

Watershed Management Planning **For Your Lake**

October 8, 2025



Forrest Bell
Principal/CEO
FB Environmental Associates

WHO WE ARE

- Small business founded on leading **lake assessment and restoration projects**
- Majority public sector projects “Where science meets civics”
- Work throughout New England – most of our lake work is in New Hampshire
- Offices in Dover NH and Portland ME



Forrest Bell
Owner & Principal



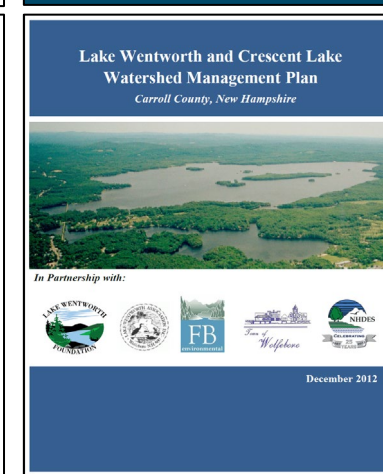
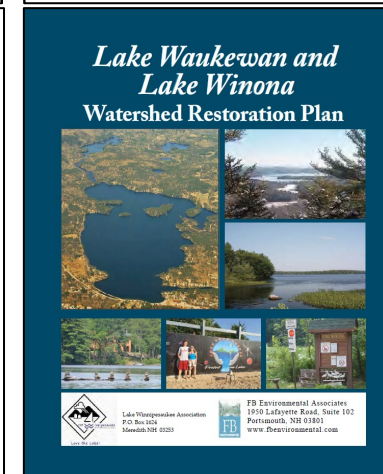
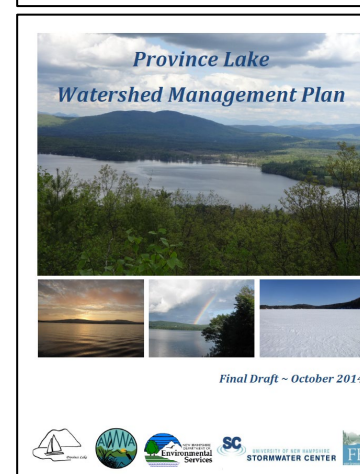
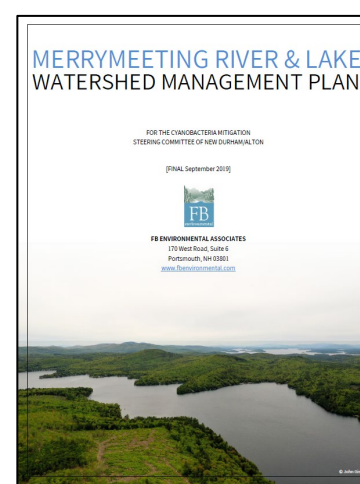
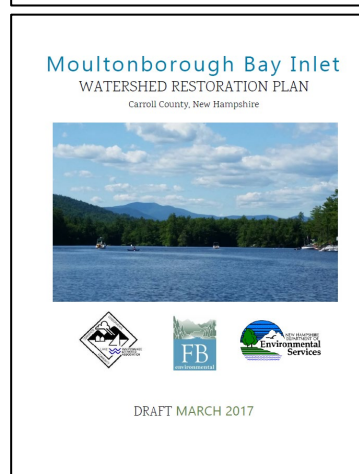
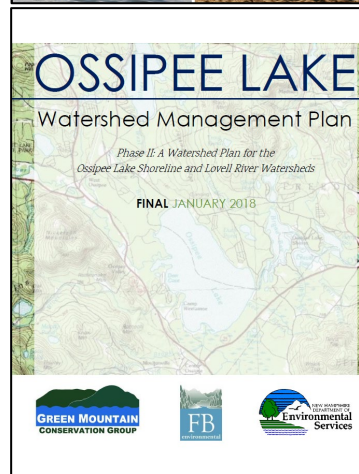
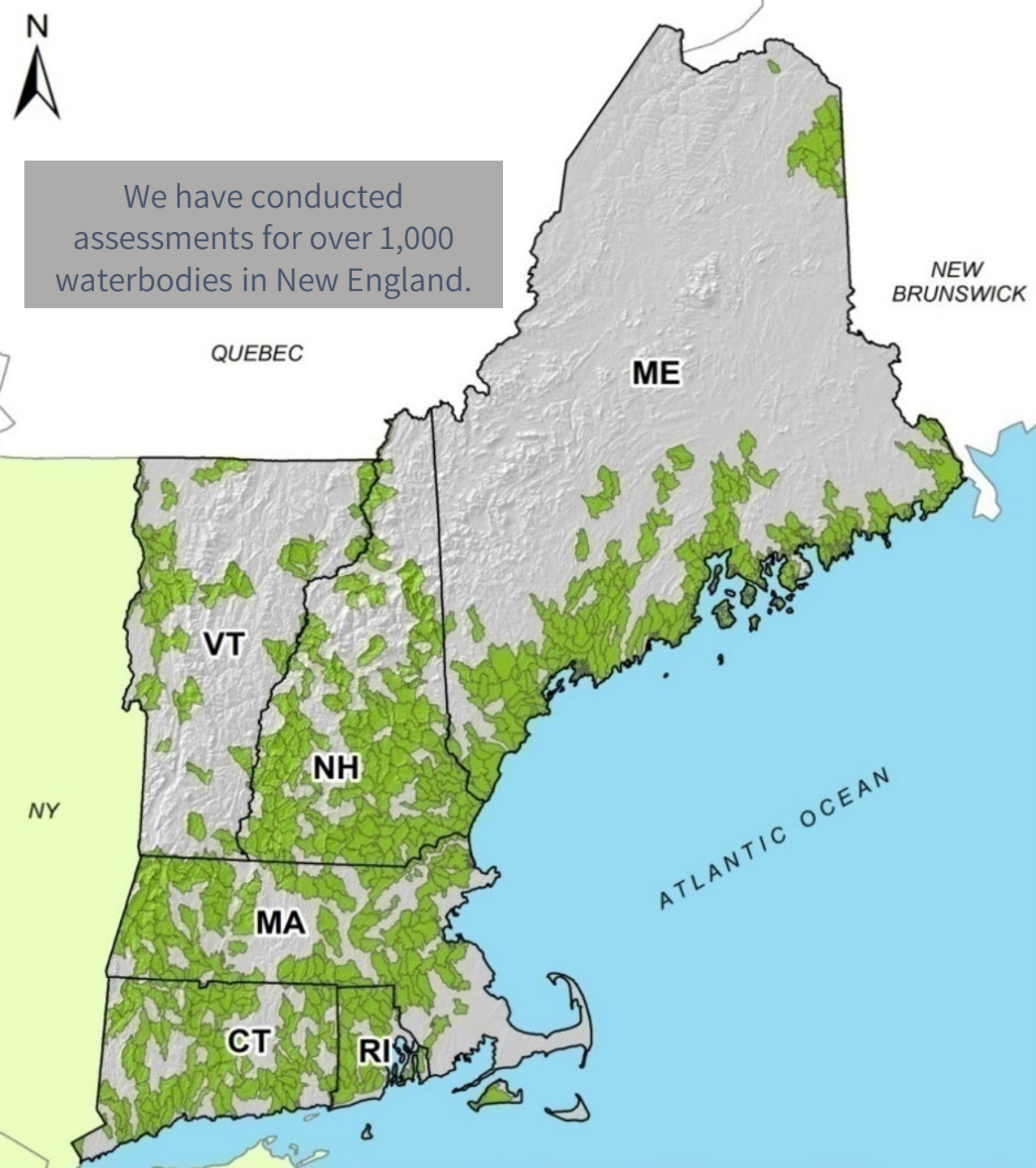
Laura Diemer, CLM
Lake Services Lead





