LEA Lake News

Spring/Summer 2024

In this issue of Lake News:

- Forever Chemicals/PFAS
- Outdoor Learning
- A Diver's Perspective
- Stream Crossing Projects
- Games and more....

Legislative Updates

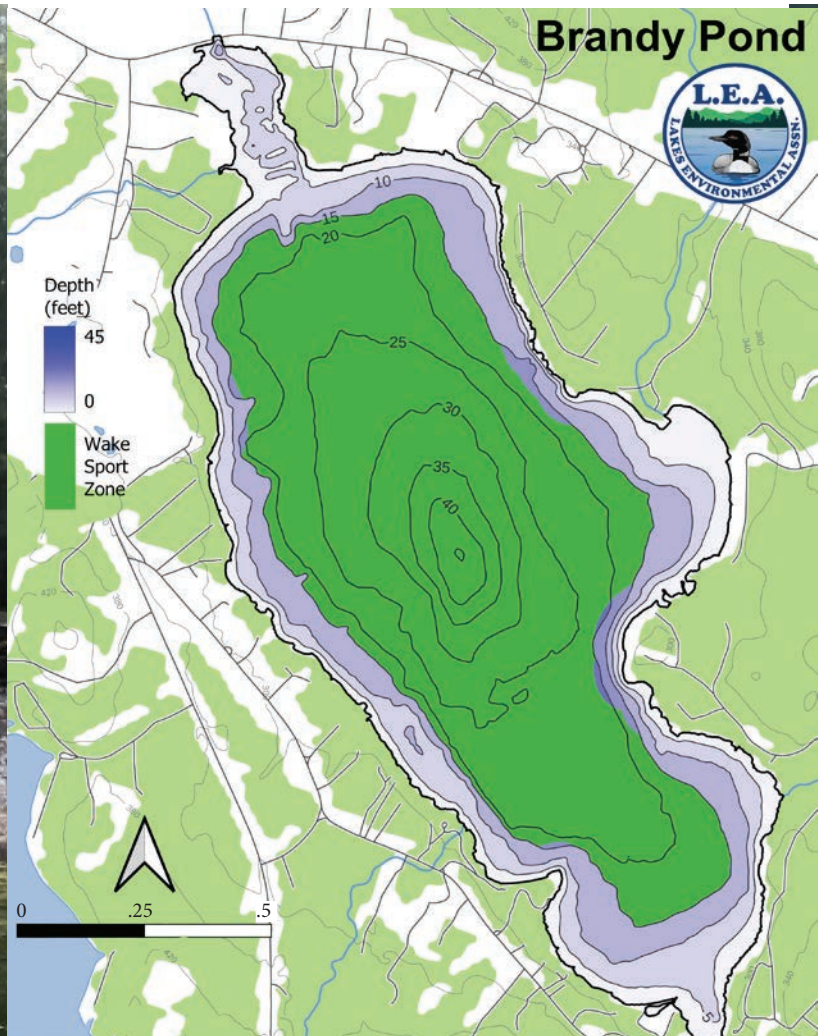
Colin Holme, Executive Director

Although it was a roller coaster ride filled with exciting highs and stomach-turning drops, this past legislative session produced several good bills that will help better protect Maine's beautiful waters. A few of our local representatives played critical roles in pushing lake bills forward and the Inland Fisheries and Wildlife and the State and Local Government legislative committees both deserve recognition for stepping up to the plate to address complex issues.

After Representative Walter Riseman (Bridgton, Harrison, Denmark) submitted a bill last year on behalf of the lakes community to increase funding for the control and prevention of invasive aquatic species, it got tabled to give state agencies time to come up with budgetary needs. This session, Riseman resubmitted the bill with some adjustments to agency funding allocations and the Inland Fisheries and Wildlife legislative committee heard passionate testimony from lake groups across the state trying to keep invasive aquatic species at bay. The committee clearly understood the issue, saw the pressing need, and voted to increase fees on the lake and river protection sticker. Often called the "milfoil sticker", this funding mechanism is part of the boat registration process and provides nearly all the money for control of invasive aquatic species in the state. In 2025, the cost of this sticker will increase by $10 and then another $10 again in 2028. While no one ever likes additional fees, this funding is badly needed and motor boats are the primary vector for the movement of invasive aquatic species.

Despite overwhelming support from both the Maine Senate and the House for a separate bill targeting invasive aquatic species, this second proposal ended up dying after the session was over with other legislation that had a fiscal note attached. This bill, proposed by Representative Tavis Hasenfus (Readfield and Winthrop), would have infused two million dollars to address the worst invasive plant infestations in the state and instructed Inland Fisheries and Wildlife and the Department of Environmental Protection to review boat inspection and surface use restriction protocols. While the strange ending to this bill was a disappointment, the level of awareness and concern regarding this issue in the Maine legislature seems to be at an all-

Shoreland Zoning Violation on Sebago Lake



time high.

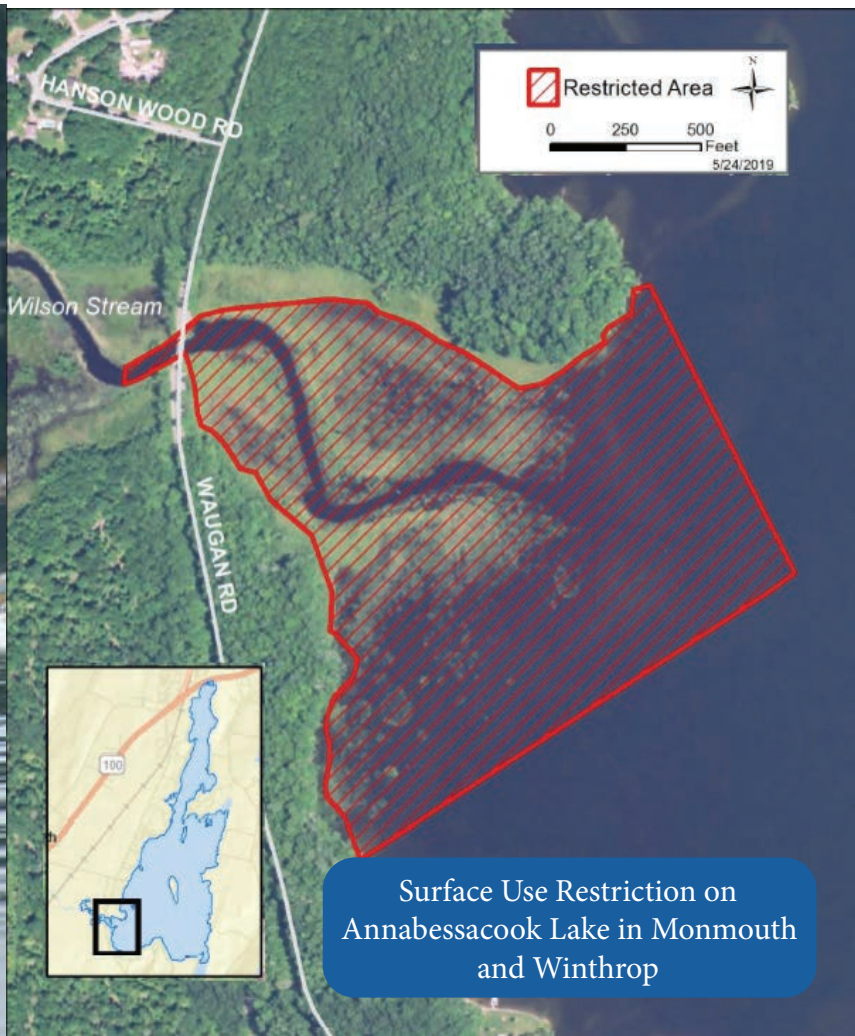
Concern over large wakes, sediment resuspension, and transport of invasive species from the relatively new sport of wake surfing has been a hot-button issue for the past several years. During last year's legislative session, Representative Riseman submitted a bill to limit wake surfing to areas more than 500 feet from the shore and in waters deeper than 20 feet. Although this bill received a huge amount of supporting testimony, it ultimately died and was replaced by a bill to form a stakeholder group to study the issue and report back to legislature this session. LEA, along with Maine Lakes and Maine Audubon, served on this stakeholder group alongside state agencies and representatives from the marine and boating industries. In January, the findings from this stakeholder group were provided to the Inland Fisheries and Wildlife legislative committee who consequently held numerous hearings and workshops on the topic. Eventually, the committee proposed, and the full legislature passed, a new rule that will prohibit wake surfing within 300 feet of the shore and in waters less than 15 feet deep (see example map of Brandy Pond below). While we believe a 500-foot setback is strongly supported by the scientific literature, this compromise will help reduce the environmental impacts of this sport and increase public awareness.

