

The Watershed News

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Natural Resource Planning Workshop with Steve Whitman will be November 6

Since its inception in 1998, the Green Mountain Conservation Group (GMCG) has been actively facilitating conversations about the natural resources shared by the many towns and property owners in the region. Important planning milestones have included the creation of a Natural Resource Planning Guide as well as a compilation of town ordinances pertinent to natural resources. Guide books were given to town planning board members and notes made about how to use them to plan for growth and protection of shared natural resources in the Ossipee Watershed.

In 2010, GMCG partnered with Lakes Region Planning Commission to further promote water resource protection by working with towns to write and adopt an Aquifer Protection Ordinance. Over the past two years, GMCG has focused planning efforts on Watershed Management Planning in the Ossipee Watershed. Initially studies have included studying the impact of phosphorus in the lower bays of Ossipee Lake.

On **November 6th**, GMCG will host a natural resource planning workshop for municipal officials and Ossipee Watershed residents. Steve Whitman, planner and ecological designer will lead a lively discussion

at Runnells Hall and help facilitate time for stakeholders to work together to discuss natural resource



BB Wright of Long Sands Association discusses actions proposed by watershed residents as part of the Watershed Management Planning on Ossipee Lake

challenges they face in each of their towns. Steve worked with GMCG and local officials in the past and presented information on the role of local land use regulations. Shared resources include aquifers, forests, wetlands, and other aspects of our landscape that cross town and state boundaries.

Shared resources are assembled into complex ecosystems that clean air and water, provide habitat and recreational value, and meet many other needs for the species that call this area home. How do we plan to interact with these ecosystems?

Natural resource planning is a tool that can be used to guide planning boards on ways to best protect these resources. Each town

in the watershed has created a vision and master plan to guide land use changes in the future. Many towns also

have created a set of land use regulations that are intended to guide future growth and development.

How do land use regulations relate to these complex natural resources that connect across town boundaries? These issues will be explored in greater detail during Steve's presentation. Participants will be encouraged to share their own challenges and ideas.

GMCG encourages municipal officials, residents and stakeholders from all towns in the Watershed to attend this meeting. In order to

continue to collaborate on positive natural resource conservation and growth we need to communicate and collaborate across the region!

Steve Whitman is a professional planner and educator based in New Hampshire and his work is focused largely on community planning and sustainability issues. He is a certified permaculture teacher, and also an adjunct faculty member at Plymouth State University and Colby Sawyer College. Steve frequently teaches courses in the US and abroad on environmental planning, community planning, permaculture, natural building and sustainability.

Please join us on November 6th at 6:00 pm at Runnells Hall in Chocorua.

The Watershed News

The Watershed News is a quarterly publication of the Green Mountain Conservation Group, a non-profit, 501(c) 3, charitable organization established in 1997 and dedicated to the preservation of the natural resources in the Ossipee Watershed. The towns of Effingham, Freedom, Madison, Ossipee, Sandwich and Tamworth make up the boundaries of the Ossipee Watershed. This watershed includes one of the largest and deepest stratified drift aquifers in New Hampshire.

GMCG's purpose is twofold:

1. To provide an organizational structure for a coalition of citizens and local officials interested in identifying sensitive areas within the Watershed in need of protection;
2. To offer public educational events about conservation issues and possible solutions regarding the preservation of unique natural resources.

Through research, education, advocacy and land conservation we strive to promote an awareness and appreciation of our watershed's natural resources and encourage a commitment to protect them.

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A Big Round of Applause for GMCG Water Quality Volunteers!

By: Maureen Brooks

Congratulations to all of the GMCG RIVERS volunteers who have made over 400 visits to tributary sampling sites so far in 2014! Volunteers monitor 30 tributaries sites throughout the Ossipee Watershed every other week from May through October. Of those 30 sites, 10 are sampled year round. When testing, volunteers follow a strict protocol -Quality Assurance Project Plan (QAPP) to assure data is accurately collected by the many different volunteers.



