

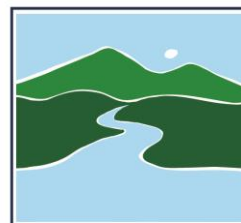


Lakes & Ponds Management & Protection

Lake Health

Senate Natural Resources & Energy Committee

Jenny Austin, Program Manager



VERMONT DEPARTMENT OF
ENVIRONMENTAL CONSERVATION
**WATERSHED
MANAGEMENT DIVISION**
LAKES & PONDS PROGRAM



Program Overview



Monitoring & Assessment



Aquatic Invasive Species Management



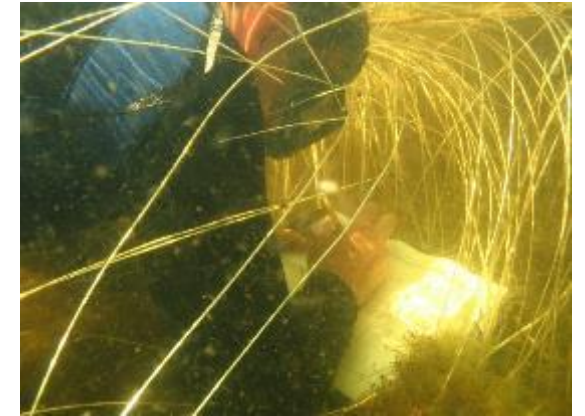
Regulation & Restoration



Monitoring and Assessment

Monitoring and Assessment Programs

- [Lay Monitoring Program](#)
- [Spring Turnover Trend Monitoring](#)
- [Next Generation Inland Lake Assessment Status Monitoring](#)
- [Lake Champlain Long Term Water Quality Monitoring](#)
- [Cyanobacteria Monitoring](#)
- [Aquatic Invasive Species Monitoring](#)
- [Lake Biological Monitoring](#)
- [Sentinel Lake Monitoring](#)
- [National Lakes Assessment](#)
- [Long Term Acid Rain Monitoring of Lakes](#)

