GREEN MOUNTAIN CONSERVATION GROUP

THE WATERSHED NEWS

Volume XXIV Issue III *Summer 2021*

Protecting natural resources in the Ossipee Watershed since 1997

Water lily paper cut out art by Moselle Spiller. GMCG welcomes artists of all ages and inclinations to celebrate all things water this summer.

GMCG honors volunteers with celebration and art show on August 12

By Moselle Spiller

We welcome the GMCG community to the 2021 Watershed Celebration on Thursday, August 12, from noon to 3 p.m. on the grounds of the Patricia and Charles H. Watts Conservation Center located at 236 Huntress Bridge Road in Effingham. The event will feature an appreciation ceremony for volunteers; the "Wonders of Water" community art exhibition; and the dedication of a riverside memorial to the late Dr. Stephanie Barnes, a beloved GMCG friend, philanthropist, and conservationist.

Our first in-person celebration since the pandemic will recognize the volunteer community that has persevered through the past year to complete valuable citizen science projects throughout the watershed. The volunteer award ceremony portion of the afternoon will include brief speeches from staff members who will name the 2021 High Watch Award recipients. Staff and volunteers will also give thanks to 2021 AmeriCorps members Trent Millum and EB (Emma Brandt).

Guests may arrive as early as noon. At 12:30 refreshments and a lunch will be catered by The Farmstand of Chocorua. Attendees will find a multitude of seating and tables throughout the grounds where they can enjoy the refreshments and festivities.

If you are an artist interested in participating in the "Wonders of Water" community art exhibition, please visit gmcg.org to learn how to participate. Artists may submit digital art that will be displayed online, or deliver physical artwork to GMCG for inclusion in the August 12 in-person showing in the Blue Heron House Community Room. The deadline to submit artwork is Friday, August 6.

Attendance will be limited to 100 people. To help us plan for provisions and parking at this complimentary event, please register at gmcg.org soon to secure your place.

We look forward to seeing you on Thursday, August 12!

Green Mountain Conservation Group

The Watershed News is a quarterly publication of the Green Mountain Conservation Group, a nonprofit, 501 (c)(3) charitable organization established in 1997. The mission of GMCG is to promote an awareness of and appreciation for clean water and the wise use of shared natural resources across the Ossipee Watershed and advocate strategies to protect them.

The towns of Eaton, Effingham, Freedom, Madison, Ossipee, Sandwich and Tamworth comprise the Ossipee Watershed. This watershed includes one of the largest and deepest stratified drift aquifers in New Hampshire. GMCG also serves the towns of Maine's Sacopee Valley. Water knows no boundaries!

GREEN MOUNTAIN
CONSERVATION GROUP

Support GMCG and paddle away in a rare beautiful canoe!

Online Auction for 15 foot Mansfield Canoe opens June 28

Betsy Newcomer of Parsonsfield, ME has donated a Mansfield Canoe to GMCG. The Mansfield is a highly praised fishing canoe that was manufactured by Stowe Canoe Company of Stowe, VT until the company closed in 1991. We believe Betsy's boat, pictured below, was made in 1990 or 1991. It is virtually unused and in mint condition.
The Mansfield's unique construction – molded fiberglass with thin mahogany ribs and hardwood gunwales and decks—means it is both lightweight (under 60 lbs.) and a sight to behold. With its wide beam (39") and keel, it is exceptionally stable for solo and dual paddlers, and thus particularly popular as a fishing and excursion canoe.

The bidding will open at 9 a.m. on Monday, June 28 and continue through Thursday, July 8 at 5 p.m.. Due to the popularity of this model and the magnificent condition of this canoe, we are asking for an opening bid of $500.

If you would like to have a look before placing your bid, the canoe will be available for viewing during regular office hours June 28 - July 8. Please call or email to let us know when you would like to come by. Free delivery within the Ossipee Watershed.

Visit gmcg.org to view more photos and to make your bid! And thank you, Betsy for your generous gift!

GMCG and OLA collaborate to protect Ossipee Lake Natural Area

By Matt Howe

If you drove by the Route 25 Pine River boat launch on a summer weekend last year, you know how popular it was, as record numbers of visitors in search of socially distanced outdoor recreation came out to enjoy Ossipee Lake.

The surge in boating activity elevated already growing concerns about environmental harm caused by visitors unfamiliar with the regulations protecting the 400-acre Ossipee Lake Natural Area (OLNA).

A 2008 state protection plan was developed with input from boaters, local property and business owners, lake associations, and environmental organizations (including GMCG). This plan has been helping to reverse decades of overuse and damage to this fragile ecosystem that is home to several endangered plants including grass-leaved goldenrod, hairy hudsonia and sand cherry.

Since 2008, GMCG has participated in the Ossipee Lake Natural Area Working Group along with representatives of the Ossipee Lake Alliance (OLA) and several other stakeholders. The working group has helped monitor the protection agreement and advise the state on how to ensure its effectiveness.

This winter OLA co-directors David Smith and Susan Marks reached out to GMCG expressing their concerns that 2021 would inevitably see public pressure on the OLNA beaches continue to mount. The two organizations agreed that more must be done to raise public awareness and to ensure that the Working Group and the State of NH are doing all they can to protect OLNA.

Following discussions with Sabrina Stanwood, Administrator of the NH Natural Heritage Bureau (and coordinator of the working group) and Patrick Hackley, Director, NH Division of Forests & Lands, OLA and GMCG proceeded to:

Above: Drone footage of the Ossipee Lake Natural Area captured on May 17, 2021.

- Develop a "Boater to Boater" brochure detailing the environmental importance of OLNA and the key regulations pertaining to shoreline access and use.

- Issue a May 14 press release broadcasting our key messages which resulted in prominent coverage by the Conway Daily Sun, the Carroll County Independent and the Sunday Outdoor section of the Manchester Union Leader.

- Produce a 3-minute video on the history, ecological significance, scenic beauty and current threats to OLNA which we are disseminating via Youtube, Facebook and community cable.

We are also pleased to report there has been constructive new dialogue among Working Group members and state officials to explore improvements that can be made regarding signage on the property, state enforcement, and possible solutions to the lack of bathroom facilities in the area.

