

WATERSHED VIEWS

NEWSLETTER OF THE KEZAR LAKE WATERSHED ASSOCIATION

FALL 2020



RICK PILSBURY

Science Drives KLWA Water Quality

by RICK PILSBURY

Water quality is at the core of the KLWA mission. We discuss it in every meeting and newsletter and always will. I wanted to better understand how we gather WQ data so I volunteered to chauffeur/skipper three scientists from FB Environmental, the environmental consulting firm that supports us on various projects.

I met Laura Diemer, Christine Bunyon, and Margaret Mills of FB Environmental at 8 AM in the Narrows. They loaded lots of exotic instruments and gear into my boat and we headed north to the water sensor buoy site in the Upper Bay.

The first step is to moor the boat to the buoy that suspends the water sensors, of which there are 13 measuring dissolved oxygen and temperature in the Upper Bay, the deepest spot in the lake. Then the sensors are pulled up and linked to a “shuttle” download device that pulls data for later analysis. At the same

time, dissolved oxygen and temperature readings are measured using a handheld meter as a calibration check against the sensor readings.

Next is water sampling for later analysis. A long plastic hose is lowered into the lake, clamped shut, pulled up, and the water in it is dumped into various vials for testing at a state laboratory in Augusta. The process is harder than it sounds and involves lots of rinsing and cataloging.

Finally, water clarity is measured using a Secchi disk and scope, a simple method where a disk with black and white quadrants is lowered to a depth where it's no longer visible. The depth at this point is also recorded.

Do this in the Upper, Middle, and Lower Bays and you'll call it a full day. The process was very professional, precise, and scientific. Thanks to the folks of FB Environmental for letting me tag along. And please know that KLWA's water quality report is driven by excellent scientific data. ♡



RICK PILSBURY

Water Quality Remains Stable

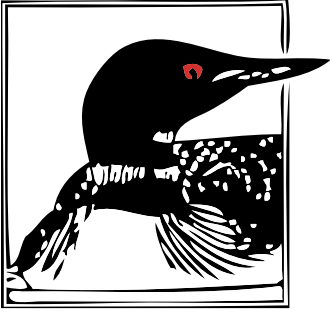
by HEINRICH WURM

One aspect of the watershed that did not suffer from an upheaval this year was water quality. We are happy to report that in three trips by FB Environmental and several volunteer outings in between, all results were well within accepted limits. We will post results later this year on our redesigned website and include a historical review of water quality data across the watershed.

Also new this year is an algae monitoring report provided by Steve Lewis: KLWA obtained algae sampling equipment to investigate if there were any causes for concern from cyanobacteria, a type of blue-green algae that, when blooming very densely, has the potential to produce toxins that may affect humans and pets. They are over two billion years old and present in all lakes at

low concentrations. Since a number of lakes in the Northeast have a problem with such blooms, we thought it would be a good idea to see if this was an issue in our watershed. It is important to note that cyanobacteria should not be confused with the cotton candy-like metaphyton algae clumps seen floating along our shorelines. The latter are a harmless green alga that are common in many low nutrient lakes. Cyanobacteria blooms (and other types of similar algae) look like thick pea soup and surface scum. Identifying blooms of concern requires a microscope which—I am happy to report—is part of Steve's armamentarium.

After several samples were taken in Kezar Lake and Horseshoe Pond, there was no indication of any sort of concentration of various cyanobacteria at all. Our waters are very clean and low on the lake nutrient scale, so algae blooms are not much of a problem for us. Monitoring will continue over the years to ensure that we don't have any future problems. ♡



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Kezar Lake Watershed Association

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Sandhill Cranes feeding in the Kezar Lake outlet marsh

HEINRICH WURM

President's Message

by RICK PILSBURY

Like everything else, 2020 offered challenges for KLWA. But we adjusted and got on with all projects and programs as planned. Be assured your watershed is healthy and safe, ready for whatever the future brings.

Water quality, the core of our mission, continues to be excellent and thanks to LIPPC and others, free from invasive plants.

Our loon program is now under the able guidance of board member Laura Robinson, who relieved Heinrich Wurm after nine year's of tireless service. Thank you, Heinrich, but don't go far. Your experience will be vital to us for years to come.

Our loons had a tough summer with only four chicks fledging. Predation and nest disturbance from boat wakes took a toll. Laura's story recounts an amazing effort by three volunteers and one willing loon to rebuild a sinking nest by "slinging handfuls of mud," which the loon used to restore the nest.

