



LEA Lake News

Spring/Summer 2026

In this issue of Lake News:

- Lake "Scorecards"
- Stream Crossing Projects
- Electric Milfoil Harvester
- Events, Games, and More...

Local Government is You and Me

Colin Holme, Executive Director



At the Waterford annual town meeting this past March, select board member Jonathan Hasson noted that no one in the crowd was under 40. Although I was slightly hurt that he did not mistake me for someone who fell into this category, I suspected he was right. Even more alarming to me was not the lack of youth, but the lack of people there in the first place. According to my very rough calculations, it appeared that less than 7% of the population came to vote.

While I realize these gatherings, as well as planning meetings and select board meetings, are not always riveting, our local government cannot function without them. And in particular, it is the people who listen, learn, and participate that make the system work.

These days, there is a lot of competition for our time. It is easy to find something to do with the internet in our pocket, and when AI summarizes information about anything and everything out there. But development happens whether we engage with it or not. If you care about local development, wildlife habitat, freshwater, or shoreland zoning, you might want to be in the room where decisions about your neighborhood are being made.

If we want our communities, lakes, forests, and streams to be protected, then we need to show up. We need to participate in our government, be part

of the process, and hopefully, part of the solution. Serving on a municipal board or committee is also a good way to meet and regularly interact with people in your town. Over the years I have served in Waterford, I have enjoyed getting to know many of my neighbors, who I would have likely never met otherwise. It has also helped greatly broaden my perspective.

Right now, there are planning board vacancies, and several towns in the lake region are looking for people to help with comprehensive planning. This is a great way to get involved in your town's future.

If you want protections for our waters or other aspects within your community, specific provisions need to be built into ordinances and then applied by boards that care and understand the implications.

If the regulations aren't on the books in the first place, applicants won't meet them. And if board members don't read and administer the existing regulations, the system doesn't work.

Either way, our communities need people who care and who will commit to making their town better. Are you one of those people? Because your town needs you.

Colin

“How’s the Lake Doing?”

Maggie Welch and Ben Peierls

This question often comes up when we meet people and describe what we do at LEA. A nice, simple question that turns out to be challenging to answer. A big part of our mission is to monitor the water quality in the lakes within our service area. So we often answer the question by summarizing the relevant water-quality variables we measure, such as clarity, phosphorus, and algae.

However, overall lake health is the result of many cumulative factors. Focusing solely on water quality measures can inadvertently draw attention away from similarly important variables such as aquatic invasive species or watershed development. To help better communicate overall lake health to a general audience, Maine’s Department of Environmental Protection (DEP) has developed a new way of summarizing and visualizing lake health information: the Maine DEP Lake Scorecard (www.lakesofmaine.org).

Each lake scorecard uses a combination of data analysis and modeling to assess various measures of lake health in four categories: water quality trends, invasive plants, shoreland & habitat, and lake vulnerability. Scorecard graphics are interactive and visually communicate ‘level of concern’ through color coding: blue = good, yellow = fair, red = poor/at risk, and gray =

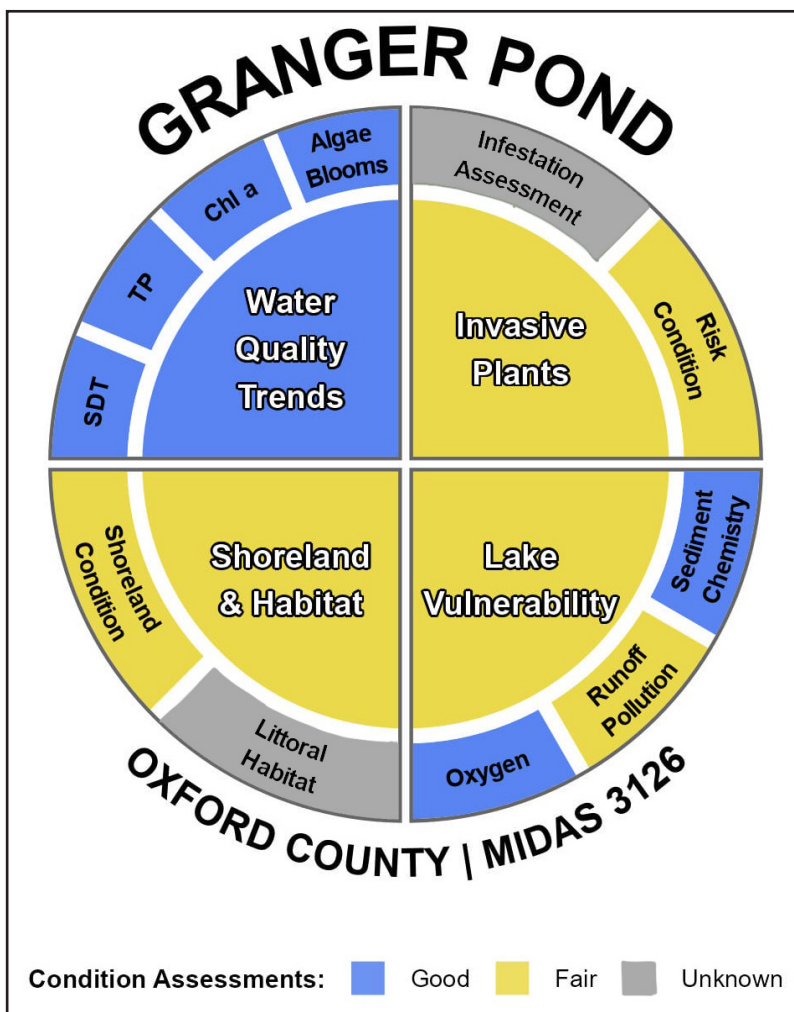
unknown. Lake-specific data and details about how and why each variable was categorized can be found by clicking on the name of each variable on the outside perimeter of the scorecard.

The DEP created the scorecards using data from various sources, including volunteers and professional organizations, such as LEA. Each year, LEA works with the DEP to certify our staff and interns in water quality data collection, and at the end of every season, LEA’s data is shared with the DEP. The DEP can then incorporate LEA’s data into the Water Quality Trends section of the Scorecards,

specific to lakes in LEA’s service area. This section parallels our own water testing reporting, but you may find that the water quality trends do not always agree. DEP uses a fixed 30-year data window (1995 to 2024 as of this writing), so the data may be a little older and from a different time period than what we use in our reports. Contact Maggie or Ben if you have questions about the scorecard or LEA’s yearly analysis.

The scorecard is a great tool for highlighting potential risks to each lake’s health and a wonderful addition to water quality assessment. Landowners and associa-

tions can use that information to prioritize actions that may reduce risks, such as conducting invasive plant surveys, reducing erosion and phosphorus inputs, and maintaining septic systems. Supporting lake-focused organizations like LEA will also help your favorite lake achieve a winning score!





Message from our Board President

Dear Members and Friends,

When you think about LEA's direct service area, it is easy to focus on individual lakes and ponds without considering the municipal boundaries that carve their way through those water bodies and watersheds. For example, Long Lake lies in three different towns, Bridgton, Harrison, and Naples. Moose Pond is shared by Sweden, Bridgton, and Denmark, while Hancock Pond is in Denmark and Sebago. The Crooked River flows through six different towns before it reaches the Songo River and ultimately, Sebago Lake.