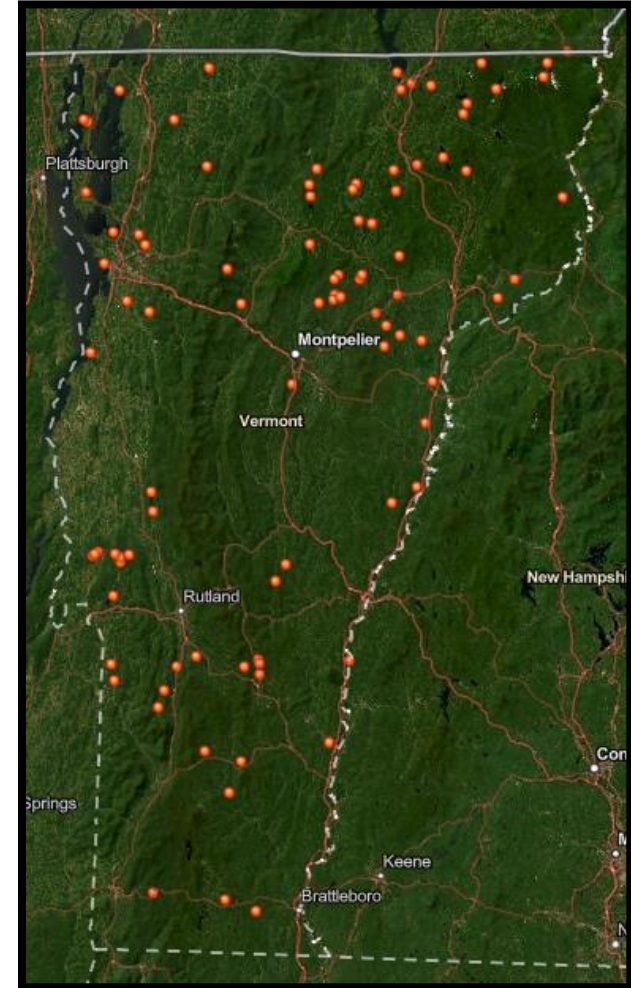


Monitoring and Assessment

Lay Monitoring Program

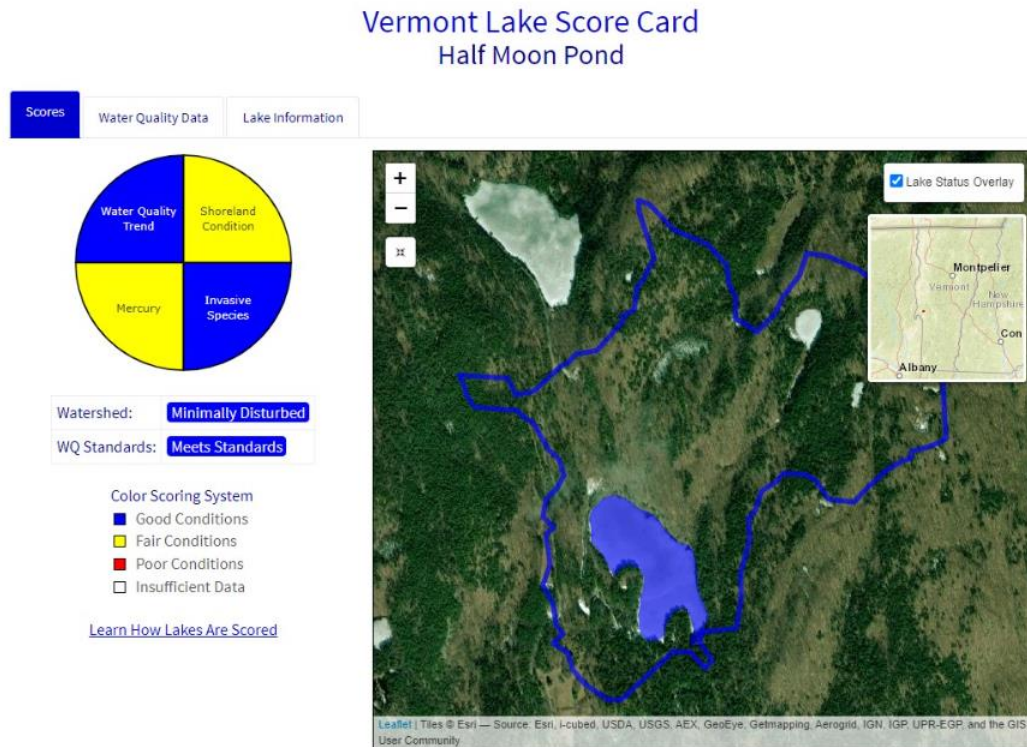
- Since 1979, community science used to understand the health of our lakes
- Establish baseline water quality
- Assess long term trends and compliance with Vermont Water Quality Standards
- Sampling includes water clarity, phosphorus, chlorophyll-a

86 inland lake sites &
7 Lake Champlain bays



Lake Water Quality

Lake Health Scorecard



- The Lake Score Card currently includes information for 823 Vermont lakes, including all those over 20 acres in size.
- The Vermont Inland Lake Score Card aims to answer the question “how is a lake doing?” with easy-to-interpret graphics and images.

<https://dec.vermont.gov/watershed/lakes-ponds/data-maps/scorecard>

Lake Water Quality

National Lake Assessment Long-term Monitoring

Oligotrophic Lakes



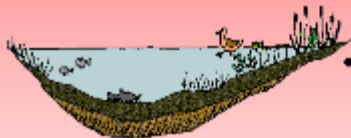
- Low nutrient enrichment = very little plant and algae growth
- Clear water
- Supports coldwater fish species