Eaton Conservation Commissioner and GMCG RIVER Volunteer Dick Brisbois testing Long Pong Outlet

In addition to the RIVERS program, GMCG also samples the five deep water spots on Ossipee Lake through the Volunteer Lake Assessment Program (VLAP). Volunteers monitor the Big Lake, and four Bays each month spring through fall. Deep water sampling is essential to understanding short and long term trends in the system. Dedicated volunteers provided boats, gas, time and knowledge to successfully assist with five sampling dates.

Volunteers have made over 5,500 site visits since 2001! In 2014, GMCG partnered with FB Environmental to analyze data and create a 10 year Watershed water quality report which will be available soon.

In addition to tributary and VLAP water quality programs, GMCG also partners with youth camps on Ossipee Lake to aid in data collection during the summer. The campers became citizen scientists for the day and are given the chance for a hands on experience collecting water quality data.

Camp Calumet continued testing the mouth of the Bearcamp River this year. Campers were taught about water quality as

well as how to follow strict protocol when collecting the data. One camper in particular was very excited to be testing the river site. Quickly gathering that his excitement was due to the fact that he participated last summer, he was able to teach his fellow cabin mates the process of collecting the temperature, conductivity, dissolved oxygen and turbidity with ease.

Camp Huckins monitored the water clarity of Broad Bay throughout the summer using a Secchi Disk and View Scope. Why is it important to monitor the clarity of our lakes? With more and more development around our bodies of water, it is easy for them to become nutrient enriched. This can be caused by storm water run off and erosion that may carry pollutants into the water. Over time, nutrient loading may contribute to algae blooms. When the campers were taking their Secchi Disk readings with the view scope, they were averaging a reading of 4.5 meters or 15 feet. Campers learned that sun light is able to



pass through the water up to 15 feet and provide photosynthesis to the plants. Through these programs, campers will carry a piece of what they learned with them and will continue to protect the quality of water, for themselves and their families.

As a former Huckins camper, it was remarkable to see how interested and involved camps around the Lake and Bays are. There only needs to be one act to make a difference.

Maureen Brooks has been the 2014 Summer Water Quality Intern. GMCG thanks her for her time and wishes her all the best!

It's all about DRAGONS!

By Corey Lane

As summer comes to a screeching halt and GMCG completes season nine of Volunteer Biological Assessment Program (VBAP) with 140 third through sixth graders from five Ossipee Watershed elementary schools (Effingham, Ossipee, Freedom, Sandwich and Madison Mustang Academy) it seems like a good time to share a bit of what they are learning.

One type of macroinvertebrate that they have been studying and have found many of are dragonflies.

Dragonflies are an amazing species that have been flying around the earth for about 300 millions years. This takes us back to the time of dinosaurs. Dragonflies look very similar now as they did then except that they have gradually gotten smaller over time. The largest dragonfly fossil has a wingspan of nearly three feet making it the largest flying insect in known history!

Dragonflies are part of the Odenata order of insects (which includes damselflies too) and is made up of more than 5,000 individual species worldwide. Within the United States there are about 400 species of Odenata. They can tolerate fair water quality and lay their eggs in or near water. They spend most of their lives in the larva stage as nymphs (from one to six years, molting six to fifteen times depending on the species) and they are predatory insects from birth. The nymphs have a special appendage on their heads that they use as a spear to catch tiny fish. They also eat mosquito larva during this stage.

Nymphs go through a partial metamorphosis during which they grow their two sets of wings. The primary reason for the winged stage is mating and lasts only a few weeks. Mosquitoes are one of their primary food sources during this time. They will also eat gnats, flies, flying ants, swarming termites, mayflies, midges, butterflies (even big swallowtails), damselflies, other dragonflies, and just about anything small enough for them

to catch. When you see a winged dragonfly it is near the end of its life.

Male dragonflies can be very territorial staking claim to a particular area alongside a pond or stream. When you see two adults chasing each other through the air it is often one male chasing the other from its territory.

Dragonflies will sometimes travel in swarms which appears to be due to favorable feeding conditions. It may also be related to weather changes



Dragonfly Nymph

such as the passage of a cold front.

The eyes of a dragonfly are large and compound with many facets. They contain up to 30,000 tiny lenses and because of this the adult can see nearly 360 degrees at all times.