Stemming from an egregious violation on Sebago Lake, Senator Tim Nangle (Casco, Frye Island, Raymond, Windham, and part of Westbrook), put a bill forward to help towns resolve large and heinous shoreland zoning violations that that are litigated for years to drag out the process and bankrupt town legal budgets. This proposal, which was heard by the State and Local Government legislative committee, allows for permits to be suspended, and for the levying of property liens until the violation is resolved. The bill passed in early spring and will help ensure that shoreland zoning regulations are applied equally and the land around Maine's waterways remains functional for wildlife, water quality protection, and enjoyment for future generations.

Please know that we could not have had these legislative successes without input and support from LEA members and individuals who wrote to us, provided first hand stories, or submitted testimony. While the process is not always straight-forward or quick, feedback and input from people who use and enjoy our waters in a wide variety of ways makes for better legislation. A special thank you is also in order for members of the Maine Boating Impacts Coalition, Ches Gundrum from Maine Audubon, and Susan Gallo from Maine Lakes.

Colin

Wakesurfing



Surface Use Restriction on Annabessacook Lake in Monmouth and Winthrop

Message from our Board President

This autumn, the lake levels stayed unusually high prior to

Dear Members and Friends,

Some of us have a personal attachment to a specific lake. Perhaps you went to summer camp on that lake or spent idyllic summers there with your parents and grandparents. Maybe it's where you caught your first fish or kept your boat. Then there are those of us who are polyamorous when it comes to lakes. You are the person who drives around with a kayak on top of your car, a boat trailing behind it, or a fishing rod and tackle in your trunk ready to explore as many lakes as possible. Whichever group you fall into, you understand that each lake is unique with its own set of opportunities and challenges. If you would like to take a deep dive into the nature of those opportunities and challenges, I encourage you to visit our website, www.mainelakes.org , and explore the "My Lake" dropdown menu. Here you will find a wealth of information on the individual lakes in our service area, including size and depth, fish species, invasive aquatic species, temperature, water testing and watershed data, and other relevant items.

While you are on the website, you may want to also visit the "Science Center" tab and click on "Initiatives." This section will give you a look at how and why we test the water as well as information on the strong collaborations and educational programs we have developed through our Science Center. When you have finished that section, wander over to the "Resources" tab to learn what you can do to help keep our lakes healthy. If you are feeling antsy after all that scrolling, head over to "Events" and sign up for our 7th Annual Paddle Battle paddle board and kayak race on Highland Lake, or one of our nature walks. By now you may need to stretch your legs, so I suggest concluding your browsing at the "Trails/Preserves" tab where you can find your next hiking destination.

Visiting our website is a great way to see exactly where your dollars are going, and how we seek to fulfill our mission. We are proud to be a member-supported nonprofit organization as we enter our 54th year of service, and I can't thank you enough. Your donations, volunteer hours, participation, encouragement, and feedback continue to be a key component of our success.

And please, don't forget to follow us on social media!

With gratitude,
Lydia Landesberg
President,
LEA Board of Directors

Save the Date

LEA Annual Meeting

Wednesday, August 14

5-7pm at the Bear Mountain Inn

Early Detection

Mary Jewett

People are often willing to put a lot of effort and money into correcting a problem that is highly visible. Unfortunately, preventing that problem in the first place, or nipping it in the bud, does not usually get the same amount of attention -- despite being much more effective and cost- efficient. This is certainly the case with invasive aquatic species.

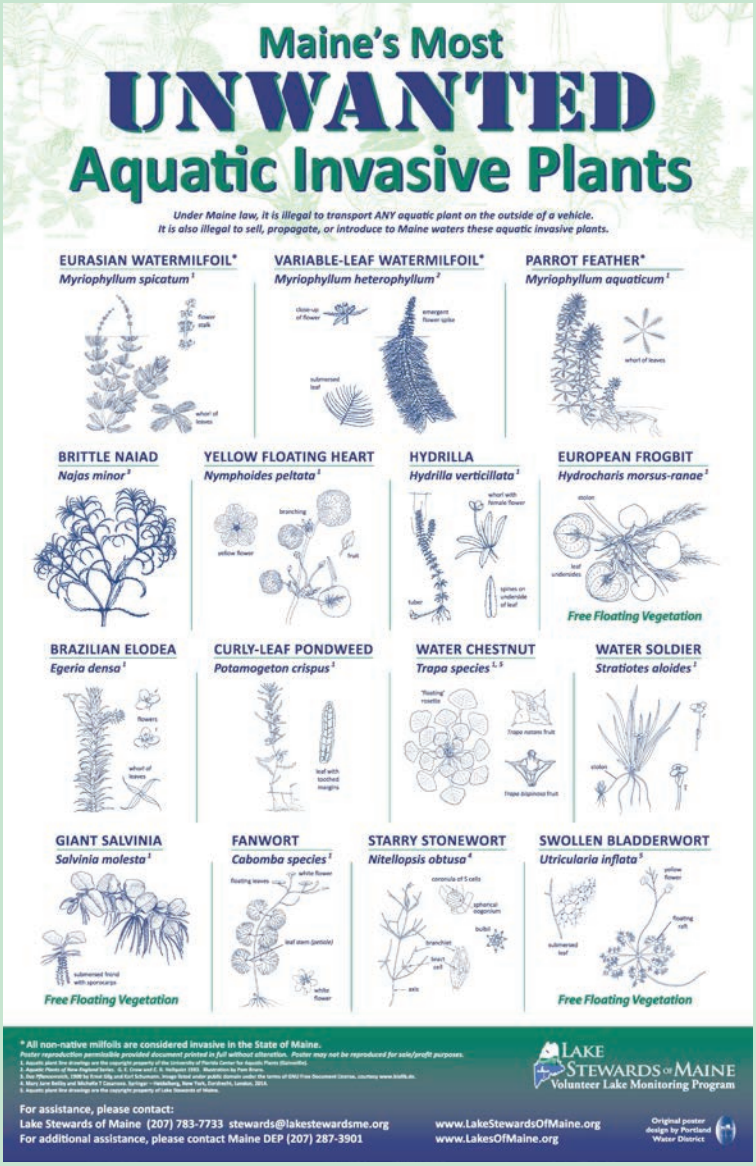
In 2009, hydrilla was discovered in Damariscotta Lake by a trained plant patroller. This passionate individual knew where to look for potential invasive plants and how to identify them. Hydrilla is one of the 15 "most unwanted" aquatic plants in Maine and usually requires management with herbicides. This process took place on Damariscotta Lake for many years until, in 2017, no trace of this invasive species remained.