Our fisheries are challenged by warmer than ideal water. But we did notice improvement in the crayfish population, a key indicator of a healthy fishery. We surveyed the entire watershed and turned up about 80 samples and fortunately no invasive species. Selected crayfish samples are now being analyzed for mercury.

A situation at Cushman Pond came to light in mid-September when we learned the Maine Department of Inland

Fisheries and Wildlife lifted a ban on commercial bait fishing. Cushman residents and Lovell Invasive Plant Protection Committee (LIPPC) have been working for years to eradicate the invasive plant milfoil, which may have been introduced by bait fishing traps many years ago. Two year's of invasive-free status and uncounted hours of volunteer labor appeared in jeopardy. We reached out to IF&W and are urging them to restore the ban. Stay tuned.

Your watershed is in good hands thanks to KLWA's Board of Directors who are dedicated and passionate about our mission. And more importantly, thank you to members who make our efforts and programs possible. Please keep KLWA in mind as you do your year-end giving. ♡

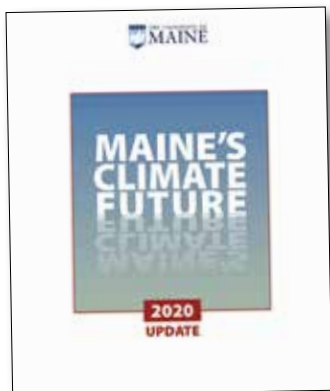
Maine's Year in Climate Change

by DON GRIGGS

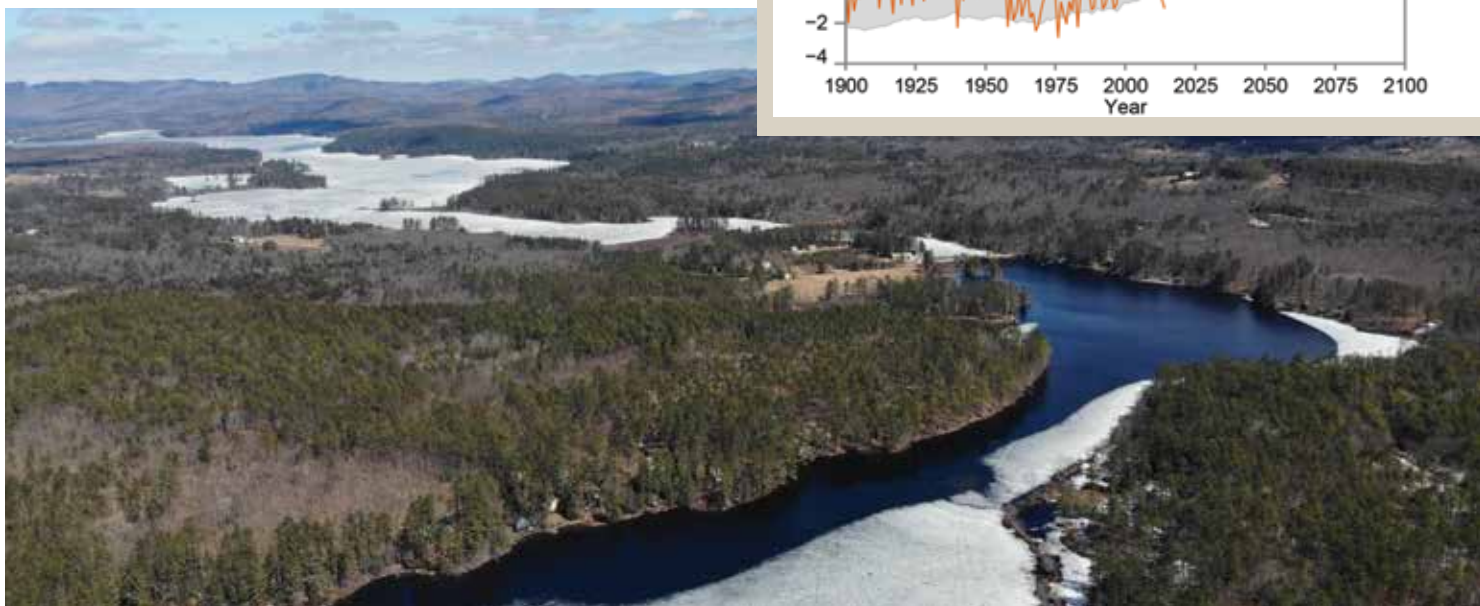
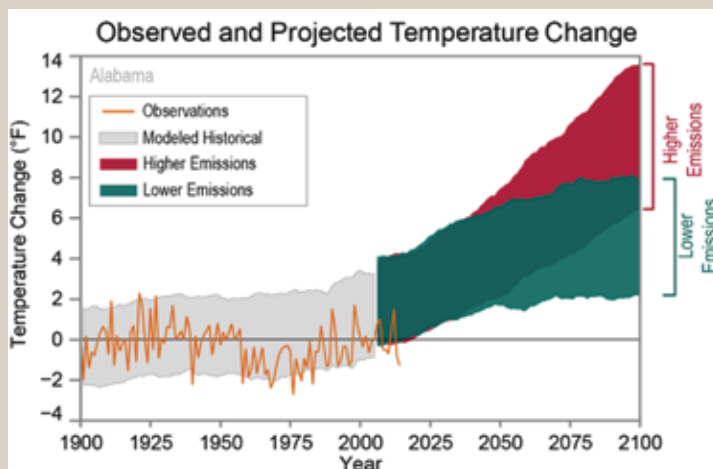
Maine's Climate Future 2020 Update

