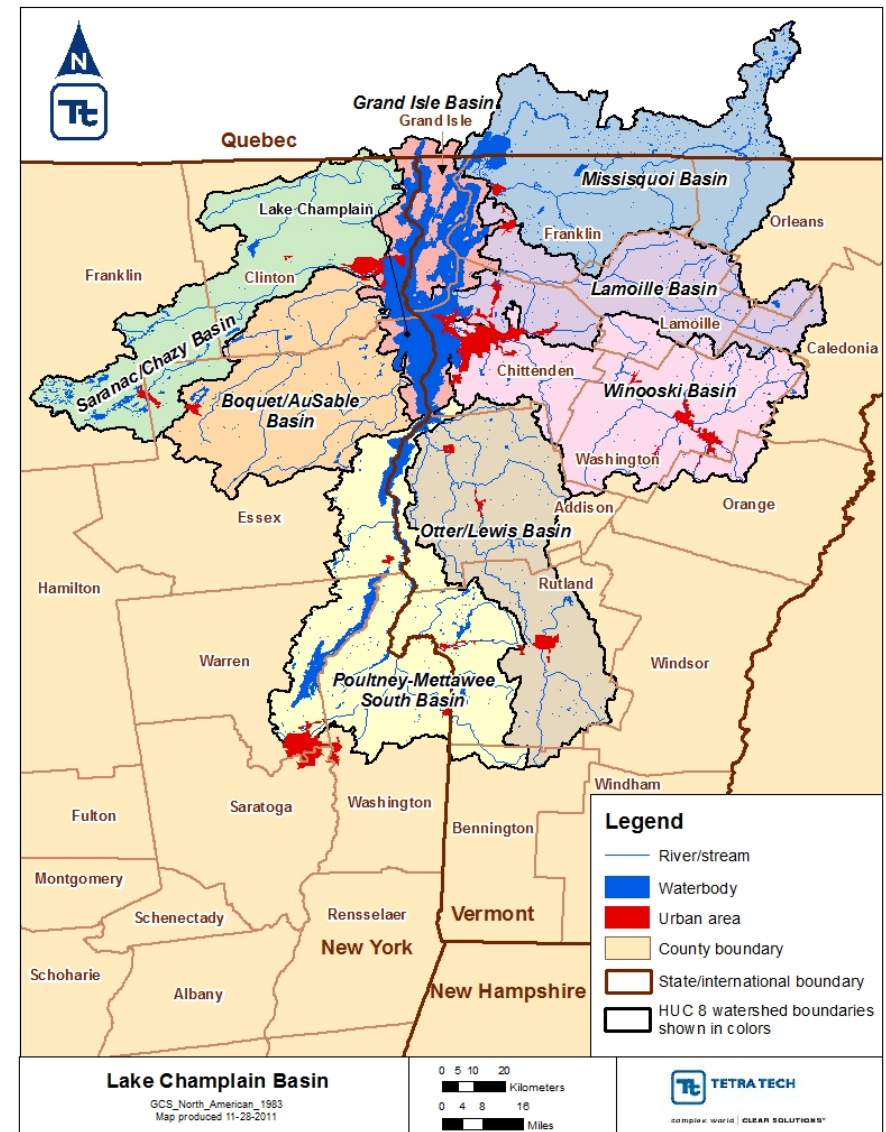
2011 – EPA revokes Lake Champlain TMDL (VT)