Mesotrophic Lakes

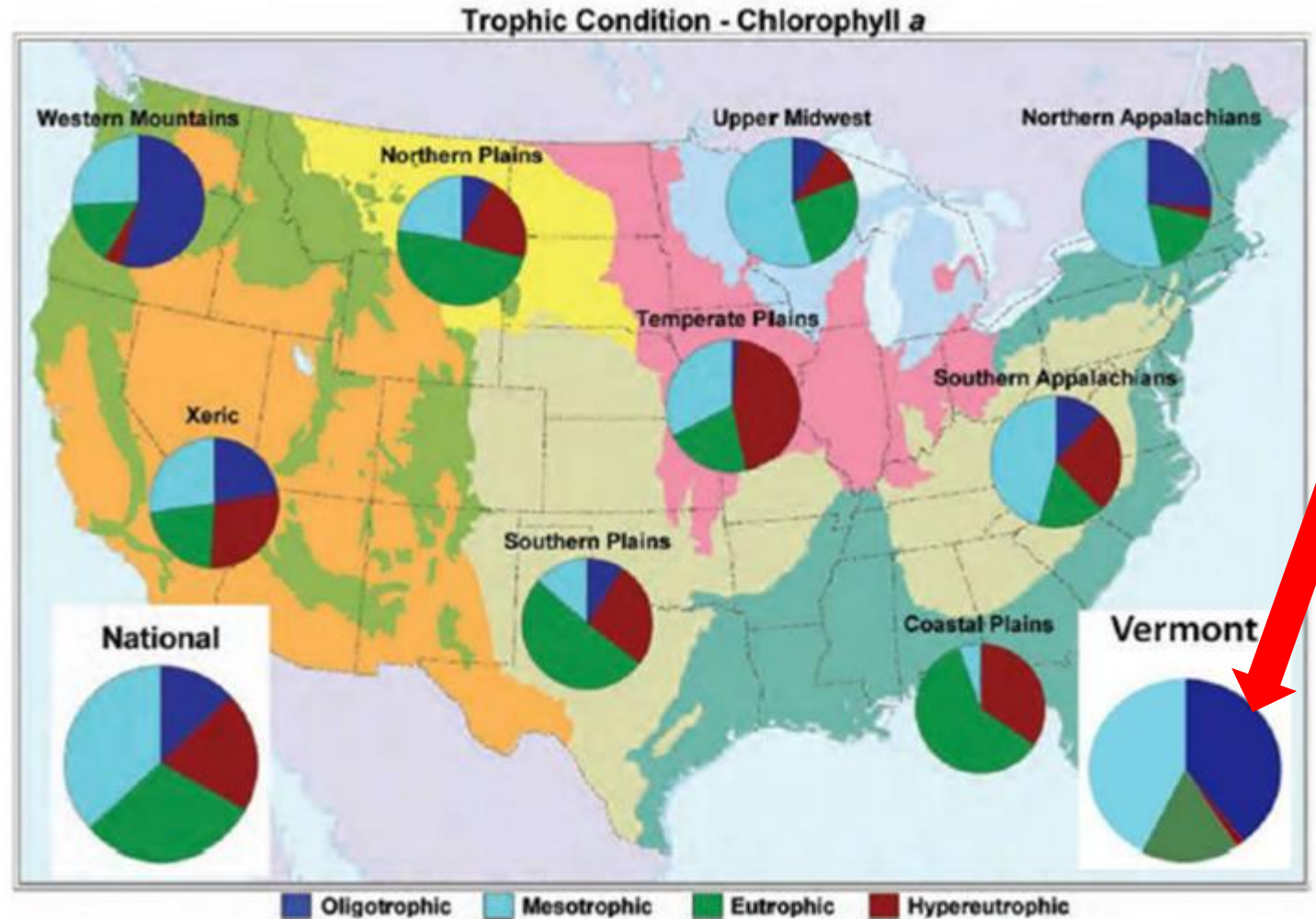


- Moderate nutrient enrichment = some plant and algae growth
- Moderate water clarity
- Supports mostly warmwater fish species

Eutrophic Lakes



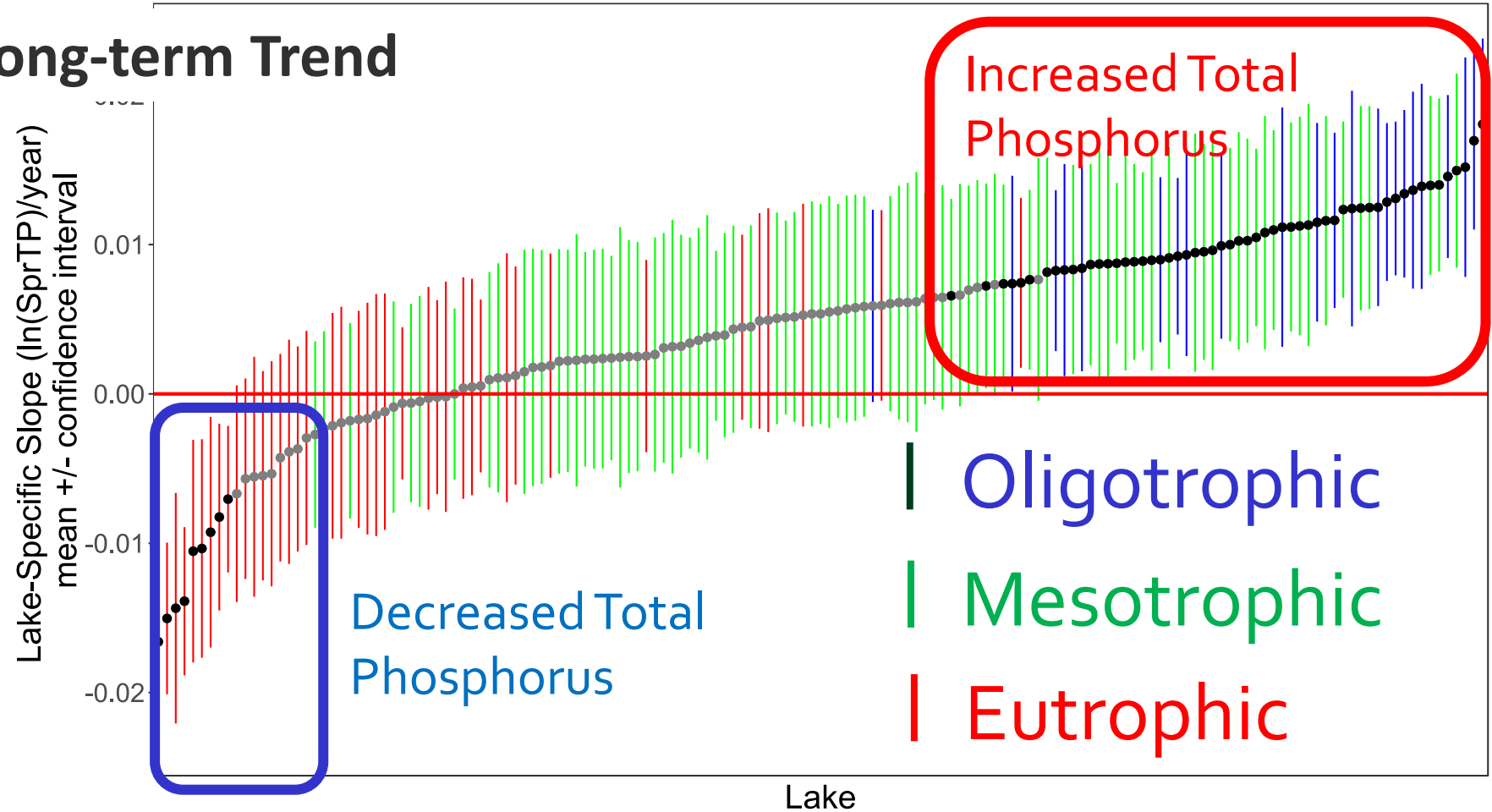
- High nutrient enrichment = abundant plant and algae growth
- Reduced water clarity
- Only supports warmwater fish species



