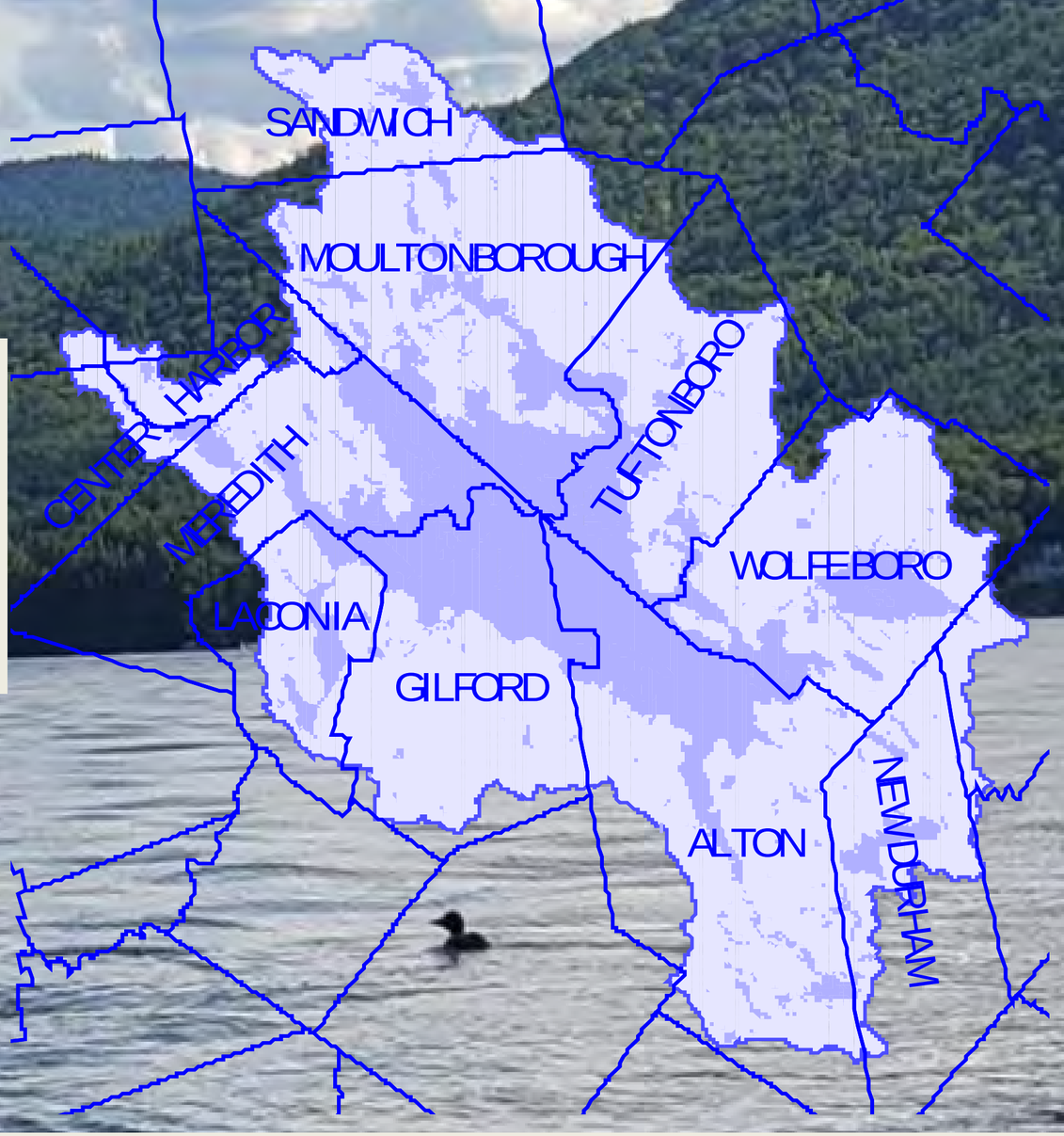
SAFEGUARDING WINNIPESAUKEE'S FUTURE

Patricia Tarpey, President
Lake Winnipesaukee Alliance

Lakes Region Planning Commission Annual Meeting
June 23, 2025

Challenges

- Multiple local jurisdictions
- Varied technical and planning resources
- Managing for Multiple Uses



Watershed Area: 369 sq mi/ 236,225 ac

Lake Area: 72 sq mi/ 44,586 ac

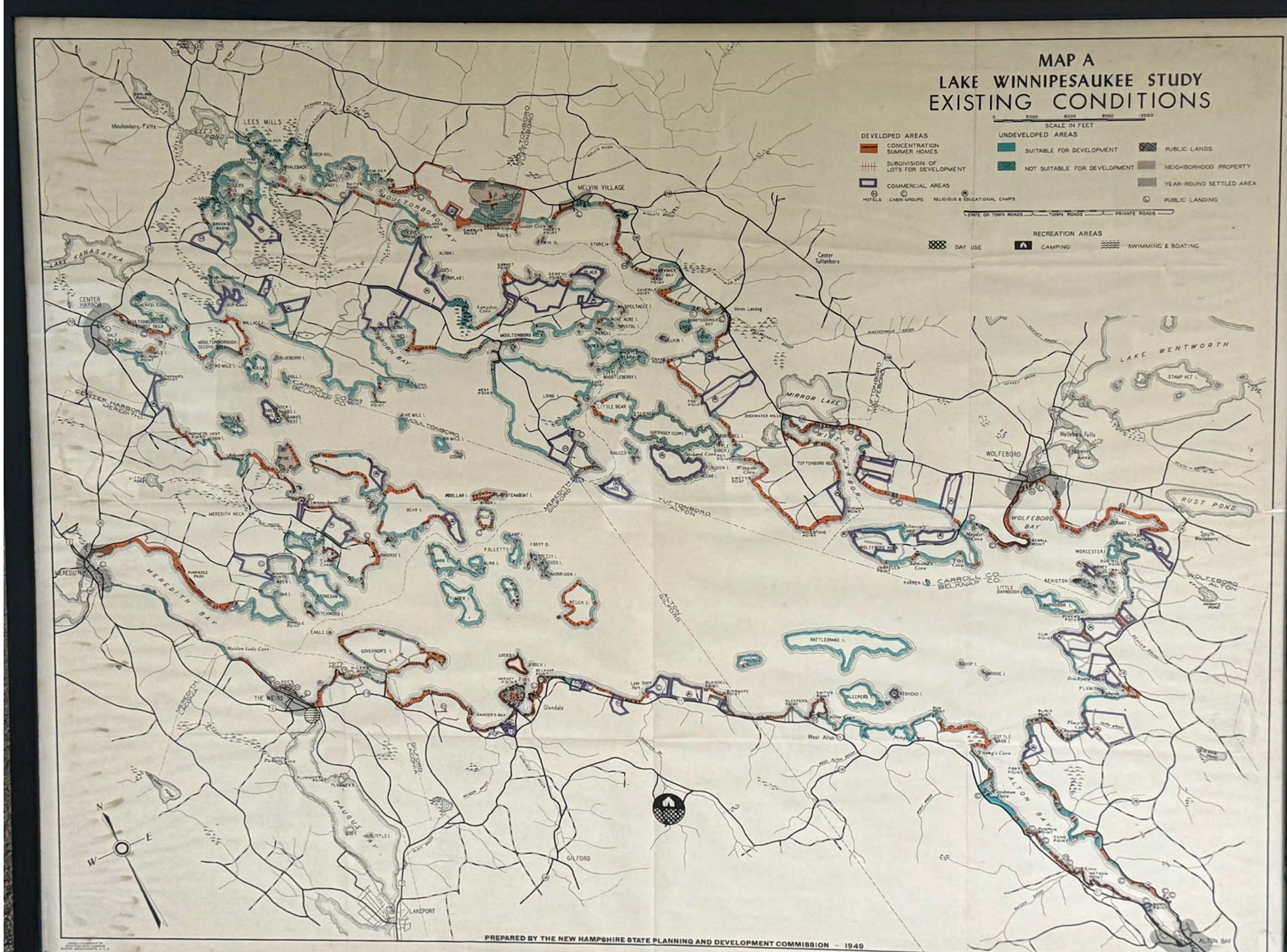
8 Shorefront towns

A Study of the Lake Winnipesaukee Shoreline

July 1949

Valuation of the Shoreland = $6.9M

Total assessed value of all land & buildings taxed in the 8 shorefront towns- $34,500,000



The Value of Winnipesaukee

Nelson A. Rockefeller Center for Public Policy at Dartmouth – estimates the value of Winnipesaukee at $17B

Property	**Revenues**
Property Assessments	16,457,417,397
Town Tax Revenue	216,502,454
Business	
Tourism	294,131,000
Boating	107,625,000
Fishing	1,641,944
Summer Camps	42,704,856
Water Supply	
Laconia Water Supply	1,532,410
Lakeport Dam	42,209,472

Ecological Treasure

- Wildlife
- Fisheries
- Clear Water
- Scenic Beauty

Cultural and Emotional Connection for Generations

Clear, beautiful water, sandy beaches,
a gathering place for family and friends,
boating and fishing adventures,
an investment of money and time.