2015 – Vermont Legislature passes VT's Clean Water
Act

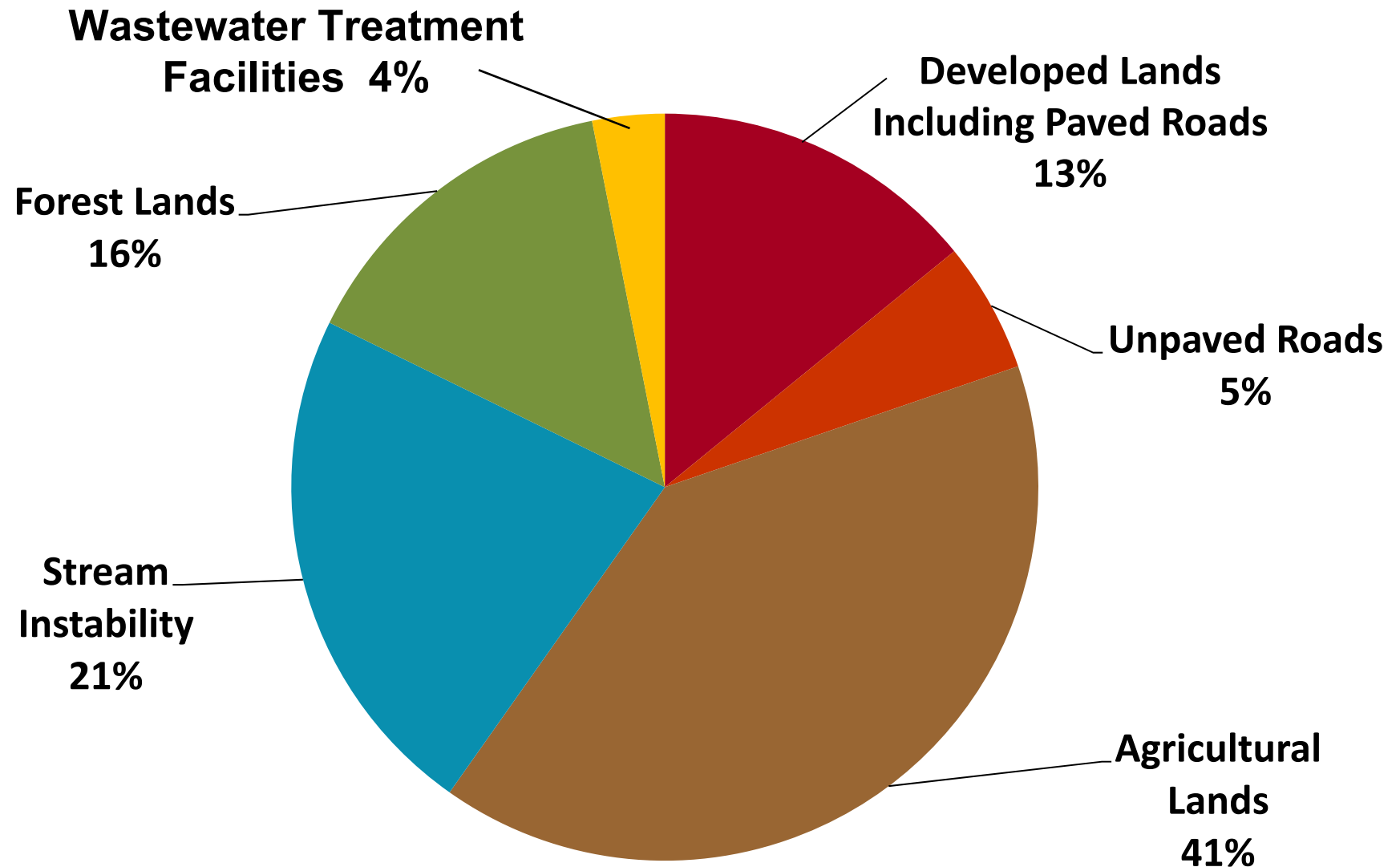
2016 – EPA approves Lake Champlain TMDL and
Vermont's Phase 1 plan