In addition, GMCG Outreach Coordinator Moselle Spiller has designed an updated large and colorful educational poster that we hope to install soon at the kiosk at the Pine River boat ramp.

This is an important point of collaboration between our organizations. OLA's David Smith deserves special credit for spearheading these 2021 initiatives and articulating the case for additional measures to protect OLNA.

We look forward to deepening our working relationships with all neighboring lake associations, and as a new partner member of NH Lakes, we want to be engaged on the state level and add our voice for policies and programs that can help us all protect our favorite places.

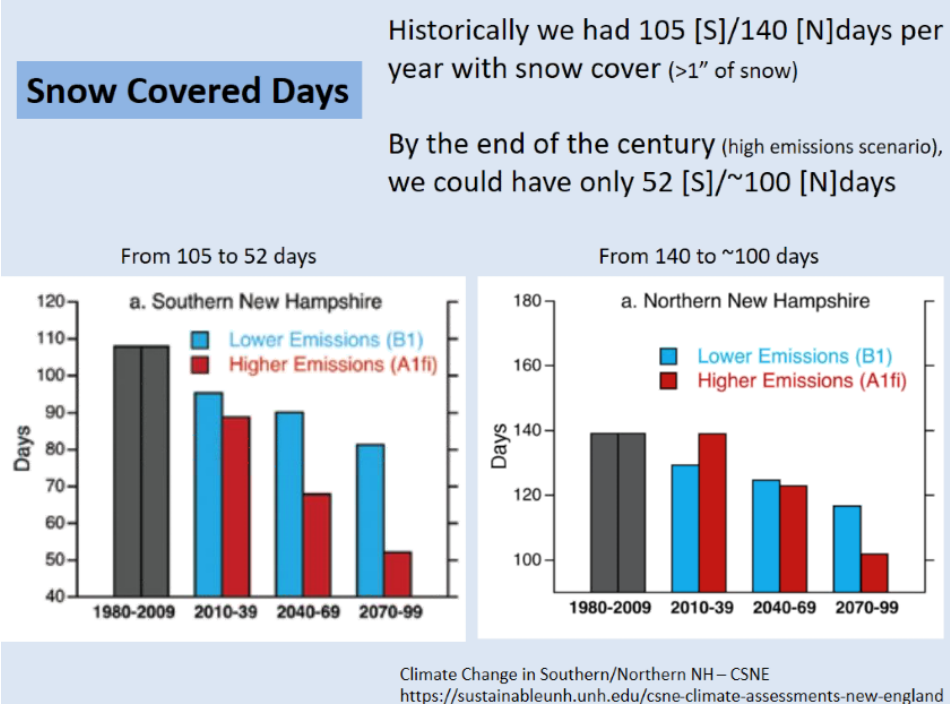
Watch the new OLNA video featuring fly-over drone footage of the natural area at www.gmcg.org/advocacy/olna/.

The video is narrated by David Smith, and produced by Moselle Spiller, with drone footage by Karl Cresswell.

Conference provides valuable lessons for Ossipee Watershed

By Tara Schroeder

The 2021 Source Water Protection Conference was hosted by NH Department of Environmental Services (DES) and American Groundwater Trust on May 19 and 20. Each year the conference serves to update stakeholders in New Hampshire about current water quality research, contaminants of concern, funding opportunities, and other hot topics related to drinking water protection. This year much of the conference focused on the impacts of climate change on water resources, particularly following recent droughts and severe flood events experienced across the state. GMCG was among the presenters, highlighting our water research and education programs and sharing ways communities can engage people in citizen science and enhance water resource protection. The following are some key takeaways from presentations by some of the state's top scientists, educators, policy makers and engineers.



NH DES Resilience and Adaptation Manager Sherry Godlewski shared predictions about reduced snow covered days expected in New Hampshire due to climate change in a slide from her presentation at the 2021 Groundwater Conference.

Bracing for climate change…

At the time of the conference, stream flow and groundwater levels remained below normal. Speakers Commissioner Bob Scott and Sherry Godlewski of NH DES left no doubt with research findings they shared that warmer, drier conditions with shorter winters, more extreme weather events and hotter summers are in our future. Indeed, 2020 was a record year for extreme weather events nationally such as hurricanes, fires and drought that had a $1 billion dollar price tag or higher. It was also the sixth consecutive year of ten or more such costly events associated with a changing climate. Even with federal assistance, these events require NH to pay 25% of the total cost to recover.

There is a high probability that we are entering another year of a multi-year drought, with public water systems and private well owners coping with increased water demand and reduced availability. Engineers from Hooksett shared how the 2016 drought caught them off guard and without a plan in place when their pond and wells used for drinking water were down 9 feet and 12-13 feet respectively. Outdoor water bans, fine schedules and the diversion of brooks to the pond were needed to provide water to its residents. UNH and Durham also had to supplement their drinking water supply system of ground water and surface water sources with a new well to help with drought and high demand periods.

These issues with supply and demand in the southern part of the state are important for other regions of the state to consider. Ossipee Watershed towns must begin to anticipate the need for back up water supplies. Intensifying development heightens the need for town planners to prepare for greater demand, in addition to the increased threat of contamination.