The University of Maine Climate Change Institute issued the *Maine's Climate Future - 2020 Update* to document important changes in Maine's climate since last recorded five years ago. The report also highlights examples of how our changing climate is and will continue to impact many aspects of Maine's economy, such as farms, forests, fisheries, tourism, and recreation. We must sound the call to action at every level—federal, state, municipal, and individual—to implement the mitigation and adaptation strategies necessary for the sustainability of our economy and the health of Maine people. We encourage you to read the report and find small but significant ways to change aspects of your daily lifestyle that will make a difference for the future of our children.

FMI: <https://climatechange.umaine.edu/climate-matters/maines-climate-future/>



Temperatures in Maine have risen about **3 degrees F** since 1900. Winter temperatures have been increasing about **twice as fast as summer temperatures**. Under a higher emissions pathway, historically unprecedented warming is projected by 2100.



2019 was the second warmest year on record (following 2016) according to the World Meteorological Organization. Average global temperatures have risen approximately 1.1 °C since the age of pre-industrialization (1900). Maine's average annual air temperature is changing remarkably fast. Over the last 124 years, the annual average temperature across the state has increased 3.2 degrees Fahrenheit, and the warmest years on record have occurred since 1998. As a result of these warmer temperatures and later frosts in the fall, the growing season is more than two weeks longer than it was in 1950. Additionally, the warmer temperatures are shifting ice out in Maine anywhere from one day to three weeks

earlier depending on changes to local climate conditions and individual lake characteristics. Climate change is also increasing the frequency and intensity of precipitation, causing inland flooding, damaging infrastructure, and impacting drinking water. Since 1895, average annual precipitation in Maine has increased by 15 percent, and it is coming more in the form of rain and less snow. Statewide average annual snowfall has decreased by an estimated 17 percent over the last century. During the winter season there are now more rapid shifts from freezing to thawing conditions, with Maine experiencing more days of bare ground and mud than snow, ice, and frost.

Climate Change

THE CHANGING CLIMATE IS HAVING PROFOUND IMPACTS ON KEZAR LAKE, AS WELL AS OUR FIELDS, FARMS, FORESTS, AND TOURISM AND RECREATION ECONOMY.



Farms

The farming community has shown incredible resilience to changing growing conditions in the last century. Farmers will continue to adapt to new growing conditions through regenerative agriculture, aquaculture, conservation tillage, improving soil health, and other practices. There may one day be state financial incentives to assist farmers with making transitions to these practices.



We interviewed **George Weston** of Weston's Farm in Fryeburg about his experiences with

climate change. "Climate changes are so obvious," said George. He observed that "the seasons are not as pronounced—fall is later and spring is quicker to melt into summer." Along with the blurring of the seasons, temperatures and storms are more extreme. Sometimes there might be two inches of rain in a half hour, and this impacts crops. Warmer winters and less snow raise "definite concern" about maple syrup production. Adding all these challenges to the usual challenges makes successful farming more difficult.

Growing crops have changed. For instance, sweet corn can

grow longer into the fall, while cooler crops like peas suffer and may not be planted as much. The decrease in snow in the winter results in less runoff in the spring, and farmers must irrigate more, which is an additional cost. Generally speaking, the changing climate means that farmers must be especially careful in the spring deciding how and when to plant crops. George speculated that the rapid warming of the Maine Gulf in the last several years is part of the reason farmers of our area are feeling the significant climate changes. He observes that "we're only 50 miles from that ocean."