In 2020, LEA Courtesy Boat Inspector Gilon Backlund removed a large piece of variable-leaf milfoil from a boat leaving Long Lake in Harrison. Up until this point, the north end of Long Lake was considered free of any infestations. The plant Gilon found still had roots, which led us to believe it was picked up close to the launch site. Sure enough, a large patch of invasive milfoil was discovered between two marinas adjacent to the boat ramp. The LEA plant control team was able to address this newly discovered patch of milfoil immediately, preventing further spread by boaters.

Early detection of aquatic invasive species can reduce the impacts, as well as the cleanup costs, of new infestations. While discovering an invasive plant in one of our beautiful lakes is disheartening, it is far worse if an infestation goes unchecked. When it comes to invasive plants, ignorance is definitely not bliss.

You can help protect our lakes by keeping an eye out for suspicious plants this summer. Take a look at the 15 Most Unwanted poster here, and use that to help identify any plant that might be invasive. If you determine the plant you have is suspicious, please use the QR code here to submit photos to LEA.

Use this QR code to submit high quality plant photos. LEA staff will work to eliminate the 15 most unwanted invasive plants.



Invasive Hydrilla

Outdoor Learning with LEA

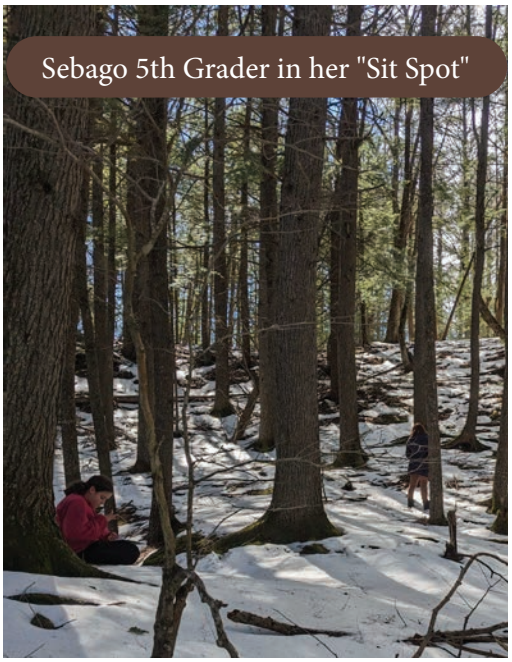
Emlyn Emerock

Imagine you are sitting in the woods somewhere familiar. Maybe there are tall, graceful hemlocks overhead and a cool warm breeze passing by. What has changed since the last time you stopped by? How does this place look or feel different throughout the year? These are questions we learn to ask when we take time to slow down and build a sense of place. These are also questions 5th graders at Stevens Brook, Crooked River, and Sebago elementary schools are asked each month during their LEA lessons.

This year, we're back at the schools with our 5th grade Place Program, exploring nearby trails to learn about seasonal changes, native plants and animals, and freshwater resources. Each month, the students pay a visit to their special "sit spot" and write or draw about their observations. As we've watched the seasons change, they've learned to identify trees, animal tracks, and scat that we've encountered on the trail. The students share creative observations and make me look at the forest in new ways. To them, the scaly cones of Eastern Hemlock look like dragon eggs. As I write this I'm remembering that my coat pocket is still bulging with these little treasures from today's game. We've talked a lot about respecting nature, which often means leaving natural things we find in the woods, and I make a mental note to put the cones back in the woods after this week's lessons. Their natural curiosity at this age is an asset, and through the guise of games and play-based learning, we can build environmental literacy and a deeper sense of place.

As many of you know, the 5th grade Place Program is only the beginning of these students' experience with LEA. In 6th and 7th grade we'll dive deeper into waters and watersheds and build an understanding of lake health. From that point, our outdoor education is mostly focused on aquatic environments. Spring highlights include raising and releasing trout and getting out on Long Lake for the well-loved "Hey You!" cruise each June. This summer, I'm looking forward to helping with our annual Eco-Explorers nature camp at Holt Pond.

Next time you visit that familiar spot in the woods, I hope you notice something new or different from your last visit. Who lives here, and who else passes by as a visitor, as you do? What questions will you ask?



Sebago 5th Grader in her "Sit Spot"

Crooked River Elementary School students playing a migration game

PFAS: An Alphabet Soup of Concern

Ben Peierls

From contaminated milk caused by sewage sludge spread on farm fields to new drinking water limits set by the EPA, news about PFAS (per- and polyfluoroalkyl substances) continues to grow. PFAS are an extremely broad class of synthetic chemical compounds (many thousands with tongue twisting names) used in non-stick cookware, food packaging, fire-fighting foams, personal care products, and more. Their chemical properties make them persistent in the environment earning them the name "forever chemicals". Because PFAS are so widely used and so persistent, these chemicals have been found almost everywhere around the globe, including water, air, and soils.

