



WISHING YOU COMFORT & JOY

Dear Neighbors,

We are all so grateful for your support through the 2021 Friends of Messalonskee season. Thank you all for your continued support of our efforts to keep our lake and watershed healthy for generations to come.

This year we doubled our "normal" working capacity by adding a Watershed Survey to our plate. We need this survey so that we can apply for government funded grants to help landowners around our watershed to repair the trouble spots and keep groundwater runoff out of the lake. We spoke about this in our last newsletter which you can find on our website. FOM hired Jen Jespersen of EcoInstincts as our expert to lead us through the process and it's been a process! We collected addresses of all residents in our watershed and mailed letters to all of them and then on two days in September, we had volunteers walk almost the entire area to see what we could find so we can help to fix it.

FOM managed its regular schedule of programs, too. We appreciate our CBI staff and crew for inspecting just shy of 3,000 boats this summer. They found 32 plants of which 16 were invasive species.

Our milfoil crew hand-pulled 15,300 pounds of milfoil this summer and installed 8,500 square feet of barriers. New England Milfoil spent the month of October on the lake suction harvesting milfoil. They harvested an additional 2880 gallons of milfoil that equates to another 24,034 pounds out of the lake.

We are making an effort to send more email updates from the lake. If we don't have your email address, please go to the Friends of Messalonskee website and sign up to receive our emails. We really want you to be up to date on the latest news from the lake and we are trying to spend less on paper mailings - with email this is entirely possible! Our ultimate goal is to email all newsletters.

As this year draws to a close, the board of trustees and all of us want to thank you for your support in 2021. We hope that 2022 will be a year for gathering together, and we look forward to seeing you at the lake!

We wish you a Merry Christmas, Happy Holidays wherever you may be this season. Wishing you all the best for a Happy and Healthy New Year, too!

All the best from The FOM Board of Trustees: Gary Bennett, Ned Hammond, JJ Jurdak, Peter Koons, Greg Mercier, Kathy Moore, Bob Nardi, Kerry Smart, Lisa Tarzia, Janna Townsend, Linda Warner, Connor White and Rachel White

MESSALONSKEE LAKE WATER QUALITY

BY DR. DANIELLE WAIN, 7 LAKES ALLIANCE

Since 2015, the 7 Lakes Alliance and Colby College have collected Secchi disk readings (water clarity) and water samples for total phosphorus (TP) analysis on Messalonskee Lake at Maine Department of Environmental Protection (DEP) Stations 1 and 2, the two deepest parts of the lake (Figure 1).

From this monitoring, we can see how important water quality metrics, such as the average TP and Secchi disk transparency (SDT), change from year to year. These metrics are one way of classifying the trophic state of the lakes, which essentially tells us if we have good (oligotrophic), medium (mesotrophic), or bad (eutrophic) water quality. The State of Maine has defined thresholds for water quality based on SDT and TP. An average SDT reading between 13 ft (4 m) and 26 ft (8 m) is defined as medium water quality (> 26 ft (8 m) is good and < 13 ft (4 m) is bad). An average TP value between 4.5 and 20ppb is defined as medium water quality (< 4.5 ppb is good and > 20 ppb is bad). The 2021 average SDT for Messalonskee at Station 1 was 16 ft (5.0 m) and the average TP from the data processed thus far was 8 ppb. Both of these numbers place Messalonskee in the medium (mesotrophic) water quality range.

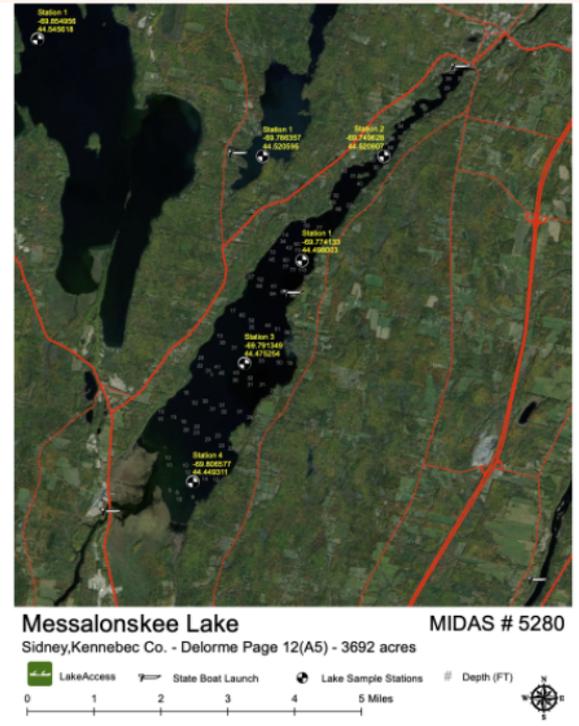


Figure 1: Map of Messalonskee Lake denoting the Maine DEP sampling stations (www.lakesofmaine.org)