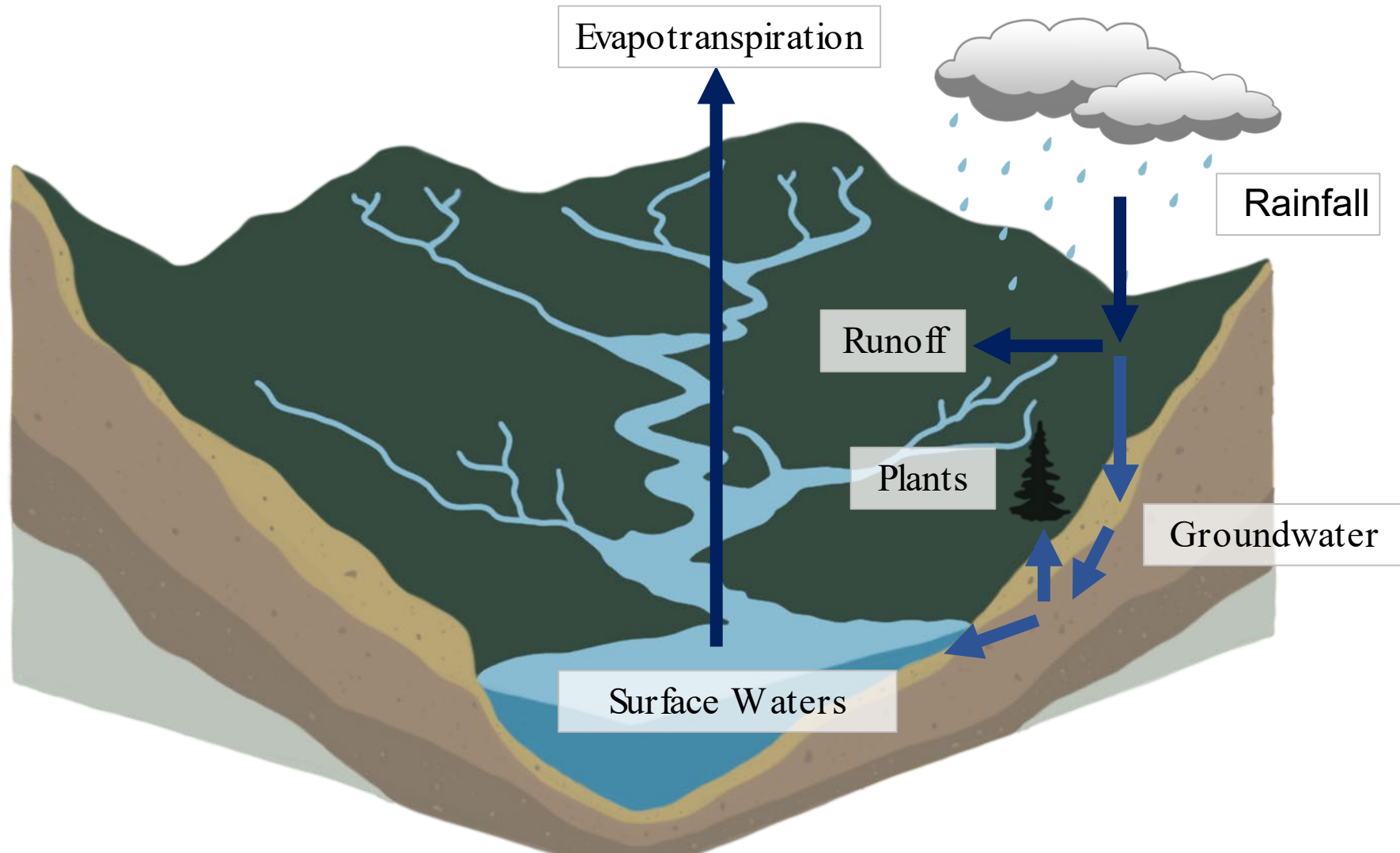


We have conducted assessments for over 1,000 waterbodies in New England.



WHY DO WE NEED WATERSHED PLANS?

We all live in a watershed > interconnectedness of water across the landscape



WATERSHED RUNOFF VISUAL



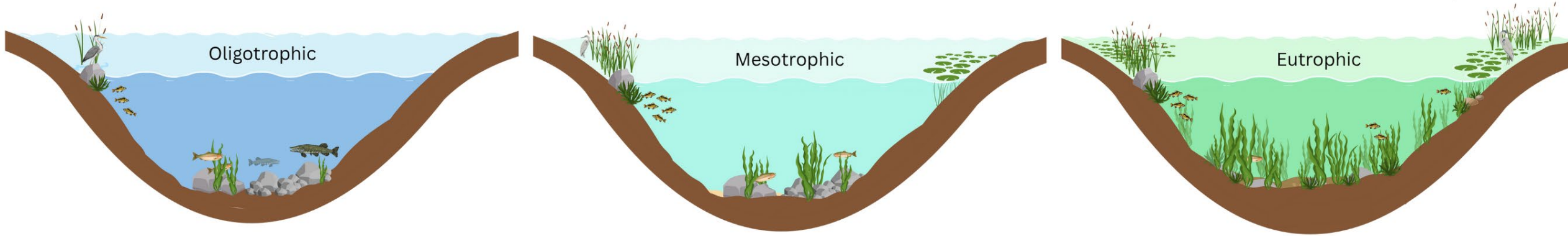
WE ALL LIVE IN A WATERSHED

- Watersheds don't know municipal or state boundaries



CULTURAL EUTROPHICATION

Lakes naturally eutrophy over thousands of years



Humans are speeding up the process, making it take only decades, due to increased nutrient input through

✧ Fertilizers ✧ Erosion ✧ Septic system wastewater ✧ Runoff

Lake ecosystems reflect a balance of inputs and outputs of material and energy that determines their water quality.