Thankfully, Maine has the benefit of sound environmental state statutes that cross town boundaries and protect water quality throughout the state. However, each municipality also plays a role in safeguarding these important resources. It may surprise you to learn that they do not have identical local ordinances or policies to uniformly protect our lakes, forests, and streams.

For those of us who volunteer on planning boards or ordinance committees in several of LEA's service area towns and beyond, there exists a desire to learn from one another to help ease this sometimes disparate collection of ordinances. A recently revived regional planning group, composed of town volunteers who meet quarterly to discuss land-use

issues that strain our small towns and share ideas on how to manage them, helps meet this need. To be among volunteers who recognize that the health of our natural environment depends less on municipal boundaries drawn on a map and more on the thoughtful and deliberate choices made by dedicated community members is inspiring.

All of this is to say that there is good news and more good news. The LEA service area has many hard-working municipal volunteers, AND there's always room for more! In this newsletter, you'll read an article from our Executive Director, Colin Holme, about local government. It might provide just the inspiration you need to become one of those volunteers.

Thank you for your continued support.

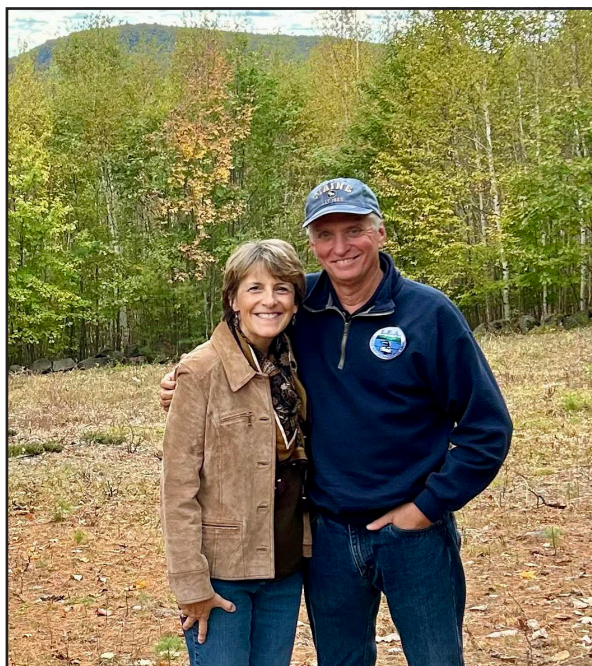
With gratitude,

Martina Witts

President, LEA Board of Directors

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New Parameters Added to LEA's Water Monitoring

Ben Peierls and Maggie Welch

This year, our open-water lake monitoring program will continue with the help of three interns, several dozen land-owners who provide us with waterfront access, and ten area lake associations who financially support this work. This program is the heart of LEA's long-term data collection efforts. As part of this work, we will acquire thousands of field measurements and analyze lake water for phosphorus and chlorophyll concentrations, pH, alkalinity, and color at the Science Center lab.

Interns Caleb, Iris, and Henry running samples with Tim Blair at the Science Center



Our advanced testing initiatives, including high-resolution water monitoring (using buoys), algal monitoring (fluorometry and flow-through microscopy), bathymetric and spatial water-quality surveys, and bacterial and algal toxin monitoring, will continue to deepen our understanding of lake function and health. New this year will be pilot projects to sample for the presence of the invasive spiny water flea and an expansion of our PFAS monitoring efforts.

The invasive spiny water flea (*Bythotrephes longimanus*) pictured below is a small crustacean native to Europe and Asia. First noted in the United States in the mid-1980s, it has since been observed in and around the Great Lakes and New England. Once established in a waterbody, spiny water fleas can upset the lake's food web by outcompeting native species for food. They can reach such high densities that they foul fishing gear and can get moved to other lakes via boats and lines. Due to their expansion into nearby New Hampshire lakes, the Maine DEP will begin surveying lakes this summer for spiny water fleas, and LEA will help with this endeavor by sampling highly vulnerable waterbodies in our service area.

Lakes we have already analyzed for per- and polyfluoroalkyl substances (PFAS) have come up clean so far. PFAS are an extremely broad and widely used class of synthetic chemical compounds used in a wide range of consumer and industrial applications. Known as “forever chemicals” because of their persistence, these chemicals have been found almost everywhere around the globe, including water, air, and soil. PFAS bioaccumulate in the tissues of animals, including humans, and have been linked to serious human health concerns. With support from the Casco Bay Estuary Partnership and several lake associations, we will continue monitoring more lakes for PFAS concentrations in water and in sediments, which is a first for our area.

To see the results and analysis of last year's open-water monitoring season, as well as our 2026 winter monitoring report, please visit: <https://mainelakes.org/testing-reports/>



Spiny water flea, Minnesota Aquatic Invasive Species Research Center

The Ancient Damselfly

Tim Blair

The damselfly is a delicate, glistening inhabitant of Maine's lakes and ponds that represents a lineage far older than the mountains it flies among. Having survived since the late Jurassic period, these predatory insects are more than just a beautiful sight on a summer afternoon; they are a living testament to the health of our environment. Damselflies are highly sensitive bio-indicators. Because they require high oxygen levels and are highly sensitive to pollution, the presence of a damselfly is Mother Nature's own personal report card for our lakes and ponds.

For most of their lives, damselflies are hidden beneath the surface. As nymphs, they are efficient underwater predators, breathing through external gills that, unfortunately, make them vulnerable to chemical runoff. When the time comes for their great transformation, they swim toward the shore and climb onto lakeside vegetation. There, they shed their aquatic skins and emerge as winged adults. This transition is a precarious one. In areas affected by shoreland development, pesticides and herbicides often seep into the water through storm runoff. These chemicals can stunt the growth of nymphs and reduce their survival rates as adults; effects that are only made worse by rising water temperatures.

For the fly-fishing anglers among us, the damselfly is also a critical link in the food chain. From late June through August, damselfly nymphs are a staple in the diet of local

trout and bass. While many anglers overlook this pattern, a simple, dedicated damsel nymph can be an incredibly productive wet fly. The trick is to mimic their natural behavior: cast to the edges of lily pads and use a slow retrieve to imitate their migration toward the shore. Having a variety of weighted and unweighted patterns in your fly box allows you to target the specific depth where the nymphs are active. When you see fish leaping out of the water, tie on an adult damsel (dry fly) and hang on tight!

Protecting these ancient insects and the fish that feed on them starts at the shoreline. It is the cumulative impact of thousands of small shoreland activities that takes a toll on Maine's waterways. Phosphorus, often carried by eroding soil from driveways and lawns, can overwhelm a lake's ecosystem. Simple erosion control is one of the most cost-effective ways for landowners to protect water quality while reducing their maintenance costs.

The Lakes Environmental Association (LEA) is dedicated to monitoring this balance. We currently track the water quality of 41 lakes and ponds across the Lake Region. We invite you to be part of the solution by:

✓ Requesting a "Clean Lake Check-Up" from LEA: These visits are free for members and are a great way to identify and fix erosion issues on your property.

✓ Reviewing the Data: Visit www.mainerlakes.org to see the latest water testing results for your favorite local lakes and ponds.

✓ Practicing Sustainable Shoreland Care: Maintaining natural vegetation helps stabilize the soil and filter runoff.

By keeping our waters clean, we ensure that the damselfly—and the vibrant ecosystem it represents—continues to thrive for another million years.



