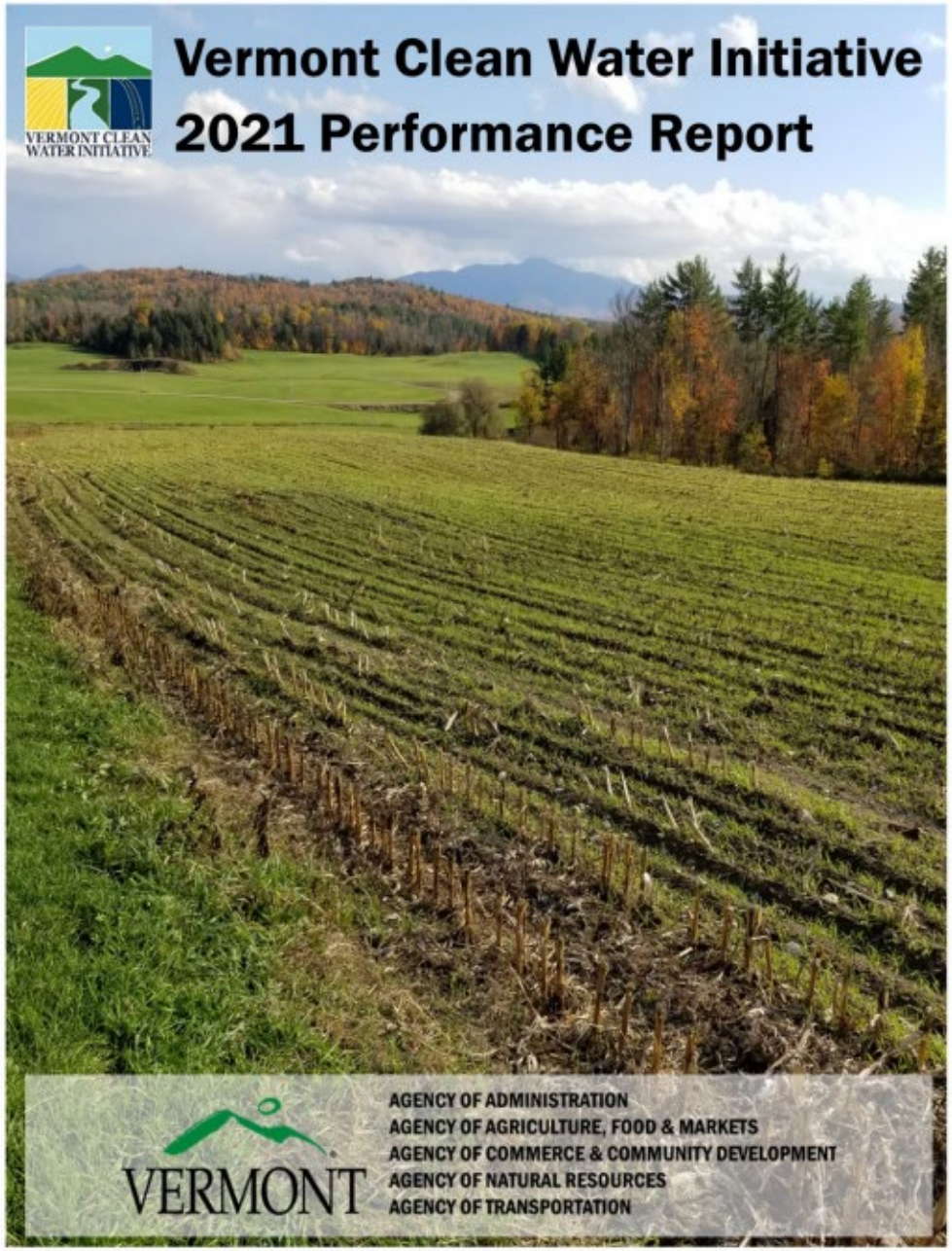


Vermont's Clean Water Investments are Paying Off

HELEN CARR

VERMONT DEPARTMENT OF ENVIRONMENTAL CONSERVATION

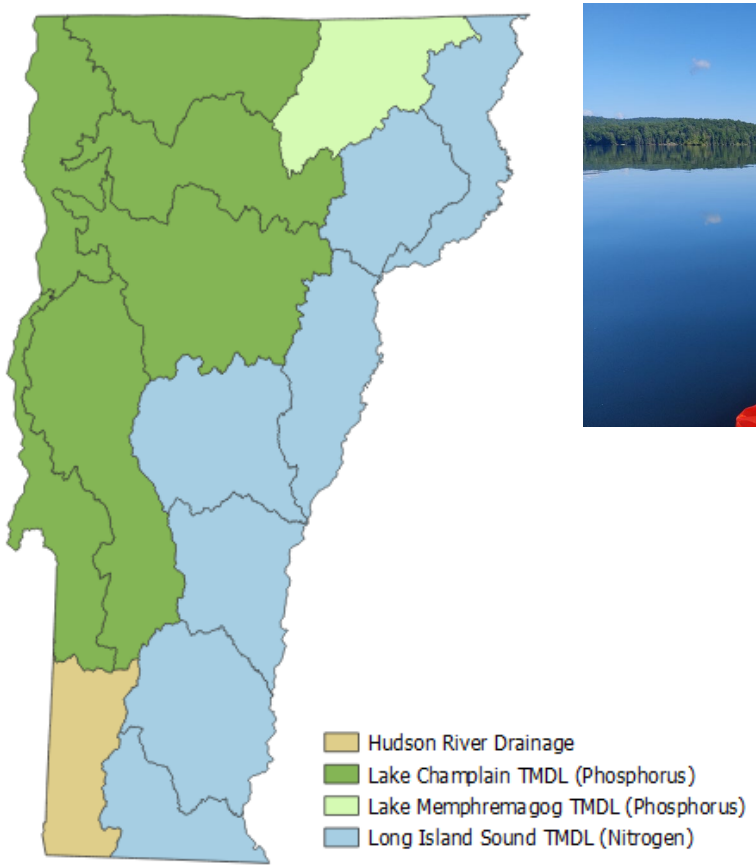
CLEAN WATER INITIATIVE PROGRAM

Presentation Outline

- Background
- *Vermont Clean Water Initiative 2021 Performance Report* Purpose & Scope
- Vermont's Clean Water Investments and Results
- Progress being made by geographic region
- Clean Water Interactive Dashboard

