NEWEA 2022 Annual Conference

Healthy Lake Boon Initiative

January 25, 2022

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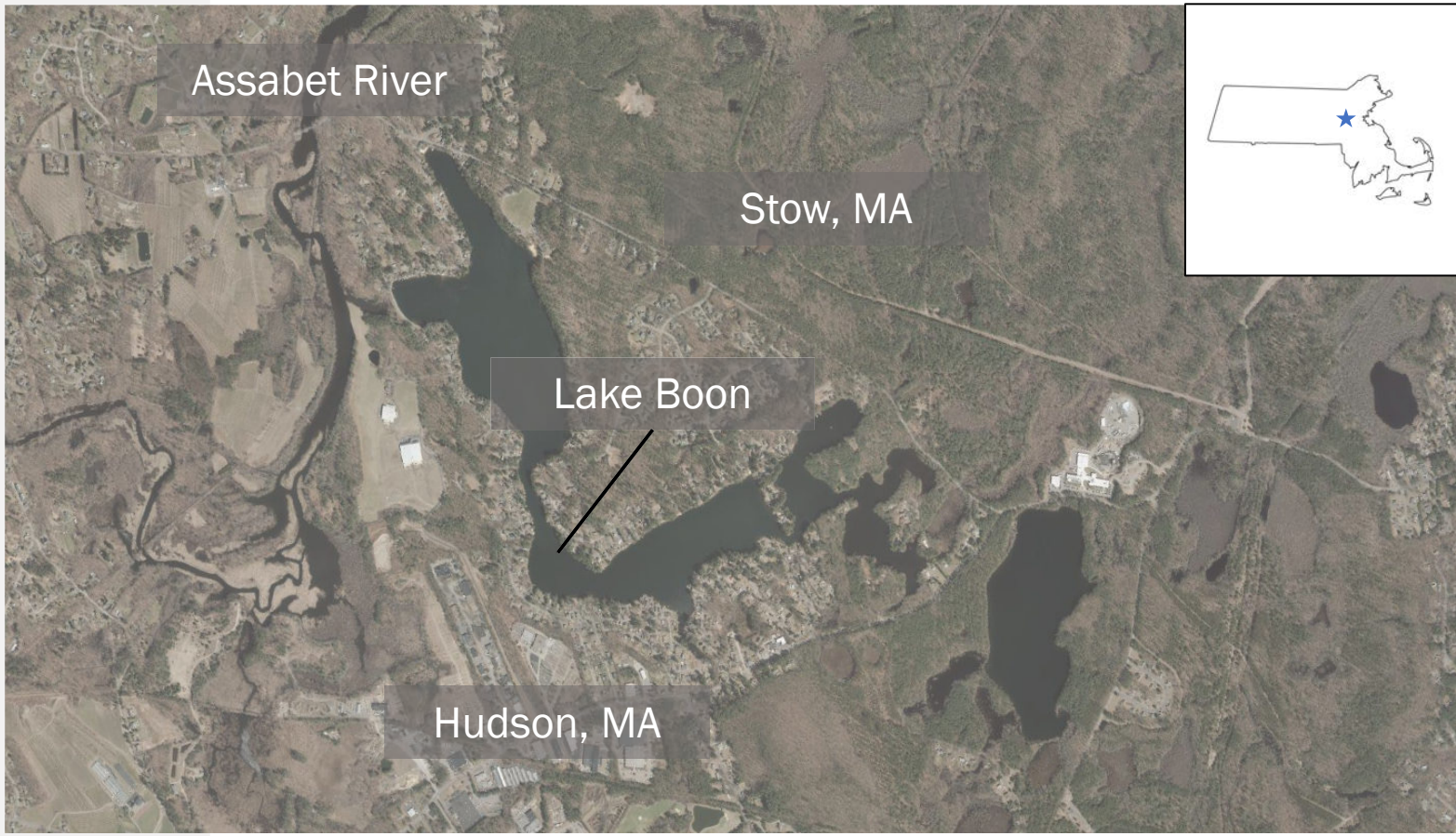
Overview

Introduction to Lake Boon, MA and its water quality challenges
The value of working with the community
Public engagement strategies to increase buy-in

Introduction to Lake Boon, MA

- The Towns of Stow and Hudson, MA border Lake Boon
- Approximately 300 homes are on the waterfront. These were formerly summer cottages that are now mostly lived in year-round
- The Lake is within the SuAsCo watershed and discharges ~1 MGD of water to the Assabet River



Map of Lake Boon and the surrounding communities

Challenges

Lake Boon has recently experienced increased issues with algal blooms, toxic cyanobacteria, and invasive plant growth. These issues put public health at risk.