Cyanobacteria blooms on the rise…

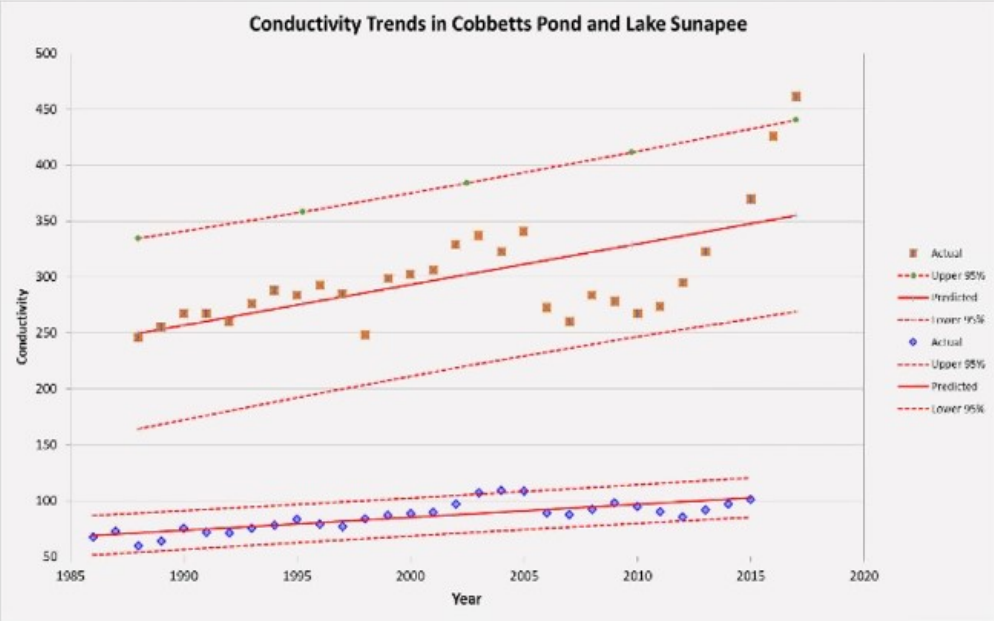
Warming trends will allow aquatic plants and algae to flourish and cause cyanobacteria blooms to become more frequent. Province Lake in Effingham has already seen its first bloom this summer. Expansion at the state level of cyanobacteria research and a new monitoring initiative will help, but communities must take a proactive stance to protect shorelines of lakes, rivers, and streams. Implementing and encouraging Best Management Practices, or BMPs, can prevent the sediment and nutrient loading that is conducive to cyanobacteria blooms.

Continued on Page 5 ...

"We need a water use culture change."

Tom O'Donovan, recently retired Director of the Water Division at NH DES, shared perhaps the most memorable advice of the conference. "People need to stop taking water for granted." Salt, temperature, arsenic, PFAS and nutrients were among his list of the top five emerging contaminants, with salt and temperature being the most impacted by climate change. He is "very concerned about salt," citing cases of salt levels rising 25% in 25 years in Lake Sunapee, and the long term impacts of chloride contamination of wells in Merrimack Valley. Parking lots, he says, are the biggest contributors to salt contamination. Salt, as GMCG's water quality research has shown, is also one of the greatest concerns in the Ossipee Watershed. The town of Madison is tackling this issue by reducing their salt use with a new salt brining truck. Pervious pavement, low salt zones, and newer monitoring and tracking equipment can also help reduce the salt load on our water resources.

Flooding is another concern across the state. Research shows an increase in heavy precipitation events, also a symptom of a changing climate. Plymouth, North Conway, Somersworth and other towns experienced flooding events last year that impacted infrastructure. GMCG's Saco River Stream Crossings Assessment Project in the Ossipee Watershed and assessments from elsewhere in the state suggest that 50 -80% of crossings are insufficient to handle 10, 20, 50 and 100 year flood events. Upgrading crossings will be essential to withstand future flooding events, in addition to protecting critical wetlands for flood water storage. In the last 50 years we've lost 10-30 billion gallons of fresh water storage due to loss of wetlands in the state, according to O'Donovan.



Tom O'Donovan, recently retired Director of the Water Division at NH DES, explains that salt, temperature, arsenic, PFAS and nutrients are the top five emerging contaminants of concern in New Hampshire. The graph above from his presentation shows a 25% rise in salt levels in 25 years at Lake Sunapee.

The time to plan is now!

So what can towns do? Plan for these inevitable challenges now. There is nothing more important than planning to hedge against these issues now by creating multiple and diverse water supplies, promoting wise use of water resources by the public, and educating the public on the need for source water protection through conservation and protection of water resources and important water supply lands, forests and wetlands.

The good news is that there is more funding than ever available for these initiatives. Due to recent changes in the Farm Bill, $6 billion per year is now dedicated to source water protection. The Drinking Water and Groundwater Trust Fund has $2 million available. The Regional Conservation Partnership Program from NRCS has $6.8 million. NH DES granted $400,000 in 2019 and 2020 to local source water protection projects. More funds are available to communities through the Clean Water State Revolving Loan funds, PFAS Contamination Loan Fund, and infrastructure funds from the Federal Infrastructure Act.

The other good news is, as Brandon Kernan of NH DES says, that both political parties in the state are now focused on drinking water issues in a positive way. New legislation is in the works regarding private well safety as well as PFAS, lead, manganese and arsenic contamination and water treatment, particularly for schools and daycare centers. New Hampshire now has some of the strictest standards for contaminants like PFAS and arsenic in the country. Although funding and legislation is currently favorable for enhanced water resource protection, communities must apply for funding while it is available in order to meet the demands of a growing population amidst the mounting challenges of climate change.

GMCG welcomes new summer AmeriCorps members

Interview by GMCG with Spencer Wilson and Jessica Pierce, AmeriCorps members

Spencer Wilson Mini Biography: Spencer was born, raised, and deep fried in Birmingham, AL where he studied Chemistry and double minored in Biology and Forensic Science at the University of Alabama at Birmingham. He can usually be found outside on a bike, on the trail, tinkering with projects, musing about future adventures or trying to convince someone to go on one. He has always been in awe and held an appreciation for the intricacy, beauty, and balance of the Earth's ecosystems. This passion has fueled adventures, friendships, advocacy, and has fulfilled many years of his life. It is because of his experience in the outdoors that he is here today at GMCG to pursue a life of preserving and enjoying nature for and with the community.

Jessica Pierce Mini Biography: Jessica was born in Beverly, MA, and partly raised in Newfield, ME where she majored in Environmental Studies and double minored in Writing and Political Science at the University of New England. She has a deep love for Maine lakes and is fiercely passionate about the preservation and integrity of land in New England. It was growing up in rural Maine and her love for animals that drove her to understand how the world works.

GMCG: What made you two decide to join GMCG?

SW: I wanted to make use of this opportunity to learn about watershed management and new ecosystems while also experiencing the culture and natural beauty of New England.

Half-term 2021 AmeriCorps members Spencer Wilson and Jessica Pierce.

JP: I've been in New England for most of my life, so I wanted to learn more about the area I've grown to love all these years. I also love the lakes and wilderness up here, so I found it to be a great opportunity!