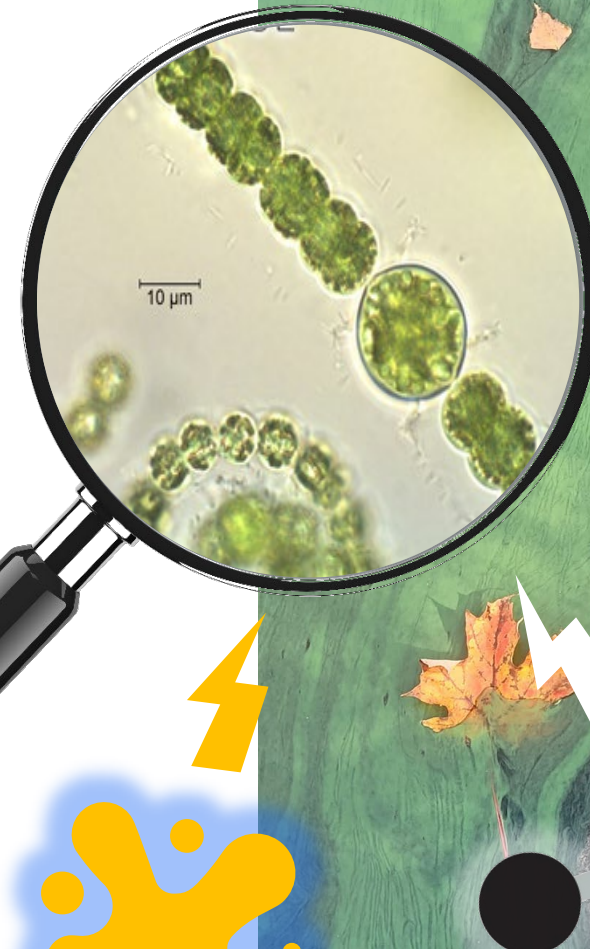
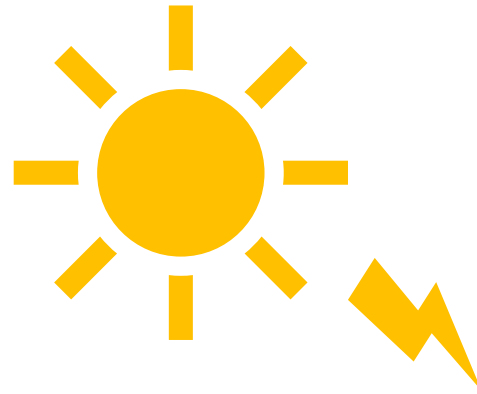
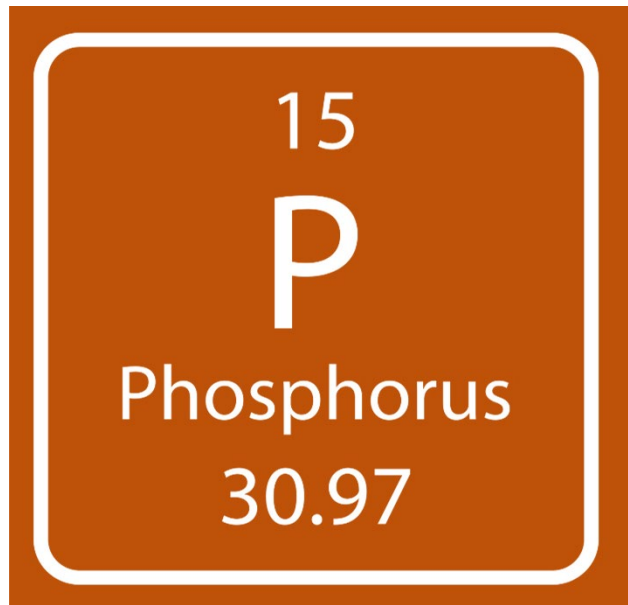
But sometimes we love our lakes too much.



CYANOBACTERIA

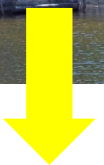
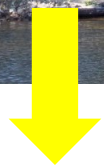


THE CAUSE



10

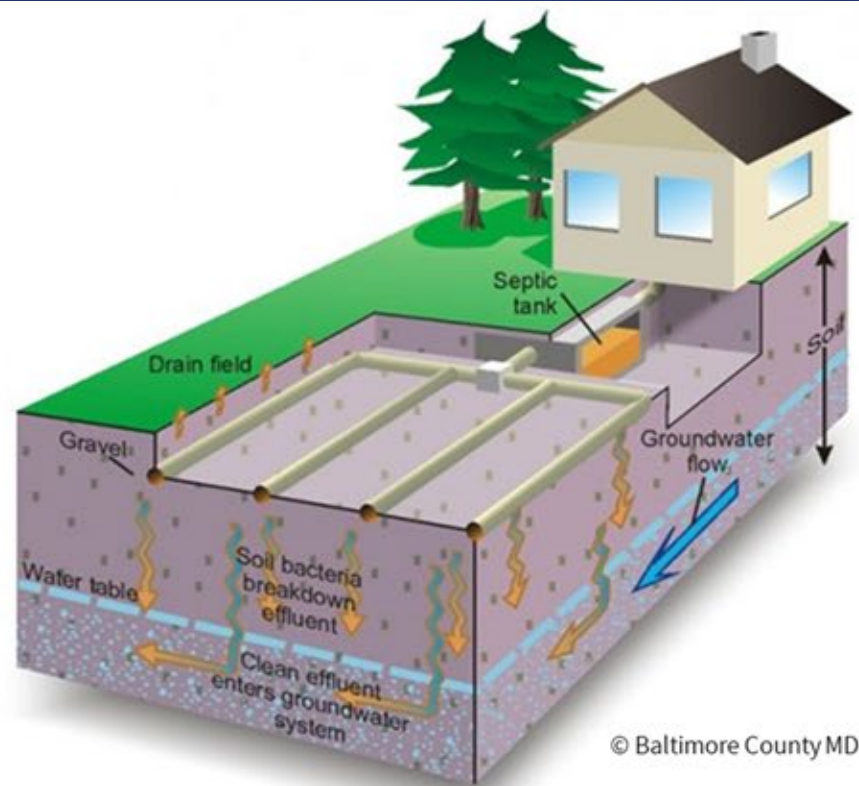
TIMES THE AMOUNT OF
PHOSPHORUS



EROSION & SEDIMENTATION = Phosphorus to lake



OTHER THREATS TO WATER QUALITY



ADVISORY

High levels of potentially toxic
CYANOBACTERIA
have been identified in this water

**WATER CURRENTLY NOT
SUITABLE FOR WADING
OR SWIMMING!**

Exposure to blue-green scums may cause nausea,
vomiting, diarrhea, or fever in humans and pets.