Lake Water Quality

Spring Phosphorus Long-term Trend

- Almost all oligotrophic lakes in Vermont have increased in total phosphorus over past 40 years
- All but one of the high nutrient eutrophic lakes have stable or decreasing phosphorus trends.

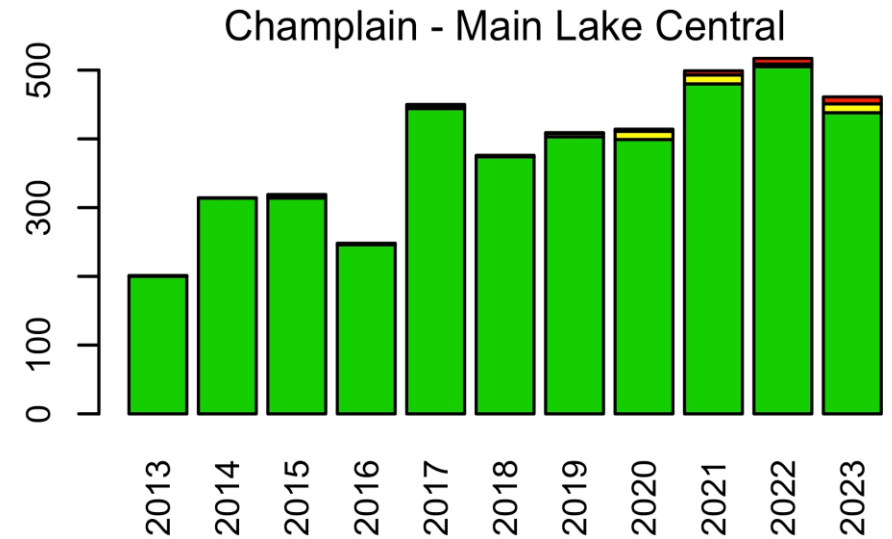


Harmful Algal Blooms/Cyanobacteria Monitoring



- Increased nutrients (phosphorus) feed harmful algal blooms (cyanobacteria)
- LCBP funds monitoring, but limited capacity for inland lakes

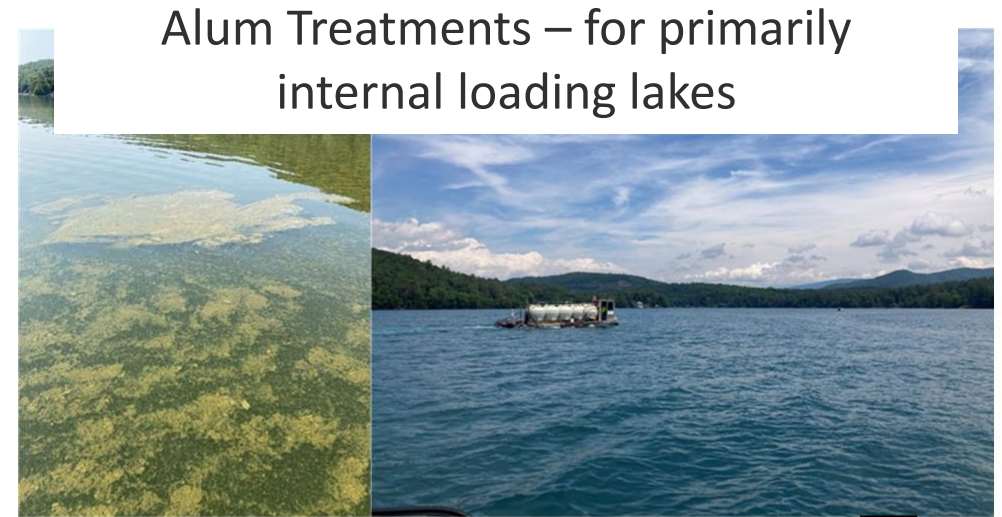
Number of Reports



- Partnership with Dept. of Health & Lake Champlain Committee
- DEC coordinates, conducts quality assurance sampling, microscopic analysis, cyanotoxin analysis