GMCG: What are you two excited to do outside of service in New Hampshire or anywhere in New England?

SW: I'm excited to get to know the woods, plants and wildlife, streams, and mountains of New Hampshire. I am particularly interested in biking the 83 miles of the Cross New Hampshire Adventure Trail. Perhaps also tying in the 85 miles of Cross Vermont Trail for 2 days of exploring New Hampshire and Vermont by bike.

JP: I'm a bit more easy-going, if I'm being honest. I'm actually coming from Maine where a popular saying from where I am is "living life in the slow lane", so some nature walks and swimming in lakes sounds great to me. But I also want to explore the local area around GMCG and learn more about the community during my time here.

GMCG: Have you developed any plans on what you might like to do after your service with AmeriCorps and GMCG ends?

SW: I'd like to move back down South to finish renovating my cargo trailer/tiny house before moving to a part-field/part-lab position in the conservation field out west to continue learning as much as I can about the intricacies of ecology.

JP: I'm thinking of maybe getting into environmental communications and advocacy. I've been a writer all my life, so I'm hoping to tie that in with my passion for environmental justice.

GMCG: What are you passionate about outside of GMCG?

SW: I enjoy being active in my community especially when it involves riding, fixing, giving, or sharing bikes.

JP: As I previously mentioned, I love creative writing and poetry, so I try to take the opportunity to write when inspiration hits.

GMCG: And lastly, a bit of a more informal question: do either of you have a favorite animal? And if so, could you explain why?

SW: The Long-eared owl. Despite looking adorable and constantly surprised, the long eared owl has interesting adaptations for hunting. Like how their asymmetrical ear holes allow them to locate sounds up and down in addition to left, right, front and back.

JP: That's a tough one, but I think I'll have to go with cuttlefish. I just think they're adorable and the patterns they can create through camouflage are really incredible. They're also extraordinarily intelligent animals.

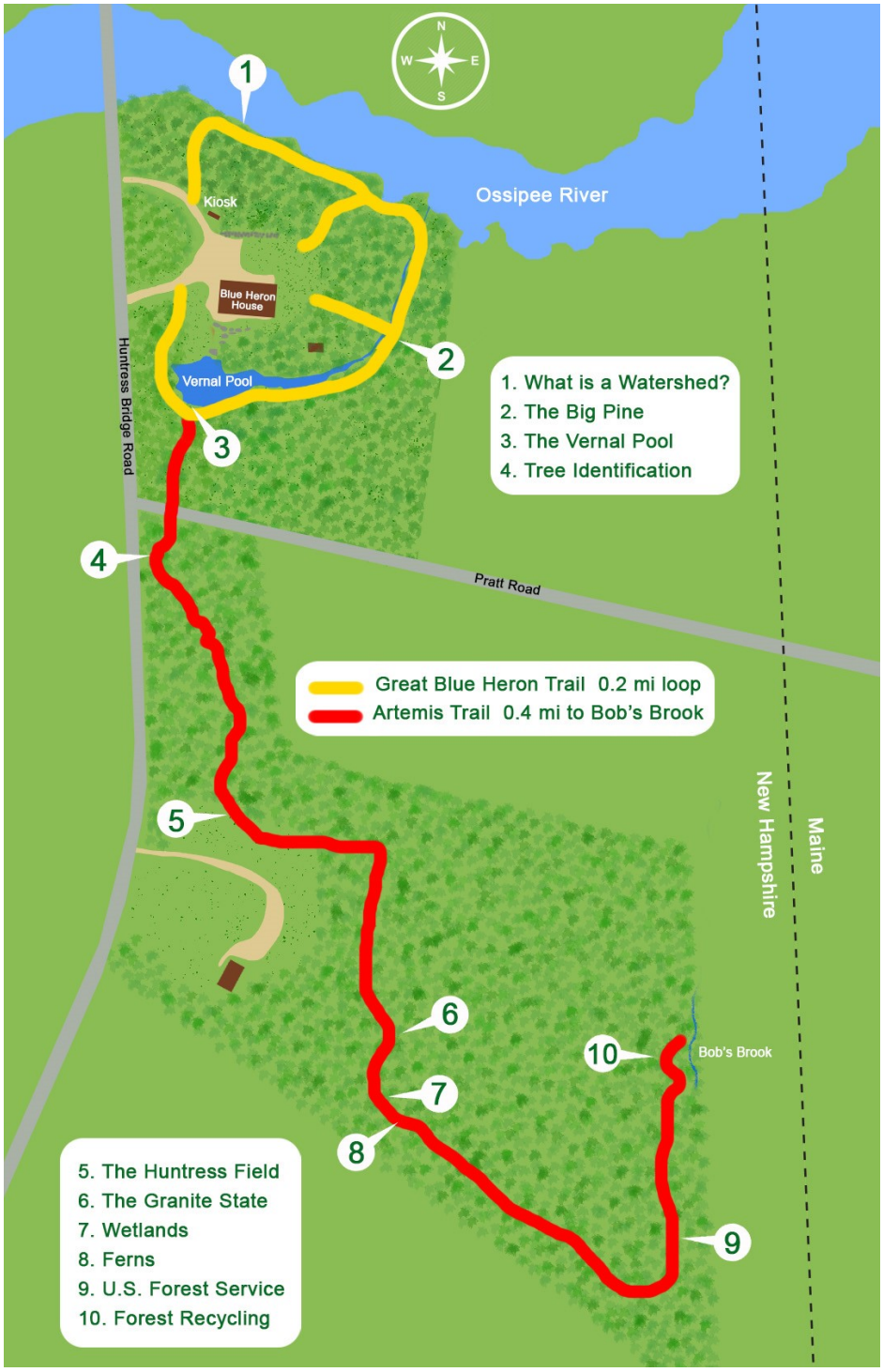
GMCG opens new interpretive trail

By EB (Emma Brandt), AmeriCorps member

We are excited to announce the opening of a new interpretive nature trail at our Effingham headquarters. Opening week was Monday, June 21 to Friday, June 25, and it included an opportunity for anyone ages 14 and under to complete the trail with one of two accompanying guide booklets to receive a coupon for a free kiddie sized ice cream at Bobby Sue's Homemade Ice Cream just down the road in Freedom. Special thanks to our friends at Bobby Sue's for supporting the grand opening of the new trail.