Anyone who comes in contact with blue-
green scum should rinse off with fresh water

All current advisories posted at www.dnr.state.nh.us

Click: Beach Advisory Text

WATER QUALITY CHALLENGES

WATERSHED MANAGEMENT PLAN – Who needs it?(Everyone) and **WHAT IS IT?**



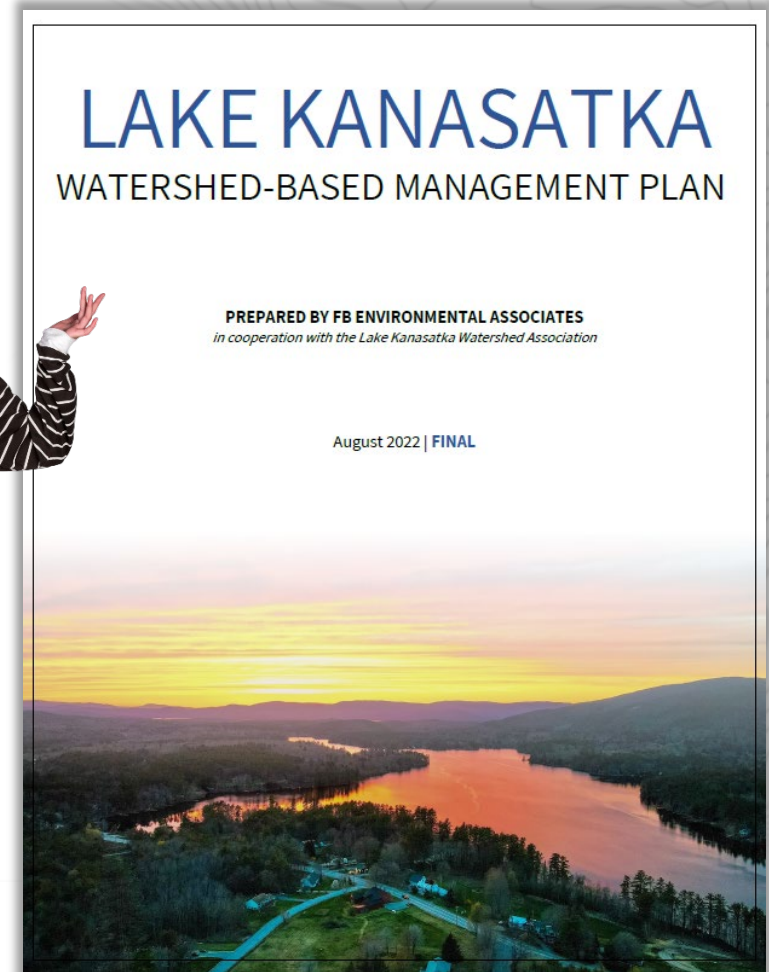
1 Identifies Sources



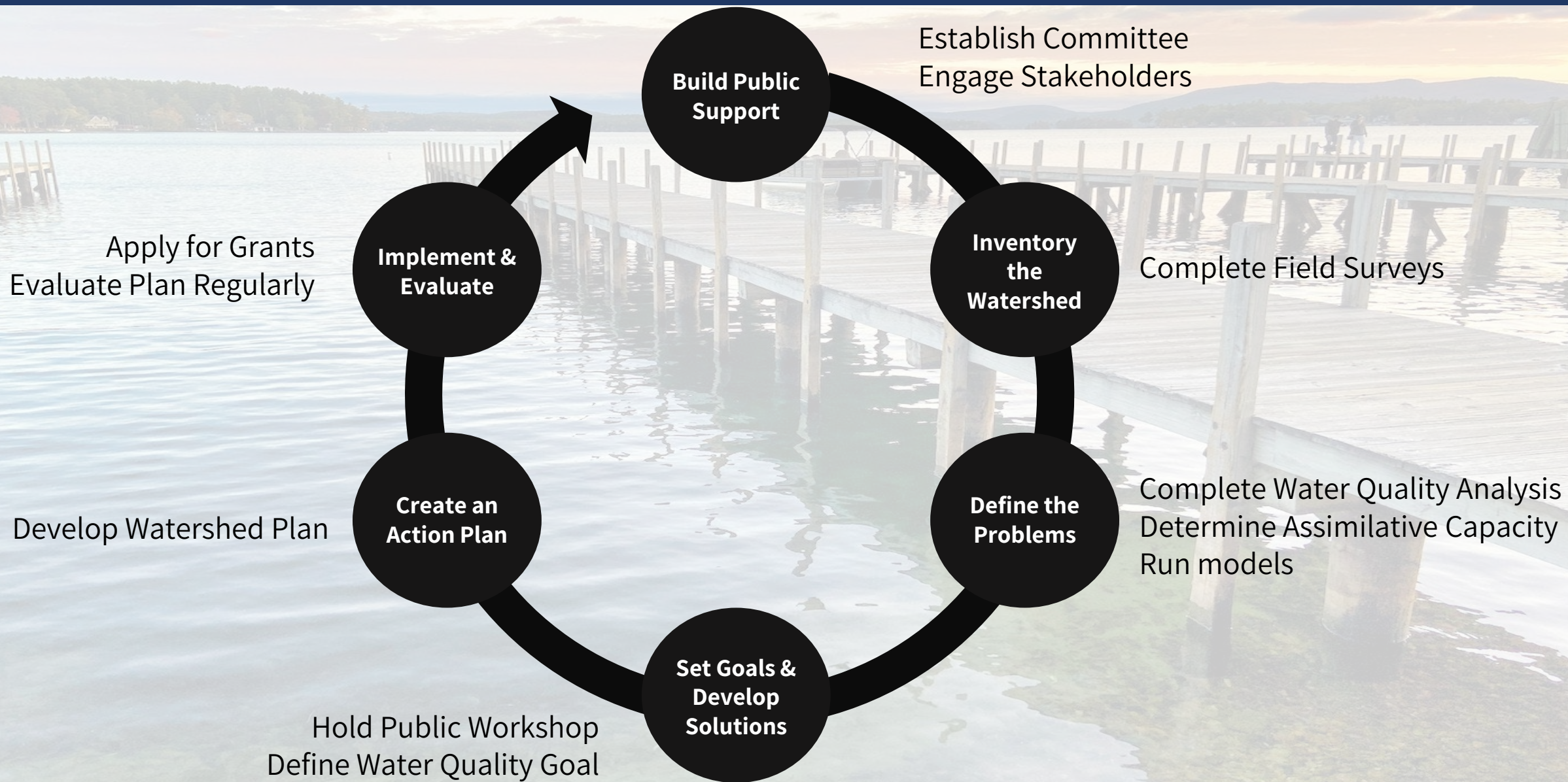
2 Sets WQ Goal