Dragonflies have four wings that allow them to move sideways, backwards and hover in place. These movements make them well suited for eating insects right out of the air. Dragonflies are one of the fastest insects out there reaching speeds of 30 miles an hour. They can fly forward at about 100 body lengths per second and backwards at about three body lengths per second. Dragonflies do almost everything in the air except rest.

A few myths and legends: The dragonfly was given the name "Devil's Darning Needle" because of the superstition that they would sew the mouths shut of lying children, scolding women and cursing men while they slept. The English today call dragonflies "hos-stingers" and

Australians call them "horse stingers". It is believed that this came about because they would swarm around horses which were kicking and jumping as they were being bit. In reality the dragonflies were eating insects that were truly biting the horses. The Italians believed that Satan sent dragonflies up from hell to cause mischief in the world. Navaho Indians believe that dragonflies are symbolic of water purity.

Through VBAP, students collected, sorted and identified macroinvertebrates to determine the water quality conditions of five watershed rivers. Some of the critters identified are sensitive to pollution while others are more tolerant. When students identify dragonfly nymphs during VBAP, they learn that, in calculating a stream's biotic score (health), they hold a value of three which means they are moderately tolerant to pollution. Helgrammites are least tolerant with a value of zero and macros such as aquatic worms and scuds have a value of eight showing their tolerance to poor water quality. To learn more about macros and water quality, please join us on December 4th at 6 pm at the Tamworth Town House for a presentation by these youth citizen scientists from around the watershed.



Ossipee Central School students sorting macros at the Swift River in Tamworth

Check out lots of photos of VBAP students on GMCG's facebook page!

Sources: ponddoc.com, eduwebs.org, 21facts.com, ucmp.berkeley.edu.

Improving water quality through Best Management Practices- Soak Up The Rain NH!

By Corey Lane

Did you know that over 90% of the water pollution problems in New Hampshire are caused by stormwater runoff from the roads we travel, the buildings and parking lots we visit, and even the homes in which we live?

Soak Up the Rain New Hampshire (SOAK) is a voluntary program, managed by the New Hampshire Department of Environmental Services (NHDES), with the goal of protecting and restoring clean water in the state's lakes, streams, and coastal waters from the negative impacts of stormwater pollution. (source: soaknh.org)

As part of the long term planning that is taking place through the Ossipee Watershed Management Plan, GMCG is proud to begin a partnership with SOAK as a way to educate and assist land owners and local youth with correcting areas around homes and businesses where non-point source pollution is occurring in our watershed. If each waterfront land owner was able to identify and correct one, if not all, areas of concern on their property, the

beneficial impacts to Ossipee Lake and Bays would be remarkable. Now is the time to begin the process of improving water quality while improving property values as well. Drip line infiltration trenches, dry wells, infiltration steps, pervious

walkways & patios, rain barrels, rain gardens, vegetated swales and water bars, to name a few, can improve our quality of life and the quality of our water. Contact GMCG if you would like more information on SOAK and what you can do in your yard!



Congrats to Camp Robin Hood!

Installing water bars and infiltration steps help soak up:

Runoff volume: 33,573 gallons/year

Sediment: 11,600 pounds/year!

Phosphorus: 3.1 pounds/year

Nitrogen: 5.4 pounds/year

with more to come in 2015!

Muses about Seasonal Change

By Ingrid Baily

At the recent GMCG fundraiser in Wolfeboro, owl expert Denver Holt gave a fascinating presentation on snowy owls. As a lifelong bird-lover, I especially enjoyed seeing his dramatic photos of the Arctic landscape and snowy owls during their various life stages, as well as hearing the stories of his team's field study of these beautiful creatures.

Something else struck me that evening. In introducing Denver, Executive Director, Blair Folts, explained that she and Denver were friends when they were growing up, and both spent time in an Audubon sanctuary in their urban hometown. She emphasized how protecting land for people to experience nature can be

inspirational—and can have profound effects on their lives.

Blair's remarks reminded me of Richard Louv's book, *Last Child in the Woods*, about how to save our children from nature-deficit disorder. Louv writes: "healing the broken bond between our young and nature is in our self-interest, not only because aesthetics or justice demands it, but because our mental, physical, and spiritual health depends on it. The health of the earth is at stake as well." Providing opportunities for children to express curiosity about the natural world and begin a pattern of learning is critical for them and all of us. GMCG is making a difference for youth as it introduces the many "water literacy programs" that range from macro invertebrate sampling to raising trout in the classroom.