Interpretive trails are trails with guided educational elements. They are generally shorter trails and teach visitors about the natural, historic, or cultural environment that they are walking through. GMCG's interpretive trail features 10 numbered wooden posts along both the Blue Heron Trail and Artemis Trail which total approximately one mile. Visitors can refer to the map on the welcome kiosk to see the trail locations. Highlights include the Ossipee River outlook, vernal pool, tree and plant identification, and several other informational features along the forested route.

The new GMCG nature trails have been built and designed by AmeriCorps members who have also created two trail guides. The *Trail Activity Booklet* is designed for kids ages 5-10. If a child completes as many pages as they are old, they can show their booklet to a GMCG staff member and receive a junior conservationist patch. Anyone 11 and older can follow along with the *Green Mountain Conservation Group Interpretive Trail Guide*. Part of this guide includes tree identification for those interested in learning about native tree species. Visitors can borrow an accompanying tree ID guide from the kiosk and return it when finished.



This trail is welcoming to kids of all ages and dogs on a leash. Please make sure to practice "Leave No Trace" principles while on the trails and enjoy GMCG's new interpretive trail walk.

AmeriCorps members Trent and EB designed the guide booklets available at the welcome kiosk.

GMCG staff and volunteers in action around the watershed

Volunteers Tim Otterbach, Norm Sizemore, and David Cronin worked alongside GMCG staff to install a rain barrel water collection system at the Cook Memorial Library in Tamworth this spring.

Board member Dana Simpson, Jill Emerson, Trent Millum, and Tara Schroeder unearth a decommissioned iron ranger at the Liberty Trail head to relocate to the Blue Heron House in Effingham.

AmeriCorps members Trent and EB work with Dr. Robert Newton to do some preliminary surveys on ground water monitoring wells.

Education Coordinator Tara Schroeder is shown above recording one of 93 parameters used to evaluate the culvert as part of the River Streams Crossings Assessment Program (SRSCAP).

Water Quality Coordinator Jill Emerson along with Dr. Robert Newton (background) take flow rate measurements on the Chocorua River.

Our 19th season of our tributary monitoring program RIVERS kicked off with a protocol refresher course for volunteers.

Volunteer and drone pilot Karl Cresswell prepares to launch a drone over the Ossipee Lake Natural area to capture footage for use in an informative video on the state regulations protecting the area threatened by over recreation.

Town of Madison goes on a salt diet

By Bill Lord,
Madison Conservation Commission

We've all heard that less dietary salt is good for a healthy heart…well, Madison knows that less salt is also good for lake and aquifer health! Last winter, the co-chairman of the Madison Conservation Committee (MCC) asked the selectman representative about potential use of brine for road treatment. As a result, the Madison Department of Public Works Director examined town use of salt on road surfaces. He found that by using liquefied brine spray, instead of solid salt, Madison could reduce the amount of salt purchased and used by 66%!

Rock salt, or solid salt, is simply crystals of sodium chloride. Until it has gone into solution – that is, until it has formed brine – it will do nothing to stop snow from freezing to the pavement surface. Agencies that use rock salt in winter maintenance are doing so to create brine on the road surface. Therefore, brine is an integral and critical part of the winter maintenance activities. Brine does have a lot of water in it. For example, sodium chloride is typically 23.3% sodium chloride when it is applied. That means that it is 76.7% water. Because the salt brine is in a solution of water, that solution has a lower freezing point than pure water. Of course, as it melts snow and ice, it becomes more diluted and – unless additional treatments are made – the road will refreeze eventually. At a 23.3% concentration, it will freeze without any additional dilution at about -6 degree F. And *no* – the brine will not freeze on the road when it is applied. Unlike grains of rock salt, which often bounce onto the road shoulders, brine largely adheres to its target.

Madison's new salt brine dispenser will reduce the amount of salt used on town roads.

Studies have shown that anti-icing will achieve the same level of service on a road using between 20-25% less salt than de-icing. Data was provided by the American Public Works Association.

Madison purchased a liquid brine spray tank with computerized controls which minimize the amount sprayed and keeps a record of amounts and locations sprayed. The Town can make its own brine or purchase it from a local contractor. The positive effect on the reduction of run-off into Madison streams and Silver Lake could be *enormous.*

The detrimental effects of road salt runoff into water bodies are well documented. In the US, salt damage to infrastructure is estimated to total between $19-45 billion annually. That includes damage to roadways, bridges, vehicles, tourism, and property values. For example, salt can leach calcium out of concrete and rust steel rebar, a process known as 'concrete cancer'. Authors of a 2017 study found that 7,770 North American lakes – about 20% of those in the study region – may have elevated levels of chloride concentrations. If trends continue, the study concludes many of these lakes will be too salty to support life within 50 years! Excess salt can damage entire aquatic food chains, including zooplankton, salamanders and frogs, fish, shellfish, and aquatic plants. At high concentrations, salt can stunt the growth of some fish; it can tilt the male-to-female ratios of amphibian populations out of balance. And it can kill off algae-eating zooplankton allowing algae to grow unchecked into smelly, goopy, hazardous blooms.

It cost the Town of Madison about $10,000 for the tank – but it was funded in a unique partnership. Because this was a conservation initiative, the MCC asked the Board of Selectmen to partner in the cost sharing. When this was announced at the town meeting, the crowd spontaneously erupted into applause! Additionally, because this effort will directly support lake health, the Silver Lake Association of Madison and Silver Lake Boat Club Boards of Directors are recommending monetary contributions to the MCC.

This new system is not only for winter use. The MCC has recently been using the US Dept. of Agriculture's Conservation Stewardship Program objectives to assist their direction of town conservation activities. As such, while this new spraying technique started with salt reduction for winter road treatment, it can also be used for summer road treatment. What? One of the USDA areas for conservation activities is water…but another is air. Treatment of the roads with calcium chloride in the summer reduces the air particulate (dust) which is another USDA goal. Madison has 57 miles of roads, much of which are not paved. The new system will use less salt for this purpose as well!