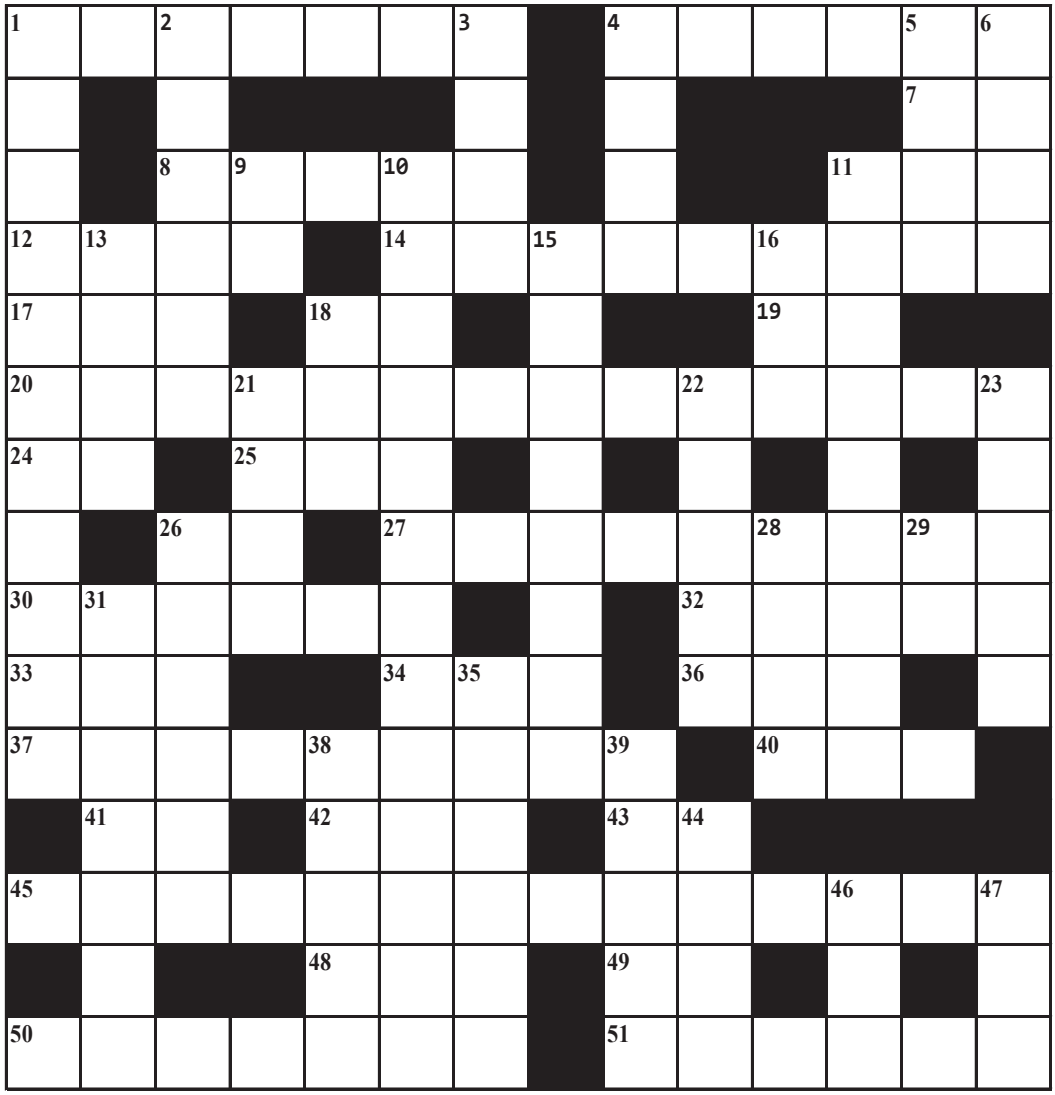
PFAS enter the environment from sources like landfills and wastewater treatment plants, manufacturing facilities, and sludge and septage application sites. PFAS bioaccumulate in the tissues of animals, including humans. Surveys of PFAS in human blood suggest that most people have been exposed to some level of PFAS through the environment or PFAS-containing products, and contaminated air, water, or food. While research is still ongoing, current studies show that PFAS may have human health impacts, such as decreased fertility, disruption to hormonal and immune systems, and increased cancer risk.

PFAS have been detected in US and global groundwater, rivers, streams, and lakes, particularly in areas with known PFAS contaminations. Still, data on the spatial and temporal distribution of PFAS in surface waters are lacking, including in Maine. Given the interest and concern about PFAS and the gap in baseline data, LEA has applied for and received funding for a new project to determine PFAS concentrations in local lake water. There are no known local industrial or fire-fighting foam sources in the LEA service area, but there are a few licensed and active septage and sludge application sites within the lake watersheds. We did some preliminary sampling in Crystal and Long Lake and had the samples analyzed for 30 different compounds. In Long Lake, 23 different PFAS compounds were detected (though not above the reporting limits) and the sum of the six Maine-regulated PFAS compounds (PFDA, PFHpA, PFHxA, PFHxS, PFOA, PFOS) in that sample was 6.5 ppt (parts per trillion). While the results were below the Maine interim drinking water standard of 20 ppt, these findings are from a very limited study in one area, and PFAS action levels may change as more research is done on these chemicals.

This summer, we will be doing more sampling for PFAS on many of the lakes we regularly monitor. We look forward to sharing our findings with you in future communications.

LEA did preliminary PFAS testing on Long Lake last year

Crossword Puzzle



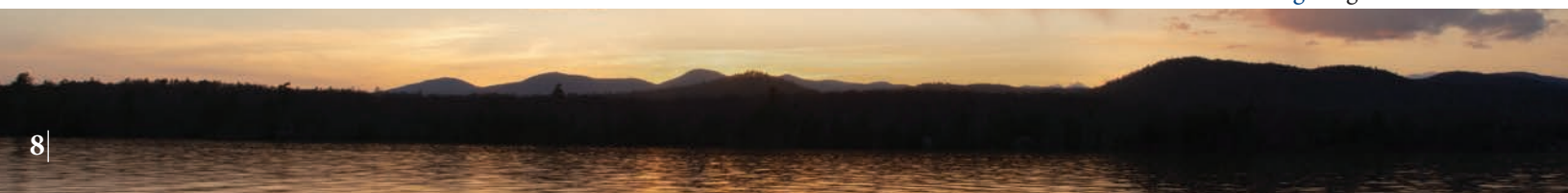
Across

1. The colors of a Maine sunset are ___
4. What someone does at the end of a joke
7. Appalacian Trail
8. Taken _____
11. Genetic building blocks
12. Super ____, or popular vintage Chevy
14. The study of lakes
17. Primate, or imitate badly
18. ___ - annual, frequency of Lake News
19. It takes about __ hour to paddle to shore
20. Popular warmwater game fish
24. Measurement of acidity in water
25. Your favorite regional lake association
26. In reference to, as in an email
27. Chemical analysis in which the concentration of a sample is determined by slowly adding another substance. Think back to high school chemistry – (measured glass burette, Erlenmeyer flask)
30. Favorite morning juice for many
32. Another term for flipflops, especially "Down Under"
33. Efficient light bulb type
34. Consumer Price Index
36. A female chicken or lobster
37. Embroidery on LEA hats
40. Yellow Springs Incorporated
41. Ruthenium
42. Captain of the Millennium Falcon in the original Star Wars trilogy
43. Contraction for I am
45. Young musicians go here to study on Stearns Pond
48. What a birthday celebrates
49. _ _ Eliot, poet and essayist
50. Nickname for Maine's largest turtle
51. Non native buffer plant, popular with deer (plural)