Vermont’s Water Quality

- Vermont’s lakes, rivers, and wetlands are important environmental and economic resources for residents and visitors.
- Excess pollution, such as sediment and nutrients, from the landscape
- Excess phosphours can lead to harmful cyanobacteria blooms.
- Clean water restoration plans -- Total Maximum Daily Loads (TMDLs) -- identify the maximum amount of pollutant a water can receive and still meet Vermont water quality standards



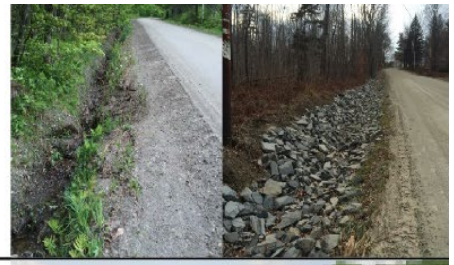
Clean Water Projects

AGRICULTURE

Addresses runoff and soil erosion from farm production areas and farm fields.

ROADS

Addresses stormwater runoff from roads



NATURAL RESOURCES

Restores functions of "natural infrastructure"—river channels, floodplains, lakeshores, and wetlands

WASTEWATER

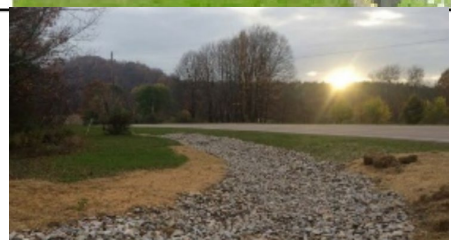
Decreases nutrients (phosphorus and nitrogen) through enhanced wastewater treatment and addresses aging infrastructure

STORMWATER

Addresses stormwater runoff from developed lands, such as parking lots, sidewalks, and rooftops

Co-Benefits of Clean Water Projects

- Improve fish and wildlife habitat
- Protect against flooding
- Mitigate climate change effects
- More resilient infrastructure
- Supporting workforce development
- Enhance recreation



Clean Water Accountability Measures

Investment measures of how State of Vermont invests in clean water projects from planning to design and implementation

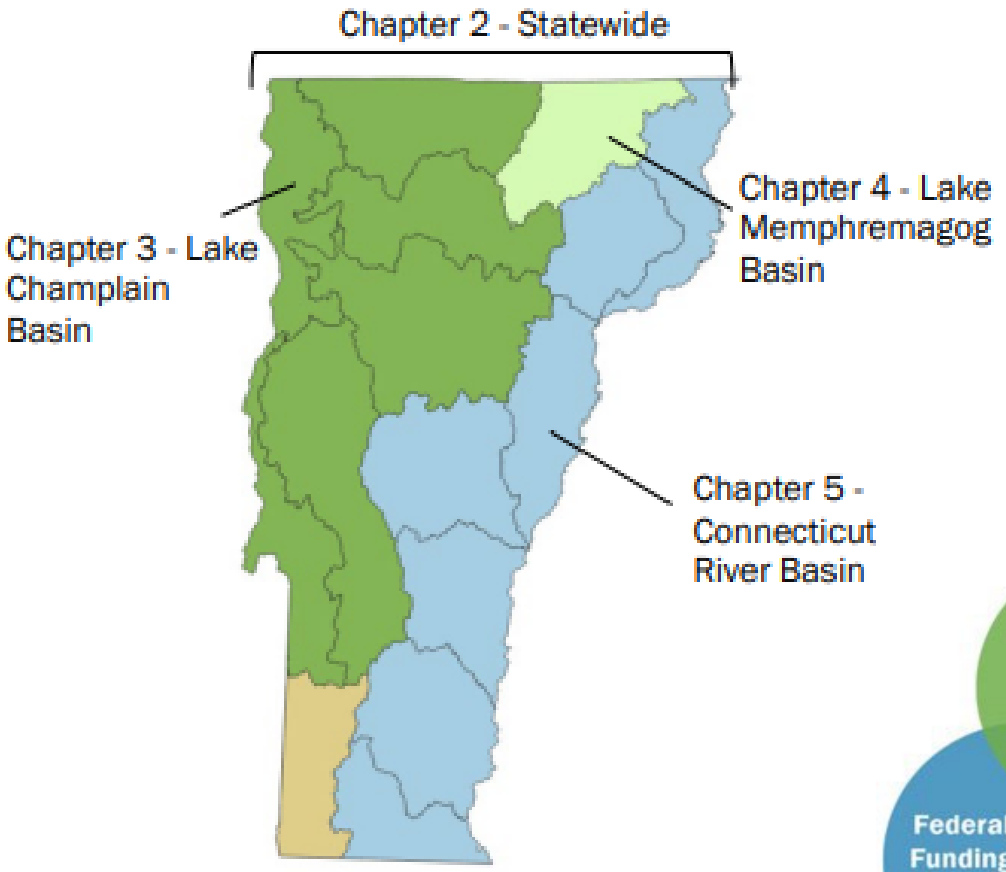
Project output measures that quantify the results of state-funded clean water projects

Education measures on outreach and technical assistance to support, identify, and develop clean water projects

Pollutant reduction measures of estimated nutrient load reductions achieved by clean water projects