Our Strategic Priorities

Water Quality Monitoring

Lake Management

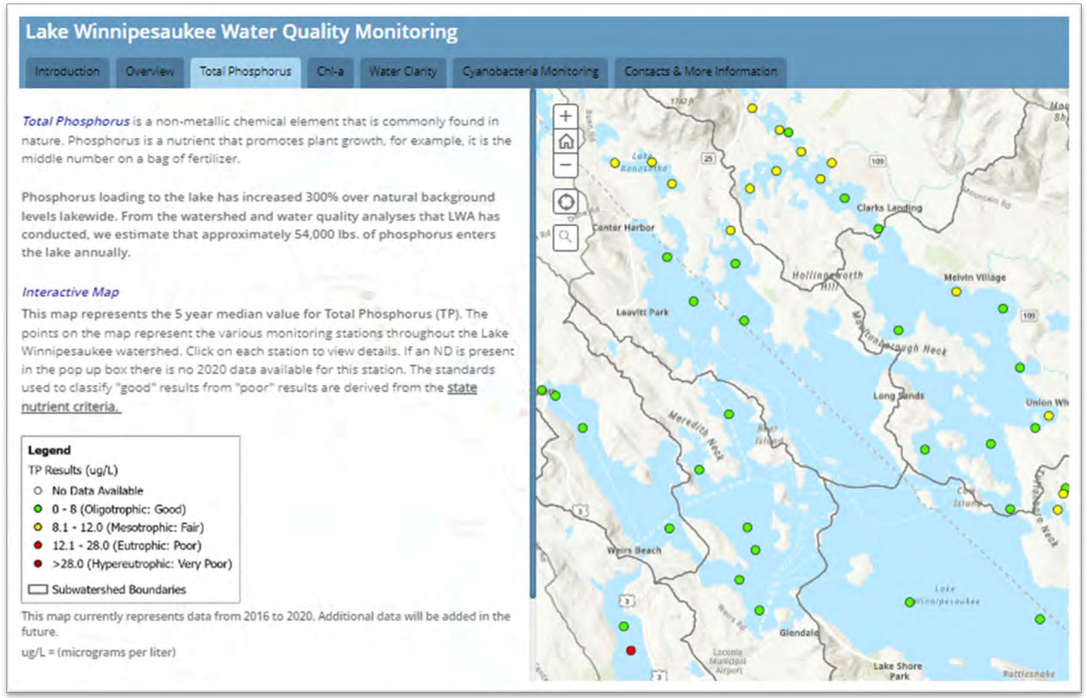
Lake Restoration

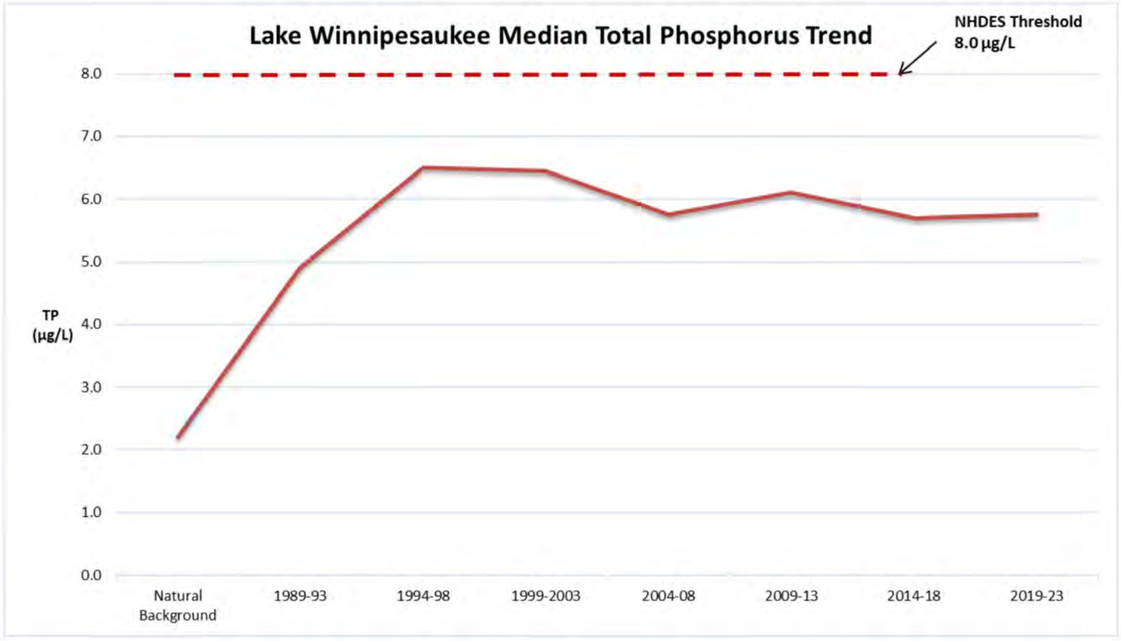
Education & Outreach

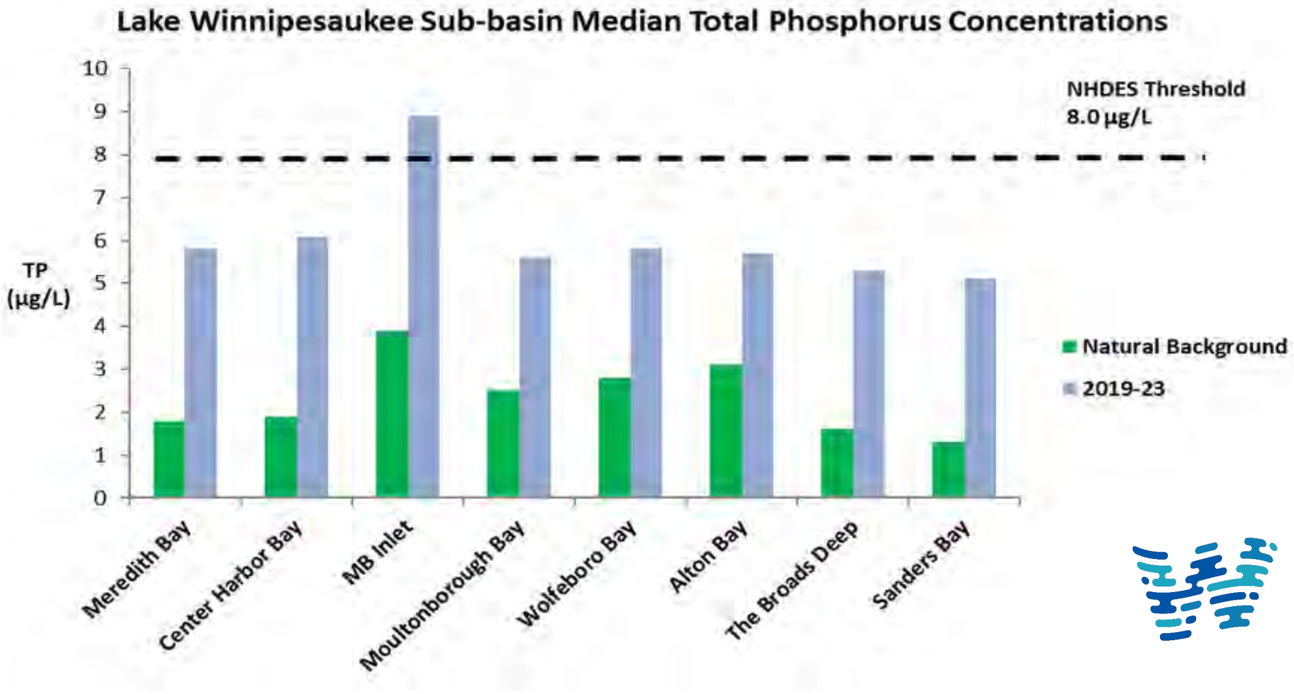
Safeguarding the lake, One sample at a time.

Water Quality Monitoring

Every sample we collect tells a story —about the health of our lake, the strength of our stewardship, and the path forward.