As summer turns to fall, there is so much to notice and be curious about. Many

songbirds have migrated; blue jays and chickadees are coming out of the deep woods and visiting bird feeders. Crickets are chirping more and seeking shelter in our houses and barns. Some mammals are gathering and storing food for the winter—those chipmunks are busy!—while others, such as groundhogs, are gaining weight and preparing to hibernate. To learn more about seasonal changes, I recommend Mary Holland's book, *Naturally Curious*, an inviting, comprehensive field guide for New England. Reading the monthly chapters is a great way to inspire wonder about this part of the world and encourage direct connection with nature by all ages.

Baily lives in the White Mountain foothills of Maine.

Water Quality monitoring on Ossipee Lake includes climate study from Plymouth State

By Melanie Perello and Victoria Santry

Water quality remains one of the most important environmental issues today and has significant impacts on our quality of life. For Ossipee Lake, water quality has direct effects on the enjoyment of the lake by residents and tourists as well as the health and well-being of native wildlife, including loons, bald eagles, and the variety of fish that call Ossipee home. This summer, we have been coming out to the Big Lake on a weekly basis to test the water quality at the Deep Spot which allows data collection through the entire water column. Located by GPS, data has been collected here for over 20 years. This is part of an ongoing master's project through Plymouth State University's Center for the Environment (CFE) that is studying the relationship between climate and water quality in Ossipee and Squam Lakes.

We are both students at Plymouth State, Melanie is in the master's program while Victoria is a junior in Environmental Science & Policy, with interests in lake research and conservation. Together, we have been canoeing to our site each week and collecting samples from three depths to represent the three thermally-stratified layers of water (epilimnion, metalimnion, hypolimnion). These samples are then brought back to

the CFE lab to be analyzed for pH, conductivity, turbidity, alkalinity, major ions, and phosphorus. This data is then shared with GMCG and the public through our website and will be incorporated into the overall project.

We've had the pleasure of working with Corey Lane, GMCG Water Quality Coordinator, in setting up our project and have been able to join the VLAP trips to sample the Big Lake as well as the surrounding bays. We'll continue to come out each week until the end of October and aim to do some wintertime sampling once the lake freezes over. We want to thank Corey for all of her help and Ed Green and Dennis Gould for their boat assistance. If you're interested in our project and would like to learn more, please visit our website (<http://www.plymouth.edu/eportfolio/view/view.php?>)



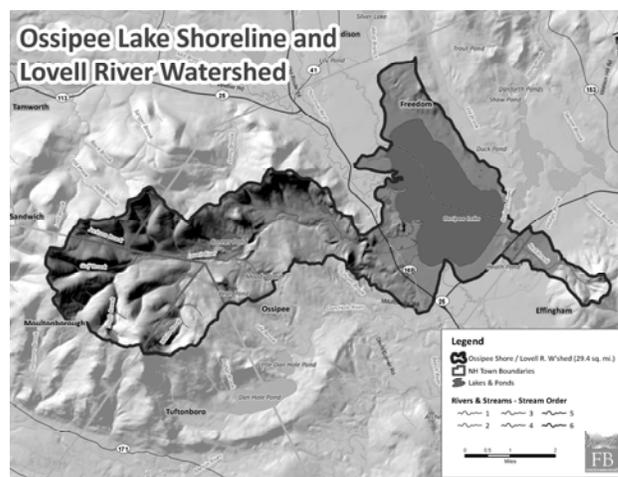
Phase I of Ossipee Watershed Management Plan nears completion

The first phase of GMCG's Ossipee Watershed Management Plan, Danforth Pond and the Lower Bays, is coming to a close after a great volunteer effort was put forth from folks around the watershed. In working with GMCG and FB Environmental, dedicated volunteers collected much needed information, such as continued water quality monitoring of the Lake, Bays and tributaries. Volunteers also loyally participated in steering committee meetings, helped install best management practices, partook in a shoreline and septic survey, and aided with build out analysis in two towns. All of this would not have been possible without watershed residents donating their valuable time and effort throughout the year.