3 Prioritizes Actions



WATERSHED MANAGEMENT PLANNING PROCESS



WATERSHED MANAGEMENT PLANNING PROCESS

1

Build Public Support and Engage Stakeholders



WATERSHED MANAGEMENT PLANNING PROCESS

2

Analyze Water Quality Data & Monitoring Recommendations



WATERSHED MANAGEMENT PLANNING PROCESS

3

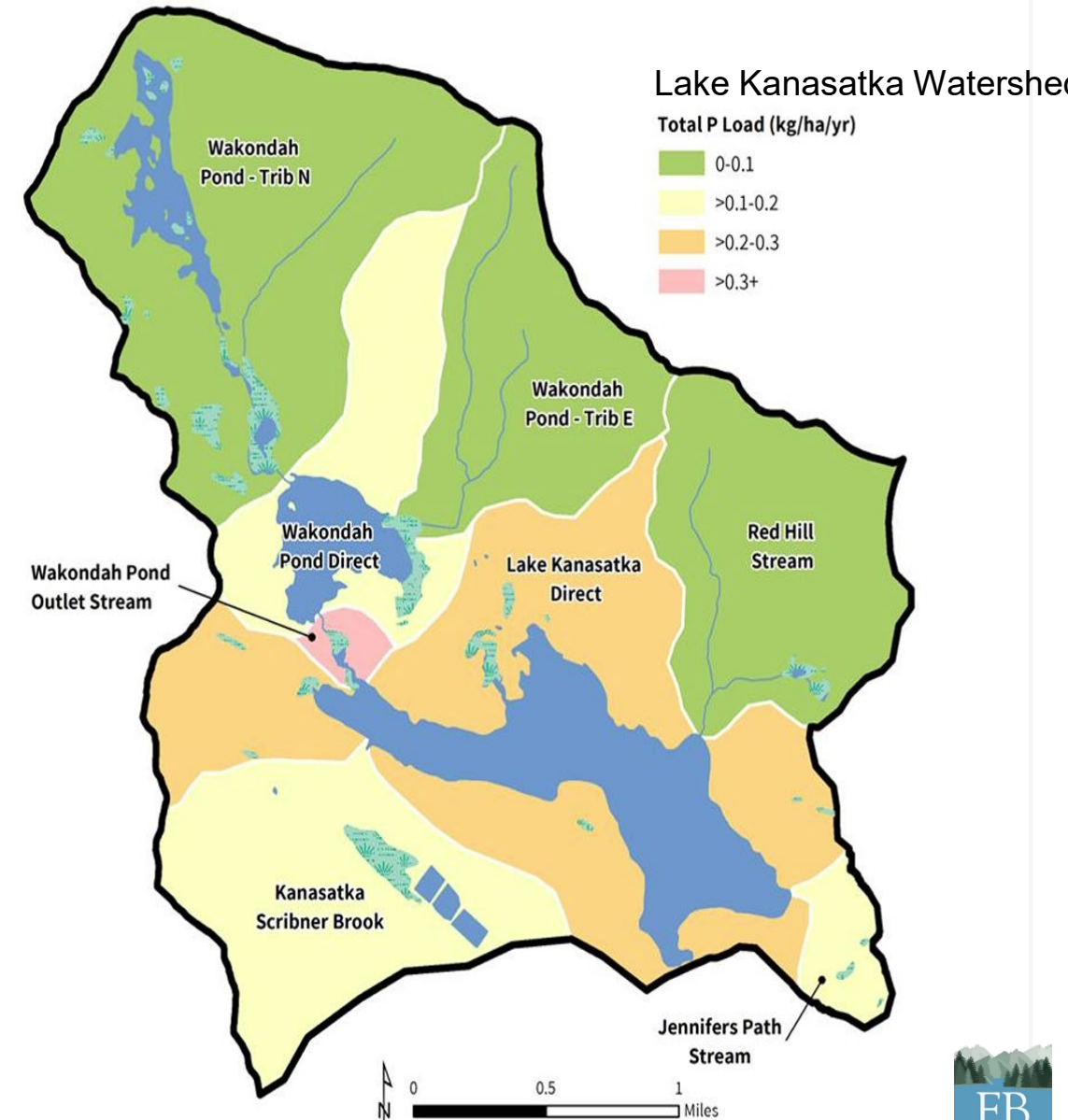
Complete Field Surveys(boots on the ground)