Recent beach closures & vegetative issues

Boston.com

Nearly half of Mass. beaches tested had at least one potentially 'unsafe day' due to fecal bacteria, report shows

The report, released by Environment Massachusetts, says that 556 Massachusetts salt-water beaches were tested for fecal contamination, and 264...

Jul 14, 2021

Boston.com

Algae bloom prompts beach closure in Stow

Throughout the summer, several beaches, lakes, and ponds have closed due to cyanobacteria blooms across Massachusetts, with advisories...

Aug 9, 2021

Adirondack Explorer

"Boat inspectors found fanwort, an aggressive invasive species and can cause disruption to aquatic environments, fishing, swimming and boating activity... on a boat coming from Lake Boon in Massachusetts"

Aug 6, 2020

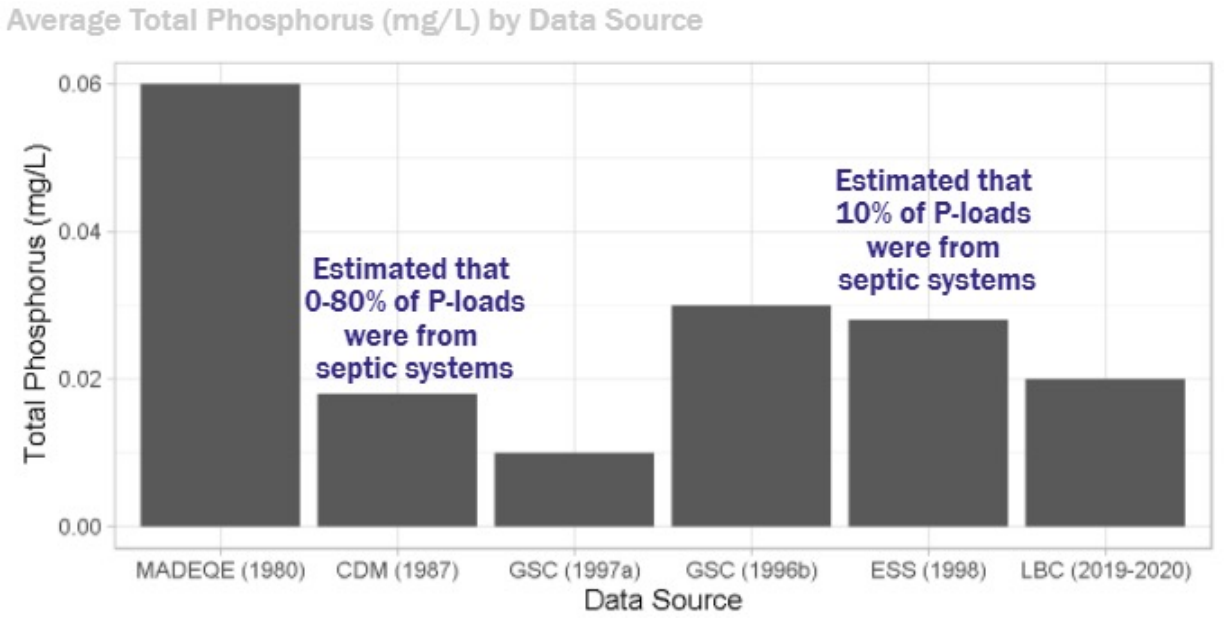
Left: Algal Bloom in Lake Boon during summer 2021
Right: Fanwort (Source: Adirondack Explorer)

Five decades of studies

Prior studies &
Data collection efforts

Prior Studies

- Despite multiple studies over the last 40+ years, there was not consensus over the root cause(s) of water quality issues
- Multiple challenges are linked, and implementing management strategies has not resolved these on-going issues