Upcoming Events and Trainings

JUL 5 | Paddle Battle: Annual Maine Lakes Paddle Board and Kayak Race
Terry A While Resort, Bridgton

JUL 8 | Aquatic Plants in Maine
5:30-7:30 pm at the Maine Lake Science Center



JUL 13 | Camp Encore/Coda Benefit Concert
7 pm at Deertrees Theatre in Harrison

JUL 21 | Landscaping for Lake Protection
5:30-7 pm at the Maine Lake Science Center

JUL 28 | Plant Paddle
9 am - 12 pm Location TBD

The Maine Lake Science Center is located at
51 Willett Road in Bridgton, ME

JUL 30 | Gravel Road Maintenance and Evaluation Workshop
8 am-1 pm at the Maine Lake Science Center

LEA ANNUAL MEETING

5 pm Tuesday, August 18th

*Camp Fernwood Cove
350 Island Pond Rd, Harrison, ME*



Visit our website (www.mainelakes.org) or contact Emlyn at emlyn@mainelakes.org for more information about LEA events.

Are you interested in joining LEA staff for nature walks, talks, and paddles? Scan the QR code to sign up for our Pop-Up Walks email list.



2026 LEA Scholarship Recipient

Congratulations to Trinnidy Bradley, recipient of the 2026 LEA Scholarship!

Trinnidy will receive a four-year, renewable scholarship to cover tuition, fees, and educational expenses at the University of Missouri in Kansas City, where she plans to study Medical Biology. Trinnidy grew up in Naples and graduated from Lake Region High School in June. In a letter to LEA Trinnidy expressed her gratitude:

"I am honored to be recognized by an organization that I deeply respect...Most importantly, I appreciate your involvement with the youth of Maine, which is how I first became connected to the association."



Colin, Trinnidy, Mary, and Felix

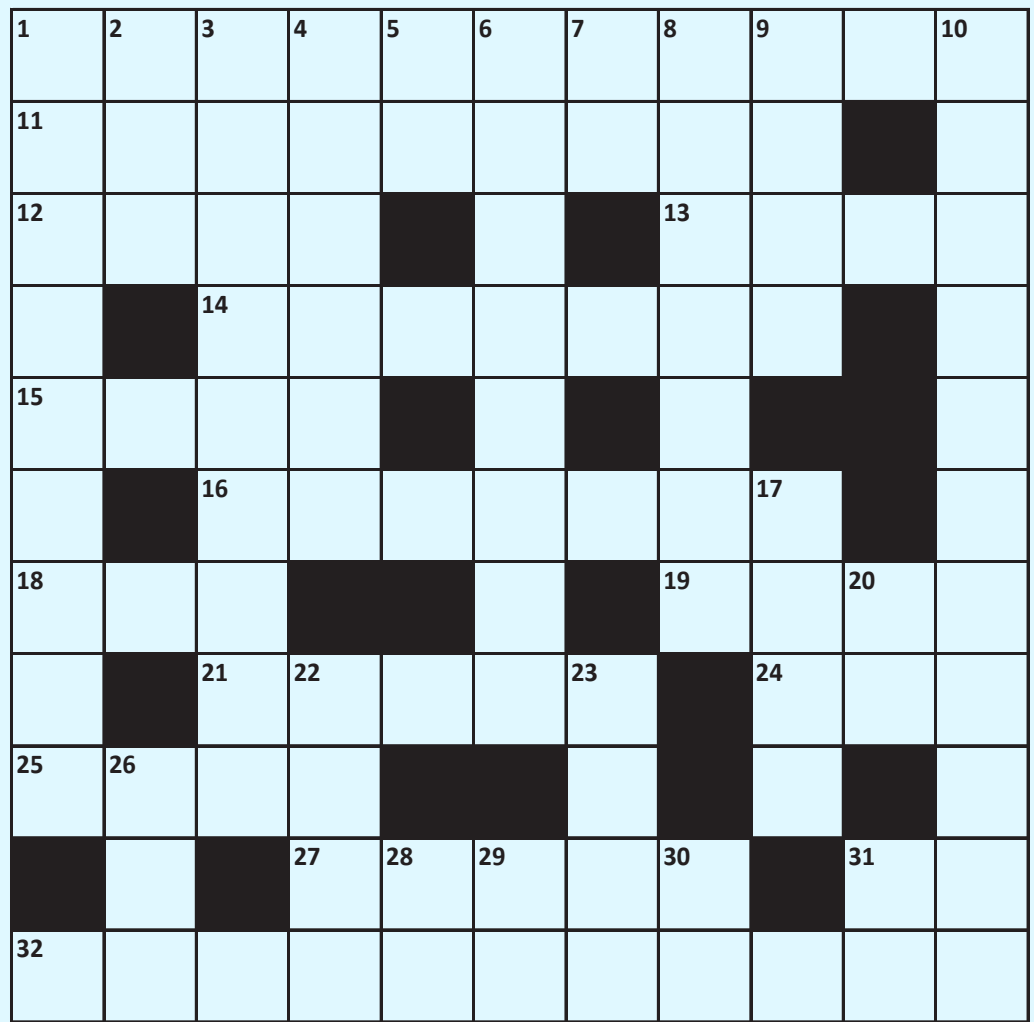
Crossword Puzzle

Across

1. To make less stable
11. Removed material
12. Work hard
13. Blackthorn, or a type of gin
14. Oblong shape
15. Letter used in old writing
16. Something you need to tow a boat
18. Equity, diversity and inclusion
19. Can cause suds in the water
21. Sharp protrusion, or director Lee
24. Snake
25. Beach bag
27. MLK Jr. quote: I have a ____!
31. Either ____
32. Improvements that increase value

Down

1. One source of phosphorus in a lake, used for cleaning
2. Outer skeleton, in invertebrates
3. One who studies science
4. More tall
5. Audio/Visual
6. Lizard who runs on water
7. Information Technology, scary movie
8. Those holding a lease, a tenant
9. Sit still while running, on a boat
10. Used to add a small amount of liquid, pl.
17. Highway/Lane/Drive
20. ___ if! Exclamation of the late 90's
22. Getting your toenails done, for short
23. Test
26. To possess
28. Remote control
29. Come again?
30. Oneself
31. Overtime



**Annual Camp Encore/Coda Concert
To Benefit LEA!**

Come enjoy a night of classical music at the beautiful and historic Deertrees Theatre. Each year, the brilliant campers and counselors from Camp Encore/Coda donate their time and talent for this fun benefit concert

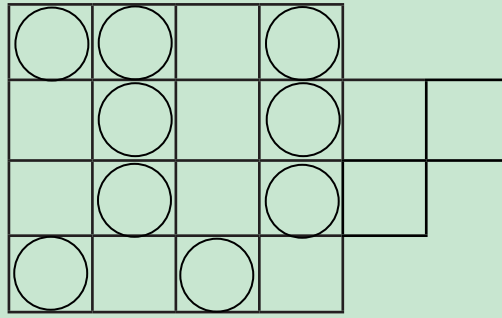
When: Monday, July 13 at 7:00pm
Where: Deertrees Theatre
156 Deertrees Road in Harrison

Free Admission · Donations Encouraged

Visit www.mainelakes.org for game solution

Lake Turnover Jumble

I P E N
T E A R M S
I Y D N W
R E F N



Now, rearrange the circled letters to find the answer to the puzzle:

Why wouldn't the geologist go into the haunted house?