This great example of public-private partnership - to achieve town and conservation goals - is worthy of emulation by other communities.

Tree planting project aims to accelerate forest recovery

By Trent Millum and Matt Howe

In the Fall 2020 Watershed News, we reported on a forest restoration project on a GMCG conservation easement in Tamworth owned by Steve Page and Karen McCall. Timber harvesting practices under the previous owner had caused serious erosion along steep slopes and skidder trails, as well as sediment loading into a small stream. Recon Trail Design of Porter, Maine spent a week last July building a series of water bars, check dams and berms designed to reverse the damage.

On May 15, 2021 AmeriCorps members Trent Millum and EB (Emma Brandt), Executive Director Matt Howe, landowner Steve Page, and seven intrepid volunteers returned to the site to help speed the process along by planting young trees in the most seriously affected areas. The project was organized by Trent, who was inspired by other tree planting events he had done prior to joining GMCG. Trent brought in UNH Cooperative Extension Forester Wendy Scribner to coach and supervise the planting crew. Wendy provided instruction on proper tree-planting techniques and shared her vast knowledge of the process of forest succession and how variables such as sunlight and soil type determine which trees will thrive in a given location.

In just three hours, over 120 trees were planted. To help with streambank stabilization, Trent had acquired several species tolerant of high soil moisture. These included arrowwood viburnum, red-osier dogwood, juneberry, serviceberry, highbush cranberry, and silky dogwood. On the dryer slopes above, the group planted white pine, red maple, eastern hemlock, and red oak.

Special thanks to the enthusiastic volunteers who traversed the steep terrain and planted and watered trees on a hot, buggy day in May. We are hopeful their efforts have hastened the return of a mature forest ecosystem on this conservation land. A visit to the site three weeks later found the young seedlings healthy and yielding fresh shoots of growth!

Above: UNH forester Wendy Scribner introduces herself to the group of tree planting volunteers. Steve Page, the landowner is pictured to her right, and Trent Millum, GMCG AmeriCorps member is pictured to her left. In the foreground listening attentively from left to right are Cheryl Schlenker, Felicia Ledgard, Debbie Stark, Margaret Zack, and Pamela Hayden.

Above: Dedicated volunteer Felicia Ledgard digs a hole for a tree seedling.

Above: Trent Millum (right) and Cheryl Schlenker (left) water a newly planted dogwood seedling.

Above: AmeriCorps member EB (Emma Brandt) pats down the soil around a freshly planted white pine seedling.

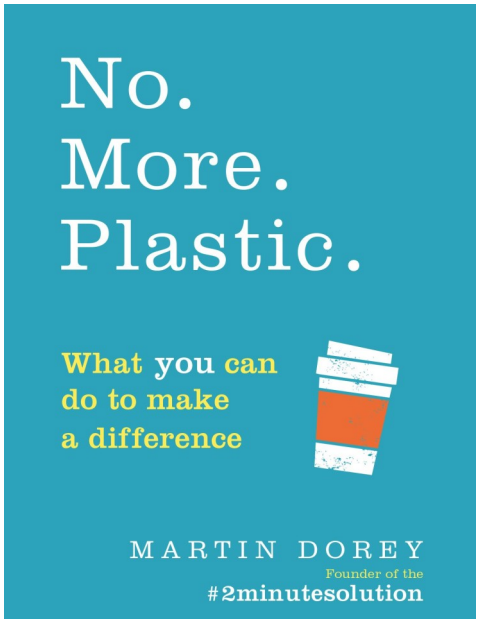
Book Report: *No. More. Plastic. What you can do to make a difference*, by Martin Dorey

By Juno Lamb, Programming & Outreach Director, Chocorua Lake Conservancy

Martin Dorey loves beaches! In 2013, when North Atlantic storms washed plastic waste onto the beaches of England, he started the #2minutebeachclean, which he followed up with a #2minutesolution for everyone, even those of us who dwell far from the sea. Dorey's 2018 short, highly readable book, *No. More. Plastic. What you can do to make a difference*, explains the trouble with plastic, offers a "What you can do now" prompt after each chapter, and includes a host of two-minute solutions for your home, your kids, and your workplace.

"Our world—and every living creature in it—is under threat from plastic," Dorey says. "...If we don't stop the flow, the ocean is where it ends up. As a result, every tide brings plastic to our shores, while the 'gyres', huge areas where microplastics—tiny fragments of plastics—are suspended in the water column, are now present in every one of the world's oceans." It can be hard to visualize the scale of the problem, so Dorey gives us several views: The Great Pacific Garbage Patch is estimated to cover an area 60 times the size of the United Kingdom. "In 2010, National Geographic reported that 8 million tons of trash enters the world's oceans each year. In 2017, the Ellen MacArthur Foundation estimated that by 2050 there would be more plastic in the oceans than fish."

Plastic, Dorey explains, is poison. It does not biodegrade, but instead degrades over time into "smaller and smaller pieces, known as microplastic." These chemical-leaching microplastics have "been linked to low sperm counts and infertility in men, as well as breast and prostate cancer..." In the ocean



they attract and absorb persistent organic pollutants—naturally occurring toxins—passing the toxins on to any "creature that has eaten them. This can travel up the food chain to us."

As dire as this sounds—and it is dire—Dorey also affirms that each small action we take makes a difference, and all of our actions add up. Returning to the ocean where he started, he says, "Every piece of plastic that gets removed from the ocean environment, or any environment, is a piece that won't go on to kill. It won't end up in a whale's stomach or strangling a seabird. And it won't end up becoming thousands of toxic pieces of microplastic."

According to the EPA, only 8.7 percent of plastics were recycled in 2018. Plastic accounted for more than 15 percent of the total Municipal Solid Waste that was burned that year, and more than 18.5 percent of the MSW buried in landfills, at a high cost to municipalities and to human and marine health.

Dorey says, that cutting out just six items many of us use every day could eliminate almost a third of the waste routinely found washing up on ocean shores—and could save us money, too.