Down

1. Temporary pools in spring
2. Aquatic architect, also ponds in Bridgton and Denmark
3. Torch for deterring bugs / Kon-_____
4. LEA mascot
5. Don't forget to _____ your towel after swimming
6. Tarry a while
9. Barium
10. Hottest threat to Maine lakes
11. Much of LEA's work is funded by ____.
13. Hawaiian fish
15. Bear ____. A hiking trail in Waterford
16. Maine Lake Science Center work space
18. Important pollinator
21. A glade
22. Sheep laurel and leatherleaf are in the _____ family
23. Lightly burn
26. RA on the periodic table
28. My friend wanted to support LEA, so _____ became a member!
29. Opposite of off
31. What returning summer employees do
35. Crayfish arms
38. Not expensive
39. Tree circumference
44. Middle, as in lake layer
46. Not in
47. Aquatic Invasive Species

Visit www.mainelakes.org for game solutions



Lake Turnover Jumble

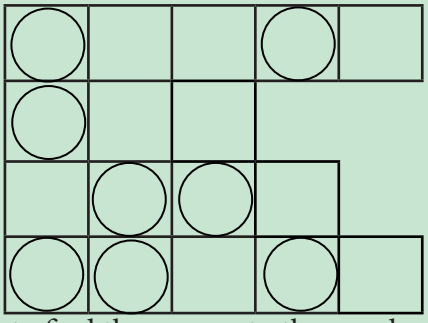
Unscramble the letters to form words

E A C R D

A K O

N P E I

R E S E T



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

What do you do if your science jokes don't get laughs?

KEEP TRYING UNTIL YOU GET A:

Muskrat with a sprout

Eco-Explorers Camp

What: Nature Day Camp for 7-11 year olds

Where: The Holt Pond Preserve in Naples

When: August 5,6,8 & 9

$150 for members and $175 for non-members

More information and applications at mainelakes.org

Top: Rosco and Caden bug hunting

Bottom: Past Eco-Explorers at Holt Pond

Increasing Loon Reproductive Success

Maggie Welch

This spring and summer, LEA is again working with volunteers to build and deploy nesting platforms and monitor loon populations in the Lake Region.

Last year was a challenging season for both loons and this restoration project. Frequent rain, high water levels, and strong winds resulted in below-average water clarity which generally reduces the hunting success rates of this visual predator. These conditions also caused some of our loon nesting platforms to move. Of the five rafts deployed in our area through this collaborative project, only one platform produced a chick that survived. While we thought that the high water levels would lure loons to nesting sites less susceptible to flooding, overall use of the rafts was lower than in 2022.

Interestingly, natural nests located on the shoreline were more successful than they had been in the past. This could be due to wet weather which reduced the amount of boats and people on the water during loon brooding season. Last year's findings and information gleaned this season will give us more insight into the loon pairs that might benefit the most from outreach to reduce human disturbance near loon nests.

As this project continues, we are learning more about how to assist loons that struggle to hatch chicks as a result of nest flooding and human intrusion, and how to better address other threats to their survival. If you are interested in helping with this project, please contact LEA's staff limnologist Maggie Welch at maggie@mainelakes.org.

This project is funded by the US Fish and Wildlife Service and is part of a partnership with Maine Audubon, Maine Lakes, and the Penobscot Nation to help local loon populations rebound from losses caused by the 2003 B-120 oil spill in Buzzards Bay Massachusetts.

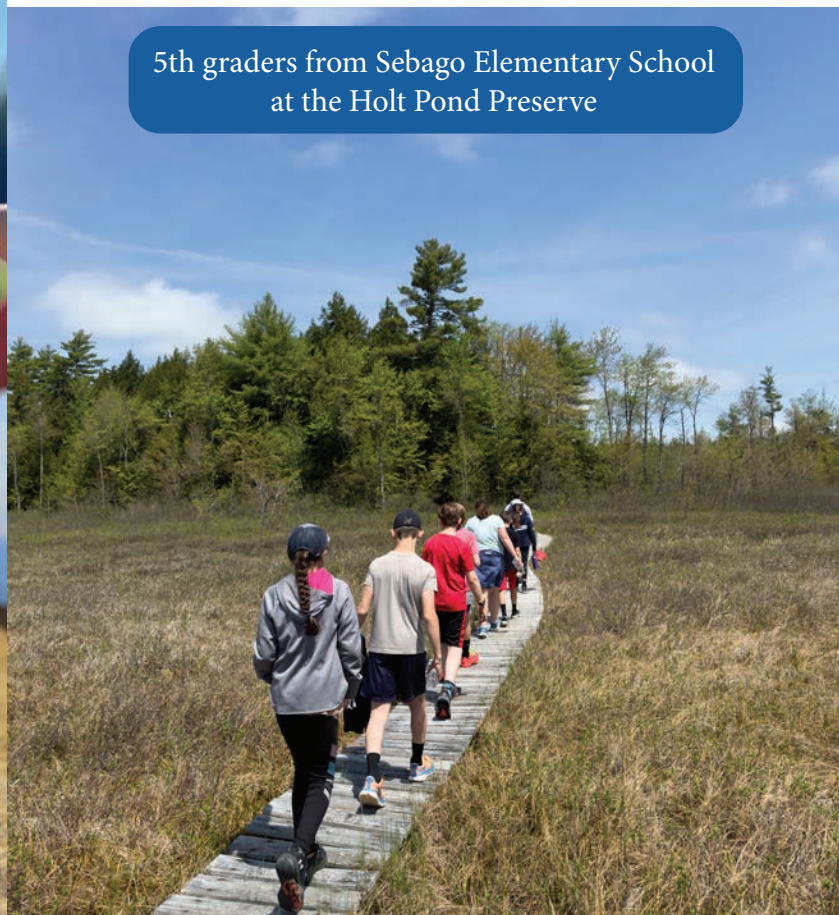
Loons in a territorial dispute on Back Pond

Lake Legacy

Charlie Tarbell - LEA Treasurer

This is another in a series of articles on the subject of LEA's Lakes Legacy League.

The picture next to this article is of my three-year-old granddaughter, Hayes, on the shore of Keoka Lake. Hayes was lucky enough to be born into a "legacy" on Keoka. My grandmother started coming here as a teenager over one hundred years ago. I like to think that Hayes' grandchildren will still be enjoying Keoka in another one hundred years. To that end, I'm helping to ensure that Keoka's water remains as clear and pristine in 100 years as it is today. I'm doing that as an LEA Board member, but also, more importantly, as a member of the LEA Lakes Legacy League (L4). Members of this group have committed to supporting LEA in their estate planning. We recognize all living and deceased members of the League each summer at the LEA annual meeting. If you are possibly interested in joining, talk to your financial advisor and then reach out to Colin Holme or myself. We'd be honored to have you as a member.