BECAUSE HE WAS:

--	--	--	--	--	--	--	--	--	--



Paddling Access at Holt Pond and Highland Research Forest

Interested in getting out on the water, but don't have your own canoe? Or, is the idea of lugging your Old Town out to the lake yet again a bit daunting? LEA provides free canoes for public use at both our Holt Pond Preserve and Highland Research Forest.

At the Holt Pond Preserve, we have two canoes down on the Muddy River available for use. Look for the "canoe launch" symbol on the trail map. At the Highland Research Forest, we have one canoe available on the north end of Highland Lake, at the end of the Lake Trail. There are paddles and PFDs with the canoes at both preserves, but we recommend bringing your own if you have them.

If you're new to paddling or just prefer to paddle with a group, we'll be offering several guided paddles throughout the summer. All events are free, and we have canoes and kayaks available to borrow. Check out our upcoming events on page 7 for details.



Upcoming Stream Projects

Lauren VanBibber

Adequately sized stream crossings are vital to water quality, fish habitat, wildlife passage, stream health, and our road infrastructure. This summer, we have five culvert replacement projects lined up between July 15th and September 30th, which is the in-stream work window designated by the Maine DEP to minimize impacts on fish and water quality. We will partner with three private landowners and the town of Harrison to complete these projects, resulting in a total of 14.64 miles of reconnected stream habitat.

Sucker Brook: LEA is working with Camp Wildwood in Bridgton to replace this stream crossing that feeds into Woods Pond. The current culvert is at the end of its lifespan, undersized, and slightly perched over the stream. The replacement will be a bridge that allows fish and wildlife to move easily up and down the stream channel.

Barker Brook: This culvert sits on a cool trout stream that flows directly into the Crooked River. It is severely undersized, resulting in bank erosion and the formation of scour pools. A large amount of woody debris routinely builds up at the pipe, limiting fish passage and causing the stream to overtop the road. This brook is excellent nursery habitat for both brook trout and landlocked salmon, and Maine Inland Fisheries and Wildlife identified the site as a priority for replacement.

Sodom Road: Located just over the Waterford-Norway line, this stream crossing currently consists of two culverts, which we will replace with a single bridge. Both pipes are severely undersized and have smooth interior surfaces, resulting in high water velocities that are difficult for fish to navigate. This culvert is about 200 feet upstream from important landlocked salmon spawning grounds in the Crooked River and was brought to our attention by Trout Unlimited.

Carsley Road on Carsley Brook: This stream crossing is one of two that we are working with the Town of Harrison to replace. This culvert regularly accumulates debris that blocks the stream and impedes fish passage. The pipes are also undersized, which creates high water velocities and results in the stream overtopping the road, erosion, and frequent washouts during periods of intense precipitation.

Edes Falls Road on Carsley Brook: LEA is working with the Town of Harrison to complete this culvert replacement. The current culverts are partially collapsed, creating a velocity barrier for fish and making it very difficult for them to move upstream. Replacing this culvert will reconnect 7.3 miles of stream, which is the most of any of the crossings planned

for this summer. Carsley Brook is one of the larger tributaries feeding Long Lake, and both of these town crossings are significant infrastructure improvements for Harrison.

These projects are funded by a large USDA Natural Resources Conservation Service grant procured by the Sebago Clean Waters collaborative, of which LEA is a member, as well as the Maine Department of Transportation and a private foundation.



**Debris build up around
Barker Brook culvert**

Milfoil Focus Areas

Morgan Cross

This season, a lot of exciting things are happening on the milfoil control front. We built a new suction harvester, which allowed us to add another crew to our team. With the addition to our fleet, we are “doubling up” on the Songo River. Crews will also be working in Long Lake, Brandy Pond, Sebago Cove, and parts of Sebago Lake.

Our primary focus area in the Songo River will be around the Sebago Lake State Park boat launch and in the main channel. We will also be spending time working in the Songo Bayou and in some of the back coves with heavy milfoil growth.

In Long Lake, we will be focusing mostly on Harrison Cove, Cape Monday Cove, and near Plummer’s Landing. All three of these spots have had recurring milfoil growth in larger quantities than other spots in Long Lake. We will also spend time near the Bridgton Academy beach, in Mast Cove, and in the shallow lagoon within Salmon Point Campground. On Brandy Pond, our crew will focus on work in the Chute River, the Songo Beach Association Marina, and near Elm House Road, where we found a large patch in 2025.

On Sebago Lake, we are returning to Frye Island, Kettle Cove, and the Northwest River. On Frye Island, we will be working at Long Beach and Quail Marinas. We have also hired New England Milfoil (NEM) to do a week of suction harvesting in Long Beach Marina. In Kettle Cove, we will focus our work around the marina. We will also spend time in the Northwest River Cove on the west side of the lake, focusing on the launch and association docks.

We are returning to Sebago Cove and partnering with NEM to do additional control work in the Southern Channel. Our in-house crew will primarily focus on the mooring fields and the Northern Channel. We are planning to spend around three weeks in the Cove with our crew and have NEM do one week. The newly formed Sebago Cove Preservation Association has also hired NEM to work on other trouble spots in the Cove.

We are optimistic that by hiring additional LEA divers, building another suction harvester, contracting with New England Milfoil, and partnering with local groups like the Sebago Cove Preservation Association, we will have a very productive season!

Suction Harvester on the Songo River



Protecting Our Lakes with Vegetated Buffers

Emlyn Emerock

Imagine a forested lakeside, tall trees clustered along a rocky shoreline. Leafy branches reach out over the water's edge, catching the sun and inadvertently creating shade for fish and other wildlife. Below, strong roots hug the shoreline, guarding it against erosion from heavy rains and lapping waves. Groundcover clings to the forest floor, and a variety of woody shrubs fill the understory. This vegetated buffer is essential for the health of the lake. It stabilizes the shoreline, limits erosion, reduces phosphorus loading, and provides habitat for wildlife.

In many places, shorelines like this are a thing of the past. In Maine, we are lucky. We still have many forested shorelines on the 6,000 lakes and ponds across our state. We love and care for our lakes, and have some of the best shoreland zoning in the country. Spending time on the lake is a way of life in Maine, and that means camps, houses, marinas, and roads are present on most waterbodies. The accumulation of runoff from many small development sources across the watershed results in non-point source pollution. This diffuse form of pollution contributes phosphorus to our lakes, which can lead to algal blooms.

Vegetated buffers protect our lakes and ponds from non-point source pollution. Plants act like sponges, absorbing excess phosphorus before it reaches the water. Deep forested buffers are ideal, but many small buffers around your lake can work together to have a big impact on water quality. As added benefits, buffers provide privacy and even improve property values.

If you have property on a lake or pond, we hope you'll consider expanding your buffer. Below are some tips for getting started.

Get familiar with what's already there. Often, what's growing naturally on your site is what is well-suited to your soil, shade conditions, and topography. It might be helpful to bring a friend along who is knowledgeable about plants. LEA offers free technical assistance for members, and we'd be happy to walk your property to provide advice.

Designate a no-mow zone. This is a great starting point for expanding your buffer. Identify high-use spaces, such as docks, paths, and perhaps a limited lawn area. Designate no-mow / no-walk zones between the shoreline and your developed area to expand your buffer. Try using small rocks to outline the zone so overzealous mowers and playing kids know which spots to avoid. Slowly expand this area over time.