Lake Champlain Statistics

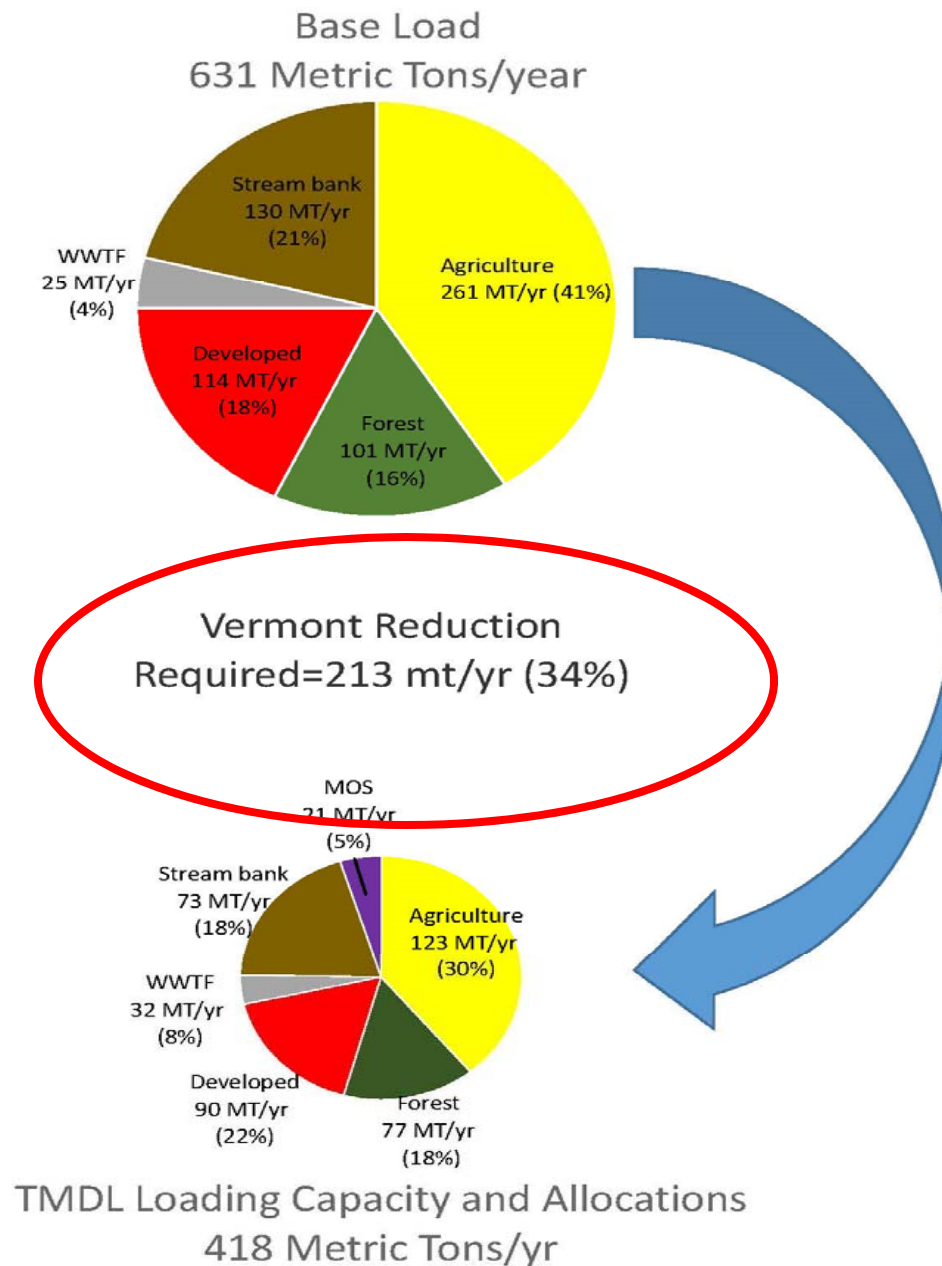
- 8,234 square mile watershed
 - 56% (VT); 37% (NY); 7% (Quebec)
 - Drains nearly half the land area of Vermont
- 120 miles long
- Surface area of 435 square miles
- Maximum depth of 400 feet
- 6th largest (natural) lake in the US
- Drinking water source for 200,000 people
- Residents:
 - 571,000 in total; 390,000 in Vermont
 - More than 100,000 dairy cows



Phosphorus Sources in the Vermont Portion of the Lake Champlain Basin



Phosphorus Reduction Needs



Percent reductions needed to meet TMDL

Table 8. Percent reductions needed to meet TMDL allocations

Lake Segment	Total Overall	Waste water ¹	CSO	Developed Land ²	Ag Prod Areas	Forest	Streams	Agriculture
01. South Lake B	43.4%	0.0%		23.7%	80%	60.0%	30.5%	59.5%
02. South Lake A	52.7%	0.0%		21.0%	80%	5.0%		59.5%
03. Port Henry	15.8%			10.6%	80%	5.0%		20.0%
04. Otter Creek	24.7%	0.0%		22.2%	80%	5.0%	40.1%	46.9%
05. Main Lake	21.3%	61.1%		23.8%	80%	5.0%	28.9%	46.9%
06. Shelburne Bay	12.5%	64.1%		21.3%	80%	5.0%	55.0%	20.0%
07. Burlington Bay	30.5%	66.7%	10.0%	38.1%	0%	0.0%		0.0%
09. Malletts Bay	17.6%	0.0%		26.3%	80%	5.0%	44.9%	23.9%
10. Northeast Arm	13.0%			9.8%	80%	5.0%		20.0%
11. St. Albans Bay	24.3%	59.4%		21.8%	80%	5.0%	55.0%	34.3%
12. Missisquoi Bay	64.3%	51.9%		30.1%	80%	60.0%	65.3%	82.8%
13. Isle La Motte	12.4%	0.0%		12.0%	80%	5.0%		20.0%
TOTAL	33.8%	42.1%	10.0%	24.1%	80%	23.4%	43.4%	51.5%

¹ % change from current permitted loads

² Includes reductions needed to offset future growth

What is a Phase 1 plan?