5th graders from Sebago Elementary School at the Holt Pond Preserve

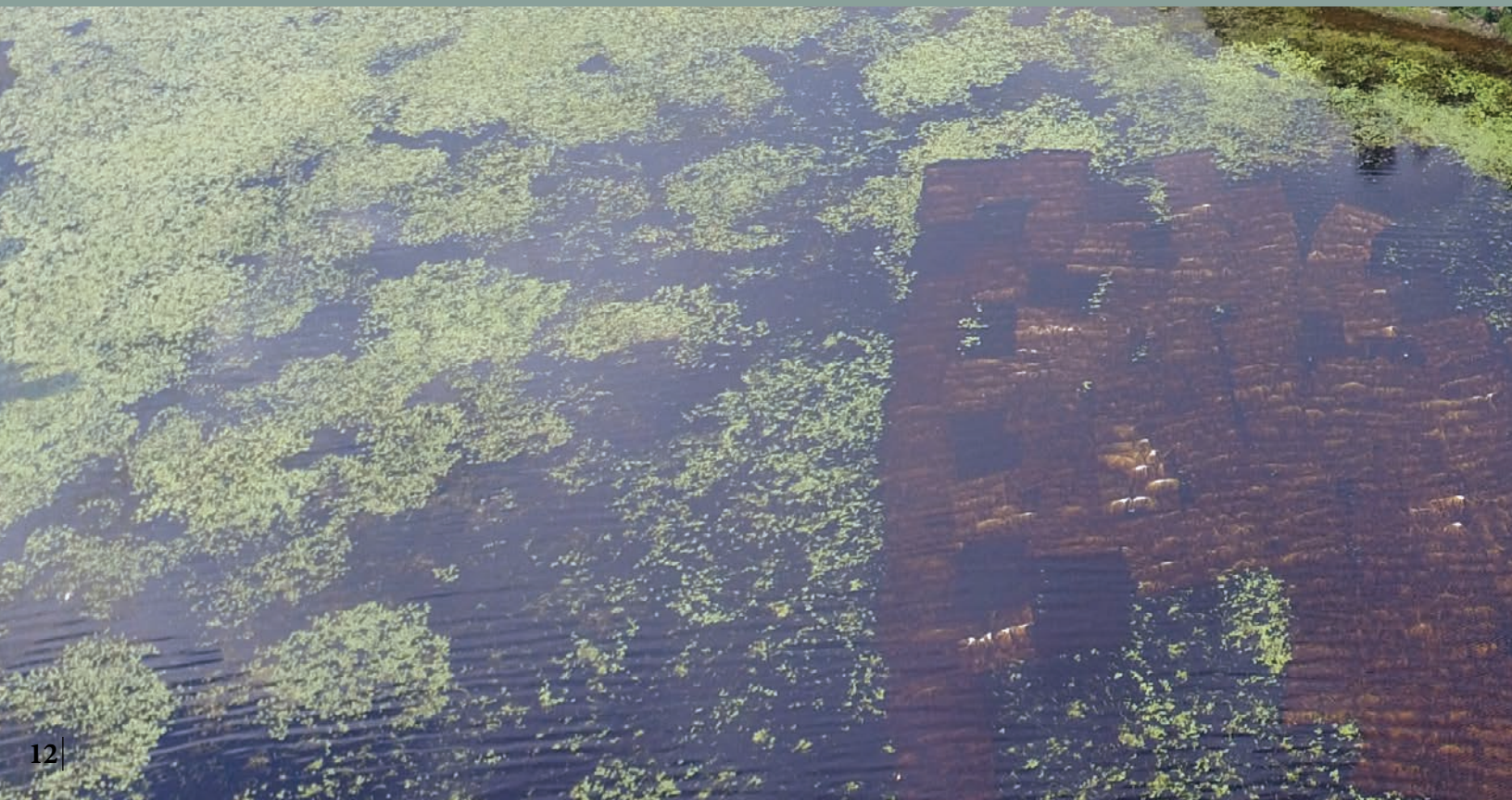
Meet the Milfoil Crew Captains

Michael Flannery

The LEA milfoil crew will be back in action this season! We will continue our work on Long Lake, Brandy Pond, the Songo River, and the northern parts of Sebago Lake. We are fortunate to have three returning captains again this year. They will be on the water every day, teaching newer crew members how our program operates and ensuring that everything runs smoothly. Our crew leaders are friendly, knowledgeable, and deeply committed to their work. If you spot one of our teams out on the water, any one of our captains will be happy to answer your questions about our work to control invasive variable-leaf milfoil.

Alec

I graduated with a double major in Environmental Science and Environmental Studies from the University of New England. This will be my 5th season with the milfoil team. In the off-season, I am a math teacher at Kennett High School in North Conway, NH. I live in Conway with my wife, two kids, and our dog. We try to get outside as much as possible. I love hunting, fishing, mountain biking, rock and ice climbing, and paddling.



Morgan

I started on the LEA milfoil crew in 2021 and am now entering my fourth season, and second as a captain! I grew up and still live in Sebago, and graduated from Lake Region High School in 2020. I am an avid outdoorswoman and enjoy fly fishing, hunting, and hiking with my father and grandfather. Needless to say, protecting and preserving this area is very important to me! In the off-season, I work as a ski technician and spend a lot of time skiing at Pleasant Mountain. Some of my other hobbies include singing, playing the flute, camping, and cooking. I look forward to this season, and I can't wait to get back to diving!

Walker

I joined LEA in 2017 as a courtesy boat inspector and then transitioned to the milfoil program before becoming a crew captain. Being from Naples and Bridgton, working with LEA on our local rivers and lakes has been very meaningful to me. I've had the opportunity to work with great people, make lifelong connections, and have a positive impact on the environment I grew up in. Outside of LEA, my passion lies in music. After the milfoil season this year, I plan to pursue a career in education and composition. I am grateful for the opportunities and experiences LEA has provided me and plan to spend my summers on the boat for as long as I can.

Benthic Barriers in Sebago Cove

Engaging Your Lake Community in Fun and Learning

Ginger Eaton, Keoka Lake Association

Kids from Keoka Lake Campground learning about invasive plants

Keoka Lake Association's (KLA) mission is to preserve and protect Keoka Lake. Education is a HUGE component of our services in support of that mission. We produce a newsletter, engage with local schools and the library, and sponsor periodic events designed to get Keoka Lake users engaged. Still, garnering support beyond our immediate lake association membership can be a challenge. This article describes one way Keoka Lake Association addressed that challenge.

In July 2023, our education team ran a one-day interactive exploration program on invasive aquatic species that brought together property owners, boat owners, day users, campground users, Plant Patrol volunteers, LEA plant scientists, and KLA members. The program required a good deal of work, but it produced some memorable fun and learning.