Progress to Date

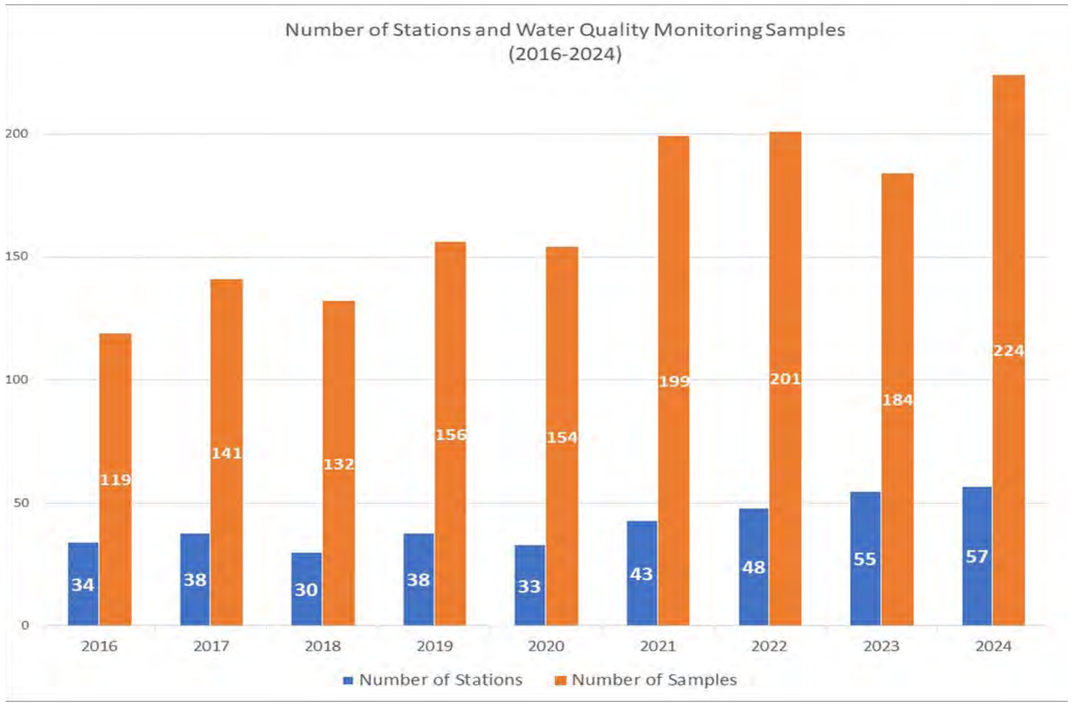
57 **Sampling Locations**

68% increase in sampling stations since 2016

224 **Water Samples**

88% increase in the number of samples collected since 2016

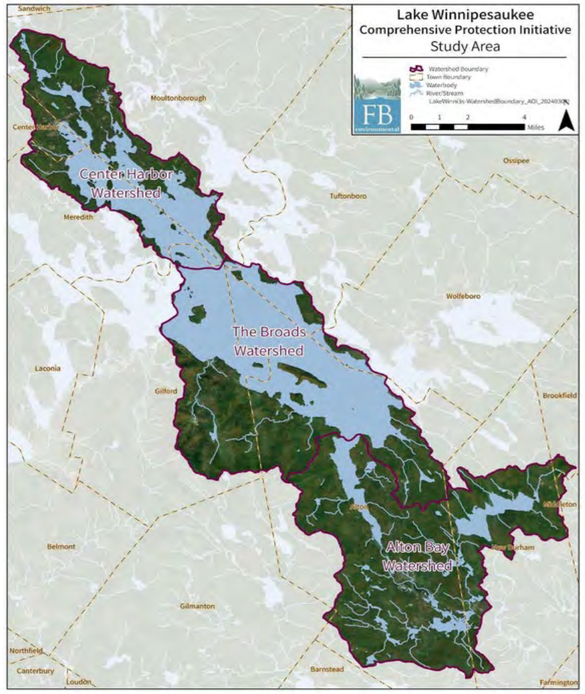
42 **Trained volunteers contributed over 750 hours**



Seeing the Watershed Through a New Lens

Watershed Analyses

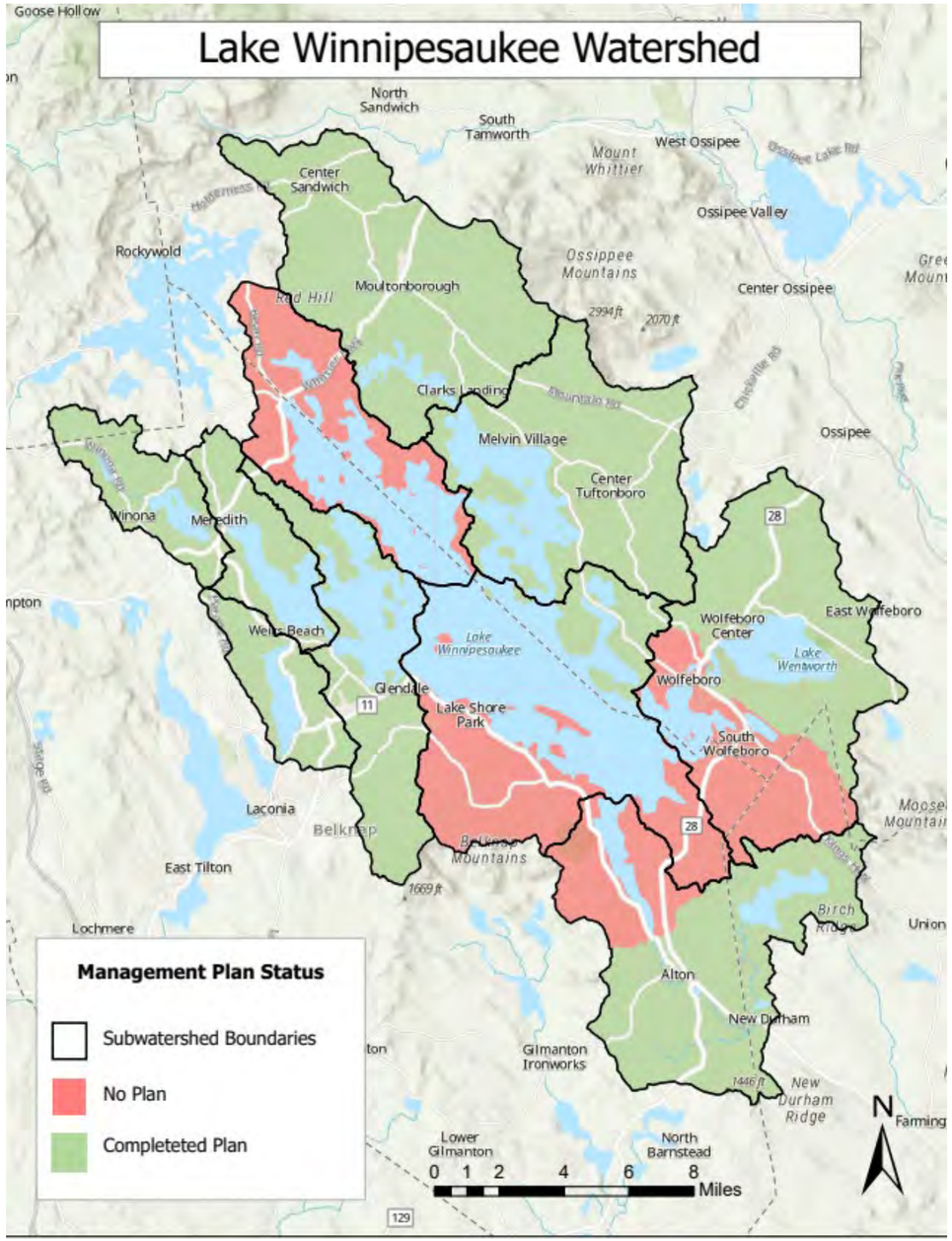
Understanding where water flows—and what it carries—helps us act with precision and purpose.



We can't protect what we don't understand.
This analysis gives us a roadmap.

- **4 sub - watersheds analyzed** using GIS, nutrient modeling, field surveys and water quality data - Wolfeboro Bay, Alton Bay, Center Harbor Bay, and the Broads.
- **3197 Shoreline parcels evaluated** for disturbance and vulnerability - two different measures of shoreline health.
- **Identified 164 areas** for restoration. These sites contribute an estimated 176 lbs. total phosphorus, 433 lbs of sediment, and 451lbs. total nitrogen.
- Findings used to guide local planning and future mitigation projects.

Examples of sites identified in need of mitigation in the watershed surveys .