- **Lake Champlain Phase 1 Plan**
 - Act 64 elements
 - Natural resource restoration and management (rivers, wetlands, forests)
 - Phase 2 - Tactical Basin Plans
- **Act 64 (statewide)**
 - Stormwater runoff management
 - Road-related stormwater management
 - Agricultural stewardship
 - Increased fees & new positions
 - Clean Water Fund

Phase I Plan Commitments: *Agriculture*

Revised and updated Required Agricultural Practices

- Increased buffers on streams and ditches
- Decreased amounts of soil erosion
- Increased requirements for cover crops
- Expanded requirements for nutrient management plans on smaller farms
- Small farm certification program
- Increase requirements around manure application, addressing field gullies, and reducing soil test phosphorus levels



Phase I Plan Commitments: *Developed Lands and Roads*

- Developed lands general permit - >3acres impervious (Dec 2017)
- Require Stormwater retrofits of existing impervious
- Revisions to MS4 permits
- Revised Stormwater manual for new developments, increasing green stormwater infrastructure and low impact development
- Municipal roads general permit with BMPs to reduce erosion
- TS4 General permit



Phase I Plan Commitments: *Forestry and logging operations*

- Compliance with stream alteration rules
- Increase standards for skid trails, truck roads and temporary stream crossings
- Rewrite AMP