Lake conditions changed over time and phosphorus loading rates from groundwater and surface water sources varied widely under prior studies

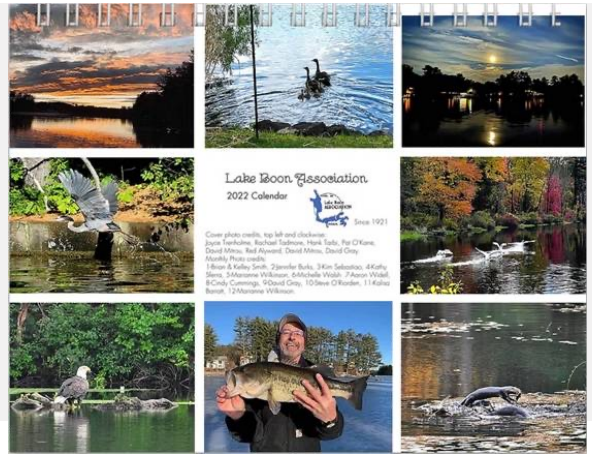
Recent Data Collection

- Limited local community involvement, but lots of interest
- Recent data indicated that the lake's water quality is dynamic and changed in response to land use practices
- A broader range of data is needed to identify the root causes and develop the right solutions for this lake

David Gray collecting data in 2020 and 2021

Public Engagement & Community Building

- Lake Boon Commission
- Lake Boon Association



LBA Merchandise

Uses:

- Active Town beach
- Swimming & Boating
- Boat parades / Concerts
- History Walks
- Fishing
- Wildlife observation

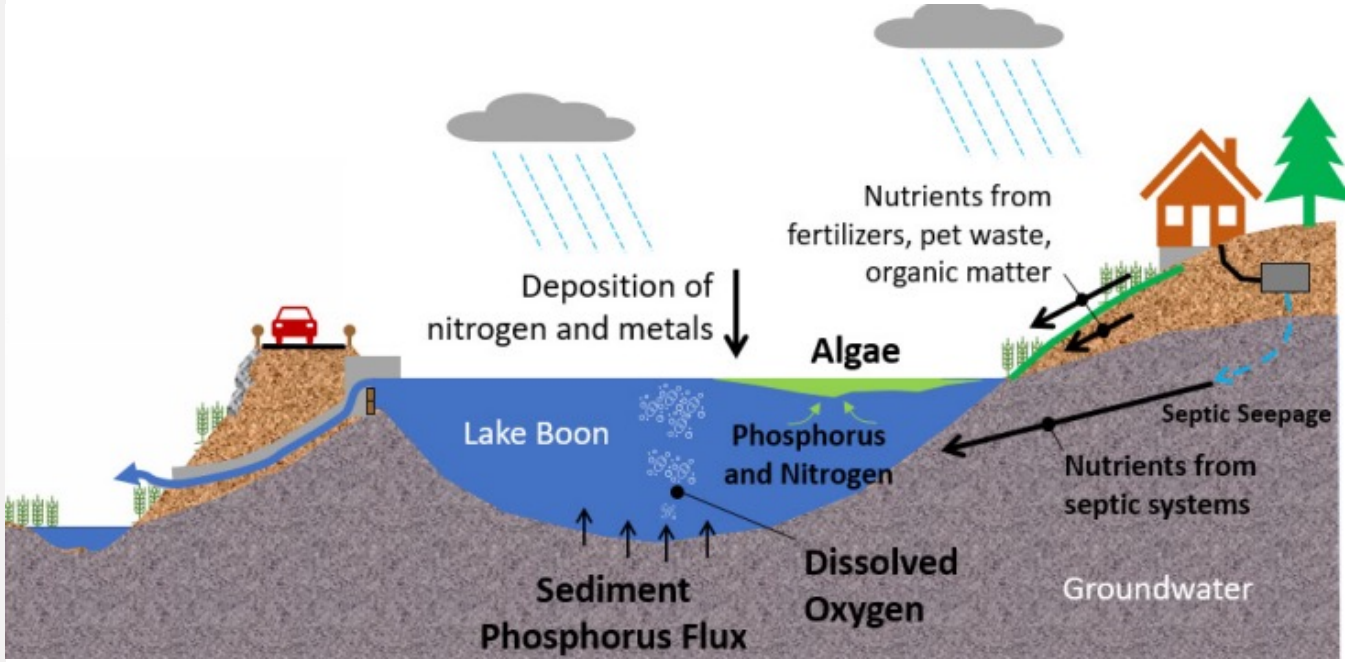
Heron on Lake Boon

Opportunity

Can a comprehensive study of the lake identify effective management strategies for this lake? Can we engage the community in this effort to achieve better outcomes?