Harmful Algal Blooms/Cyanobacteria Remediation

- Only effective in lakes where most of the Phosphorus coming from the watershed has been mitigated, and the primary source of Phosphorus is the internal lake loadings
- Successful alum treatments at Ticklenaked Pond and Lake Morey
- Planned alum treatment at Lake Carmi
<https://dec.vermont.gov/watershed/restoring/carmi>



Lake Morey Total Phosphorus Before and After 2024 Alum Treatment



Aquatic Invasive Species Management



Spread Prevention

- Statewide training of 250+ Greeters & Coordinators
- Deploy & support watercraft inspection decontamination unit operations on Champlain
- Maintain AIS signage at 300+ boat accesses annually



Monitoring & Early Detection/Rapid Response

- Train statewide network of Vermont Invasive Patrollers
- Monitor & survey priority lakes for zebra mussels, spiny water flea, water chestnut, etc.
- First line of defense/rapid response efforts to attempt to eradicate new introductions



Long-term Management Assistance & Operations

- Assist partners to plan for and manage AIS infestations
- Conduct Pre & Post surveys on AIS management practices
- Oversee Lake Champlain Water Chestnut Operations on behalf of NY, Quebec, and VT approximately 100+ sites

Aquatic Invasive Species Management

2024 & 2025 Aquatic Nuisance Control Grant in Aid

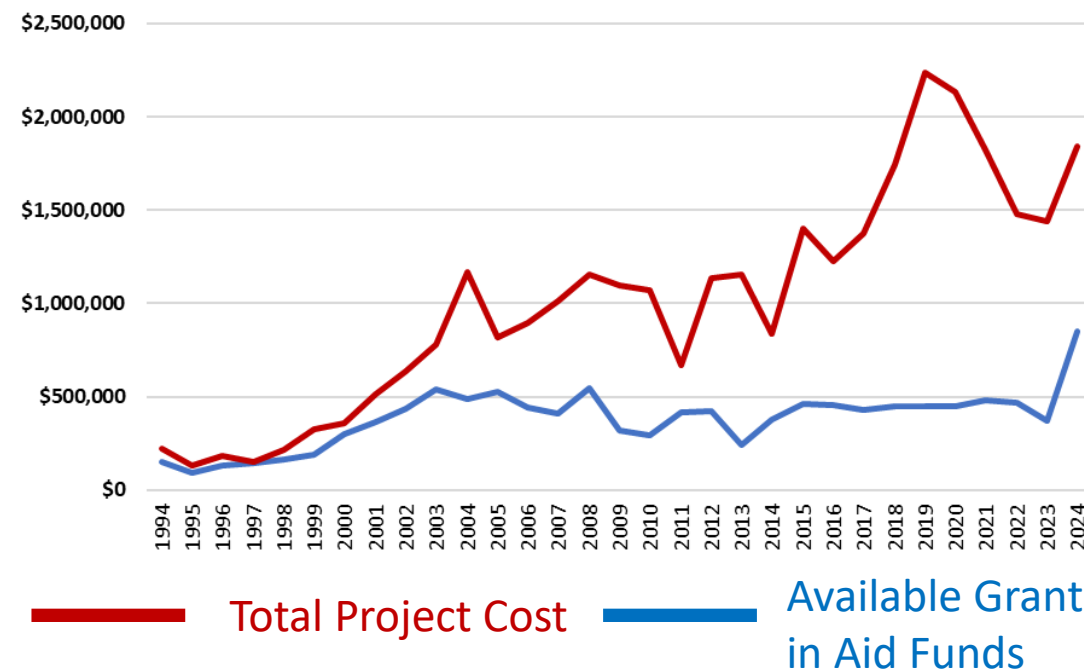
- 2024 request for \$1.8M total project costs
- Total Amount of Grant Aid = \$850K
 - \$500K provided by State General Funds
 - \$250K from Motorboat Registration (MBR)
 - \$100K Army Corps Federal Grant

2024 ANC Grant in Aid Projects = 65 Projects

- Spread Prevention Greeter Programs (\$510K)
- Management Projects (\$245K)
- Education/surveys (\$95K)