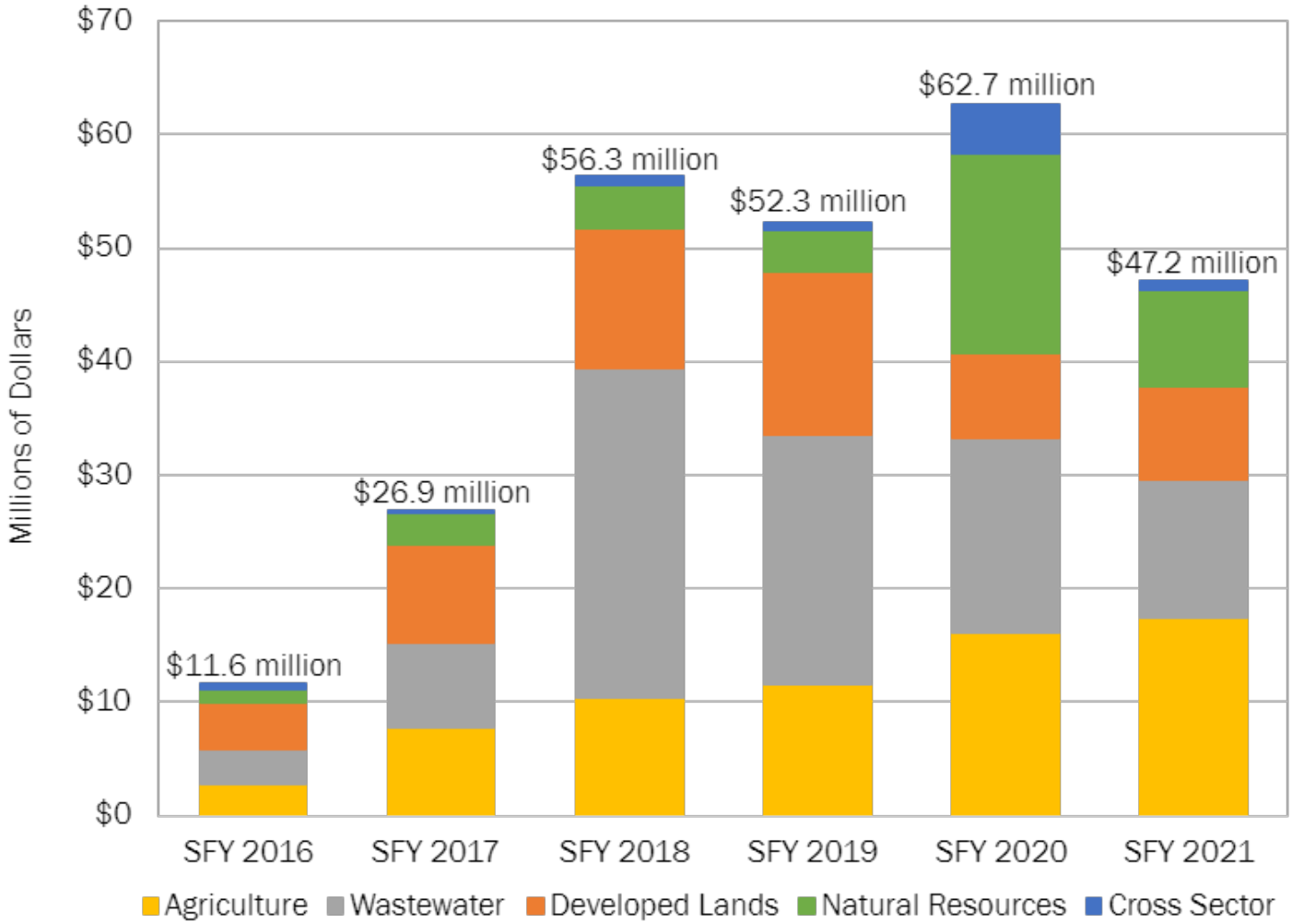
Report Purpose & Scope

- Purpose: To summarize Vermont's clean water efforts and demonstrate how investments, educational programs, and regulatory programs are making a difference.
- State Fiscal Year (SFY) 2016 - 2021 (July 1, 2015 – June 30, 2021).
- Each chapter displays investments and results at the large basin scale.
- Demonstrates how state funding programs, federal funding programs, and regulatory programs are contributing to progress towards achieving the Lake Champlain and Lake Memphremagog TMDLs.



State Clean Water Investments

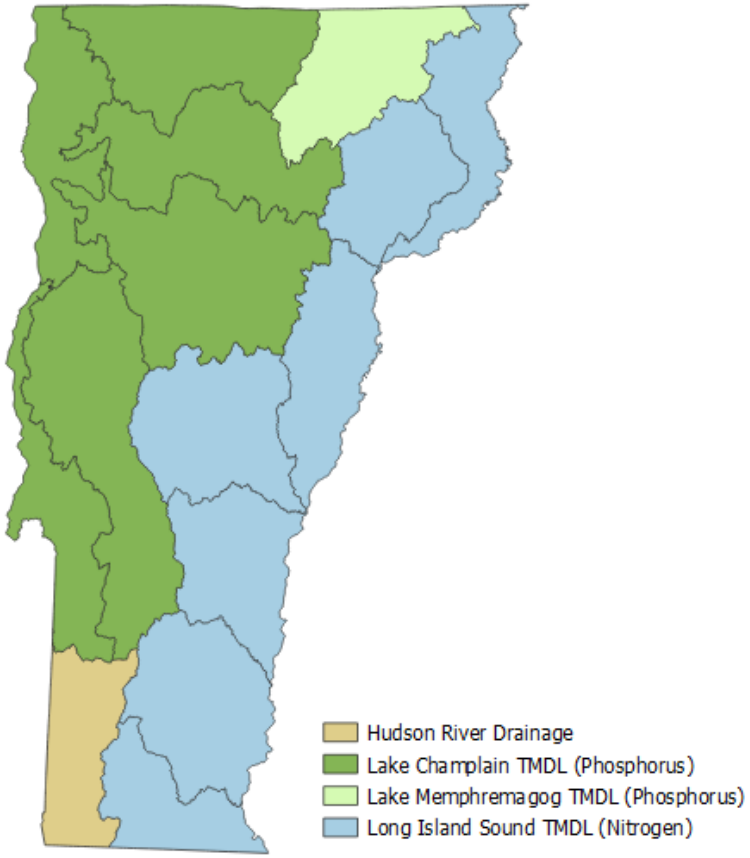
- State of Vermont agencies invested $257 million in clean water projects from SFY 2016 to 2021 through grants, loans and contracts.
- Investments occur across all land use sectors
- State investments leveraged $88 million in local/in-kind and federal contributions
- 83% of investments used for project implementation