Plant native trees, shrubs, and perennials. Consider different layers; ideally, you want a mix of canopy trees, understory, shrubs, perennials, and groundcover. This might be a combination of what is already growing on your

property and what you are excited by. Reach out for recommendations! High bush blueberry, red-stem dogwood, winterberry holly, and buttonbush are popular choices. Note: If you are hand-planting native species in the shoreland zone, you do not need a DEP or town permit to proceed. However, no heavy equipment may be used, and no more than 1 yard of material (soil or mulch) should be brought in.

Replace invasives with natives. Identify invasive species present on your property and slowly replace them with natives. Take care not to disturb the soil near the shoreline. Note that if you exceed shoreland zoning standards when removing invasive species near the water, the affected area must be revegetated with native species.

Build your buffer over time. We recommend spreading the work out over several years. Pick one area to start with, and fill your buffer in over time. This approach is more sustainable and allows for native vegetation to grow in and fill the area.



A grandfathered camp with a nice mixed buffer on Moose Pond

Surface Use Restriction Near State Park Boat Launch

Morgan Cross

In February, the Maine Department of Inland Fisheries and Wildlife and the Maine Department of Environmental Protection established a temporary Surface Use Restriction near the Sebago Lake State Park boat launch (see map). As mentioned in previous newsletters, this area has shown increasing amounts of invasive milfoil growth. Our team worked diligently there last year, but still could not get it completely under control. This new restricted area will not impact the main channel or the launch, only the second channel, below the wetland island and south of the launch.

With a surface use restriction, recreational or commercial watercraft may not enter the area. This restriction does not apply to emergency services or our milfoil control work. Buoys will be placed in May to mark the restricted area. These buoys are regulatory, and look different than the yellow advisory milfoil buoys. As mentioned in the Milfoil Focus Areas article (page 11), we built an additional suction harvester this spring to focus more attention on trouble spots in the southern Songo River, including this area. Over the summer, we will lay numerous benthic barriers across this infestation and suc-

SUR buoy at
Androscoggin Lake



Surface Use Restriction Map



tion-harvest around them. This work will not affect access to Sebago Lake or the Songo River from the State Park. The boat launch and main channel to the lake and river will remain open the entire time.

LEA asks that people respect this new restriction for the limited time it is in place, as it will allow our milfoil removal team to work safely and uninterrupted, and without the potential spread of milfoil from boat traffic. If everyone avoids this area and we achieve our goals, we anticipate the area can be reopened in 2027.

If you have questions about our milfoil control work in the Songo River and boat launch, please reach out to Morgan@mainelakes.org.

With a larger crew and an additional suction harvester, our expenses will be higher this year. Please consider donating to our Milfoil Control Team. Thank you all for continuing to support this program. We couldn't do it without you!

Vegetation Rules Near the Water

Lauren VanBibber and Colin Holme

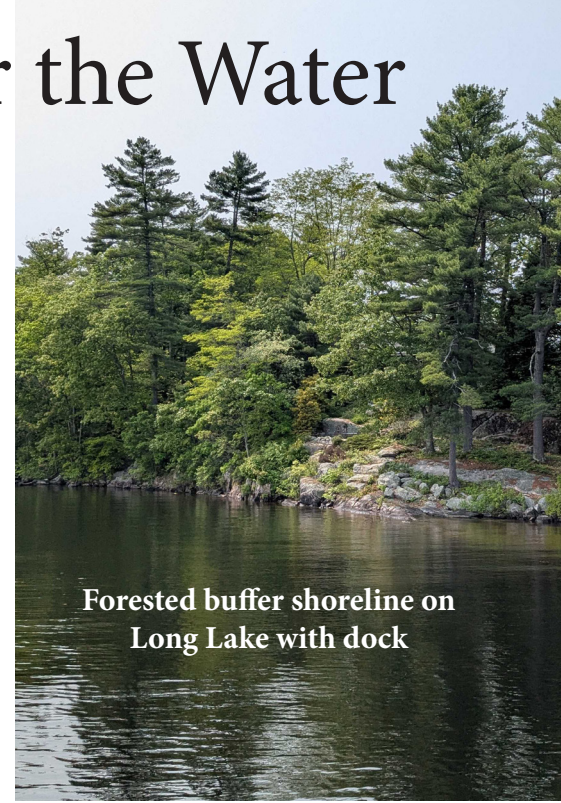
Maine's lakes provide beauty and joy to the community, and we believe that protecting them for future generations is our collective responsibility. One of the most effective ways to do this as a lakefront property owner is with vegetation that can absorb stormwater runoff and prevent shorefront erosion.

The State of Maine mandates that all towns adopt minimum shoreland zoning standards within 250 feet of lakes, ponds, rivers, and some wetlands and within 75 feet of streams. Many towns have also adopted additional or stricter regulations beyond the minimum state guidelines, so it is a good idea to check with your local Code Enforcement Officer (CEO) prior to starting any projects near the water.

A general rule to follow on the lakefront is to keep it as natural as possible

by maintaining existing vegetation. A healthy shoreline includes a well-distributed stand of trees and shrubs, which provide a buffer and limit erosion and undercutting of the bank. This vegetation absorbs excess nutrients, such as nitrogen and phosphorus, from stormwater runoff before it reaches the lake, where it feeds plants and can cause algal blooms.

Within the first 100 feet from the high water line, trees are regulated by the "point system". This framework categorizes trees by their diameter at breast height (DBH) and requires a minimum number of trees to remain after cutting. While a landowner with some patience and measuring skills can apply the point system to their waterfront property, the process is cumbersome, and many CEOs prefer a profes-