Project Goals and Process Overview

- Develop and implement a monitoring program
- Assess the health of the lake
- Develop the right recommendations for managing this lake
- Increase water quality stewardship by engaging and educate the public through a variety of mechanisms



Water quality data from the monitoring program was used to assess the sources and relative contribution of water quality issues and evaluate the impact of implementing alternatives

Funding

In Oct 2020, the Massachusetts Executive Office of Energy and Environmental Affairs awarded the Towns of Stow and Hudson, MA, a $154,000 grant through the Municipal Vulnerability Preparedness (MVP) Program.

Funding allowed these communities to work with the Lake Boon Commission to:

- Develop and implement a volunteer-driven monitoring program and public engagement plan
- Hire specialists to analyze the data, assess the health of the lake, and develop recommendations to sustain lake health

Public Involvement, Education, and Outreach

Education and outreach strategies
- **Monitoring Program & Citizen Science Coordinator**
- **Communication strategies – broad outreach and targeted**
- **Data usage / dashboard to inform recommendations**

Public Engagement comes in different shapes and sizes

Multiple ways to engage, each with a different level of time commitment

Higher level of involvement

- Collecting data through the monitoring program
- Participating in the Steering Committee
- Publicizing and sharing information about the project
- Participating in watershed and water quality programming / events
- Attending a public meeting and reading educational materials
- Providing wildlife photos for or purchasing a fundraising calendar

Lower level of involvement

Monitoring Program - Volunteer Training

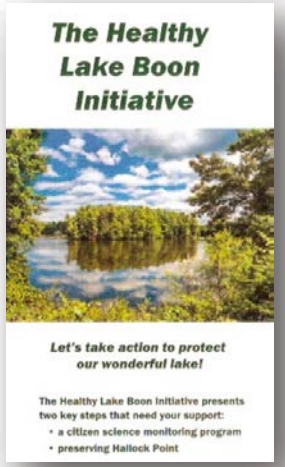
- Foster a sense of purpose by discussing *"the why" not just "the how"*
- Keep it interactive and engaging

Monitoring Program - Coordination

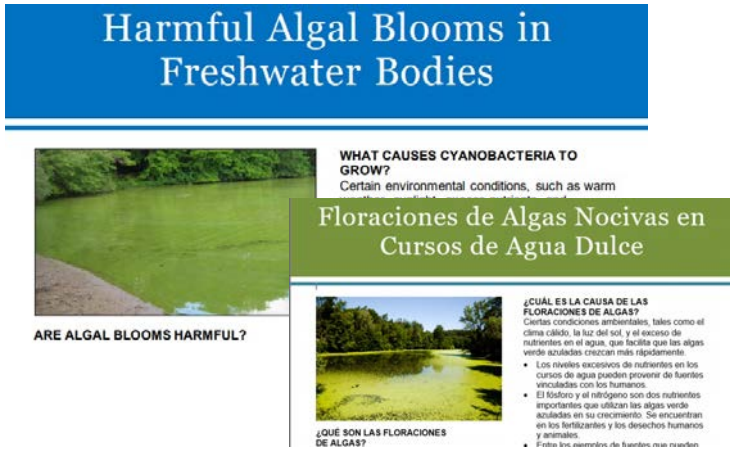
- Communicate expectations
- Keep it safe
- Create a space that encourages learning