State-Funded Project Outputs

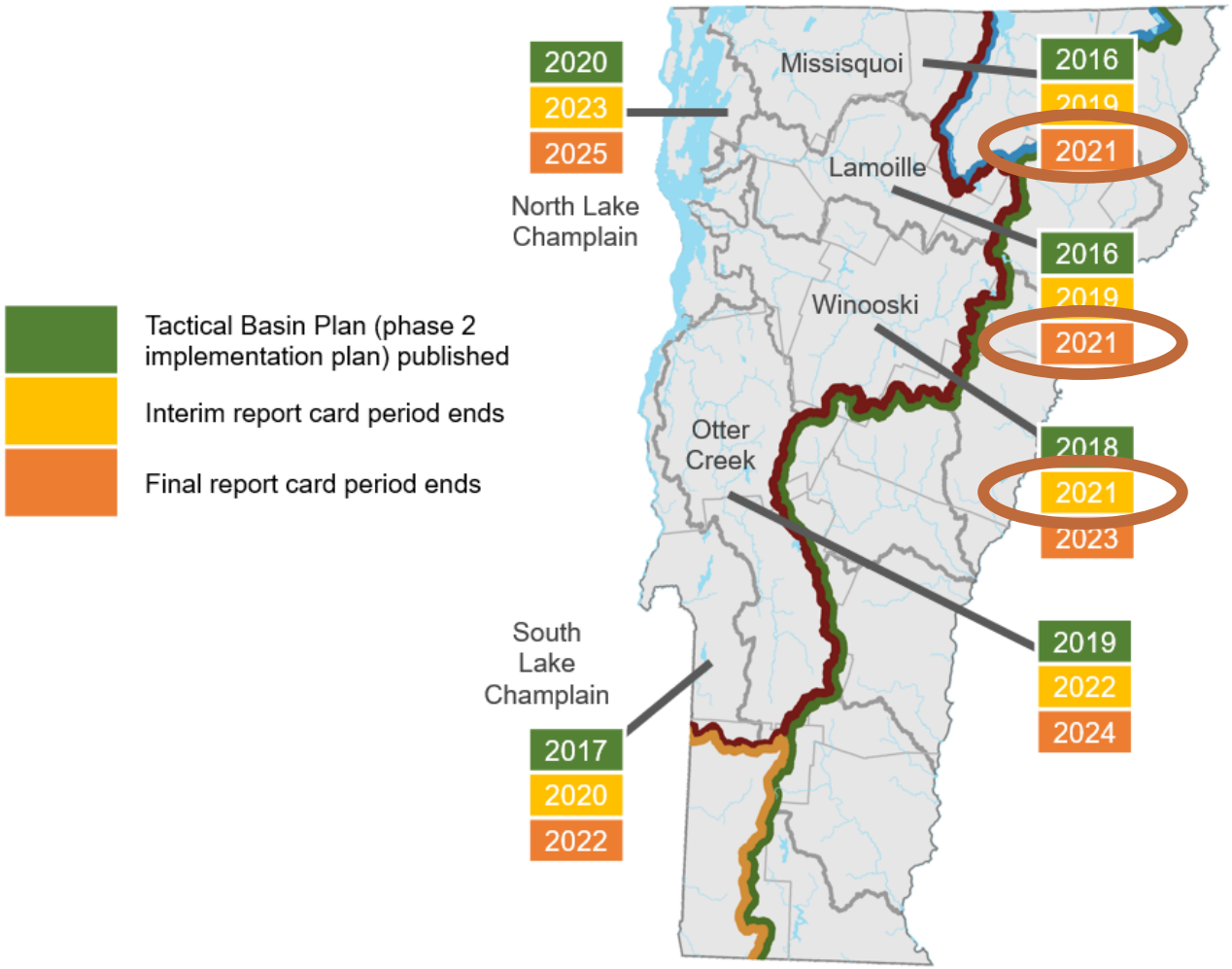
Land Use	Clean Water Project Objectives	Highlights by Land Use Sector SFY 2016-2021
AGRICULTURE	Addresses runoff and soil erosion from farm production areas and farm fields.	• Over 155,000 acres of agricultural conservation practices implemented on fields and pastures • Over 600 structural practices installed in barnyards/production areas
NATURAL RESOURCES	Restores functions of "natural infrastructure" – river channels, floodplains, lakeshores, and wetlands	• Over 360 riparian acres (adjacent to rivers, lakes, and wetlands) actively restored through buffer planting and floodplain and lakeshore restoration • Over 1,800 riparian acres passively restored through river corridor and wetland easements
ROADS STORMWATER DEVELOPED LANDS	Addresses stormwater runoff form developed lands, such as parking lots, sidewalks, rooftops, and roads	• 260 municipal road miles improved through drainage and erosion control best practices • Over 440 acres of existing impervious/hard surfaces treated by stormwater practices
WASTEWATER	Decreases nutrients (phosphorus and nitrogen) through enhanced wastewater treatment and addresses aging infrastructure	• 6 wastewater treatment facility upgrades completed • 6 combined overflow abatements completed