Forested buffer shoreline on Long Lake with dock

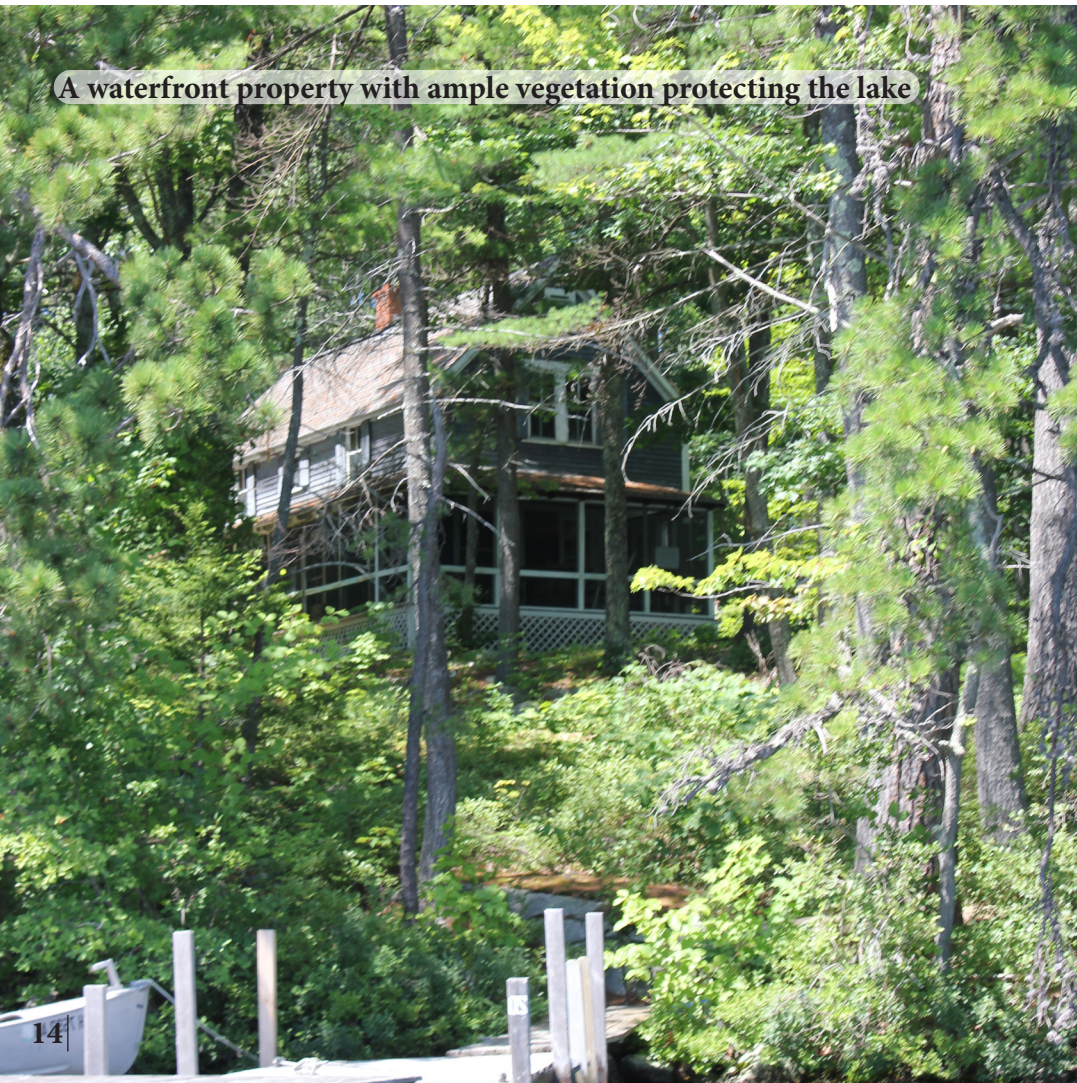
sional assessment. For this reason, LEA recommends that landowners interested in thinning or tree cutting hire an arborist or forester to apply the point system to well-forested areas.

If you only want to remove one or two trees, you can just contact the Code Officer. However, if you only have a few trees to begin with, you likely can't cut them unless they are a hazard or dangerous. In that case, you may be able to cut them, but you will need to replant trees in the same area where they were removed on a 1:1 basis. Replanted trees should be native species that will grow to be canopy trees.

Dead and diseased trees can be removed, but it is good to check with your CEO first and always leave the stumps, which help keep the soil in place. Regardless of how it happened, if tree removal results in an opening in the forest canopy greater than 250 square feet, you will likely need to plant native trees to re-vegetate the gap.

To help provide a view of the water, you may limb the bottom 1/3 of a tree, measured from the ground. This can create a "framed" view of the lake, while maintaining privacy and water quality.

A waterfront property with ample vegetation protecting the lake





Plants under three feet in height, as well as ground cover and leaf litter, are also protected. This low vegetation and spongy material help filter runoff and prevent erosion. Avoid raking in naturally vegetated areas and leave leaf litter where it falls. Previously established use areas, such as paths and small lawn areas, may be maintained.

If you are looking to do anything within 75 feet of the lake that results in soil disturbance or earth moving, you may need to apply for a Permit-by-Rule (PBR) through the Maine Department of Environmental Protection under the Natural Resource Protection Act. The application is available online at www.maine.gov/dep/land/permits/pbr/index.html

Another consideration is the access

path to get the water. Paths are limited to 6 feet in width, measured from stem to stem. A winding path that is pervious (allows drainage) is best for allowing water runoff to leave the trail and filter through adjacent vegetation before reaching the lake. A State Permit-by-Rule is also required for any new structures within 75 feet of the water, which includes new constructed paths, docks, and buildings.

If you are interested in learning more about these regulations or would like a non-regulatory evaluation of your property, LEA offers Clean Lake Check-Ups for properties in LEA's service area. For more information on these services or with general questions, call LEA at 207-647-8580 or email Emlyn@mainelakes.org.

Naples Says “No” to Slalom Courses in Milfoil

Colin Holme

This May, the town of Naples amended its Mooring and Waterfront Management Ordinance to prevent the installation of waterski slalom courses within 200 feet of known invasive plant infestations and in waters shallower than 15 feet.

This new provision, which passed

overwhelmingly, also prevents water ski courses within the 200-foot water safety zone and requires that courses be inspected annually by the harbor master.

In recent years, residents in Sebago Cove, along with the Sebago Cove Preservation Association, have grown

frustrated with the operation of a club slalom ski course in the shallow water in an area heavily infested with variable-leaf milfoil. The motorboat and skiers were routinely chopping up milfoil, which spreads by fragmentation. The course was set by someone who does not live in the Cove or in the town of Naples. The individual was amenable to moving the course, but did not want to leave the protected Cove. Unfortunately, there are no areas within the Cove sufficiently large or deep to prevent this activity from cutting up and spreading milfoil.

LEA worked with the Naples Ordinance Review Committee to develop language for the amended ordinance after exploring several other options to address this issue.

While this one course was the impetus for these new, common-sense rules, they will apply to all waters within the town of Naples and will help reduce the spread of invasive aquatic species throughout the area.



Harmful Algal Blooms and Toxins

Ben Peierls

I have a confession to make: I was assigned to write an article about the toxicity of harmful algal blooms (both cyanobacteria and algae), and I failed. This is a very broad and complex topic. I could have written pages on microcystin, one of the most well-documented and studied toxins, which has over 200 variants and causes liver damage in animals and humans. You would have learned that freshwater cyanobacterial blooms can produce high levels of microcystin, often in lakes with high nutrient inputs and warm water. I would have reminded you of the Toledo, Ohio, water supply contamination, which stemmed from the bloom-infested, microcystin-contaminated waters of Lake Erie in summer 2014.

I probably could have delved into the many lesser-known or underexplored toxins associated with cyanobacteria, or into algae like *Euglena* that have been reported to produce compounds toxic to fish. I would have described some of the neurotoxins produced by cyanobacteria, such as anatoxin-a, saxitoxin, and β -methylamino-L-al-

anine (BMAA). I would have explained that these toxins have negative effects on human and animal nervous systems, and one, BMAA, has been linked to neurodegenerative diseases like ALS (Lou Gehrig's disease). I would have also covered the fact that some toxins and toxin-forming cyanobacteria have been found in lake spray aerosols.

I might have mentioned some new research studying how herbicides like glyphosate may enter lakes and interact with freshwater cyanobacterial blooms and cyanotoxins. If I did, I would have summarized studies that found lake phytoplankton community structure shifted to more toxin-producing cyanobacteria due to the loss of herbicide-sensitive algae and the simultaneous promotion of cyanobacterial growth. You would have found out how stress from low concentrations of herbicide can lead to more cyanotoxin production.