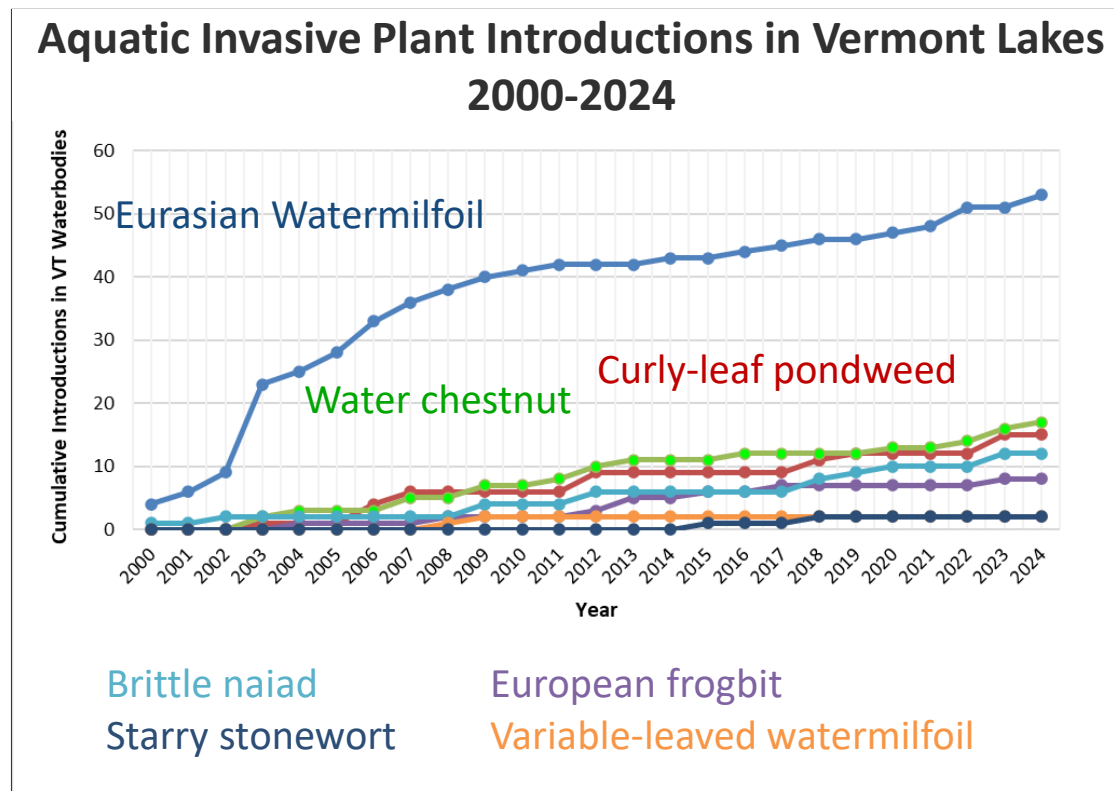
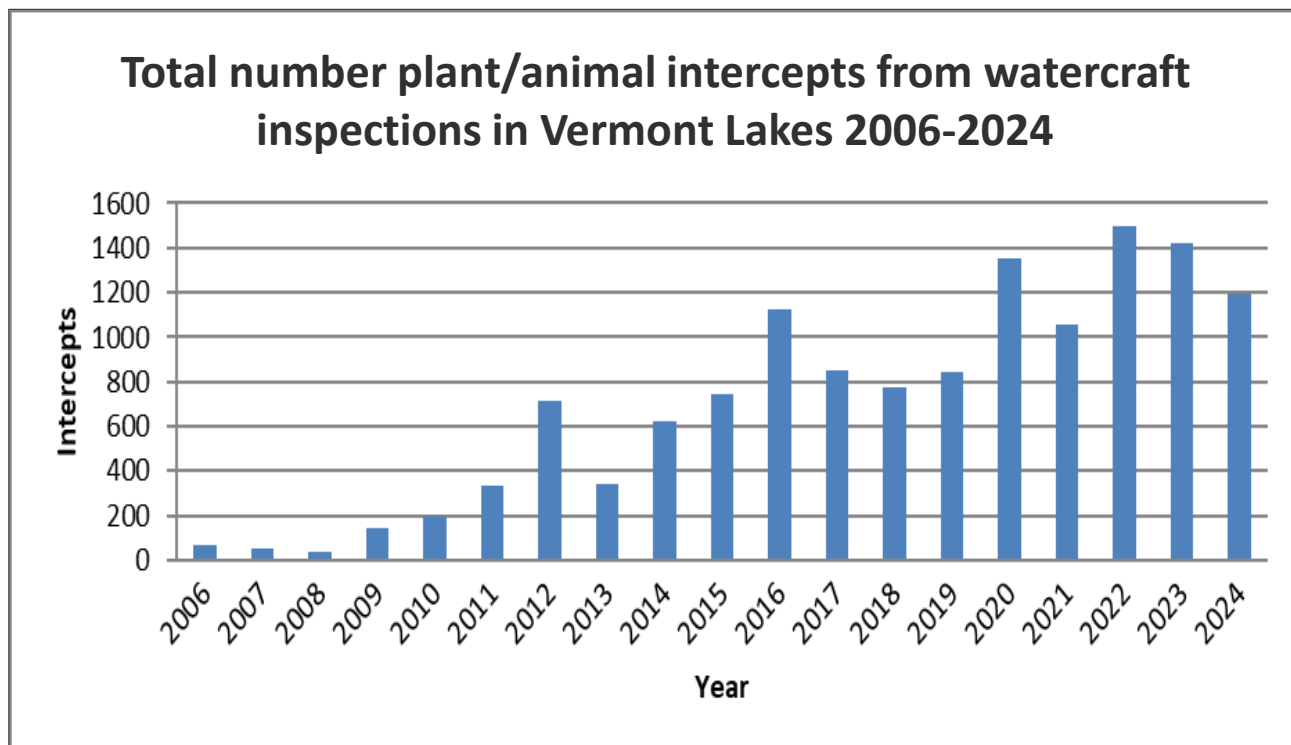
Provide Administrative Oversight ~ \$2.5M for AIS Program in State and Federal Grants