Progress Being Made by Geographic Region



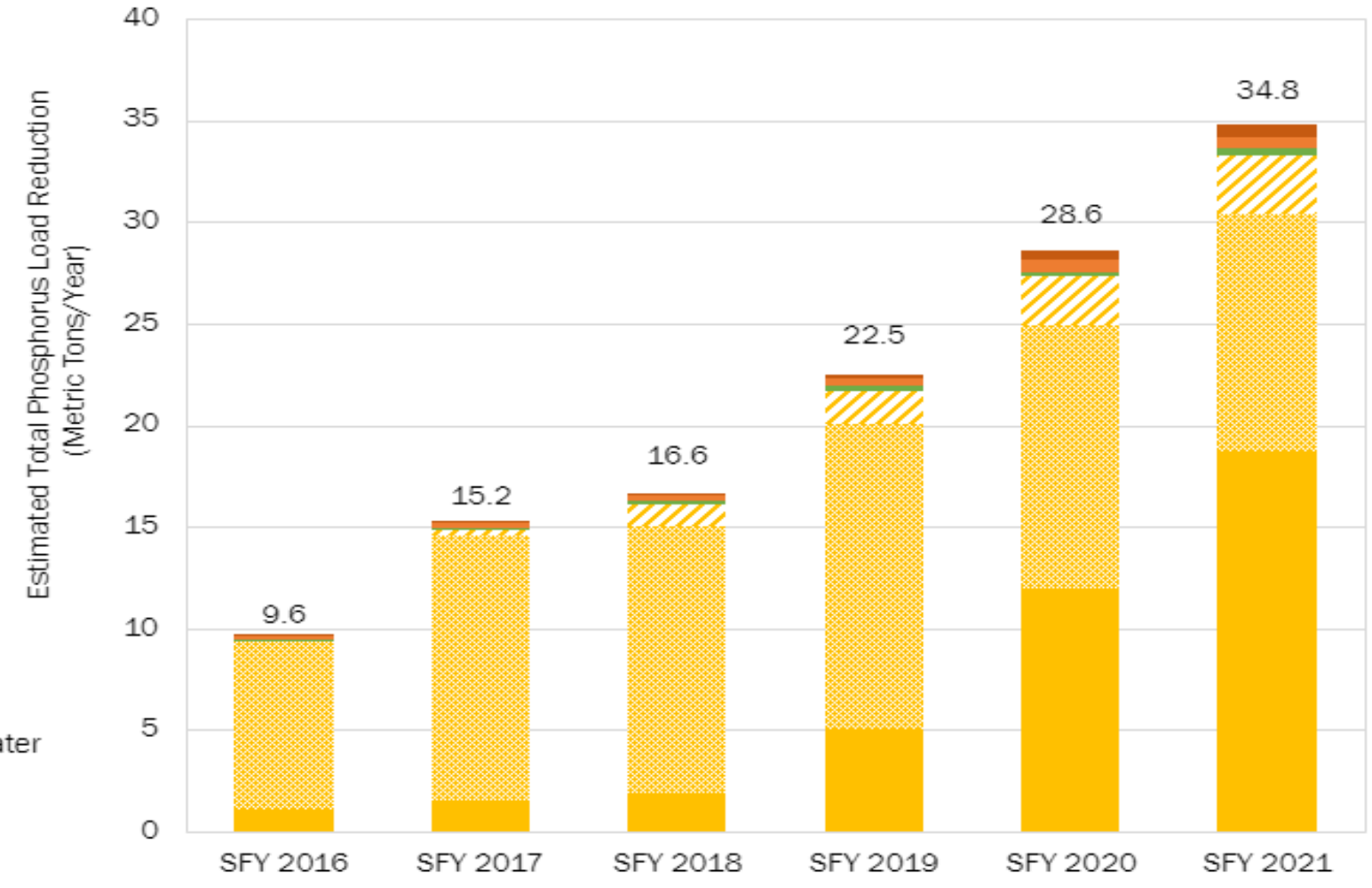
Lake Champlain TMDL Accountability

- Tactical Basin Planning and Implementation Tables
  - Implementation strategies established
  - Interim report
  - Final report



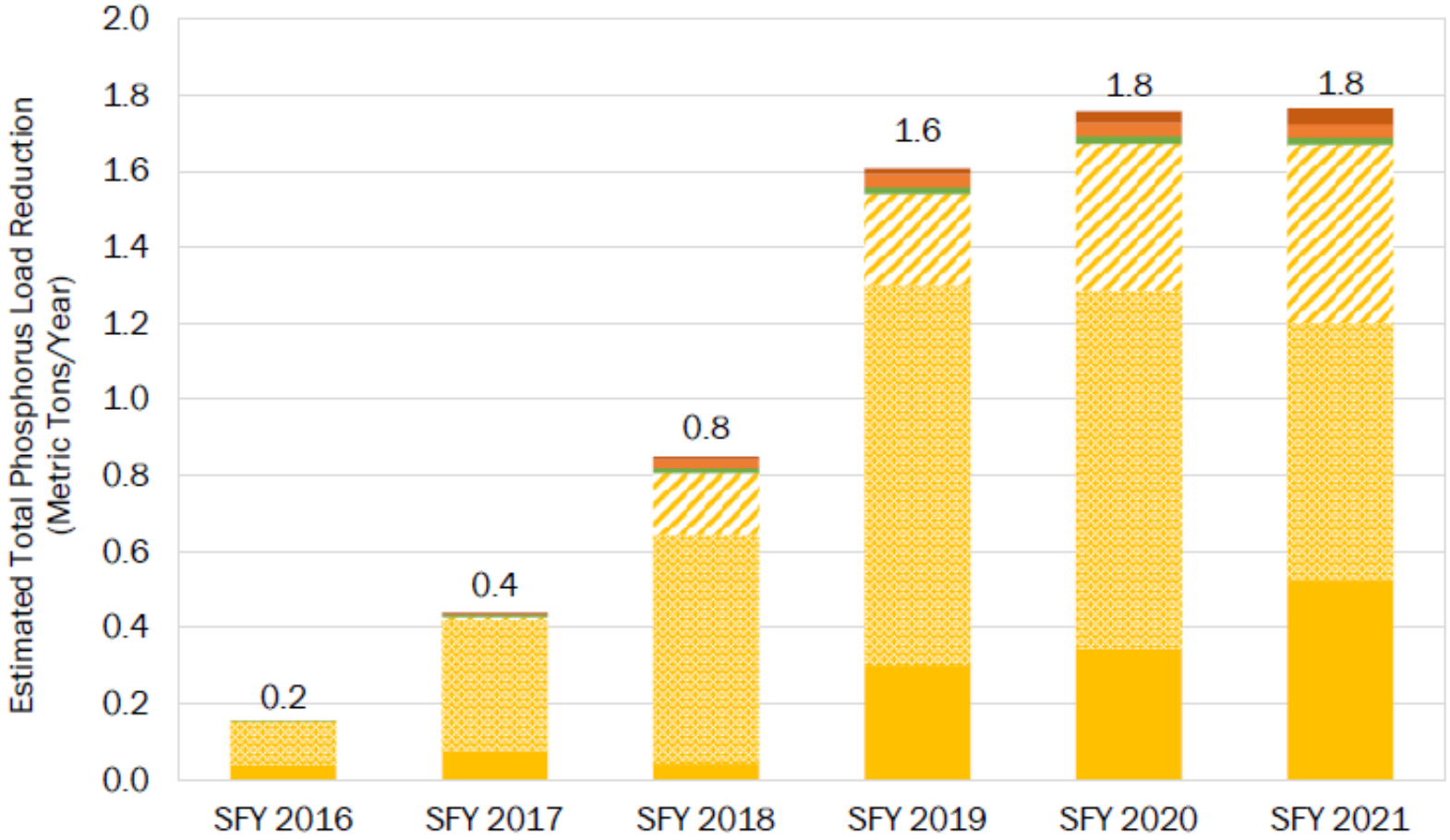
Lake Champlain Basin Phosphorus Reductions