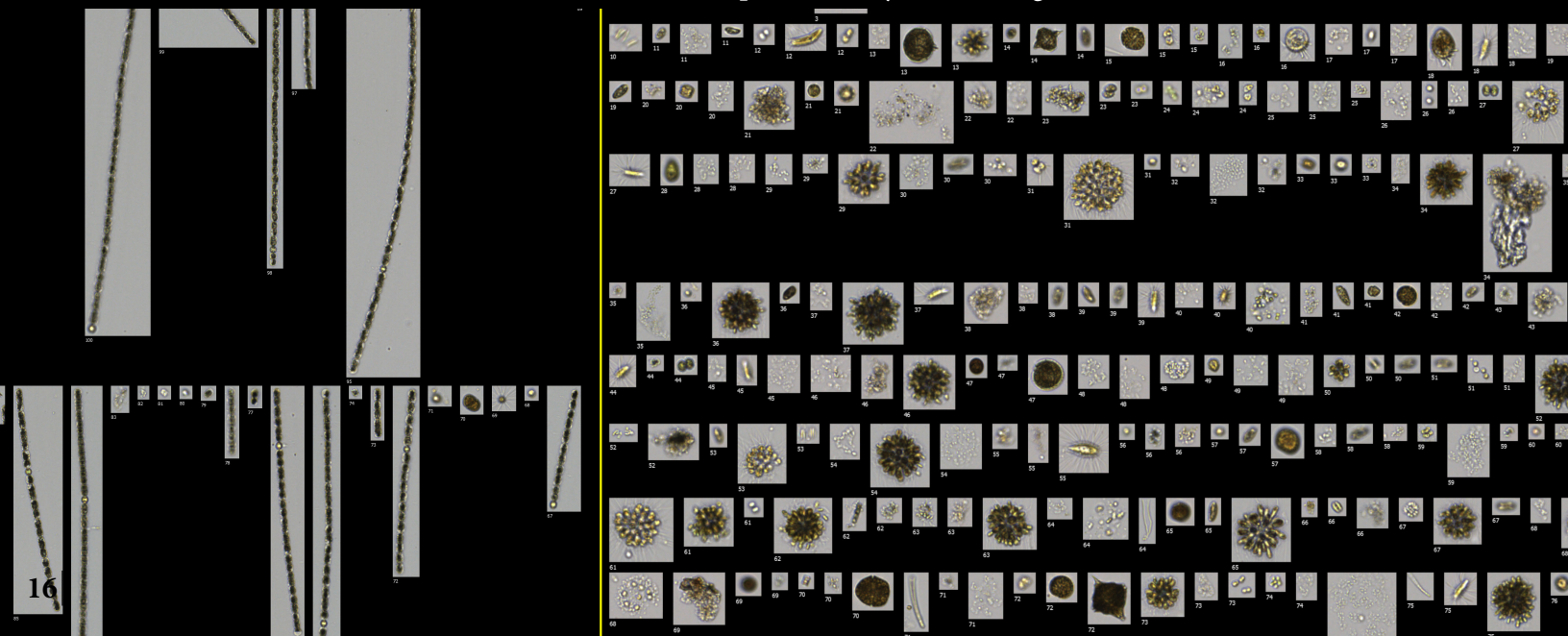
I could have waxed on about LEA's testing equipment that measures microcystin and how we used it to confirm the presence or absence of the

toxin in several lake samples outside our service area. You would have learned that not all blooms are toxic and that LEA is involved in research investigating why. I would have then reminded you that we have not had significant harmful algal blooms in any LEA service area lakes, but that we are using our FlowCam instrument to help monitor local lakes for unusual increases in cyanobacteria or algae, toxin-producers or not.

But I won't do that.

Instead, I will ask the straightforward question: Would you recognize a harmful algal bloom if you saw one? You might if you live or recreate on one of the few lakes in Maine that regularly have them. Otherwise, if you see murky, green to blue-green-colored water, or a scum that looks like blue-green paint, you might be observing one of these blooms. If so, you can help us by reporting anything suspicious in our service area lakes. Contact Maggie or Ben at 207-647-3318. You also can report potential blooms to the Maine DEP at their website, www.maine.gov/dep/water/lakes/algalbloom.html.

FlowCam images for a cyanobacterial bloom sample from Hobbs Pond (left) versus a typical, diverse non-bloom sample from Keyes Pond (right).



Building a Quieter, Cleaner, Suction Harvester

Colin Holme

LEA has been combating milfoil growth using a combination of Diver Assisted Suction Harvesting (DASH) and benthic barriers for over 20 years. Both methods are effective, and we use them in tandem or individually, with our divers operating from one of our suction harvester boats.

Thanks to significant investment from foundations and our members, our equipment runs well. However, each suction harvester has multiple gasoline engines, and these motors are prone to minor problems that can slow or halt control work. The engines – particularly the suction harvester pump, which runs most of the day – are loud, and make diver-to-surface-crew communication (which occurs over headsets) difficult and less safe.

LEA currently has 9 boats powered by gasoline outboard engines. In an effort to reduce our carbon footprint, we formed a staff-board committee to investigate options for replacing some of our gasoline outboard motors with electric engines.

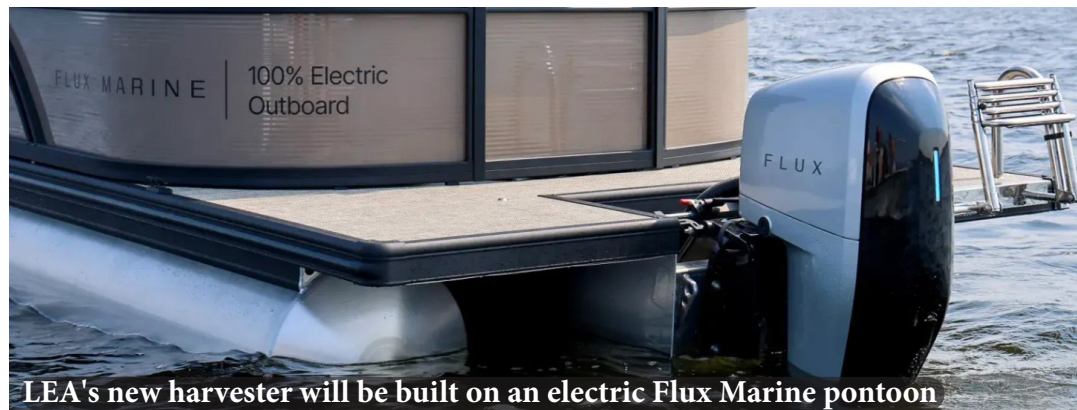
During this process, we met Nick Planson, from Shred Electric, who has been working on and helping to fabricate electric-powered utility boats on the coast of Maine. Several LEA board members took a trip out to see some of these all-electric, custom-made boats and were very impressed by their design, functionality, and power.

After further discussion with Nick and our board, LEA became interested in creating an all-electric suction harvester to control invasive aquatic species. Nick then joined our milfoil control crew for a morning to see how all the engines and components are integrated and to better understand the total power load needed to operate a harvester.

Based on boat, motor, and battery packages Shred Electric has previously worked on, we developed plans for a fully functional electric suction harvester. A large bank of batteries placed below deck would power an electric outboard engine, a suction harvester pump, and a compressor to supply our divers with air.

This type of boat will be quieter, cleaner, and safer, with far fewer parts and components that could break. The boat will also be the first of its kind in the nation, reducing carbon emissions, eliminating gas and oil spills, and increasing our dive crew's productivity. Although the power supply will be augmented by solar panels on the

canopy, it will still need to be charged every night. This is where you can help. LEA is looking for places on Long Lake where we can dock this brand-new boat and plug it in to recharge. A full charge will cost around \$28 per night. The boat will move around the lake and work on different areas over the summer, but we anticipate focusing on hotspots near Cape Monday Cove, Mast Cove, Harrison Cove, and north Bridgton. If you have a dock with a nearby power outlet (standard 120-volt), we hope you will consider being an integral part of a cleaner, milfoil-free Long Lake! If you have questions, please reach out to me at Colin@mainelakes.org.