ANC Estimated Total Project Costs vs. Available Grant in Aid Funds
1994-2024



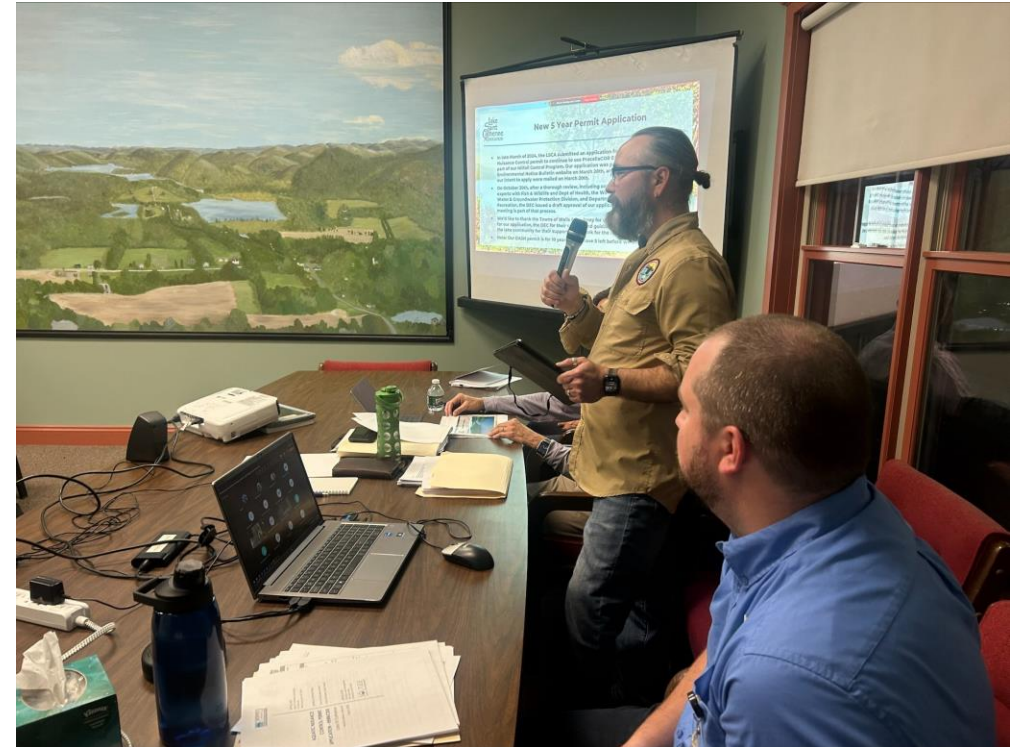
Aquatic Invasive Species Management

- Increasing trend in aquatic invasive species intercepts and introductions



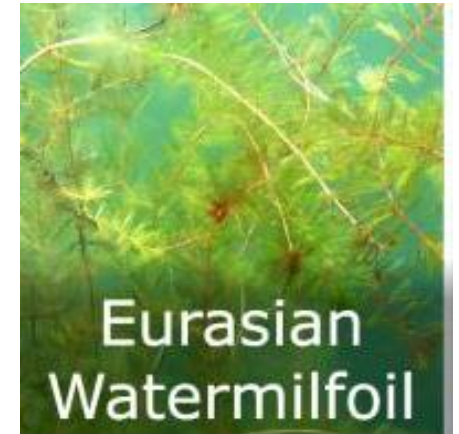
Aquatic Nuisance Control Permitting

- Regulation 10 V.S.A. § 1455 requires a permit review process for proposed projects to control an aquatic nuisance in waters of the State.
- Internal Review Procedure seeks input from experts across the State (VDH, FWD, AAFM, FPR, and DEC) to review these projects.
- Process includes notification to the Environmental Notice Bulletin (ENB) and a public comment period
- Approximately 150 active permits that include things like mechanical devices, benthic barriers, structural controls, and herbicides.