Progress to Date

# Plans Completed	7 of the 10 subwatersheds have management plans completed.
# Sites Requiring Mitigation	577 sites identified and prioritized Over 5200 shoreline parcels evaluated
Phosphorus load reduction identified	Target water quality goals have been set for each completed plan, and the phosphorus load reduction required to achieve that goal.

Turning Science into Solutions

Nutrient Loading Mitigation Projects

Preventing nutrients from reaching the lake is one of the most powerful ways we protect its future.

Sources of pollution in the watershed impacting the lake's water quality include stormwater runoff from developed areas, shoreline erosion, gravel roads, improperly functioning septic systems, and more.

Sandy Cove Road, Moultonborough

One of the top priority sites identified in the Lake Kanasatka watershed plan. Steep private road that leads down to common beach.

Estimated pollutant load reduction to Lake Kanasatka of 1,477 lbs./yr sediment and 3.6 lbs/yr phosphorus.

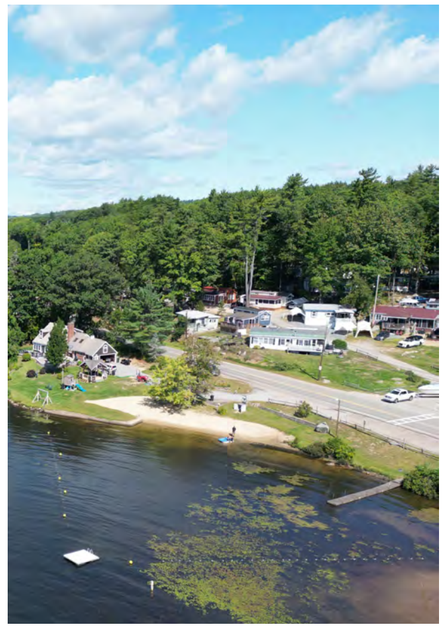
Melvin Wharf Road, Tuftonboro

Significant beach erosion from drainage off Melvin Wharf Rd. Stormwater runoff flows over the beach and erodes the sand into the lake.

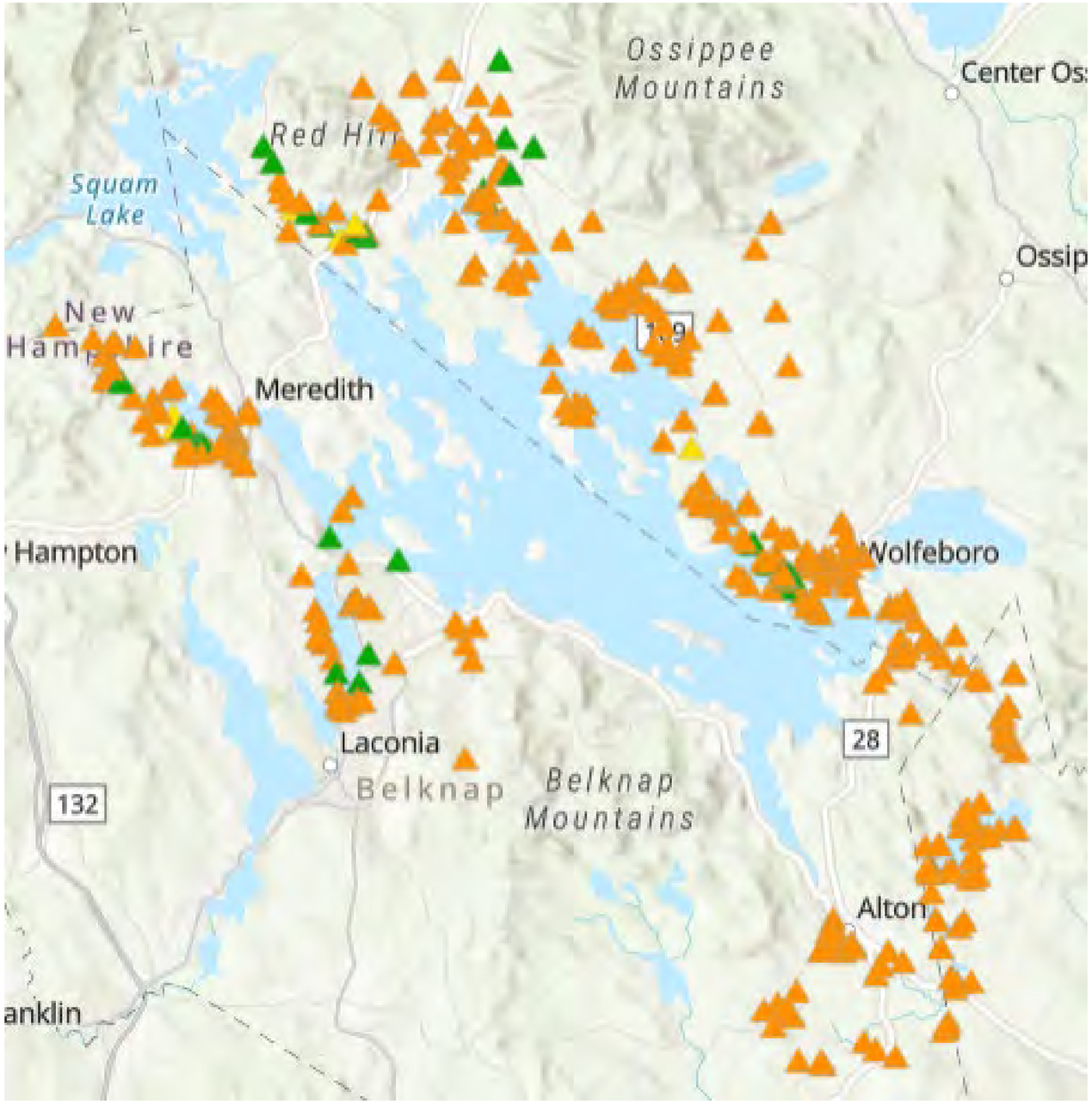
Estimated pollutant load reduction to Melvin Bay of 154 lbs./yr sediment and 0.5 lbs/yr phosphorus.

Resort on the Bay, Laconia

Stormwater currently flows unchecked across a sloped parking area and sand beach, delivering sediment and nutrients directly into the bay.



Estimated pollutant load reductions to Langley Cove have not yet been calculated.



https://www.winnipesaukee.org/how-we-protect-winnipesaukee/restoration/

LAKE RESTORATION

# Mitigation Sites Identified	577
# Projects Completed	50
Pollutant Load Reductions	85 lbs. TP/yr. 157 lbs. TN/yr. 137,774 lbs. TSS/yr.

That's equivalent to 69 tons of sediment being dumped into the lake annually!