LEA's new harvester will be built on an electric Flux Marine pontoon



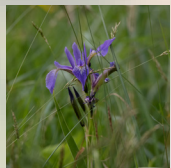
This electric oyster fishing boat was used as a model for LEA's new suction harvester

LEA Native Plant Guide

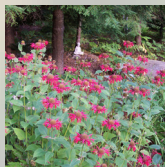
Native plants, such as trees, shrubs, and perennials, have larger roots than lawn grasses and more effectively absorb water before it reaches the lake. Multiple layers (trees, shrubs, and groundcover) of native vegetation between any developed area and a natural resource, such as a lake or pond, is the best way to absorb runoff. We encourage the use of native plants, but native hybrids and cultivars are effective too.

So, what plants are right for your property? To decide, consider characteristics of your property such as shade, soil, topography, and any native plants already growing nearby. Below are some of our top recommendations for native plants.

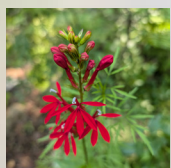
Perennials



Blue Flag Iris (*Iris versicolor*)
Striking native iris; prefers damp soils but tolerates variable conditions; full sun to partial shade



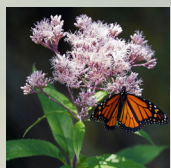
Bee balm (*Monarda didyma*)
Crimson red flowers resemble fireworks; spreads easily; prefers part sun to part shade



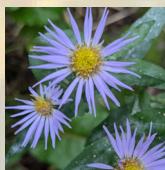
Cardinal flower (*Lobelia cardinalis*)
Produces bright red flowers attractive to hummingbirds; prefers wet soil; full sun to partial shade



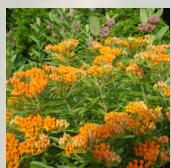
Black-eyed Susan (*Rudbeckia hirta*)
Long-lasting flower in the late summer; can spread quickly; prefers sun to part shade



Spotted joe pye-weed (*Eutrochium maculatum*) Perennial with light pink flowers attractive to butterflies; prefers average to wet soil; full sun



New England Aster (*Symphyotrichum novae-angliae*) Flowers are long-lasting and attractive to butterflies; average to wet and well-drained soil; full sun

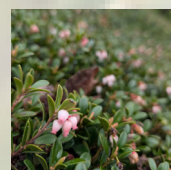


Butterfly weed (*Asclepias tuberosa*)
In the milkweed family and provides a food source for Monarch butterflies; prefers well-drained soils; full sun

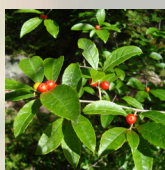


Maidenhair Fern (*Adiantum pendatum*)
Attractive fern with nice round shape; prefers moist soils; partial shade

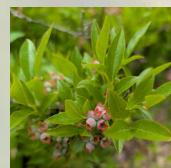
Groundcovers



Bearberry (*Arctostaphylos uvaursi*)
Beautiful low-growing plant with delicate flowers; tolerates sandy, acidic soils; full sun



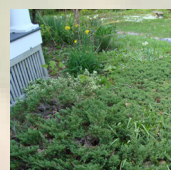
American wintergreen (*Gaultheria procumbens*) Fragrant evergreen leaves and red berries; foliage turns purple in the fall; partial sun to shade



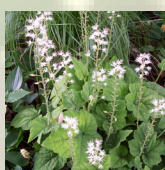
Lowbush blueberry (*Vaccinium angustifolium*) Rarely needs maintenance; full sun or shade; also available as sod



Common blue violet (*Viola sororia*)
Produces purple-blue flowers and spreads and grows easily; full sun to partial sun

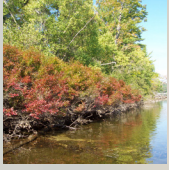


Creeping juniper (*Juniper horizontalis*):
Spreads nicely, tolerates hot, dry sites; full sun



Foamflower (*Tiarella cordifolia*)
Delicate white flowers in the spring and interesting foliage; perfect for shady and dry spots

Shrubs



Highbush blueberry (*Vaccinium corymbosum*) Hardy shrub with ample berries in full sun; grows in shade or sun



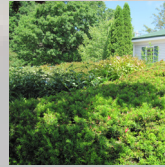
Fragrant sumac (*Rhus aromatica*) Low growing variety available. Requires virtually no maintenance, and tolerates hot, dry sites; full sun



Winterberry holly (*Ilex verticillata*) Produces red berries in late fall for a pop of color in early winter; damp to wet soil



Bush cinquefoil (*Potentilla fruticosa*) Tolerates a variety of soil conditions and has numerous small yellow flowers during the summer; full sun



Canadian yew (*Taxus canadensis*) Deep green foliage, prunes well, and has numerous small red berries in the fall; partial shade to shade



Northern bayberry (*Myrica pensylvanica*) Deep green, waxy, aromatic leaves. Spreads nicely. Full sun to partial shade

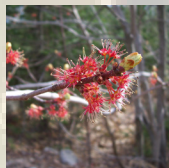


Buttonbush (*Cephalanthus occidentalis*) Large globe-like, creamy-white flowers in summer; prefers moist to wet soils; thrives in flood zones

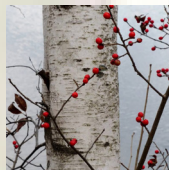


Meadowsweet (*Spiraea alba*) Tolerates a variety of soil conditions; damp to wet soil; partial to full sun

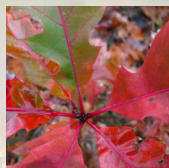
Trees



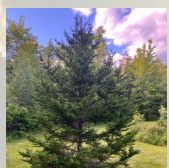
Red maple (*Acer rubrum*) Produces vibrant red flowers in early spring and magnificent fall foliage; tolerates wet soils



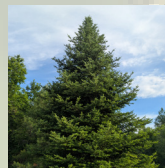
Paper birch (*Betula papyrifera*) Distinct bark adds variety to the shore-front; grows quickly and is available as clumps; dry soils, full sun



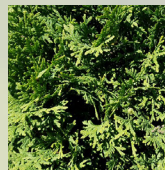
Red Oak (*Quercus rubra*) Magnificent, long-lived tree with red fissured bark; full sun



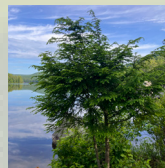
Red Spruce (*Picea rubens*) Slow-growing tree with nice conical form; shade-tolerant when young



Balsam fir (*Abies balsamea*) A classic Christmas tree-shaped evergreen with fragrant needles; tolerates dry soil; full sun to shade



Northern white cedar (*Thuja occidentalis*) Works well as a hedge tree and does well in alkaline soil; sun or partial sun



Eastern hemlock (*Tsuga canadensis*) Can be sculpted into a hedge or left to grow into a stately tree; tolerates shady understory or full sun



White Pine (*Pinus strobus*) Large, fast-growing, and long-lived evergreen; common on shorelines; full sun to partial shade



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**Protecting Waters and
Watersheds in the
Greater Sebago Lakes Region**