Communication Methods – Project Updates

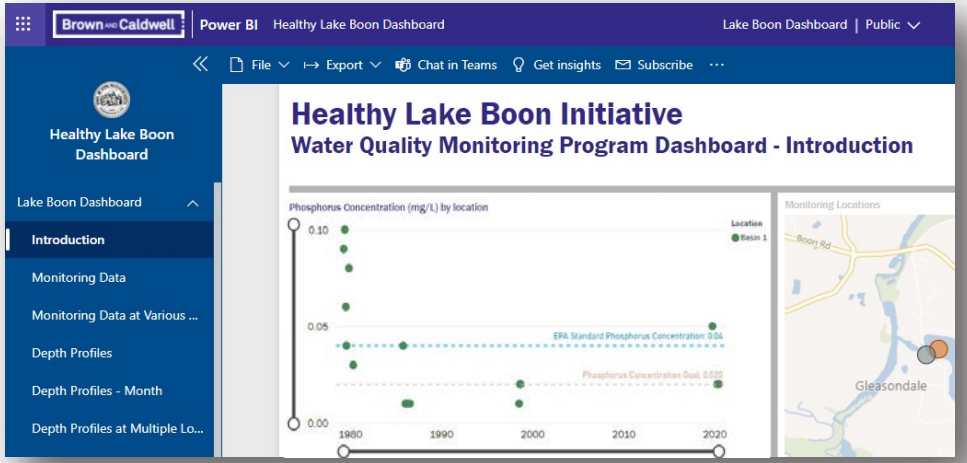
- Project Website
- Lake Boon Gazette / Emails
- News paper articles
- Public Meetings
- Steering Committee Meetings
- Data Dashboard



Education & Outreach Flyer (Spring 2021)



Algal Bloom Factsheets in English and Spanish (MassDEP)

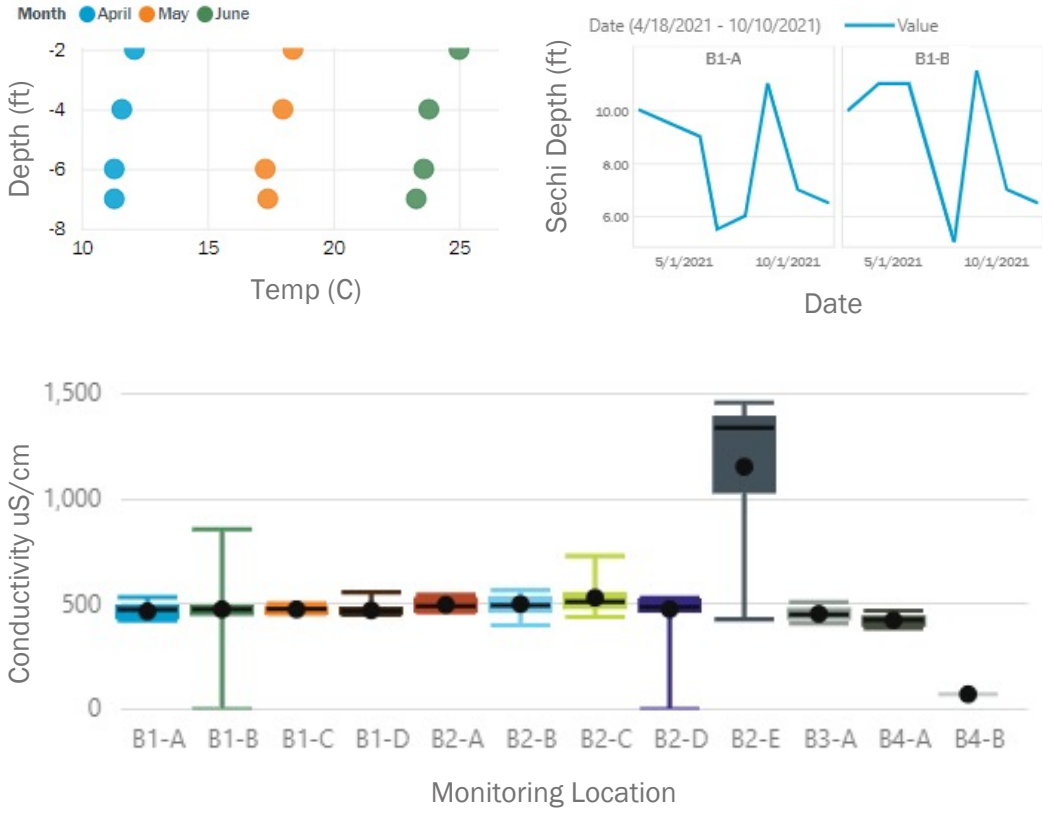


Dashboard showing sampling results

Updates were provided continuously

Preliminary Data Dashboard (for Stakeholders)