Table 1: 2021 Messalonskee Lake Seasonal Averages and Trophic Status

	Messalonskee Lake Average (Range)	ME DEP Trophic Status Indicators			Messalonskee Lake Classification
		Oligotroph ^c	Mesotroph ^c	Eutroph ^c	
Water Clarity (meters)	5.0 (4.1 - 5.7)	> 8	4 - 8	< 4	Mesotrophic
Total Phosphorus (ppb)	8* (5 - 10)	< 4.5	4.5 - 20	> 20	Mesotrophic

*Preliminary results. Some 2021 TP data are still being processed in the lab.

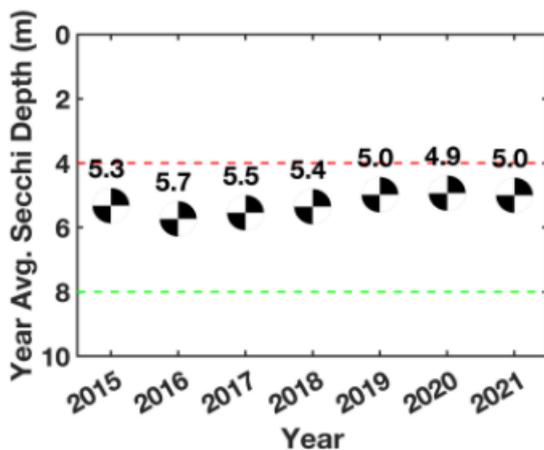


Figure 2: Average SDT for each year. The red line indicates the "bad" water quality threshold, while the green line indicates the "good" water quality threshold.

How does this compare to previous years? Since we started more intensive data collection in 2015, Messalonskee has stayed within the medium (mesotrophic) range (Figure 2). While 2021 was slightly better than 2020, the past three years have had water clarity 1-3 ft less than 2015 – 2018. But overall, the water clarity remains generally stable, although we always need to keep a vigilant eye to ensure it does not creep up into the bad water quality category!

Phosphorus is a key nutrient for algal growth, which is why we monitor it closely. While we haven't finished processing all the TP data for 2021 at Colby yet, it is instructive to look at the patterns of TP through the year and compare with previous years. 2021 has followed closely to 2019 and 2020 thus far (Figure 3). We expect that the average will increase once the September-November data is processed, as the TP generally increases during this time. This is because of a process called internal loading, where phosphorus is released from the sediments where there is no oxygen. At over 100 ft deep, the deep hole in Messalonskee loses all its oxygen near the bottom by late August/early September each year, leading to this phosphorus release.

MESSALONSKEE LAKE WATER QUALITY (CONT.)

How are things on the other lakes in the Belgrades? This summer, 7 Lakes Alliance and partners (Colby College, East Pond Association, North Pond Association, Belgrade Lakes Association, and Friends of Messalonskee) made over 200 measurements of water clarity across the seven lakes in the Belgrade Lakes watershed. The average water clarity in East Pond, where a chemical treatment with alum was done in 2018 to prevent future algal blooms, was 17 ft – 6 ft deeper than before the treatment. Unfortunately, since 2018 neighboring North Pond has begun to experience regular algal blooms. Overall, 2021 was a better year for water quality in North Pond than 2020, when the algae got so bad that it led to a fish kill around the lake. But the lake did experience a full lake bloom in 2021, with residents reporting algal scums on their shores throughout August. While North Pond is the only lake in the Belgrades to experience full lake blooms recently, the lake associations around all the lakes remain vigilant in protecting their watershed to reduce erosion, which brings sediment and nutrients for algal growth into the lakes. In early 2021, the Great Pond Watershed Based Management Plan was approved, laying out a 10-year plan for work in the watershed (including land protection, stream measurements, erosion control projects, education and outreach, and more) to ensure that the largest lake in the Belgrades does not decline in water quality as we face the dual pressures of development and climate change. With the recent completion of the Messalonskee Lake Watershed Survey, Friends of Messalonskee and partners will identify the sites at high risk for erosion around the watershed so that these sites can be mitigated to help protect the lake.