- An estimated 34.8 metric tons (~77,000 pounds) of total phosphorus loading reduced as of SFY 2021
- Most phosphorus reductions result from agricultural practices funded through US Department of Agriculture Natural Resources Conservation Service (USDA NRCS)



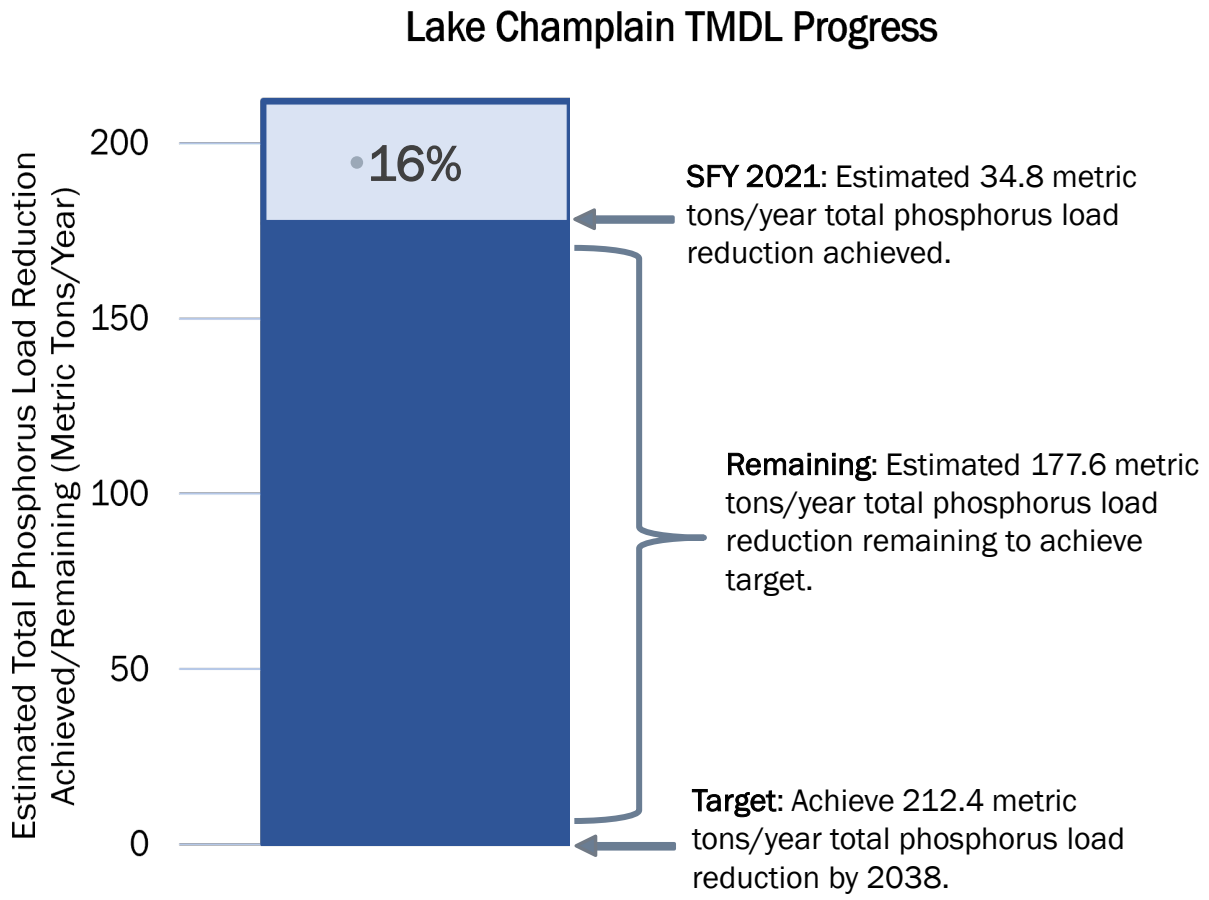
Lake Memphremagog Phosphorus Reductions

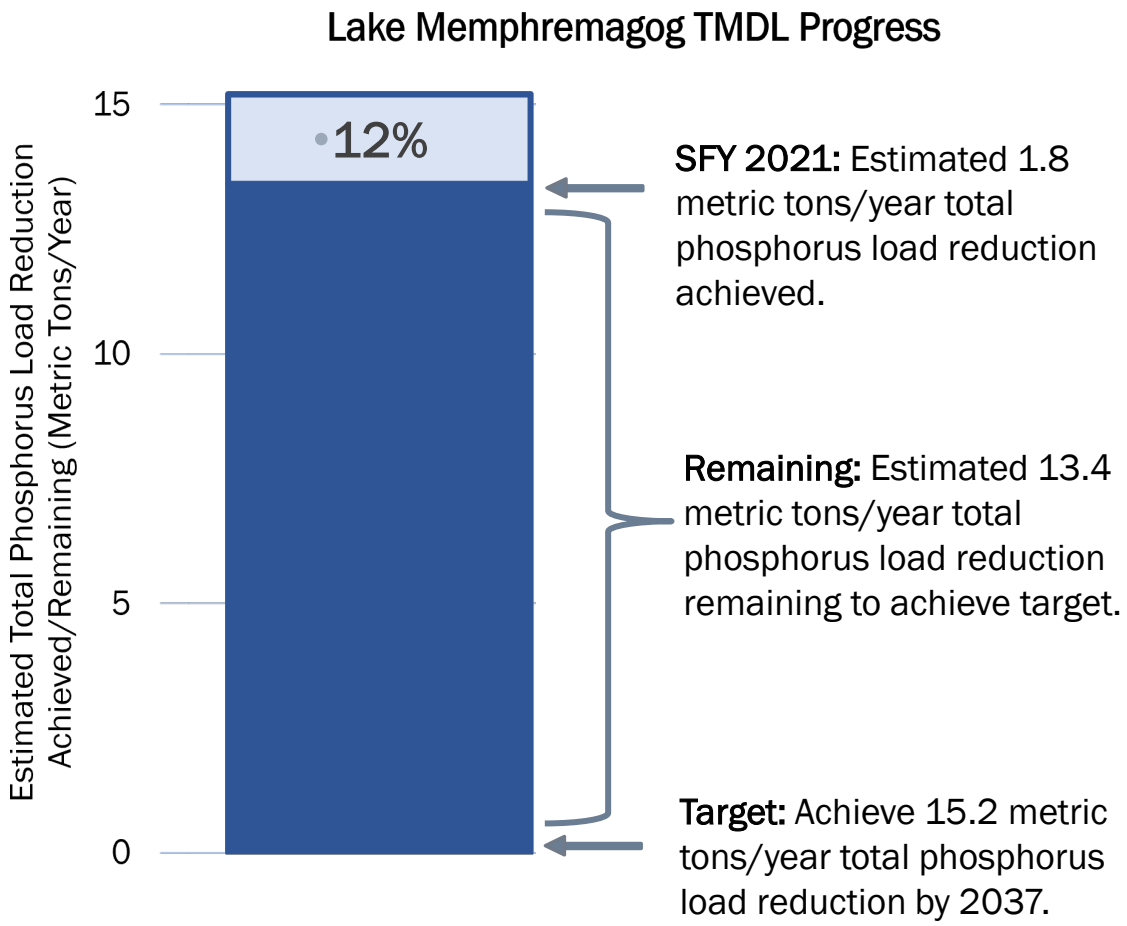
- An estimated 1.8 metric tons (~4,000 pounds) of total phosphorus loading reduced in SFY 2021