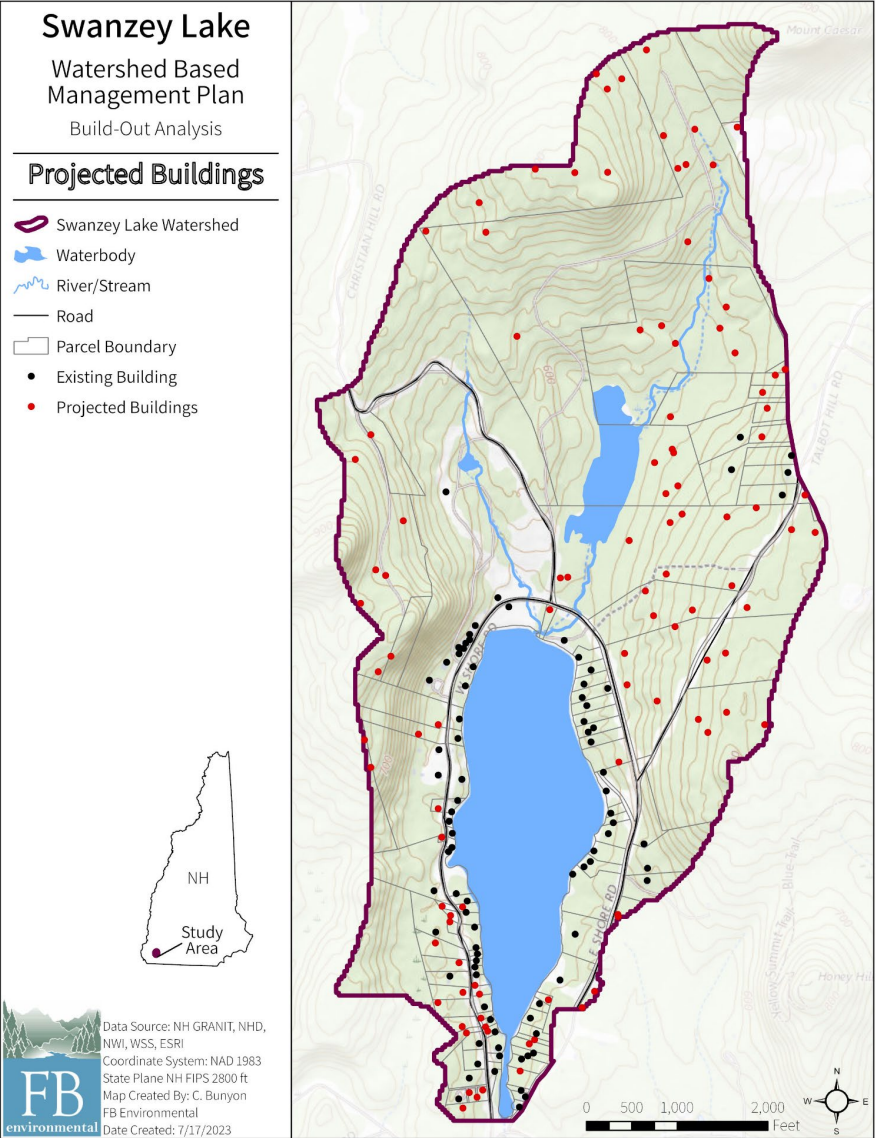
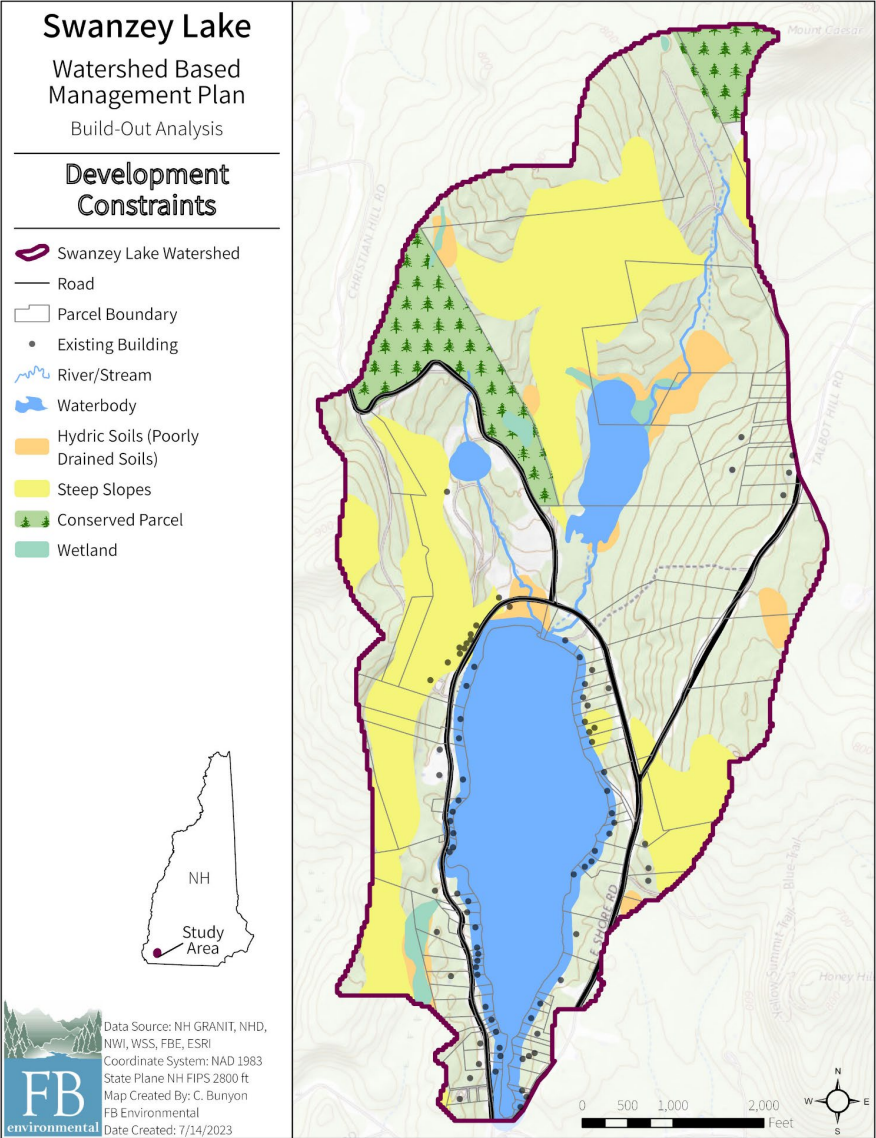
WATERSHED MANAGEMENT PLANNING PROCESS

4

Watershed and Lake Modeling



BUILD-OUT ANALYSIS (Swanzey Lake examp.)



WATERSHED MANAGEMENT PLANNING PROCESS

5

Water Quality Goal



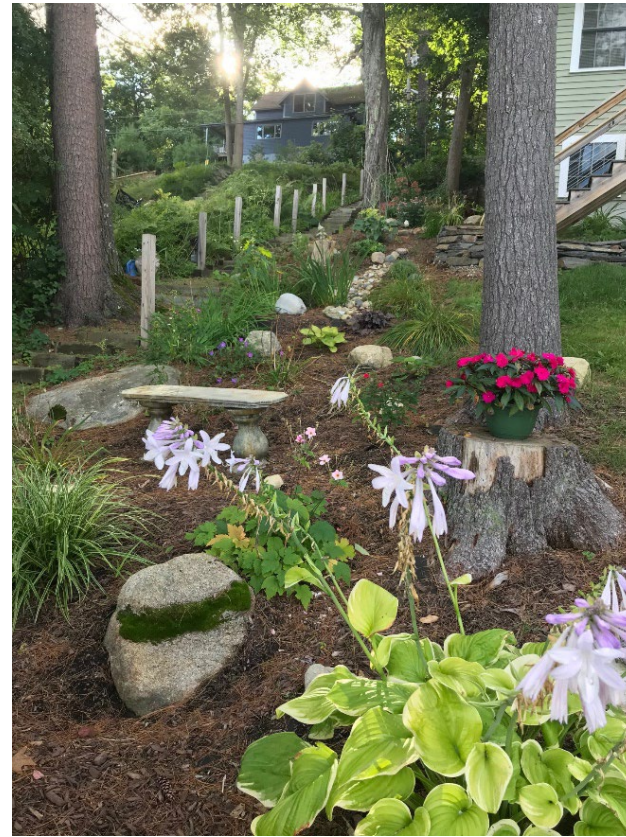
WATERSHED MANAGEMENT PLANNING PROCESS

6

Action Plan and Final WMP



LANDOWNERS HAVE THE MOST POWER TO MAKE A DIFFERENCE FOR THE LAKE'S HEALTH



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LANDOWNERS HAVE THE MOST POWER TO **MAKE A DIFFERENCE FOR THE LAKE'S HEALTH**