The weather was perfect. The day involved a community, family-friendly gathering at Keoka Beach Campground and educational demonstrations from LEA plant scientists with hands-on training on invasive plant identification. This was followed by a free raffle featuring donated merchandise, which indeed got everyone's attention. Then, we took to the water en masse, with seven pontoon boats ferrying folks to those spots where Keoka is most vulnerable to infestation. In addition, complementary pizza and beverages were served aboard each boat. Participants came away with a greater understanding of what invasive aquatic species are, why they are such a problem, and where the lake is "at-risk". We preceded our event with a Zoom virtual "tune-up" training for Plant Patrollers by LEA and Lake Stewards of Maine. We promoted the event through social media and at Waterford's annual July 4th parade.

It was a memorable day of community building, education, and fun. I wholeheartedly endorse others to try it out on your lake. I will also be offering a "how to" presentation at LEA's Lakes Symposium on June 14th. Don't miss it!

Houseboat Regulations Needed?

Lauren Pickford

After hearing some alarming stories a few years ago, we suggested some towns in our service area pursue regulations around houseboats. However, other priorities came up and the idea was temporarily shelved. Last summer, the issue resurfaced after a houseboat on Highland Lake was listed on a short-term rental site without any associated shore-front property. While many folks had concerns over various aspects of this new rental, the biggest issue for everyone related to proper sanitation. Highland Lake, along with most lakes in the Lake Region, lacks a pumping station for wastewater, and the particular boathouse in question did not even have a contained toilet.

Improper disposal of human waste into our lakes poses health hazards to swimmers and the risk of water contamination. Boat sanitation systems designed for the ocean use chlorine to "treat" wastewater, but they are not suitable for (or allowed on) inland waters. Our lakes can't handle chlorine, added phosphorus, untreated sewage, or gray water. However, the potential impacts of houseboats and insufficient mooring regulations aren't limited to wastewater accommodations. They also include wildlife impacts, light pollution, sound pollution, availability of emergency services, boat traffic, and impacts on waterfront taxpayers.

Houseboat on Highland Lake in Bridgton

Crafting effective rules requires time and careful consideration. LEA continues to collaborate with the Bridgton Planning Board to develop regulations that strike a balance between property rights, environmental conservation, public access, and public safety.

In towns without mooring or houseboat regulations, there is little to prevent someone from tying up a houseboat anywhere along the shoreline. Houseboat ordinances can set reasonable limits on this type of activity to protect public health and safety.

One of the most important issues that needs to be addressed before regulating houseboats is enforcement. Bridgton does not have a harbor master, and code enforcement does not have a boat or the authority to patrol the waters. LEA is currently urging the town to consider hiring a harbor master, similar to Harrison or Naples. Depending on the type and authority of the harbor master, this future position could help with other health and safety concerns on the water that LEA regularly receives calls about. If this issue is important to you, please contact your local select board, planning board, or town manager and let them know how you feel.

Water Testing 101: "Core" vs "Grab" samples

Rachel Harper

In 2023, LEA collected 261 core samples and 139 grab samples from the surrounding lakes. These two different water sampling methods both provide valuable data that help us paint a picture of what is going on within the lake.

We take epilimnion core samples biweekly at each lake from the third week in May through the second week of September. The word epilimnion refers to the upper, sunlit waters of the lake. On the other hand, we take grab samples during the last two weeks of August to understand how much phosphorus is in the deep waters of the lake.

When collecting a core sample, we slowly lower a tube into the water until it reaches the depth of the thermocline (zone of rapidly changing temperature determined by a dissolved oxygen and temperature profile). Once the desired depth is reached, we pinch the tube to prevent water from leaking out and quickly pull it out of the lake. The water is then drained into a mixing jug, where more sample water will be added until the required amount is collected. This is then used to fill all sample bottles needed at the test site. Using a core sample gives us a great overview of what is going on in the upper waters of a lake or pond which, of course, are the waters that most people interact with! Because it is a composite sample composed of multiple cores of several meters each, the sample provides data on average conditions in the sunlit waters. We then can use this data to compare current lake conditions to previous years or surrounding lakes.

Rachel taking a core sample

However, to look at a particular depth in the water column, we need to collect a grab sample. The process of collecting a "grab" is fairly simple…if you have the right equipment! We use a Van Dorn sampler, which is a 4-inch wide cylinder about a foot long with gaskets on each side attached by a thick elastic band. We lower the cylinder into the water on a line until we are at a specific depth, then send down a weight called a "messenger," which triggers the device to close and seal water in from that depth. We then bring the Van Dorn back up to the surface to fill sample bottles with the collected water.

A grab sample can identify deep water phosphorus levels, which will indicate if nutrient recycling from the bottom sediments is an issue. LEA uses this method in late August after the lakes have been stratified for several months, deep water oxygen levels are lower, and phosphorus recycling may be occurring.

While it makes sampling a little more complicated, using both core and grab samples provides us with a better understanding of our lakes' long-term and short-term health.

Winter Monitoring

Ben Peierls and Maggie Welch

January 2024 marked the start of LEA's seventh season conducting winter lake monitoring—and what a season it was! We got off to another late start due to the warm and wet weather, which delayed freeze-up until early January. Even once closed in, much of the ice consisted of weaker, "white" ice, so our trips did not start until later in the month.

Despite the setback, LEA staff made one or two trips to each of 15 lakes, for a total of 28 visits. Not the most so far, but still a respectable effort. Even more so considering that ice started thinning and becoming dangerous in early to mid-March. We had ice-out dates almost a month earlier than last year. Rachel, our new Field Technician, certainly got her "feet wet" (frozen?) with winter water testing. She went on every one of the site visits with help from Maggie, Michael, Ben, and Emlyn. Michael learned how hard it is to skate while pulling a sled in high winds. Ben was retaught the lesson of how important it is to have ALL your equipment in hand before heading out.

We collected under-ice data and samples for our regular set of lakes (Back Pond, Hancock Pond, Highland Lake, Keoka Lake, Keyes Pond, Long Lake, McWain Pond, Middle Pond, Moose Pond, Peabody Pond, Sand Pond, Trickey Pond, and Woods Pond). We added two more lakes this year: Bear Pond (last visited in 2020) and for the first time, Holt Pond. The profiles of temperature and oxygen displayed typical winter inverse stratification and looked very similar to previous years' conditions. Bottom water oxygen concentrations did not get as low as in other years, probably due to the shortened ice-covered period. Total phosphorus and chlorophyll were within the range seen in our summer samples. Many of the algae species observed using our FlowCam deal with the low light of winter by using organic matter in addition to photosynthesis to grow. All these results will add to our growing database and knowledge of lake dynamics throughout the year. Please do help us by sending your observations of both ice-in and ice-out on your lake if you are able to be there at those times.

Partial support for this work was provided by the lake associations on the lakes we studied. Thanks also go to Rebecca Gould and Bill Buckley, Ann and Dan Lasman, Bob Mercier, Marilyn Smith, Chip Wendler, and Camp Tapawingo for providing lake access.