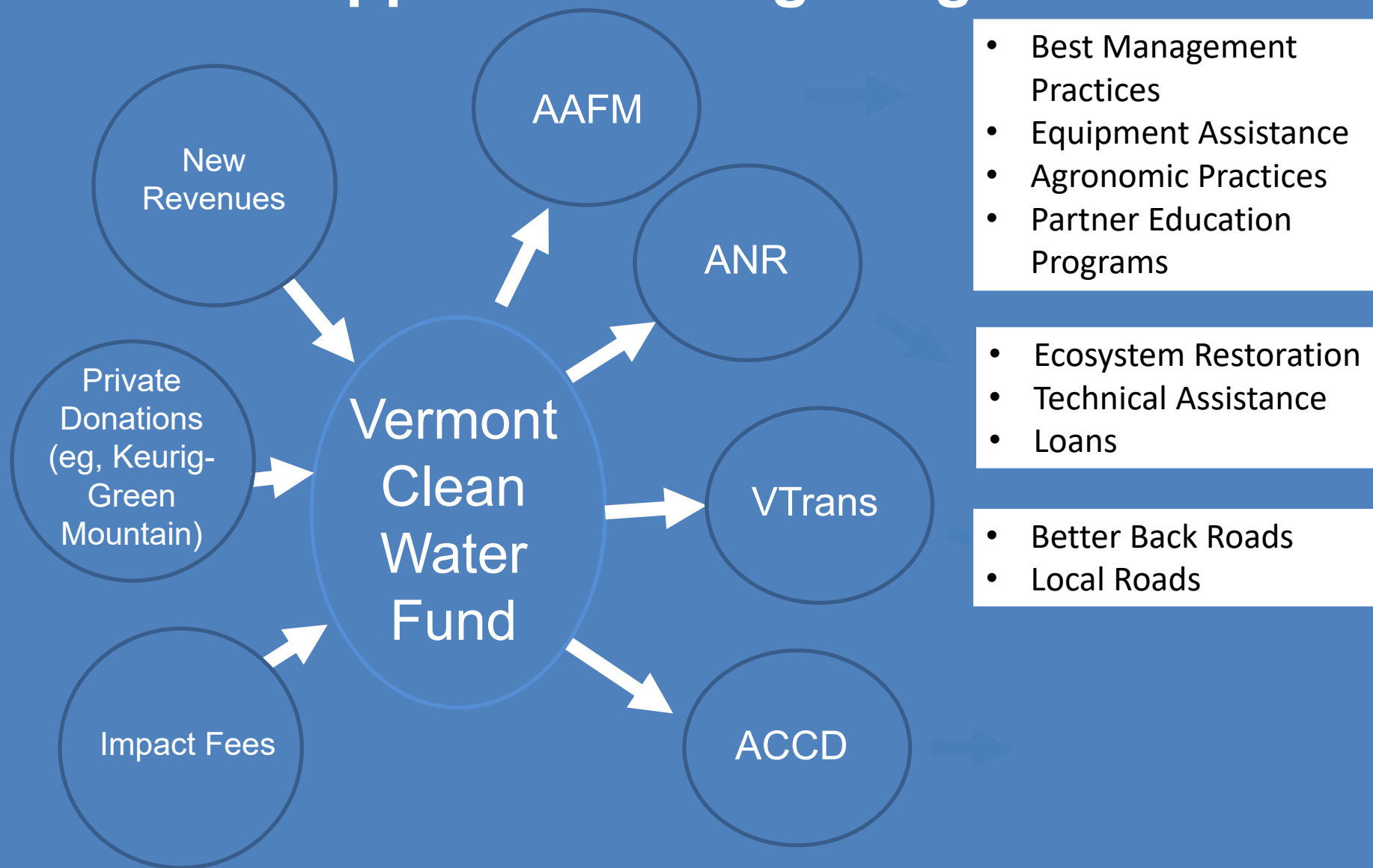


Phase I Plan Commitments: *Natural Resources*

- Adopt new rules to address development exempt from municipal regulation to ensure compliance with the National Flood Insurance Program
- Increase natural resources restoration projects
- Use incentives to enhance municipal flood hazard bylaws
- Implement Shoreland Protection Act and conduct upland lake assessments to identify nutrient pollution sources