Aquatic Nuisance Control Permitting for Herbicide ProcellaCOR

- Guided by 10 V.S.A. § 1455 and follow the same internal review process as other ANC applications
- ProcellaCOR is highly targeted to Eurasian watermilfoil, and negative impacts on native aquatic plants are anticipated to be minimal to none according to a 2022 DEC statistical analysis
- ProcellaCOR rapidly degrades in the environment, with nearly 100% of samples showing a concentration of less than 1pbb after 48 hours
- The potential for acute and chronic risks to fish, aquatic invertebrates, amphibians, and other aquatic animals is considered low based on DEC study
- Department of Health continues to find that the use of ProcellaCOR for these projects poses a negligible risk to public health, and Drinking Water and Ground Water Division (DEC) has no concerns so long as VDH findings do not change
- Department of Health has not found ProcellaCOR to contain PFAS
- Considerations for fisheries are made in these permits and ANR has not found a decline in fisheries as a result of these projects
- Process was reviewed under Act 57 (H.31) in 2023

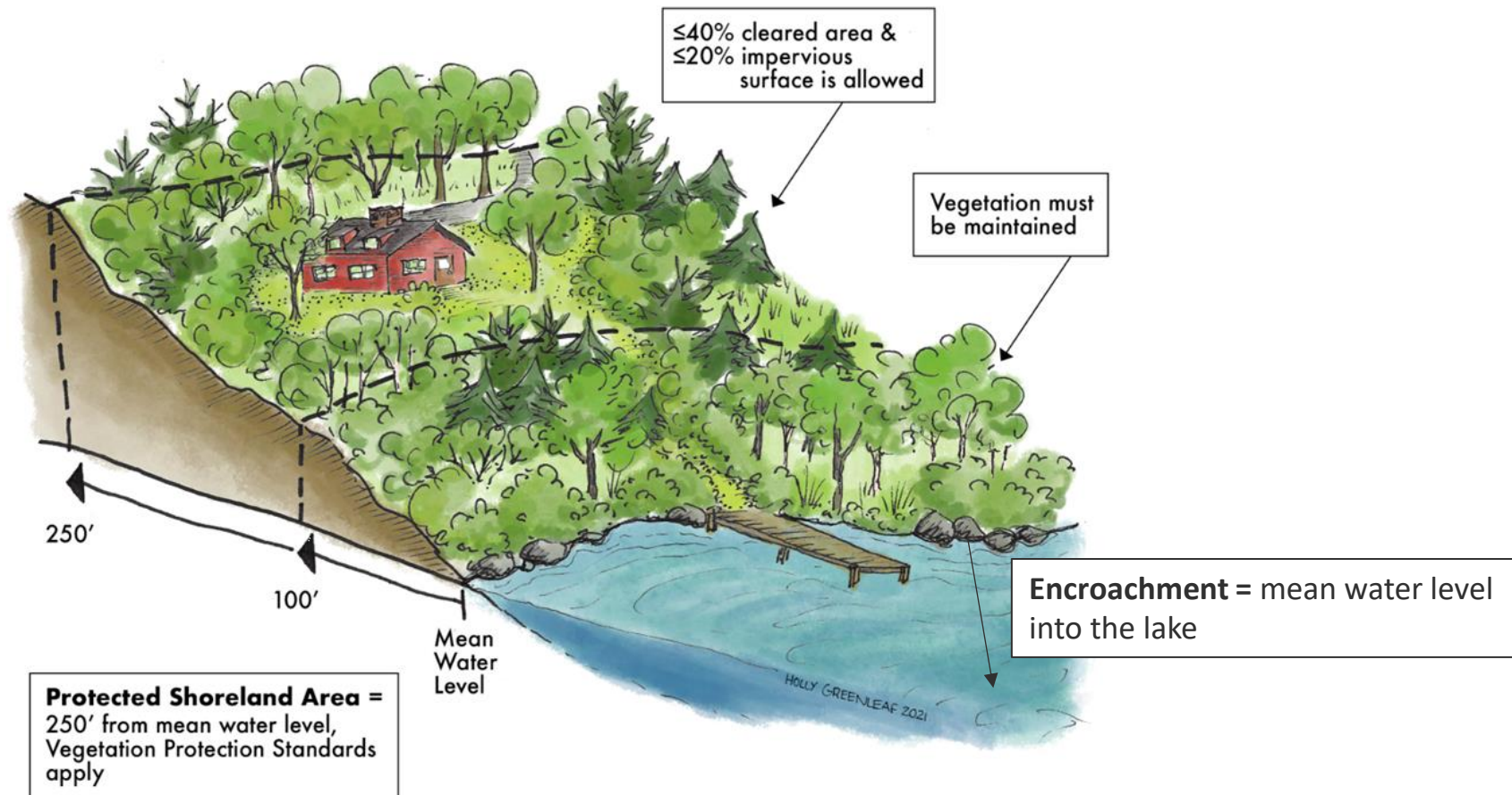


Watercraft Inspection and Decontamination Program Alternatives

- Identify current program strengths and weaknesses
- Stakeholder process to discuss and evaluate program alternatives
- Make a recommendation for both the upcoming boating season and a more holistic, long-term, sustainable program
- Develop implementation plans



Shoreland and Encroachment Regulations



Use of Public Waters Rules and Wakesports

- Regulations that limit wakesports effective April 2024
- First state with restrictions on wakesports in the nation
- Additional petitions for 10 lakes propose to prohibit wakesports
- We are reviewing more than 500 public comments from December public meetings



Questions?

Additional information:

<https://dec.vermont.gov/watershed/lakes-ponds>