Once the information was collected and modeled, a community forum was hosted by Totem Pole Park in July. Many residents attended offering great insight and local knowledge about what the next steps should be in looking towards the future health of the Ossipee Watershed and how, as a community, we can turn around the increasing trend of phosphorus loading that is occurring. A final report of Phase I of the Ossipee Watershed Management Plan by FB Environmental will be available this Fall and was funded in part by NH DES. With Phase I almost completed, GMCG is

currently seeking funding for Phase II of the management plan - The Ossipee Shoreline and Lovell River Subwatershed.

Contact GMCG if you would like a copy of the plan when available. More information on what you can do to protect water quality is available on the GMCG website—gmcg.org.



Pending funding, Phase II—Lovell River Watershed—will commence in early 2015.

Conservation Conversations

Editor's Note: *Watershed 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

Eaton Conservation Commission is pleased to announce that the new (easier) trail to the top of Foss Mountain is complete and open for users. New directional signs and information kiosks have been installed along the new trail.

We are continuing to work with our commercial blueberry harvester, Ryan Bushnell of Brownfield, Maine, to improve the growing conditions and reduce the volume of invasive grasses on the commercial organic blueberry fields. Ryan is shown in the photo winnowing the last crop of blueberries on the northern-most field, Brooks Pasture, of the Foss complex. Picking



of organic blueberries in the public areas near the crown of Foss Mt. was good through the first week of September.

Effingham

It's been another quiet few months in Effingham. But in an environment shaped by glaciers and dominated by the deliberate march of seasons, quiet is a sign that things are fairly well balanced, however temporary that may be.

The busy beavers of the ECC Civil Engineering Division did erect a sturdy roof over the picnic table at the Route 153 boat ramp on Ossipee River. Jack Williams and Al Levesque followed ECC's tradition of scheduling summer work projects on brutally hot days when they went out to dig the holes for the concrete footings. For the actual construction Jack and Al were joined by Bill Wrabel and Wayne Fisher.

ECC continues to support the Province Lake Association's Lake Host Program and to maintain communication in ongoing milfoil eradication efforts by professional harvesters. Milfoil never sleeps! Well, maybe it does, but when it's awake it's relentless. You can't turn your back on that stuff for a minute.

Freedom

The Freedom Conservation Commission guided a walk on the Freedom Town Forest for Old Home Week in August.

Madison

The Madison Conservation Commission has contracted with The Nature Conservancy to begin a burn of Goodwin Forest this Fall to restore the and encourage growth of the pine barren habitat, if weather permits. This type of habitat is one of the highest ranked in the state for preservation.

Ossipee

The Ossipee Conservation Commission has sadly lost three members due to moves. They include, Jean Hansen, Lynn Clarke and Corey Copp. New to the commission are: Donna Gridley, Ron Larravee, Joe Goss, and Tom Belluscio and we look forward to having them join us.

The Pruniers at the Summer Brook Fish Hatchery are looking into putting up solar arrays to help reduce their electric bills caused by pumping the water for the fish from the well. The Conservation Commission has been working with the easement holder, SPNHF, to help make this happen.

The Lake Host Program has been successful again this year checking boats for milfoil and educating boaters at the public boat launch on the Pine River and at the Pequawket site in Ossipee.

Notes from Down Stream

By Dennis Finn

The Saco River Corridor Commission (SRCC) was fortunate to receive a small grant award that we were able to use for community education. The grant came from the State of Maine Outdoor Heritage Fund which provides the opportunities for select State of Maine agencies to apply for money to supplement the funding for their programs. We used the money to enlist help from LaMarr Clannon, a hydrologic engineer who specializes in Low Impact Development (LID) erosion and stormwater control design. LaMarr presented a series of talks to planning boards, boards of selectmen and the general public in the 20 towns that make up the Saco River Corridor. Her specialty is the design of rain gardens and the use of pervious pavement in both residential and commercial projects that help control water and ensure that it ends up recharging the aquifer.