- State-Funded & Regulatory Roads
- State-Funded, Federally Funded, & Regulatory Stormwater
- State & Federally Funded Natural Resources
- Regulatory Agriculture (Production Area Compliance)
- Federally Funded Agriculture
- State-Funded Agriculture

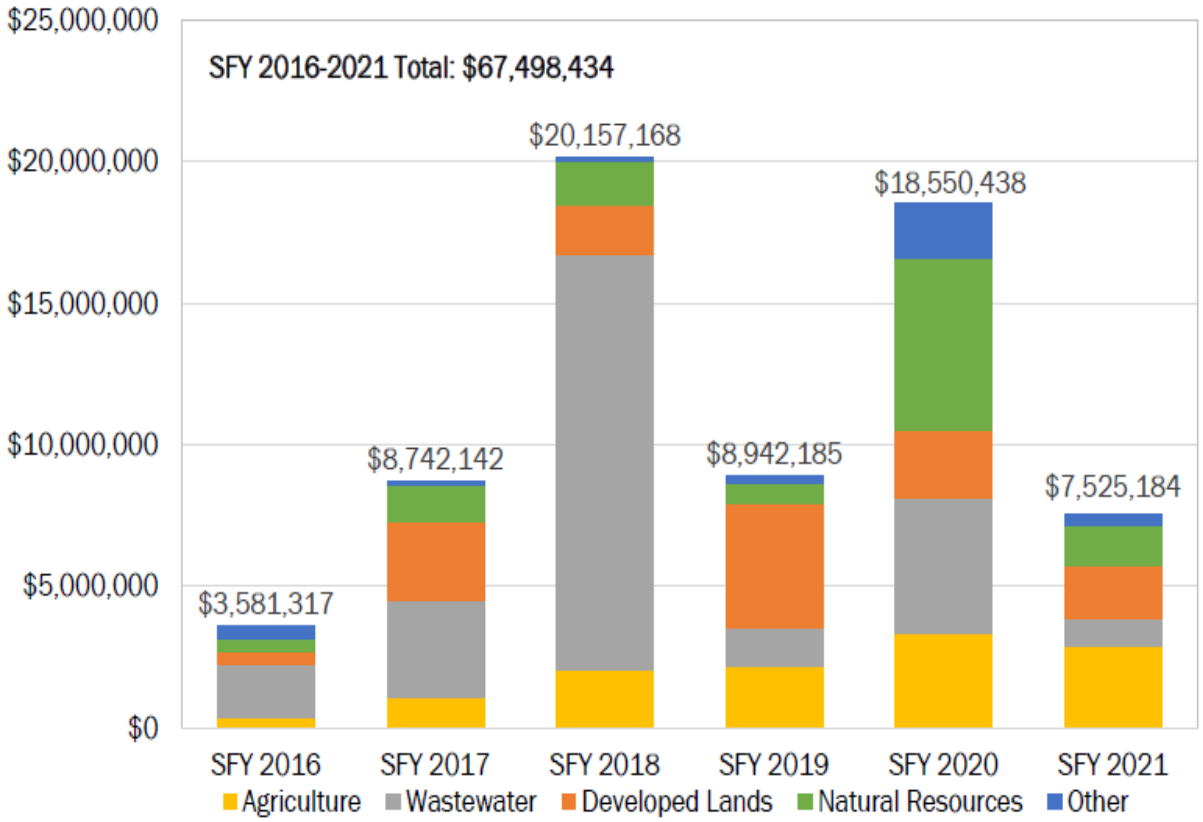
Lake Champlain and Memphremagog TMDL Progress