- Death by 1000 cuts; every action along the shoreline (good or bad) has an impact on the lake's water quality

- **What can you do to help?**

Educate yourself on how to properly manage your land and the activities conducted on it to minimize impact to the lake.



ENCOURAGE NATURAL BUFFERS & SLOW RUNOFF

(1) Infiltration of water

(2) Filtration of pollutants



Reduce, divert, and infiltrate surface runoff.



Stabilize shoreline access points through vegetation or riprap.



Minimize and define parking areas and pathways.



Minimize pollutants (e.g., fertilizers, detergents, and other phosphorus-based products).

Maintain shoreline, streamside, and wetland buffers.



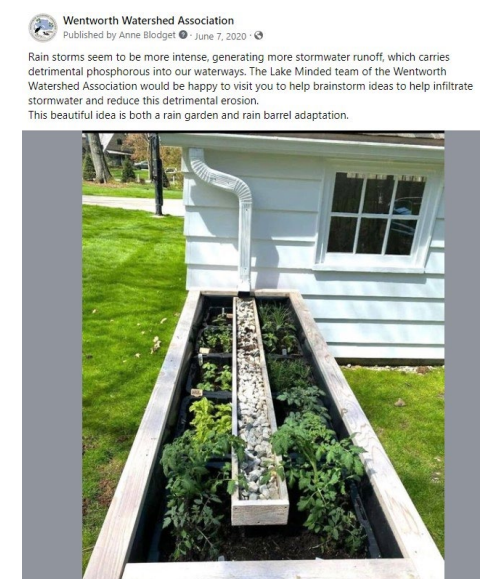
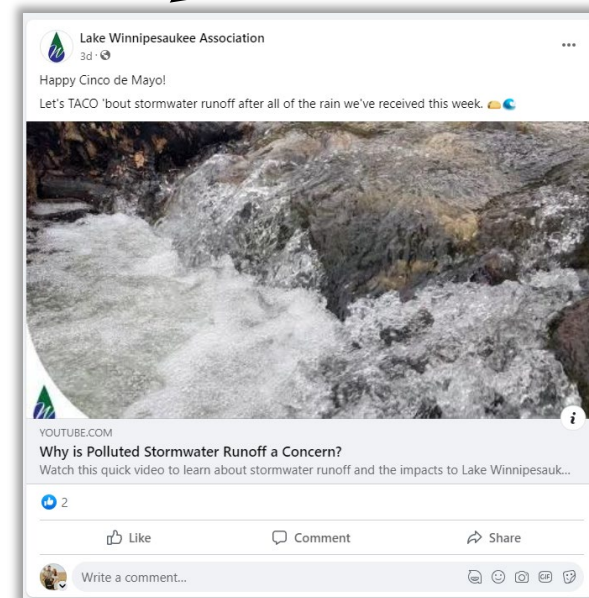
LESSONS LEARNED: LOCAL LEADERSHIP

- Work with respected local champions to spread the message and lead the work- e.g. local lake associations
- Form a highly involved and diverse stakeholder group that involves municipal staff



LESSONS LEARNED: COMMUNICATION

- Keep the message simple and broadcast widely and consistently across different formats
- *e.g., websites, blogs, social media, newsletters, mailings, postings at key community areas, presentations, workshops, trainings, demonstrations, walking tours, volunteer days, updates to municipal boards*