Rounding up the individual presentations, LaMarr decided to host a regional workshop to re-examine the information that was presented and to see if the area towns were able to implement the designs or incorporate design language into their ordinances. **The workshop, which is open to the public will be held in the Buxton town hall, in Buxton Maine on Saturday October 11, 2014 from 9:00 a.m. to noon.** Low impact development techniques have been a hard sell to contractors and towns alike, primarily because it is very different from what they are used to. The bottom line for LID is that it works, is competitive in cost and not only helps control storm water, but makes sure that the water is a benefit and not a detriment.

Dennis Finn is the Executive Director of the Saco River Corridor Commission and may be reached at 207-625-8123.

Save the Date! 2014 Fall Calendar

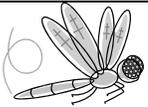
Sunday, September 28 3-6:30 pm “Loons, Tunes and Spoons”, Freedom. Family friendly event will take place on Ossipee Lake at Calumet Conference Center. Enjoy pontoon boat rides on the lake, a variety of local music, local food sampling, loons and the sunset. Bring a picnic and meet other Watershed Friends!.

Sunday October 26 1 pm GMCG and the Francis Small Heritage Trust will lead a hike on Sawyer Mountain in Maine. Dick Jarret will lead a hike to the back borders of this interesting and conserved land. Interested participants coming from NH can meet local hikers at the Sacopee Valley Health Center at 1:00 PM to carpool to the Limington trailhead. Contact Peter Zack of the FSHT at 207-625-3605 for further details. Pack water and a snack. Wear appropriate shoes and weather gear.

Sunday, November 2 1-3pm Known by the Siberians as the “**Gift from God**” and the “**Mushroom of Immortality**”, go on a Chaga Mushroom Walk and Talk. Join Jesse Cole of Sumner Brook Herbals and Dan Stepanauskas, local forester, to go on a search for the chaga mushroom, and learn about the folk remedies and health benefits of this hard, woody fungus. Local meeting location to be announced. Call GMCG at 539-1859 to register.

Thursday, November 6 6-8 pm Natural Resource Planning Workshop with Steve Whitman. Runnells Hall, Chocorua. GMCG will host a natural resource planning workshop for municipal officials and Ossipee Watershed residents. Steve Whitman, planner and ecological designer will lead a lively discussion at Runnells Hall and help facilitate planning conversations for stakeholders to discuss the natural resource challenges they face in each of their towns. Call the GMCG at 603-539-1859 to pre-register.

Thursday December 4 6-8 pm Youth Water Quality presentation, Tamworth Town House. Students from schools around the watershed will present information on water quality results from tributary and macroinvertebrates data collection over the fall. FMI call GMCG 539-1859.



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PLEASE renew your membership today!
Every drop counts! Thank you!

(Please make checks payable to Green Mountain Conservation Group P.O. Box 95, Effingham, NH 03882)
You may also renew your membership online at www.gmcg.org/we-need-your-help/

Vernal Pool __\$25 **Stream** __\$50 **River** __\$75 **Pond** __\$100 **Bay** __\$250 **Lake** __\$500 **Aquifer** __\$1000 **Other** __

NAME _____

ADDRESS _____

PHONE _____ **EMAIL** _____

Are you interested in being a GMCG Volunteer? YES



PLEASE RENEW YOUR MEMBERSHIP TODAY and encourage your family, friends and neighbors to join GMCG. GMCG is a non-profit 501 (C)3 tax-exempt organization. We are funded by grants, memberships, and donations.

Creating a future gift

One of the most meaningful ways to ensure your legacy of caring about clean water and the protection of our natural resources in the Ossipee Watershed is to include GMCG in your estate planning. Please contact us if you would like to discuss details and how you can support GMCG in this way. We accept donations of real property, stocks, bonds, mutual funds, life insurance policies and gift annuities. Donations are tax-deductible to the full extent of the law.

GMCG's Federal Tax Identification number is: 02-0498020.



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The Watershed News

Save the Date
November 6
Natural Resource
Planning with
Steve Whitman at
Runnells Hall
6-8 PM

Deadline for
Winter Newsletter
submissions is December 10th

EVERY PERSON CAN MAKE A DIFFERENCE AND EACH PERSON SHOULD TRY.



Sign up for event updates with *Watershed Happenings* and stay in the flow! Sign-up at www.gmcg.org