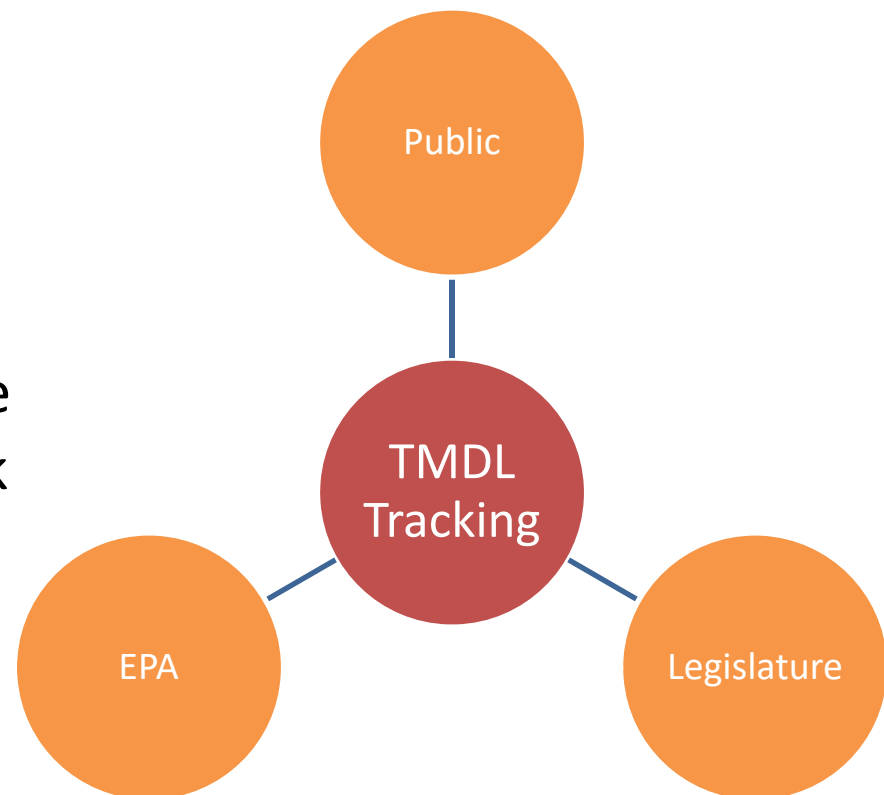


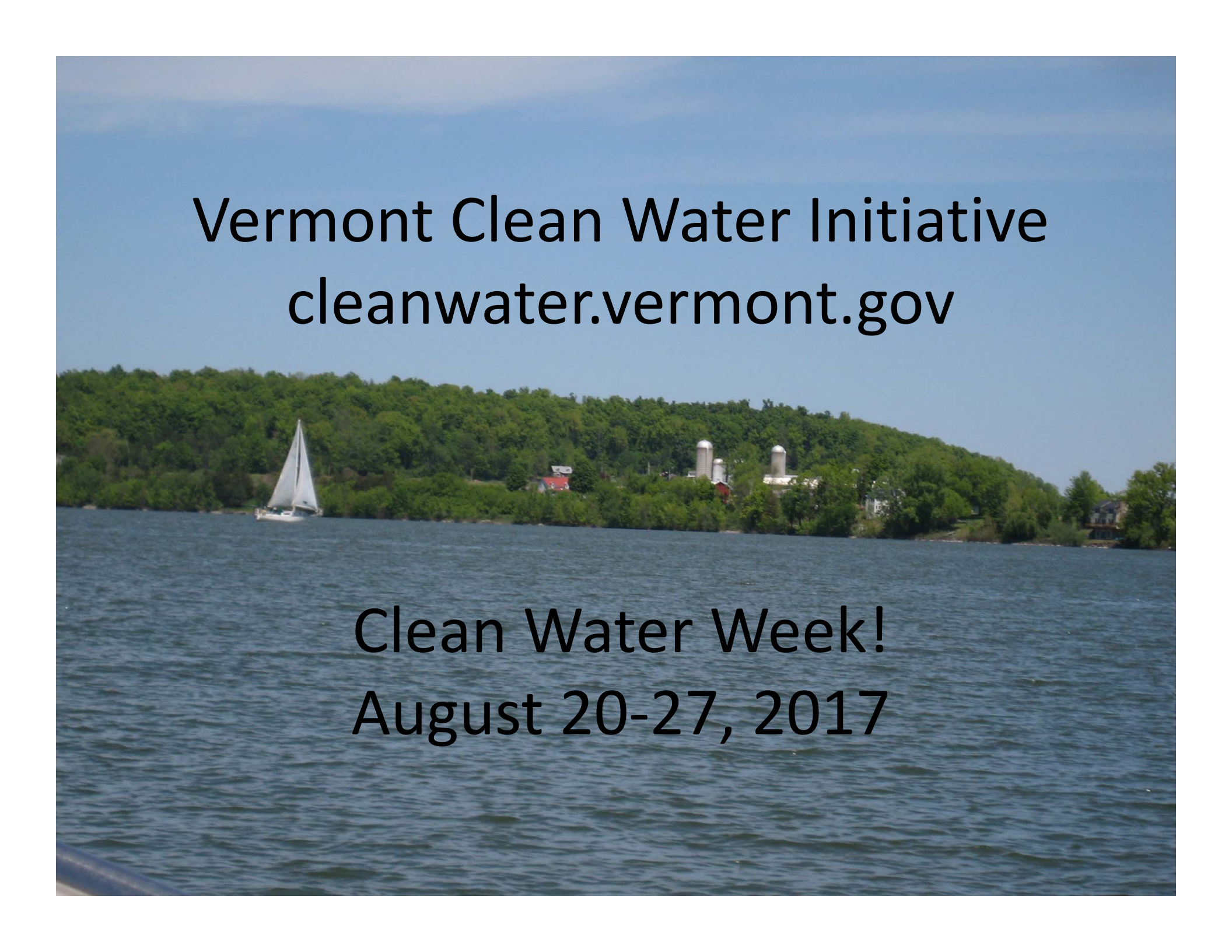
Vermont's New Clean Water Fund Supports Existing Programs



TMDL Tracking

- By Sector & Lake Segment
- Use TMDL Base Load
- Track new phosphorus reductions achieve from BMP installations
- Track cumulative phosphorus reductions achieved over time
- Need to consider how to track increases in phosphorus from changes in land use over time
- Target is to achieve TMDL limits



The background of the slide is a photograph of a calm lake. In the middle ground, a white sailboat with its sails up is on the water. The far shore is a dense line of green trees. Behind the trees, several buildings are visible, including two prominent white silos. The sky is a clear, pale blue.

Vermont Clean Water Initiative
cleanwater.vermont.gov

Clean Water Week!
August 20-27, 2017