Tips to reduce plastic

1. Replace single use plastic bottles and plastic tops with a refillable water bottle.

2. Don't use drinking straws ("Have you seen the video of the turtle having a straw removed from its nose?") or plastic cutlery—instead, keep a fork, knife, and spoon in your car or bag.

3. Buy potato chips or candy in big bags and dole them out into smaller reusable containers, which "uses much less non-recyclable plastic than six small bags inside a large one."

4. Make sure your Q-tips are made of 100 percent cotton and have cardboard rather than plastic sticks.

5. "Cut out plastic bags forever. You can buy cotton bags for life from a huge variety of places now, many supporting good causes…"

6. "Wet wipes are awful… I dare you to Google 'wet wipes sewage' and look at the images."

These are only the top six! Dorey shares many more swaps we can make in our homes and while we are out and about. Some require habit changes, while some just ask us to pay closer attention—to remember to bring a reusable hot cup with us when we're on the road, for instance. Some ask us to make requests of our schools, workplaces, or governments. All of them add up to progress on what can feel like an intractable problem—until we take it on together.

Conservation conversations

Editor's Note: *Conservation conversations is intended to provide a forum for the seven towns of the Ossipee Watershed to share news of their conservation and planning activities and an opportunity to find creative solutions to challenges.*

Eaton

The White Mountain National Forest Service partnered with the Eaton Conservation Commission to burn about 18 acres of mixed lowbush blueberry and brush on Foss Mountain this spring. This will encourage healthy berries, hinder saplings trying to overtake the ridge, improve nesting habitat for grassland birds and create good pollinator habitat. Eaton is working with the Saco Headwaters Alliance to ensure we have the best groundwater protection ordinances that we can. Our interactive Natural Resource Inventory is nearing completion, and the town boards are all learning how to utilize all that it offers. Water testing and weed watching for aquatic invasive species will continue this summer, thanks to our volunteers.

Effingham

The Effingham Conservation Commission (ECC) has hired Bella Terra Trail Design to build two new sections of trail in the Pine River Cherubini Preserve on Pine River Road. Bella Terra had already built the central trail that connects the parking area to an old woods road that enters from an adjoining property. It then goes all the way to the bank of Pine River.

One of the new trails will depart from the woods road and ascend and follow a ridge on the east side of the preserve, offering views of the river valley and surrounding hills before connecting back to the central trail at the river. The other will make a small loop on a bit of dry ground in the predominantly wetland terrain on the other side of the preserve. Work is expected to begin in July.

The ECC will be monitoring milfoil in Ossipee Lake and River again this summer, our eleventh year of partnering with New England Milfoil.

Water knows no boundaries - a view from downstream

Looking upstream over the Ossipee River from the Route 160 bridge in Porter, Maine. Photo by Matt Howe.

Notes from downstream

"Borders? I've never seen one, but I hear they exist in some people's minds." Thor Heyerdahl

By Rikki Haley, Water Quality Coordinator, Saco River Corridor Commission

Happy Summer, from your friends in Maine at the Saco River Corridor Commission!

In collaboration with our New Hampshire neighbors at Green Mountain Conservation Group, we are thrilled to be in the third week of the RIVERS program (Regional Interstate for the Volunteers and Ecosystems of the Saco) where our coordinators, volunteers, and AmeriCorps members monitor water quality throughout the Saco River Basin. The season is off to a fantastic start, with coordinators going out into the field with their respective volunteers to observe and address any concerns with the use of equipment, as well as the sampling process. The ultimate goal is to ensure our volunteers are feeling confident and comfortable, while also taking the time to breathe in the fresh air, enjoy the wildlife, the plentiful greenery, and of course, have fun doing it!

Our water quality monitoring program consists of testing for several different parameters including pH, turbidity, temperature, conductivity, dissolved oxygen, alkalinity, and bacteria such as *E. coli* and *Enterococcus*. Some sampling sites are tested additionally for elements such as Total Kjeldahl Nitrogen (TKN) and Total Phosphorus (TP) depending on up-river activities and/or new developments that could affect water quality.

We are quickly approaching "swimmability" season, as temperatures surpass 90 degrees and swim lessons begin at ponds within the watershed. In an effort to ensure the public health and safety of our communities, our program is designed to test swimming locations on a weekly basis instead of bi-weekly. This grants the officials of public access points and recreation areas an opportunity to quickly address abnormally high concentrations of bacteria that could be a detriment to a user's health.

Above: The Ossipee River flows through Effingham on its way into Maine.

Jill Emerson, Water Quality Coordinator for Green Mountain Conservation Group and Program Manager for the RIVERS program, has finalized a biennial review of the 2019-2020 water seasons. Through careful analysis, she has provided the Maine Department of Environmental Protection and our community members with a clear summation of the data and mean averages of testing parameters.

Her thorough evaluation has concluded that the Saco, Ossipee, and Little Ossipee rivers have "exhibited good health particularly when it is considered a destination point from urban areas like Metropolitan Boston, Portland, Biddeford and Saco" (Emerson, J. 2021). Furthermore, additional planning by the Southern Maine Regional Water Council has proposed that the Saco is a viable option for drinking water in Portland, other regions of southern Maine, and as far south as Portsmouth, NH. Currently, the Saco provides clean drinking water for Biddeford, Saco, and other surrounding communities. Given the Regional Water Council's report that mentions the potential of expanding the Saco to neighboring regions as a public water source, it is crucial that we continue to monitor the watershed with the utmost care and attention.

We would like to extend our gratitude to the members of our communities for their continued support, as well as the many towns that have graciously contributed to our program. We are all in this together. We could not run an effective water quality program without the care and support of our sponsors.

Here's to the ongoing success and a wonderful summer season!

Save the date! 2021 summer calendar

Please visit www.gmcg.org for details, pre-registration, and Zoom links.

Wednesdays, late June through early August - Frog Discovery Time at Local Libraries. GMCG Education and Outreach Assistant EB will lead five "Frog Discovery Time" children's programs to celebrate the summer reading theme "Tails and Tales." "Growing Frogs" by Vivian French and illustrated by Alison Bartlett will be read aloud. EB will share with children what it means to be an amphibian, what metamorphosis is, and common native frogs. Children will play a game, create a frog puppet, and observe live frogs. These programs will be hosted at the Freedom, Conway, Effingham, Fryeburg and Jackson Public Libraries. Check gmcg.org for specific dates and times.