Rachel and Maggie on Back Pond

Stream Crossing Projects

Lauren Pickford

From small streams to the Crooked River, numerous waterways face barriers that disrupt their function right here in our watershed. Aging culverts, failing structures, and climate change threaten not only the free movement of aquatic life but also the integrity of water quality and the safety of our community. Freshwater fish must move throughout a watershed to access breeding grounds, feeding areas, and suitable habitats for survival and reproductive success– undersized culverts prevent this movement.

We plan to reconnect many miles of habitat for fish and aquatic organisms in 2024. The in-water work season is less than three months long– here's what we plan to accomplish in that time.

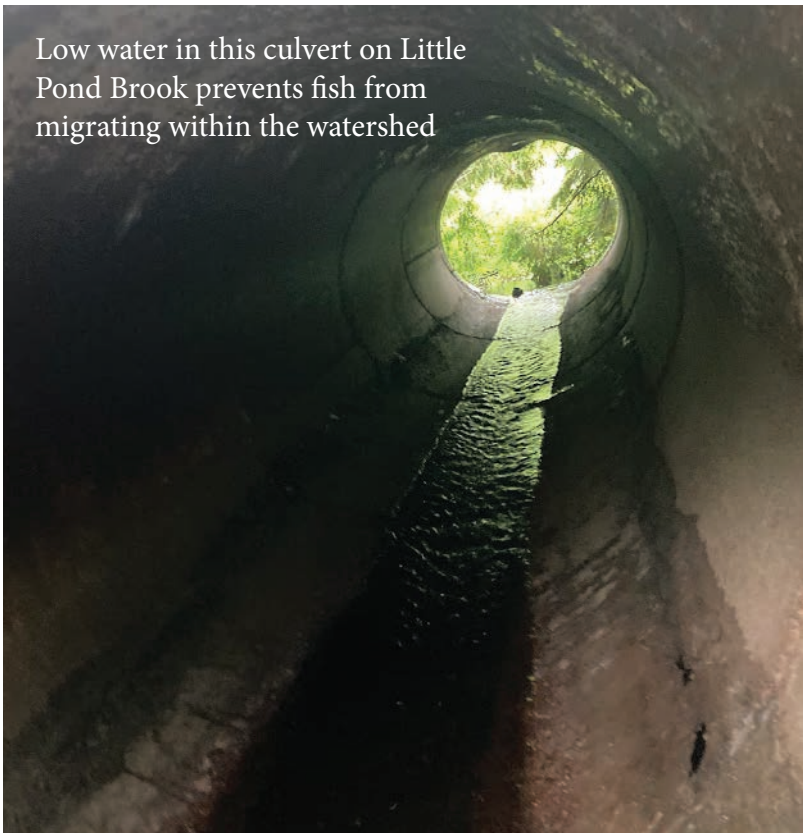
Edes Falls Dam removal - The Crooked River is a unique resource, with one of only four landlocked salmon populations in Maine. As the largest tributary to Sebago Lake, it runs 62 miles from Albany, where it joins the Songo River near the lock in Naples. The Crooked River provides nearly all the spawning and nursery habitat for the landlocked salmon in Sebago Lake. Studies have shown that over 80% of the spawning habitat is located above Edes Falls Dam. During dry years, spawning times near the end of September coincide with little flow over the center of Edes Falls dam. With many partners, LEA is helping to remove this barrier to the unique species. Not only will this project open the river up to better conditions for the salmon, it will benefit all aquatic organisms in the river. Part of the project includes improving the Edes Falls Park grounds for recreation opportunities.

Chaplins Mills - Year after year, flood after flood, Chaplins Mills Road has been at the mercy of Mother Nature. Where the Muddy River meets the road, there is a failing metal pipe that has caused flooding and undermined the road, making it unsafe. With help from a private foundation, LEA provided funding for the engineering and most recently helped the town of Naples secure a $200,000 Maine DOT grant for the structure replacement. In the culverts' place will be a concrete bridge that will allow the Muddy River to flow freely, reconnecting aquatic and terrestrial habitats.

Sampson Brook - A large metal pipe in the middle of the woods in Waterford is limiting the passage of fish and other organisms into the Crooked River. This summer, we plan to remove the culvert and restore the stream to its natural state before the road was created. This project is unique because the landowner is willing to retire the old, unused logging road. Once completed, it will open up over 3 miles of habitat for brook trout and other aquatic species.

Sampson Brook and Edes Falls Dam projects are part of the collaborative work with Sebago Clean Waters through the coalition's USDA Natural Resources Conservation Service federal funding award.

More frequent intense rainfall is creating scenes like this one- where the road washed away revealing two damaged culverts on Carsley Brook in Harrison



Low water in this culvert on Little Pond Brook prevents fish from migrating within the watershed

Cape Monday Cove – A Diver's Perspective

Morgan Cross

Over the past three years as a milfoil diver, I have worked to eradicate variable-leaf milfoil in just about every location that LEA services. Throughout this time, I have been able to witness the progress our crews make in the field. It is a very satisfying feeling to see an area that is infested with invasive plants convert to a beautiful environment for native plants to grow and wildlife to thrive. From the Songo River and Sebago Cove to the Northwest River and Long Lake, I have been a part of many projects. The most fulfilling, however, was in Cape Monday Cove in the 2023 season.

At the beginning of last summer, I was told that Cape Monday Cove on Long Lake had more milfoil than in years prior. In 2022, we laid three benthic barriers on small patches of milfoil and followed up with some hand-pulling. Upon arrival in 2023, I was shocked. The plants on the east side of the cove between Pitts Road and Pine Point Road were deep and dense. Most of them were taller than I am. Simply hand-pulling would not be effective enough on a patch this size. It immediately became clear to us that we needed many benthic barriers to combat the growth. While the majority of the plants were very localized, there were a few plants in other areas, so we started by removing those first. We also found multiple floating fragments at the entrance of the small cove that needed the most work.

In total, we ended up laying fifteen 30 ft. by 20 ft. benthic barriers in Cape Monday Cove, covering about 9,000 square feet of plants. After laying the barriers, we suction-harvested multiple times around them over three days. While harvesting, we had multiple people kayaking and on paddleboards watching out for and collecting stray fragments. After this initial push, the area looked a lot better. Over the next few weeks, we frequently checked the cove, hand-pulled, and looked for any fragments.

While we continued to find individual milfoil plants sporadically for the next few weeks, by the end of the season the cove looked great. The landowners who have docks could now safely navigate their boats without driving through large patches of milfoil. Being able to see a dramatic improvement in one area is very rewarding, and we are hopeful that we will be able to build off last year's success this season. While there is still work to be done, the progress we made is remarkable!

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Photo credit: Beth Lake

Maine is home to many beautiful natural features. This year brought us two awe-inspiring moments; a total solar eclipse in April, and the sudden appearance of the Aurora Borealis in May.

Photo credit: Mary Jewett

Protecting Waters and Watersheds in the Greater Sebago Lakes Region

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