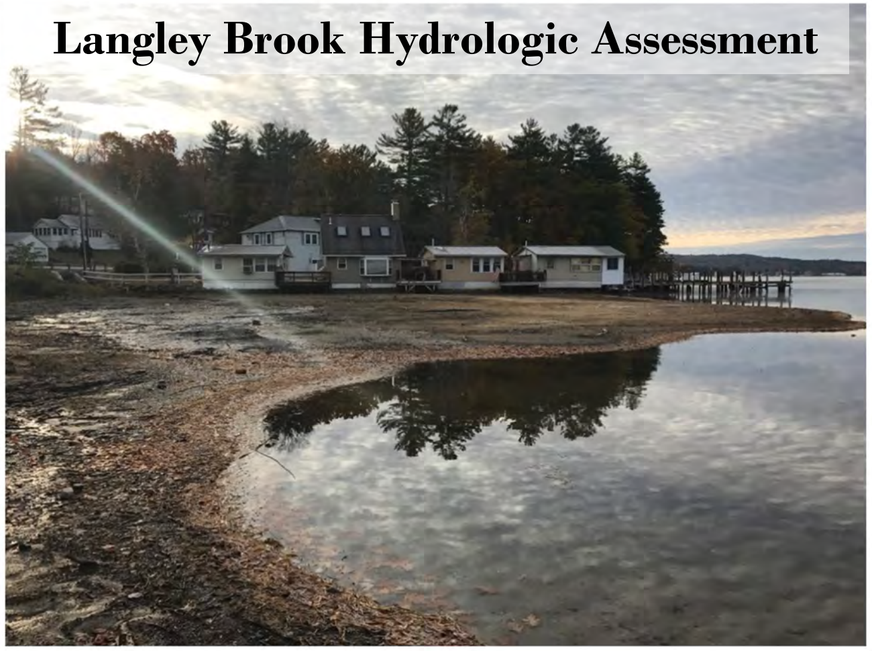
Implemented Restoration Projects

Bioretention Areas at Winnipesaukee Beach Colony Club, Meredith

Culvert Replacement on Ossipee Mtn Road, Moultonborough

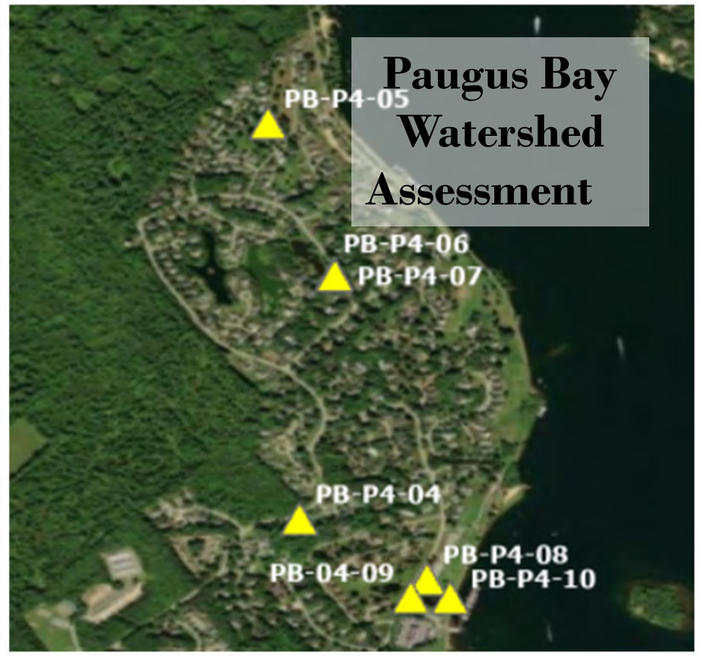
Rain Garden Installation at States Landing, Moultonborough

Langley Brook Hydrologic Assessment



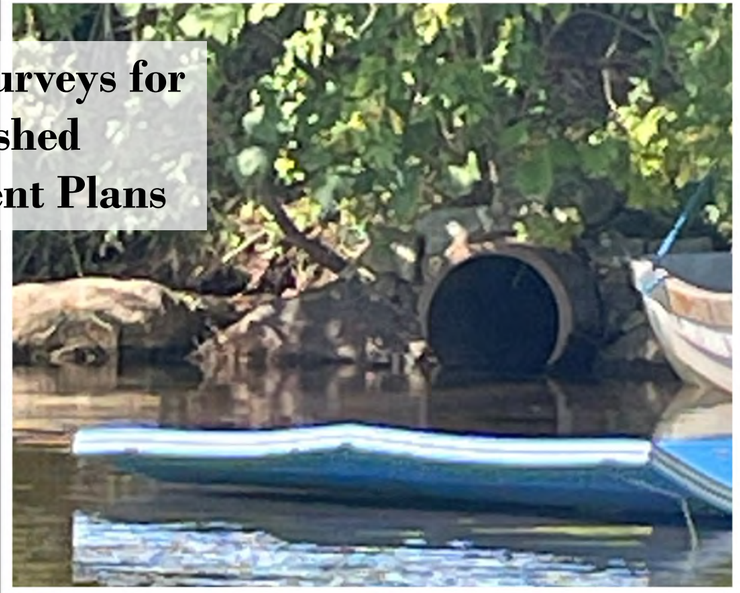
Melvin River Habitat Assessment and Restoration Project

Paugus Bay Watershed Assessment



Lake Waukewan Cyanobacteria Monitoring Project

Shoreline Surveys for Watershed Management Plans



From Backyards to Town Halls: Empowering Action

Technical Assistance to Landowners & Municipalities

We bring science to the shoreline, helping people take meaningful action — one parcel at a time.

- **21 landowners** received tailored recommendations on how to improve their properties to be LakeSmart.
- **24 presentations** made to homeowners associations, communities, home builders association and the public on water quality issues.

Engaging Hearts, Inspiring Stewards

Community Involvement and Education

Lake protection begins with love —for the water, for the wildlife, and for the memories it holds.

- 1,050 people reached through events, community programs, and presentations
- Social media grew by 73% in reach
- Social media followers have grown by 65%
- Volunteers logged over 1,200 hours across all programs

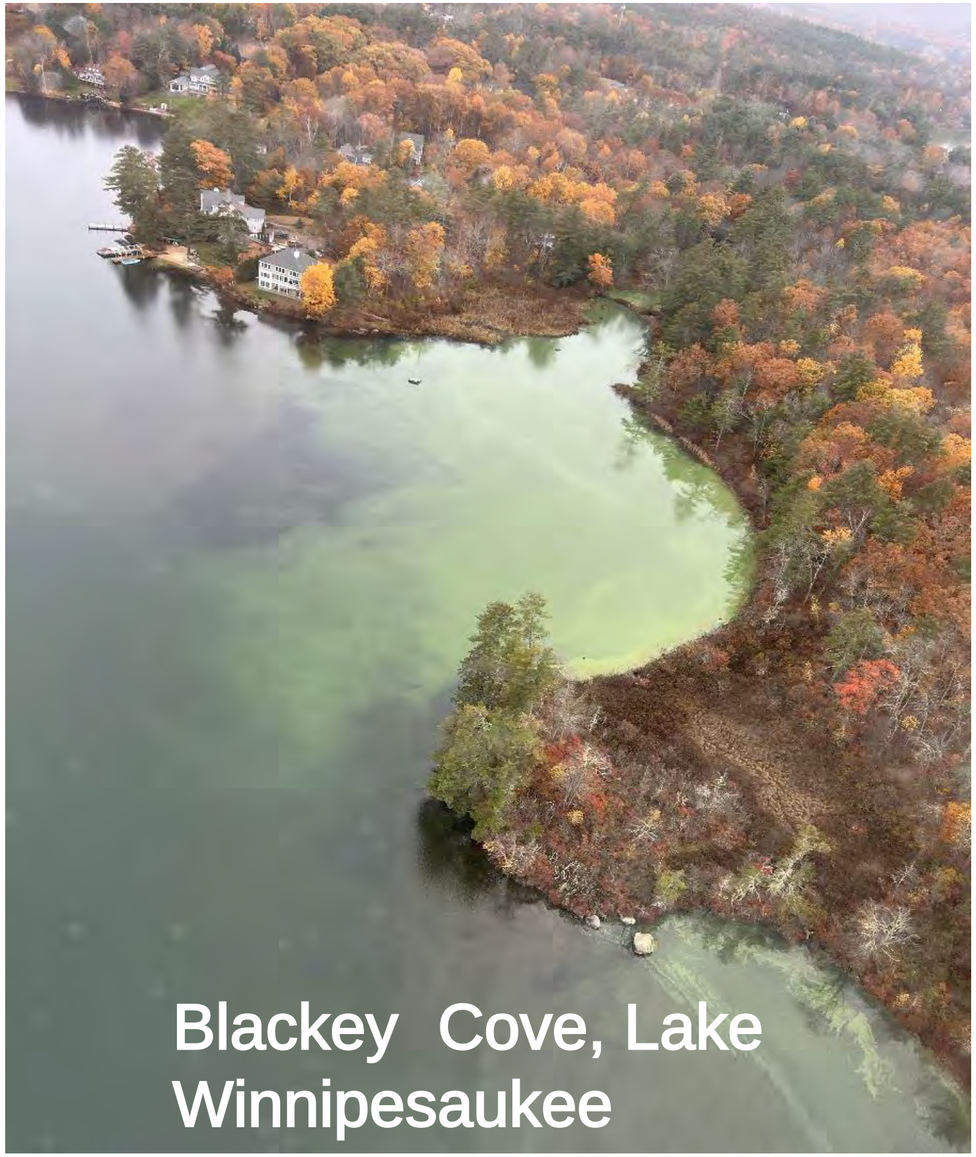
Make Waves for Winni fundraiser

Chanticleer Shores homeowners learn about lake friendly living .

Volunteers help clean up the lake.

Summer kayak paddle to Ragged Island to learn about water quality issues.

Emerging and Growing Challenges



Winnipesaukee: A case study

Phosphorus loading has increased 300% over natural background levels.