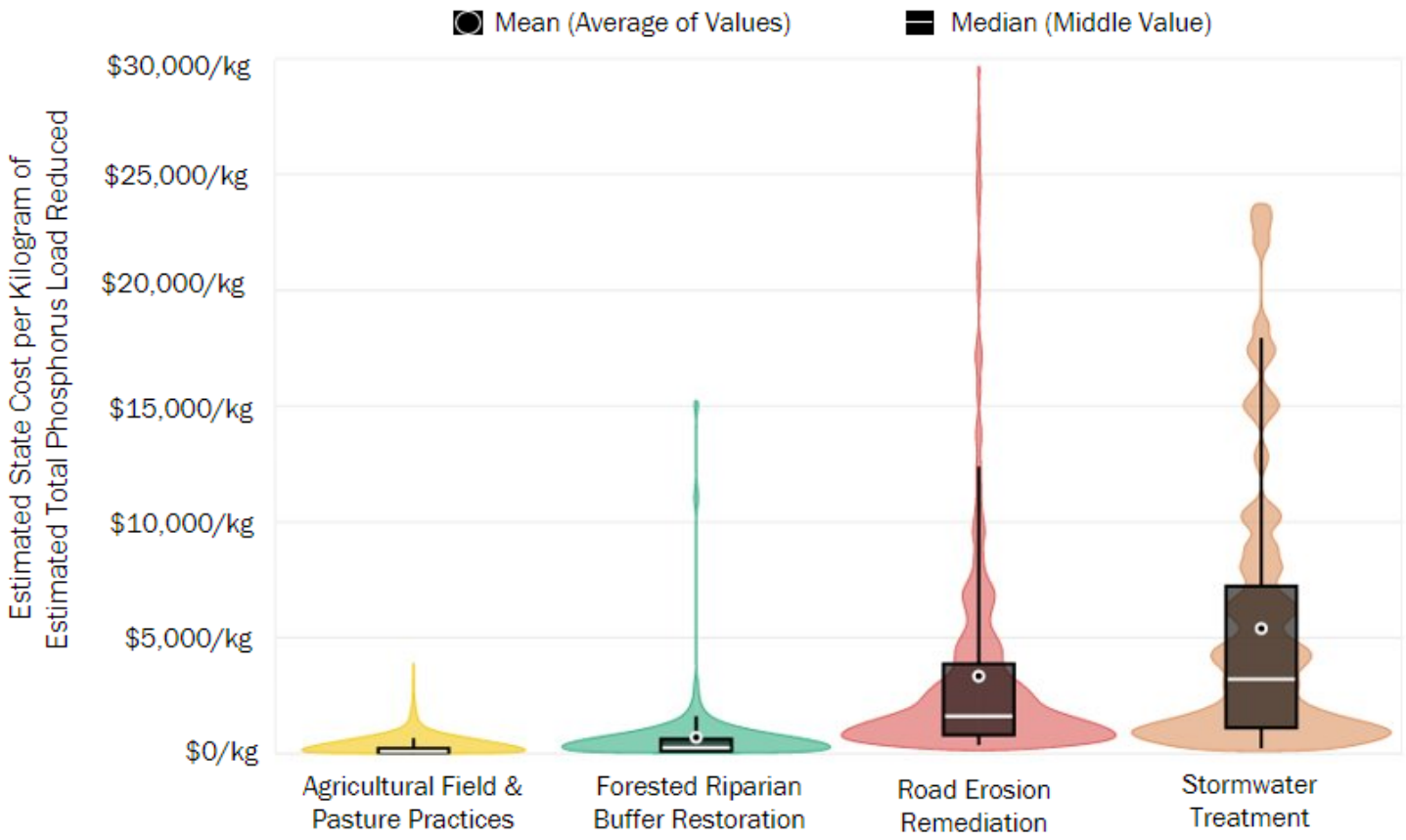
Connecticut River Basin Results

- EPA-supported efforts are underway to develop consistent methods for all five states in the Long Island Sound basin to employ in estimating nitrogen reductions for clean water projects
- State has invested $67 million in the Connecticut River basin from SFY 2016 to 2021
- Over 10,600 acres of agricultural conservation practices implemented on fields and pastrures
- Nearly 400 acres of riparian corridor have been conserved and restored through easements.
- Over 100 miles of municipal roads municipal road drainage and erosion control improvements were made



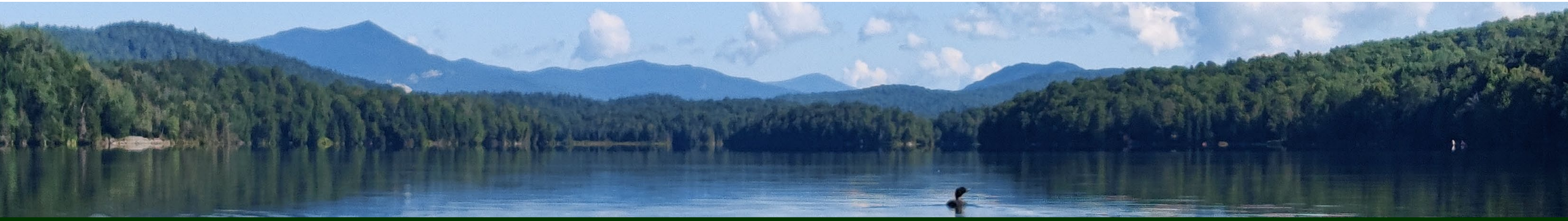
State Cost Effectiveness

- Cost effectiveness is the state cost per kilogram of estimated total phosphorus load reduced over the project lifespan
- Agricultural field and pasture practices are the most cost effective
- Stormwater treatment is relatively the most expensive of these categories



Report Summary & Next Steps

- This report demonstrates the state's long-term commitment to restoring and maintaining water quality
- We see results across all sectors including steady gains in reducing phosphorus pollution from entering Lake Champlain and Lake Memphremagog
- These worthwhile investments not only improve water quality, but also protect public health and safety, increase climate and flood resilience, benefit the local economy, improve habitat, and enhance recreation
- This report is a tool to demonstrate our accountability to meeting long term goals



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This report was prepared by the Clean Water Initiative Program on behalf of the Vermont Secretary of Administration with assistance from partner agencies:

Vermont Agency of Administration;
Vermont Agency of Agriculture, Food and Markets;
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Vermont Agency of Transportation;
Vermont Department of Environmental Conservation
Vermont Fish and Wildlife Department;
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Thank you

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Clean Water Interactive Dashboard

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Welcome to the Clean Water Interactive Dashboard

The Clean Water Interactive Dashboard (CWID) is a data visualization tool, built using Microsoft Power BI, that allows interested parties to filter and customize Vermont's clean water data presented in the *Vermont Clean Water Initiative 2021 Performance Report*.

Click the links below to navigate to each page of data.

- Project Output Measures by County
- Project Output Measures by Basin
- Phosphorus Reduction by Tactical Basin Plan
- Cost Effectiveness
- Investments by County
- Investments by Basin

Measure Definitions

Project Output Measures quantify the results of clean water projects.

Pollution Reduction Measures estimate nutrient load reductions achieved by clean water projects.

Investment Measures summarize how the State of Vermont invests in clean water projects from planning to design and implementation.

For instructions and tips on how to interact with the clean water data, please visit the Clean Water Interactive Dashboard Help page.

Interact with clean water data on the Clean Water Interactive Dashboard via the Clean Water Portal

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