LEIGH MACMILLEN HAYES



Forests

Maine's forests are projected to look much different by the end of the century, with Spruce, Balsam Fir, and Sugar Maple being pushed out of the state, though the impact from the spread of insect pests, deer browsing pressure, and invasive species on trees makes projections rather uncertain.



Local forester **Reg Gilbert**

has noticed an increase in acorn production in stands of Northern Red Oak on the northern range of the species. Some of these stands would only produce acorns every three to five years during the past twenty to thirty years that he has monitored them. During the last three to five years, the same trees have produced acorns nearly every year. This is in stands of mature and younger oaks and could possibly be due to

warmer falls with a later frost and freeze, and earlier spring conditions. An important impact of climate change on forest management is that warming fall, winter, and spring temperatures result in shorter times when the ground is frozen, which is necessary for responsible timber harvesting. These shorter harvest times result in reduced economic viability of the harvests and availability of forest products for industry.

LEIGH MACMILLEN HAYES



Tourism & Recreation

Maine's tourism and recreation will be much different in the future, most especially winter recreation activities such as skiing and ice fishing. These businesses are already making plans to expand into off-season opportunities to cover expenses and lost revenue with a shrinking season. Warming stream temperatures will greatly diminish the habitat range of cold-water fish species relied on for recreational fishing. Some of the remaining strongholds for cold-water fish species like salmon and trout will be in the White Mountains of western Maine, making Kezar Lake's watershed of utmost importance for fish habitat restoration.

Fisherman **Ed Poliquin** has observed that some of our area lakes have seen a



decline in Smallmouth Bass populations. His communications with Maine's Inland Fisheries and Wildlife Department indicate that this could be due to increased competition with a northern strain of Largemouth Bass that are thriving in the warming waters. Warming temperatures in winter and earlier ice-out also mean a shorter season for ice-fishing and limited options for good ice. Kezar Lake warmed early this summer and fishing was poor in August and September. Fish, especially Smallmouth Bass, naturally seek deep spots where water is cooler. There was a die-off of small (2-inch) perch in Kezar's Lower Bay

this summer. Speculation is that the warmer water temperatures in summer are affecting these fish.



Scott Davidson, a local hunter, said that the primary change that he experienced over the past ten years or so is the overwhelming problem with ticks. The warmer winters allow the ticks to survive and attack most all game animals with devastating effect. The larger animals such as moose and deer end up with many thousands of ticks attached, draining the animal's blood, weakening its health and ability to breed, and frequently leading to early death.



LEIGH MACMILLEN HAYES

Addressing Climate Change at the State Level:

Maine's Coming Climate Action Plan

The Maine Climate Council plans to deliver its Climate Action Plan to the Governor and Legislature in December 2020. In the Plan, it will outline adaptation and mitigation strategies to achieve some of the Council's major goals, such as: 1) Achieve carbon neutrality by 2045; and 2) Reduce Maine's greenhouse gas emissions targets outlined in state law by 45 percent below 1990 levels by 2030 and 80 percent below 1990 levels by 2050. According to the Eighth Biennial Report on Progress Toward Greenhouse Gas Reduction Goals (2020), Maine's carbon dioxide emissions have remained 10% lower than 1990 levels due to the use of lower carbon-generating fuels such as natural gas, use of renewables, and better ef-

iciency standards. Nearly 75% of Maine's electricity already comes from renewables and should increase with the passing of legislation in 2019 that incentivizes growth of solar power in Maine. For Maine, transportation is the largest source of greenhouse gas emissions at 53%, compared to industry (10%), commercial (10%), residential (18%), and electric power (9%). Within transportation, most emissions come from personal vehicles rather than air, rail, shipping, or marine traffic. Some proposed solutions include setting auto fuel efficiency standards, encouraging and investing in electric vehicles, and expanding public transit range and options.

Climate Change

Addressing Climate Change Impacts Locally

There are many ways that individuals, businesses, groups, or towns can make a difference locally to mitigate and/or adapt to climate change. Refer to the *Lake Dwellers' Handbook* or the "Do Your Part" Flyer for more helpful tips. See also Publications on the kezarwatershed.org website.

Develop a climate adaptation strategy at the municipal level to set goals and strategies for mitigating and adapting to the impacts of climate change on our local infrastructure and natural resources.

- Encourage local leaders to incorporate projected climate change induced weather events and conditions to the next Comprehensive Plan update and/or create a climate adaptation strategy (for one or more towns) that assesses vulnerability of natural resources and infrastructure, sets goals, identifies, evaluates, and prioritizes actions, and builds off existing municipal programs and initiatives. An example of a priority action would be to improve roads, ditches, swales, and culverts to accommodate higher and more frequent stormwater flow volumes.