Resulting in an increase in…

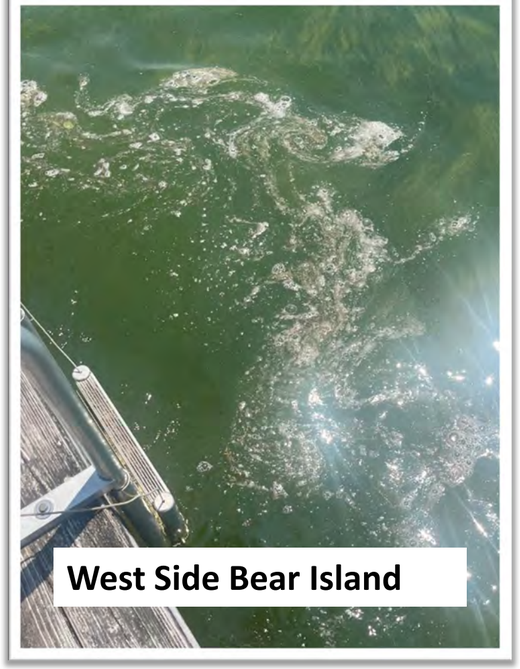
- Cyanobacteria
- Filamentous Algae
- Variable Milfoil

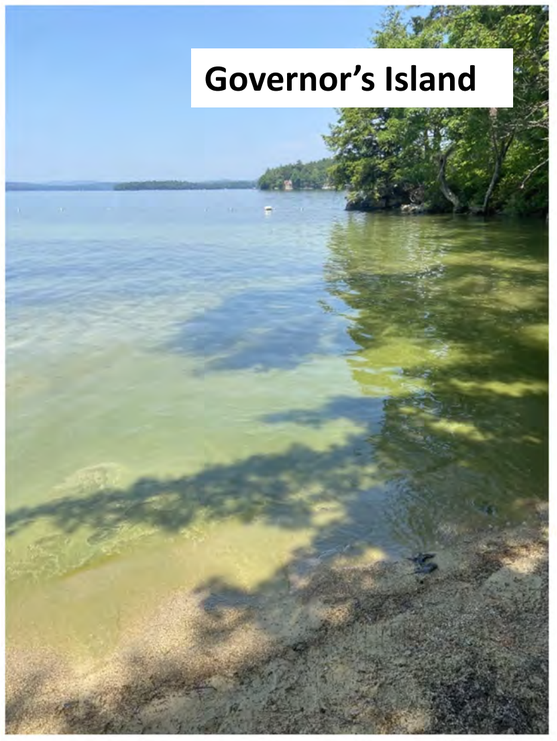
Cyanobacteria
(formerly Blue-Green Algae)

- Naturally Occurring
- Photosynthetic Bacteria
- Growth Factors
  - Sunlight
  - Water Temperature
  - Nutrients (Nitrogen/Phosphorus)

Some of the earliest known organisms capable of oxygen production!