- Access to data allowed volunteers, the steering committee, and the technical team to explore data and develop insights
- We adjusted the monitoring program – increasing data collection efforts in certain areas - based on observed trends

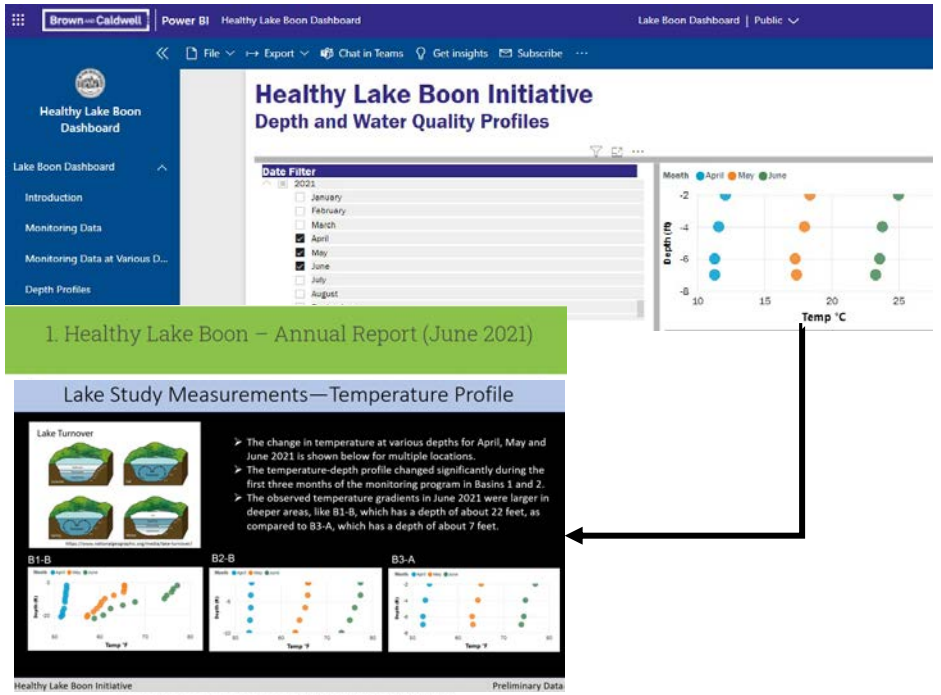


Example visuals developed using a dashboard and shared with the Steering Committee throughout the monitoring program

Updates were strategically timed

Public Presentations and Technical Reports

- Preliminary report during the monitoring program (July 2021)
- Updates on the health of the lake at the end of the monitoring year and after preliminary modeling efforts were completed (January 2022)
- At the end of the project (May 2022)



Data from the dashboard was incorporated into presentations for the public with additional context and explanation

What was effective, lessons learned, and what's next

Technical Approach and Process
Public Education and Outreach
Future Opportunities

Lessons Learned - Technical Approach

- Process data as soon as possible after collection to avoid data loss
- Communicate quality concerns to improve data integrity and encourage best practices
- Adapt the data collection program, as needed

Lessons Learned - Public Engagement

- Volunteers <u>can</u> be the engine powering large portions of complex projects

Next Steps and Future Outreach Opportunities

- Continue communicating the scientific findings and lake/watershed management recommendations as they are developed
- Continue engaging the public through a variety of methods

Thank you.

Questions?

Acknowledgements

Kathy Sferra – Town of Stow Conservation Agent
Pam Helinek – Town of Hudson Conservation Agent
Executive Office of Energy and Environmental Affairs
Lake Boon Association
Lake Boon Commission
Rebecca Longvall – Coordinator
Healthy Lake Boon Steering Committee and Monitoring Program Volunteers
Kirk Westphal – Volunteer and Brown and Caldwell Water Resources National Practice Leader

Brown AND Caldwell