Donate to or become a member of local volunteer groups that help to protect the area's natural resources. Reducing threats to better protect our natural resources will have great economic benefit in the long-term.

- Join local volunteer groups such as LIPPC to continue the outstanding progressive watch programs that help prevent and control invasive aquatic plants.
- Become a member of KLWA and support ongoing activities and programs such as water quality monitoring.
- Donate to local land trusts such as GLLT to help manage existing conservation lands and purchase new properties. Consider putting a portion of your property in conservation.

Be aware of activities on your property and make any improvements that will reduce the amount or chance of sediment erosion and pollutant runoff to the lake or ponds. Protecting Kezar Lake's water quality now will make the lake more resilient to climate change induced impacts in the future.

- Enlist your shorefront property for evaluation by the LakeSmart Program and become LakeSmart certified. Maintain or enhance your property's shoreline buffer with native vegetation (mix of trees, shrubs, and groundcover). Crown private roads and driveways, vegetate ditches, and install turnouts and water bars to direct water to the forest for infiltration. Stabilize and meander pervious pathways. Direct roof runoff to a rain garden or trench. Minimize and define parking areas. Wash cars and boats in an area where runoff is absorbed into the ground. Leave duff and grass clippings. Minimize lawn area and cut grass to three inches. Plant or mulch all bare soil.
- Regularly maintain your septic system and follow good housekeeping practices.
- Limit the use of chemicals, fertilizers, and pesticides or herbicides on your property or in your household. Clean up any auto fluid leaks and dispose of gas and used oil at local auto repair shops.
- Follow state and local regulations for timber harvesting that minimize the impact to streams and retain shaded stream habitat for sensitive cold-water fish species.

Reduce your carbon footprint to help reduce global greenhouse gas emissions that are causing climate change.

- Conserve energy use by purchasing energy-efficient appliances and other machinery and limiting consumption. Setting your thermostat 1-2 degrees higher in the summer and lower in the winter can make a major difference in greenhouse gas emissions. Consider purchasing an electric vehicle for your next car.

Loon Nests: A Difficult Year

by LAURA ROBINSON

The summer of 2020 will be remembered for the new types of support that we were able to offer our loons. Yet between predation, habitat loss, fluctuating water levels, and large boat wakes, the number of chicks fledged remained our lowest yet.

The season began with territorial squabbles, breaking the pair bonds of our Northwest Cove and Trout Pond birds. While in the past these two pairs have been some of our most productive, with new mates in place, neither pair attempted to nest this season.

As in past summers, mammalian predation plagued the nests of our Middle and Upper Bay birds. For the first year ever, we built fences around the second nests of loons that had lost their first clutch of eggs to predators. Much to our surprise, we were able

to construct the fences while the birds remained cooperatively on nest. Though fences did prove helpful in warding off predators—with fenced-in nests lasting several weeks rather than just a few days—ultimately two of those three nests succumbed to predation. We are looking at modifications for next year.

Even beyond fencing, 2020 was an unprecedented year for loon/human cooperation as the rising waters of early July threatened to submerge nests. In a most memorable assembly line, nesting materials were slung by the handful from volunteers to loon, as the receiving bird hoisted beakfuls of muddy roots and sticks straight onto its sinking nest. Likewise, team members were able to salvage a drowning nest that had been abandoned when the egg became partially



LAURA ROBINSON

submerged. After volunteers reconstructed the nest further back from the rising water and replaced the egg, the loons did resume nesting, although try as both humans and birds did, neither of these attempts ultimately led to a hatch.

In the end, of the watershed's sixteen territorial pairs, ten built nests, six of which had to re-nest after predators stole their eggs. Three of the seven chicks that subsequently hatched were lost to preda-

tors, most likely eagles or snapping turtles. This left just four chicks—our lowest productivity in recent years.

While we have two more years before our loon study is complete, it is certainly becoming clear that care must be taken to support our loons. With about 75% of successful chicks hatching on platforms, these rafts are playing a key role as we strive for a sustainable population. Yet predation, rising waters, habitat loss, and large boat wakes plague the uphill battle.

As the weather cools, I want to extend heartfelt thanks to our team of volunteers for their stalwart dedication throughout another intensive season. Do check out the loon page on our website to see the reward for these efforts: the Great Brook chick trying its best to become airborne, as its parent looks on. Fingers crossed that our 2020 fledglings will soon be ocean-bound! 💧



LUCY LACASSE

When will Albany South logging begin in our Watershed?

by LUCY LACASSE

The short answer is: not until the winter of 2022/2023, at the earliest.