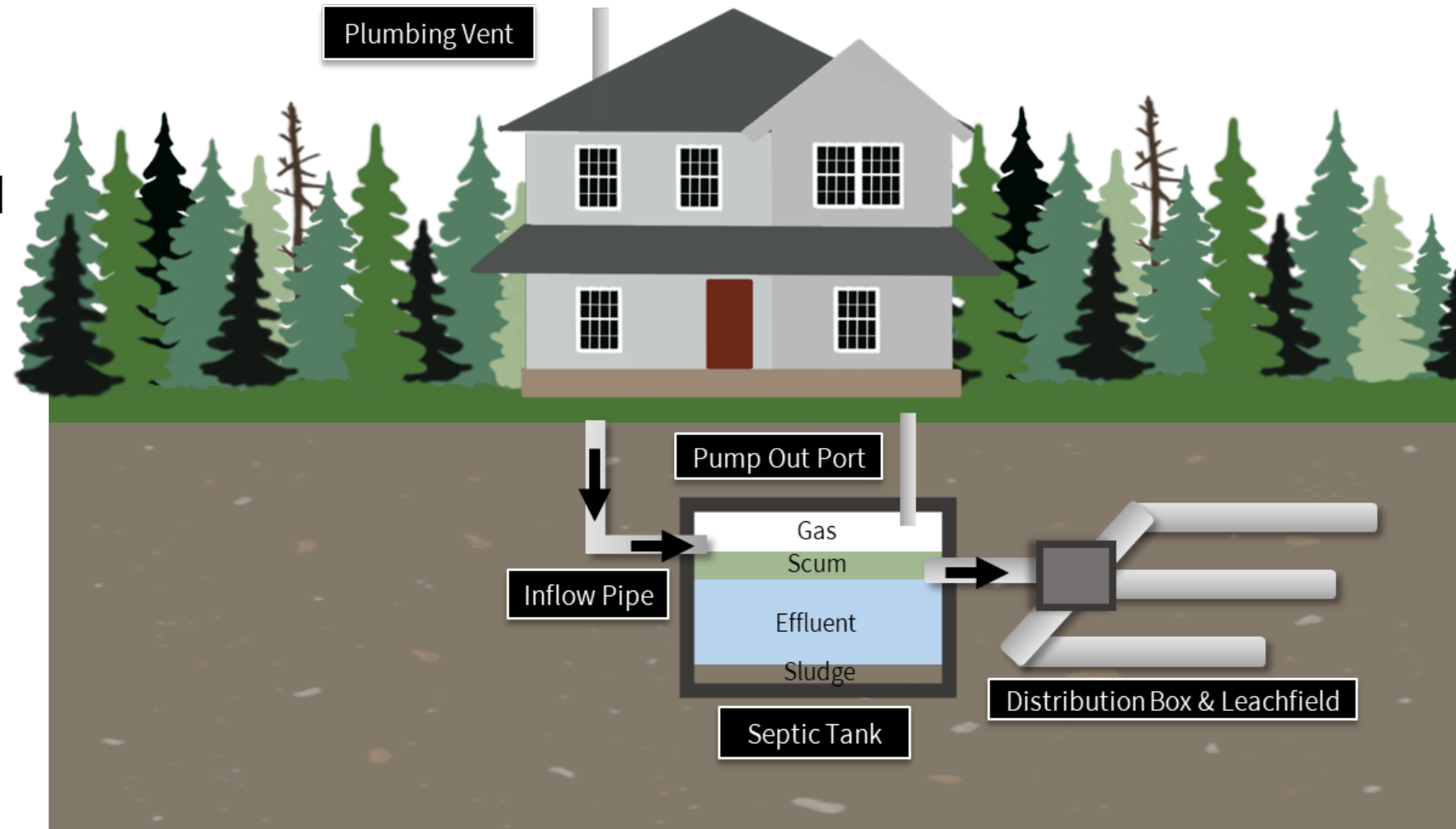
LESSONS LEARNED: SOURCE IMPACTS



- Sediment and nutrients can travel a long way
- Everything in the watershed can eventually make its way to the lake

LESSONS LEARNED: SOURCE IMPACTS

- Septic systems impacts are difficult to identify
- Maintaining a municipal database can be informative when paired with a septic ordinance



LESSONS LEARNED: RESEARCH

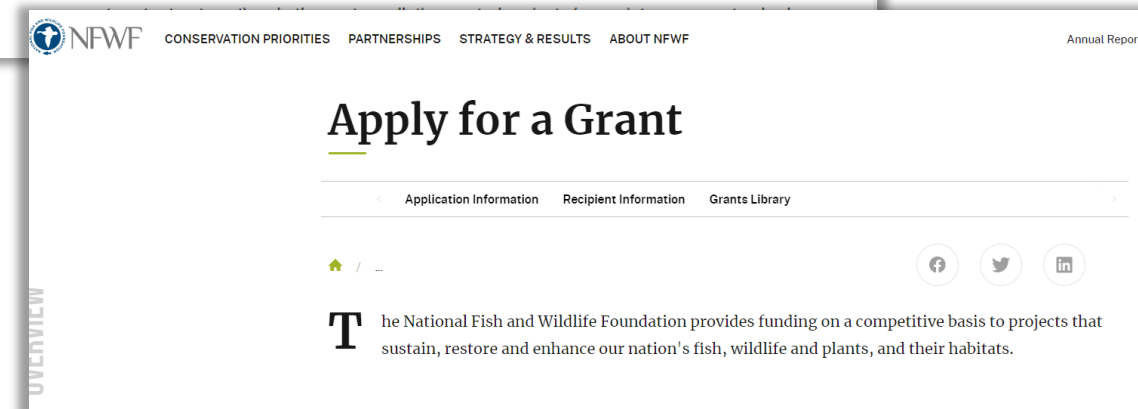
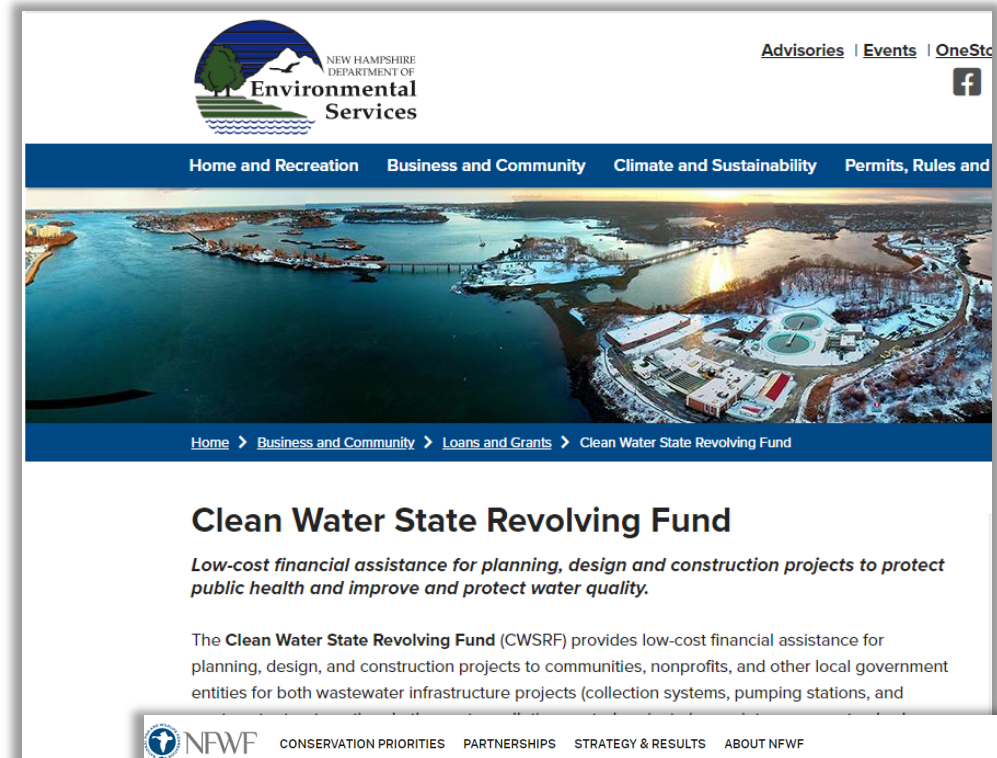
- Our understanding of environmental processes is constantly evolving with new research
- We know a good deal about cyanobacteria and climate change and their impacts on lakes, but there is still much to learn
- We need to keep learning and understanding these important topics and their implications for lake health to be effective managers and stewards of our lakes



© Doug Darling, Tucker Pond, Salisbury, NH

LESSONS LEARNED: FUNDING

- “Think Big” for funding to achieve your mission - **your lake is worth it**
- It is easier to approach landowners for implementing stormwater improvements or replacing septic systems with funding in hand





THANK YOU!
QUESTIONS?

Watershed Management Planning **For Your Lake**

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