Jockey Cove
August 19, 2024
Wolfeboro

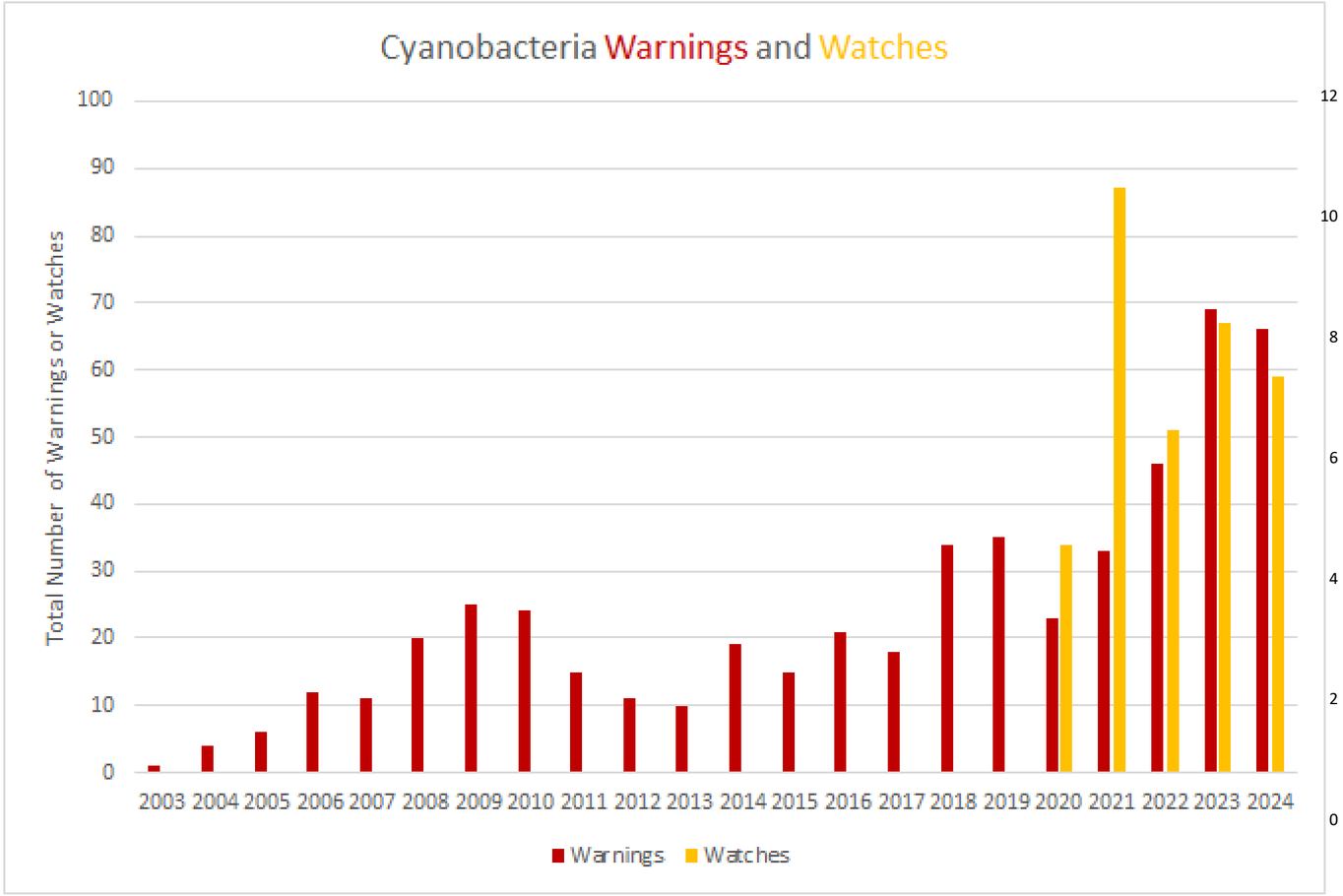




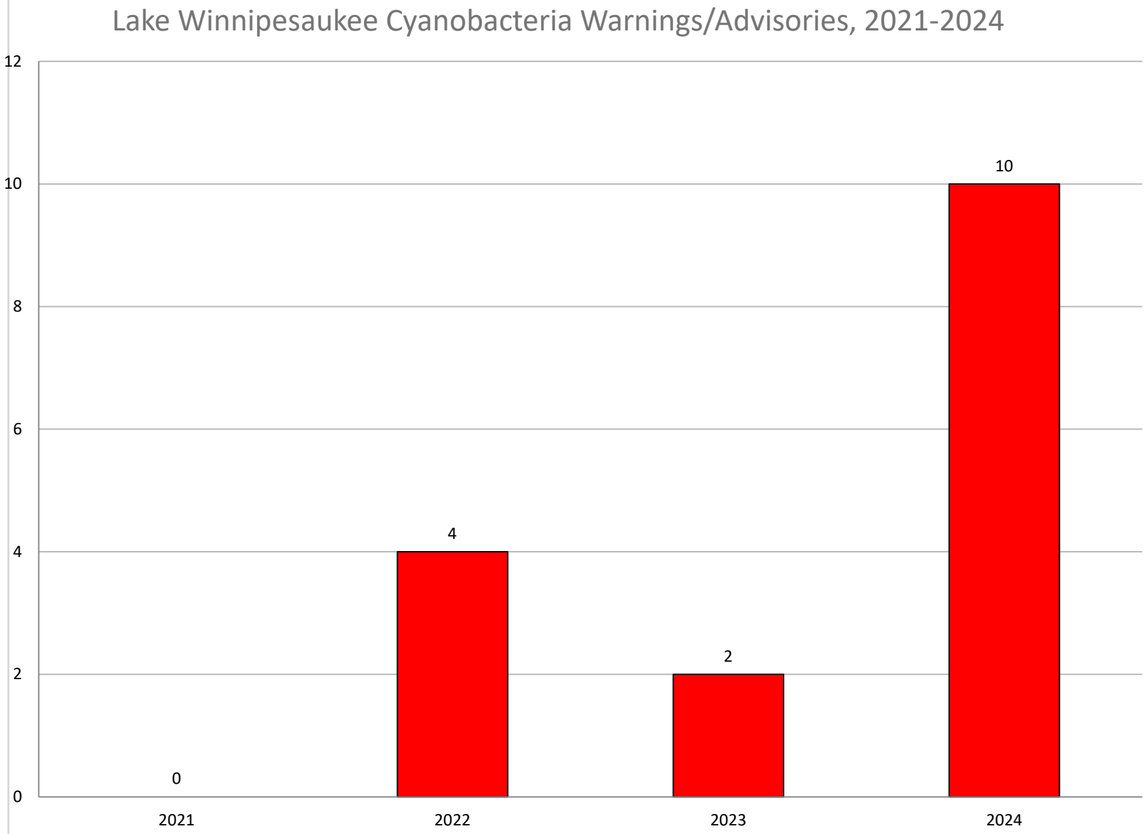
June 12-24, 2024

Cyanobacteria Warnings

Statewide



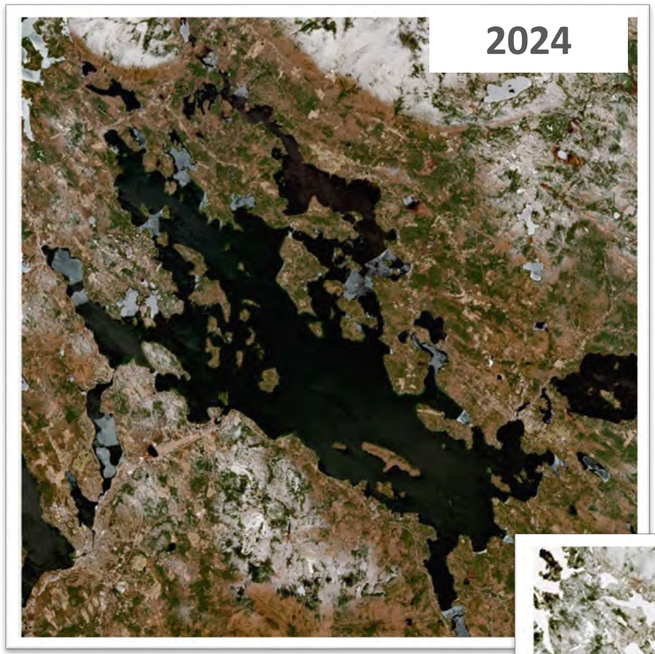
Winnipesaukee

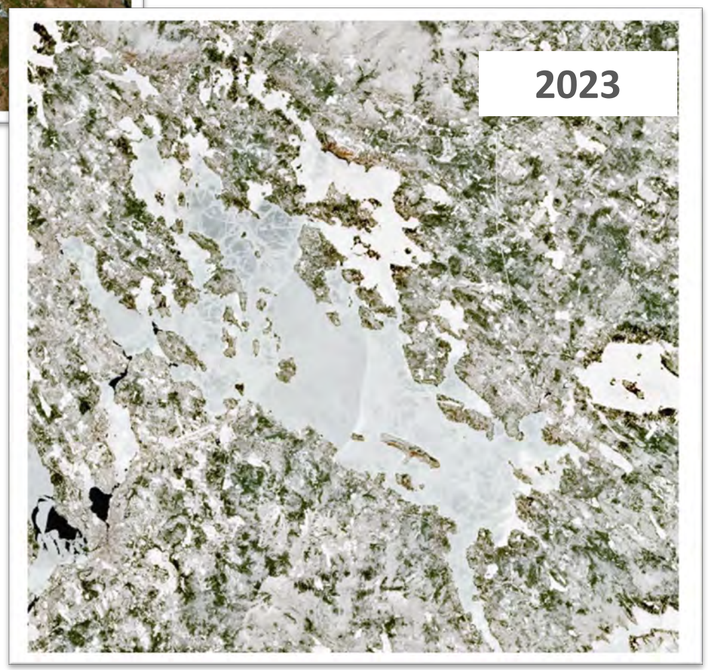


Why are we seeing HABs more often?

Climate Change

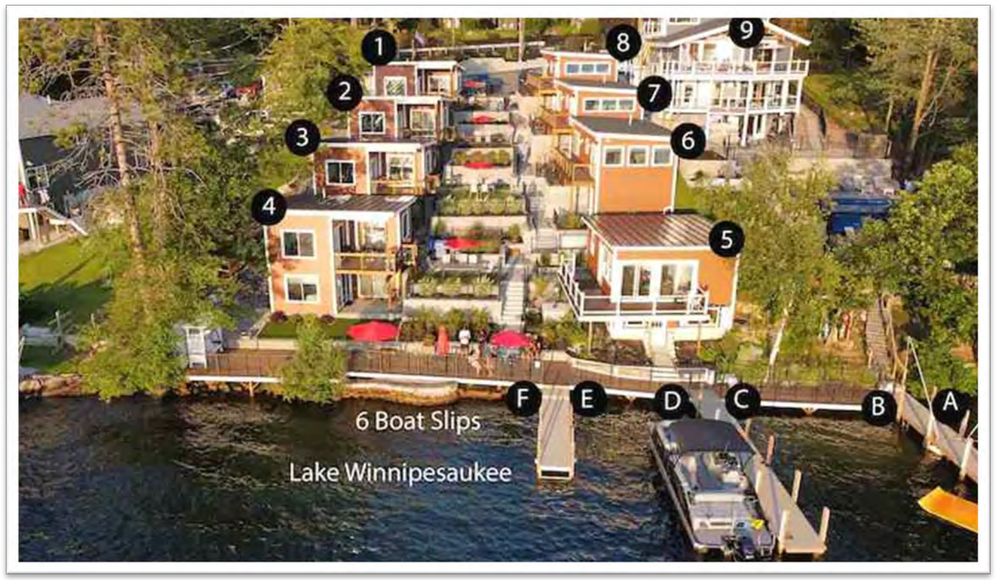
- **Warming Temperatures**
  - Lake Stratification
  - Shift in Ice - In and Ice - Out
- **Extreme Weather Events**
  - Increases Runoff
  - Increases Erosion





Ecological Stressors

Spiny Water Flea



What's at Stake

Economic Impacts

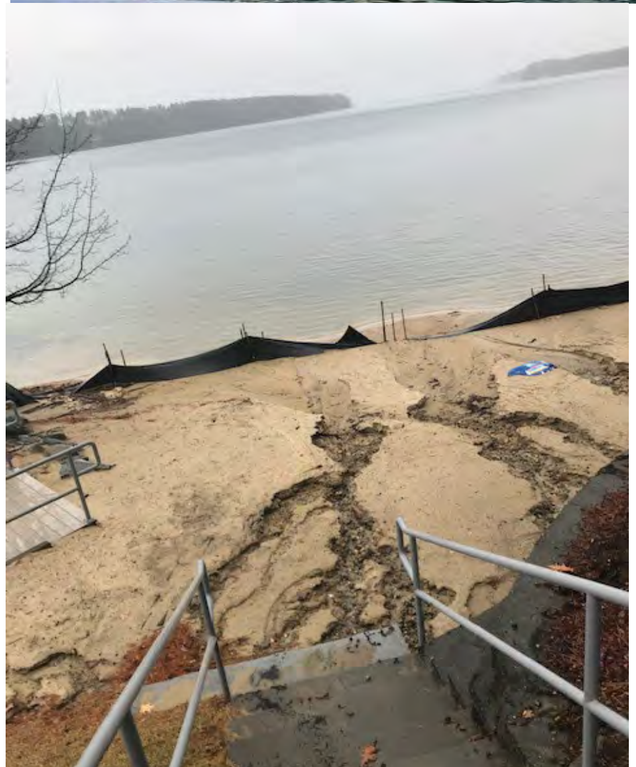
- Loss of recreation revenues
- Decline in property values
- Increased cost to address impairments
- Loss of opportunity revenues
- Public Health Risks and costs

Ecological Impacts

- Water clarity decline
- Loss of wildlife and habitat
- Loss of diversity of fisheries
- Loss of native species
- Restoration costs