In late September, representatives from both KLWA and GLLT met with White Mountain National Forest staff for an update on Albany South. Masked and maintaining social distances, fifteen of us gathered at a log yard in East Stoneham for a very

productive meeting. We all gained a greater understanding of how Albany South will unfold: from putting timber sales out to bid, to awarding contracts, to implementation.

Albany South is divided into several Timber Sale parcels. The one within the Kezar Lake Watershed has been dubbed Six Lids and will go out to bid in late spring of 2022. A contract will be awarded that September or October. Work can begin immediately after, starting with road construction, which must happen before any logging is done. Timber harvesting within Six Lids is only allowed in the winter when the ground is frozen, so the soonest we'll see any activity will be during the winter of 2022/2023.

Six Lids represents a fairly large area that includes all harvest units within our watershed (nearly 1000 acres), plus a number of units behind Virginia Lake to the east. All wood from Six Lids, including from Virginia Lake, will be trucked out via Hut Road. Six Lids will be a 5-7 year contract so, once it starts, we'll have winter logging activity for quite a while. Logging will not be allowed on weekends or holidays.

KLWA will continue to meet annually with the Forest Service and to receive quarterly updates about Albany South. We'll be sure to keep you posted as things unfold. ♡

HELP YOURSELF. HELP THE KLWA.

Make a Qualified Charitable Distribution (QCD) from your IRA to the KLWA and avoid taxes. If you are age 70½ or older, you're required to take minimum distributions (RMDs) each year from your tax-deferred retirement accounts. Normally, taxable as income, the amount is tax-free if donated directly to qualified non-profit organizations such as KLWA, a 501 (c)(3) non-profit. Roth IRAs are not qualified. If you are interested in making a QCD to the KLWA, contact the firm that manages your IRA. Thank you for your support.

Greater Lovell Land Trust (GLLT) Continues Essential Work

by ERIKA ROWLAND AND JILL RUNDLE

The stretch from March through October was a wild ride and now the end of 2020 is in sight. This year inspires reflection on how global events may impact our region and the work of our Greater Lovell Land Trust in the future.

Foremost is that the experience of the last six months has, more than ever, underscored the importance of the natural world to the physical, psychological, and economical well-being of all. It has also highlighted the urgency of protecting the land and waters of our region and beyond. Early spring use of GLLT's properties, as was true for every conservation organization in the world, was off the charts. Visitor numbers during the late winter transition into mud season went far beyond what we typically expect. GLLT's trail volunteers, the Groundhogs, were rooted out of hibernation early and new recruits (including Erika's daughter, who's academic work became virtual), joined us to meet the

burgeoning demand. Our team has been busy refreshing kiosk information, clearing and marking trails, opening views, and assuring CDC compliance when needed.

GLLT's plan to add to staff was timely and quickly acted on as the leaves emerged, and Rhyann Paquereau joined us in June. As our first-ever Land Steward, Rhyann brought a wealth of land trust experience. He hit the ground running and hasn't slowed down.

During this year of firsts, GLLT borrowed ideas from conservation organizations around the region and took many to a higher level. The early weeks required some serious program pivots, and our ingenious and creative Environmental Education Director, Leigh Hayes, and her team of volunteers rose to the challenge with virtual hikes, remote collaborations with surrounding organizations, and many innovative online activities. Later in the season, with support from our amazing board and the Maine CDC, Leigh and the GLLT docents boldly, and safely masked, moved forward with in-person outings. Their efforts provided, as one member recently put it, "a sense of normalcy" in these otherwise strange times.

Global events are going to bring change to our corner of Maine. We may feel hidden away in the foothills of the White Mountains, but we are part of a bigger system. The increase in visitors in 2020 may lead to impactful demographic shifts, as more people discover the northern forests. Continuing to protect and manage our land and water to sustain these essential natural resources today and for the future remains critical work for all landowners, including land trusts and you.

Clean water and protected land go hand-in-hand. Thank you for your ongoing support of all we do. ♡



LEIGH MACMILLEN HAYES

Corporate Sponsors

The KLWA has enjoyed a long tradition of partnership with local business. Each of these Corporate Sponsors has made a much-valued contribution to the financial stability of our organization and to the programs that we support. We are most grateful for their continued commitment and for their recognition of the many benefits that a vibrant and sustainable watershed brings to our community.

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