Tuesdays, July 6-July 27 at 11 a.m. - GMCG's Nature Story and Discovery Time. This fun four-week series designed for children in pre-K through fifth grade and their caregivers will be in person at GMCG's Blue Heron House. Each program will be about 45 minutes to one hour long, beginning with a live reading of a nature-themed story with a follow up activity such as a craft, song, or outdoor exploration. Check gmcg.org for the themes and age group each weekly event is appropriate for, and contact education2@gmcg.org with any questions. This program is free and open to the public.

Friday, July 16 from 1-3 p.m. - GET WET! Drinking Water & Microplastics Investigation Program at the Cook Memorial Library in Tamworth. The Groundwater Education Through Water Evaluation and Testing (GET WET!) drinking water education program returns, and now includes microplastics investigation. Participants will be able to test their well water for six different parameters, learn about common water quality issues and how to test well water for other contaminants of concern. There will be a station for testing samples for microplastics. Please pre-register by emailing education@gmcg.org. This program is free and open to the public, including children and families, and is made possible by support from The Tamworth Foundation. Rain date is July 23.

Tuesday, July 20 & Friday July 23 - Watershed Ecology Institute (WEI). Join the N.H. Fish and Game Watershed Education Program (WEP) and NHEdGIS members to explore the use of ArcGIS technology for watershed research. One day will be virtual on Zoom and one day will be in the field sampling water quality, fish, and macroinvertebrates at GMCG's Blue Heron House. Learn NHF&G WEP protocols to collect data by electro-fishing. The impact of climate change on brook trout also will be addressed. Learn ArcGIS Online (AGO) technology in the classroom to post, share and analyze watershed data, and design Story Maps. Contact Judy Tumosa at judy.l.tumosa@wildlife.nh.gov to register.

Thursday, July 29 from 5-6 p.m. - Water Quality Report & Microplastics Research Update for the Ossipee Watershed. Join GMCG's Water Quality Coordinator Jill Emerson and Water Quality Resources Assistant Trent Millum on Zoom when they share the 15-year water quality report for the Saco/Ossipee Watershed Monitoring Program in addition to recent microplastics research. The public will be presented with volunteer-collected, baseline water quality data showing an overall picture of water quality in the watershed. Please pre-register at gmcg.org.

Thursday, August 12 from 1-3 p.m. - Watershed Celebration featuring the Wonders of Water Art Exhibition & Volunteer Awards. GMCG is calling all artists to join in the second annual "Wonders of Water" ("WOW") art exhibition to raise awareness and appreciation for clean water. This year the exhibition will be hosted virtually online and in person on August 12, 2021 outdoors at the Blue Heron House. A volunteer appreciation awards ceremony and catered luncheon will coincide with the art show. Please pre-register at gmcg.org.

Wednesday, August 18 from 7-8 p.m. - Abenaki Tales from the Northeast Woodlands. Join Anne Jennison, Abenaki storyteller, educator and craftsperson who will share traditional Native American stories in an interactive Zoom performance. Anne will share a traditional Abenaki greeting song, an explanation of Abenaki storytelling traditions, and four Abenaki stories. The evening will conclude with a brief Q & A session. Anne is a traditional Native American storyteller with both Abenaki and European heritage. She is a member of both the NH Commission on Native American Affairs and the Indigenous NH Collaborative Collective. She is an affiliate faculty member for the UNH Native American and Indigenous Studies (NAIS) Minor and a co-creator of the "People of the Dawnland" interpretive exhibit at Strawbery Banke Museum. Learn more at annejennison.com. Please preregister at gmcg.org. This event is cosponsored by the Chocorua Lake Conservancy and the Cook Memorial Library.

The changing ways we give

By Matt Howe, Executive Director

The shift from giving by check to giving online has not been as swift as predicted, but it is well underway. We are hearing from more and more of you that you want to receive less paper, and that you would like to conduct all of your future giving to GMCG online. We are listening.

A GMCG review of "e-giving" tools and services is underway. We want to improve our systems in order to provide the most user-friendly and efficient process possible for those of you so inclined. Our participation in the recent NH Gives campaign is part of this exploration – the platform they use has introduced us to a number of ideas for how to succeed in a paperless fundraising environment.

We know not everyone is ready to part from tradition, and that's fine. We are not going to discontinue our mailings anytime soon, and we welcome your paper check!

A recent survey by the Blackbaud Institute underscores this era of transition: when asked "Is social media an acceptable way to ask for a donation?," 50% of adults born after 1995 said yes, compared to only 22% of those born before 1965.

As we navigate these generational differences we shall strive to offer everyone the options they want without making all of you feel you are being asked too often! We appreciate your understanding and invite your feedback as we continue to learn how best to connect all those who care about GMCG with their preferred way to give.

Speaking of giving, I am delighted to report that the 2021 NH Gives campaign raised over $5,700 from 40 donors, and 100% of that will be matched by the Board of Directors. As of June 21, we have received 355 gifts totaling $109,422 toward our 2021 Cascade of Giving goal of 501 donors and $150,000.

From all of us here, thank you for bringing us this far, and thank you for being a part of our future.

Thank you!

(Please make checks payable to Green Mountain Conservation Group at PO Box 95, Effingham, NH 03882)

You may also donate online at ***www.gmcg.org***

My/our gift of $_____ is enclosed.

NAME _____

ADDRESS _____

_____

PHONE _____

EMAIL _____

Are you interested in being a GMCG Volunteer? ____YES

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236 Huntress Bridge Road
Effingham, NH 03882
(603) 539-1859
info@gmcg.org

SAVE THE DATE

Watershed Celebration
August 12,
from noon to 3 p.m.
at 236 Huntress Bridge Road in Effingham

In This Issue:

Contributors: EB (Emma Brandt), Jill Emerson, Rikki Haley, Matt Howe, Trent Millum, Tara Schroeder, Moselle Spiller, Jessica Pierce, Spencer Wilson, Bill Lord, Juno Lamb

Comments, questions, or ideas for a future article?
Please write to info@gmcg.org