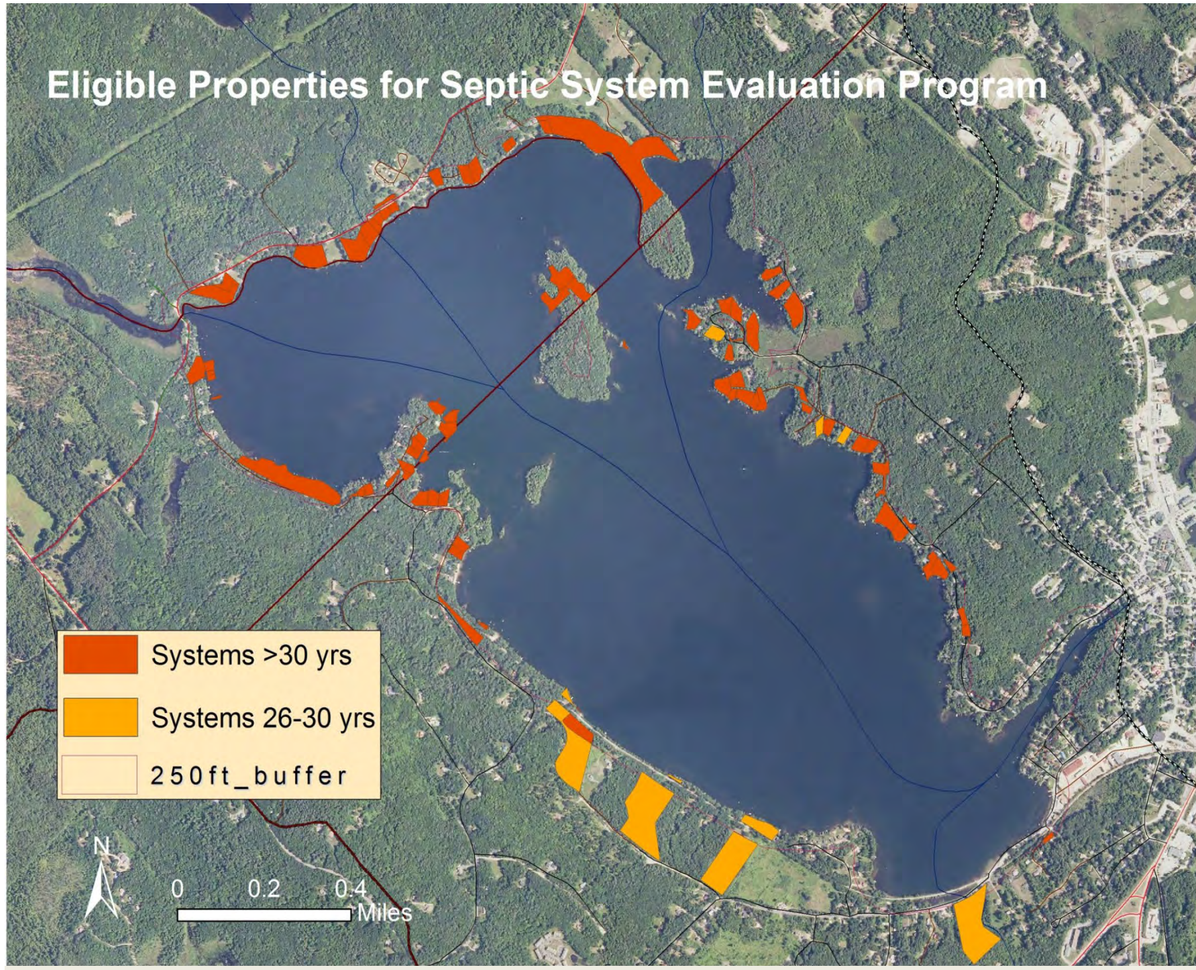
We Must Do More

- Current efforts are valuable but insufficient.
- Need for larger - scale, coordinated response
- Leadership at local and state levels is critical



What Leaders Can Do

- Strengthen stormwater and wastewater policies
  - Zoning setbacks from waterbodies
  - Permeable surface requirements
  - Septic maintenance requirements
- Adopt land use regulations to reduce runoff
- Support and fund watershed protection programs
- Engage and educate the public



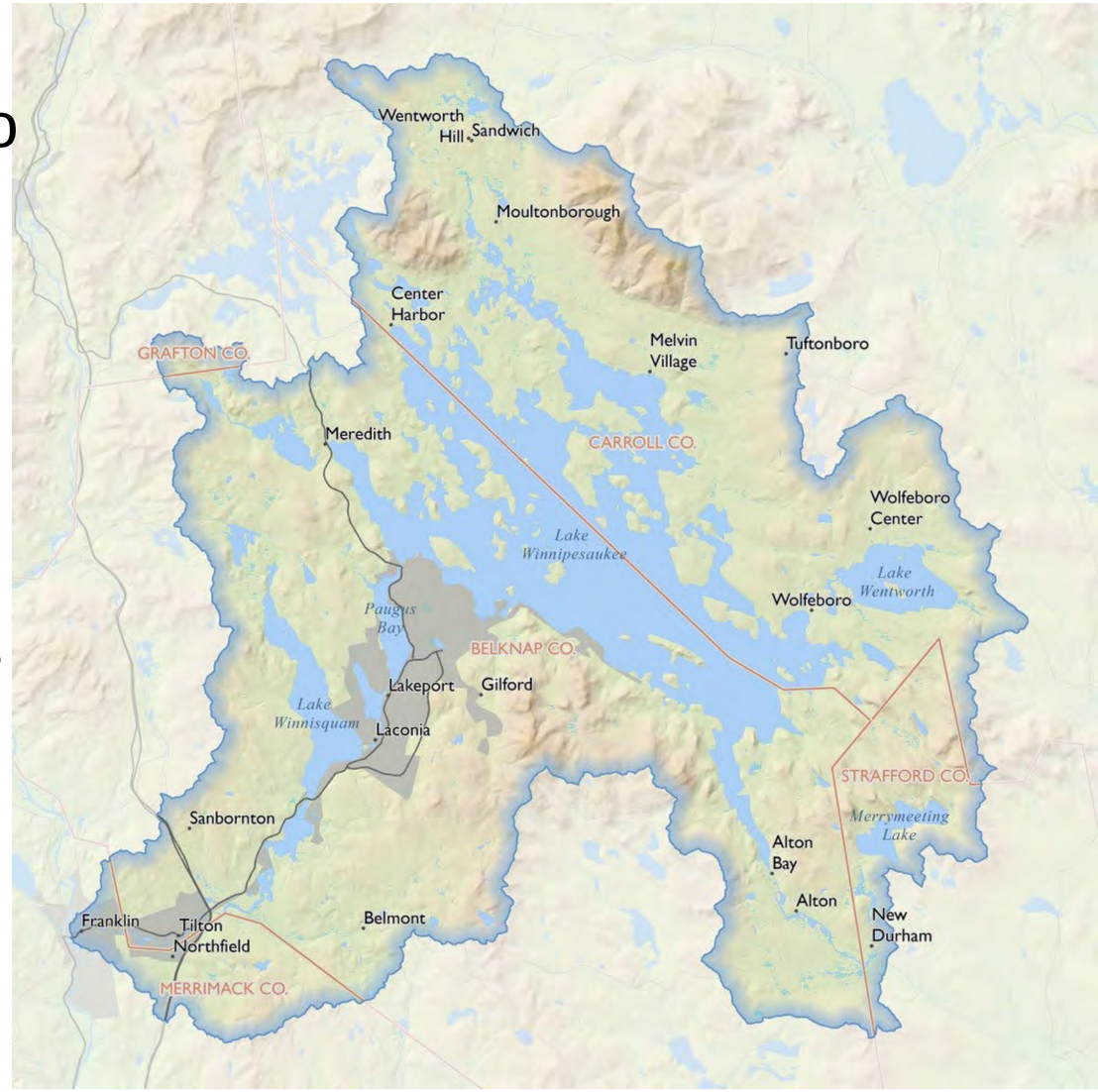
88 out of 181 properties with systems over 25 years old.

Model Actions in Progress

- Low- impact development ordinances
  - Wolfeboro Planning Board adopted 2022 – subject to 10,000 s.f. of disturbance
  - Moultonborough: 20,000 s.f. of disturbance
  - Meredith: 3 different levels at which the Stormwater Management Ordinance kicks in.
  - Town of Rye, 2025 subject to 5000 s.f. of disturbance or disturbs 2500 s.f. within 100 feet of surface waterbody
- Septic system inspection/pump out Regulations
  - Lake Sunapee watershed – Sunapee, New London, Newbury, Springfield
- Watershed - based planning and investment

State Legislation

- HB 332 – establishment of a village district to protect and remediate surface waters. ITL
- Septic inspections at time of sale in protected shoreland - 2024 HB 1113
- HB 416 FN– prohibiting the intentional disposal of yard waste into surface waters
- SB 299 – relative to penalties for contractors violation the shoreland water quality protection act.



Your Role in the Future of the Lake

- Lake protection is a shared responsibility and legacy
- Your actions influence long-term lake health
- Community leaders and policymakers are key to lasting impact
- The lake needs your voice, your support, your action

LAKE WINNIPESAUKEE ALLIANCE

OUR LAKE. OUR FUTURE.

Thank You!

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