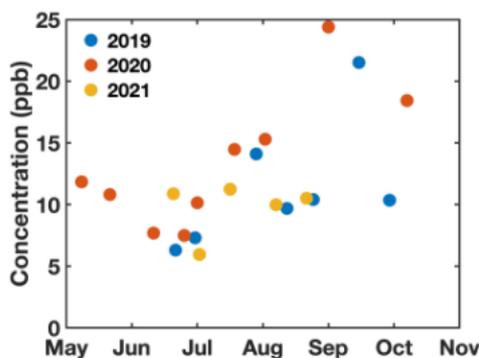
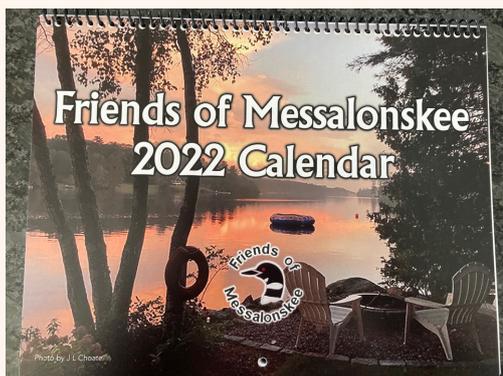


Figure 3: Time series of depth-averaged TP at Station 1 in Messalonskee for 2019-2021.

Many thanks to volunteers from Friends of Messalonskee who have helped to collect water quality data this summer: Kathy Moore and Mike Guarino, who went out in the rain to sample streams running into the lake; JJ Jurdak, who took us out to the sampling sites on his boat. If you have a 10-12" ice auger and/or a snowmobile and would like to help with our sampling this winter under the ice, please get in touch at danielle.wain@7lakesalliance.org!

2022 FOM CALENDAR

The 2022 FOM Calendars are for sale for \$25 each (includes shipping.) You can order through our website or send a check to our office address. We will be happy to send you a calendar. Thank you to our members who submitted photographs and voted for the winning photos.



THANK YOU 2021 BUSINESS SPONSORS

Central Maine Motors
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Messalonskee Stream Hydro
Oakland Sidney United Methodist Church
Plourde Real Estate
Rossignol Excavation
Snow Pond Center for the Arts

Messalonskee History

BY GARY BENNETT, SNOWPOND CRUISES

It was 1790 when Jonathan Combs built the first dam on what is now Messalonskee Lake. Even back in those days this project was controversial. Farmers in what is now Belgrade and Sidney filed a complaint with the Massachusetts General Court. They were losing parts of their farmland and homesteads because a dam was built miles up the lake. What happened to the complaint, we may never know. What we do know is we have our lake and Belgrade and Sidney have a lot of submerged farmland.

Using your imagination and a depth finder, a boater can cruise across many acres of submerged fields and fallen trees at the south end of the lake. Trees and stumps having been there for over 230 years seem frozen in time. The creation of our lake as we know it began in 1790. Just two years before the incorporation of the town of Sidney and six years before, a proclamation was signed by Massachusetts Governor Sam Adams declaring that Belgrade could become the 102nd town in the Province of Maine, in the Commonwealth of Massachusetts.

Our lake, created so many years ago, is considered a treasure. One huge part of that treasure is the revered Messalonskee Lake Marsh; 1,300 acres of emergent wetland. By definition, 50% land 50% water, dominated by 90% soft stemmed plants. The marsh, over 2 square miles of breathtaking flora and fauna, is an ecosystem all its own. A seemingly floating marsh that is home to countless creatures, some endangered, some threatened but all seem to thrive. North American Water Snakes, an important food source, are frequently seen swimming near Snake Island and Snake Point. Nature lovers, bird watchers and fishermen travel from far and wide to visit "The Marsh" our special place. Unfortunately, "our special place" does not command the highest respect from the federal government. Why? Simply put, because it was man-made with the flooding of the lake. How that actually happened and the sequences that took place will remain a mystery, but it still remains, and always will be our special place to protect, love and enjoy.

Messalonskee Plant Paddle

FOM hosted several enjoyable, informative plant paddles. FOM collaborated with Mid-Maine Regional Adult Community Education, RSU18 office, to recruit participants. Classes were held at the Snow Pond Center for the Arts in Sidney and at the Oakland Boat Launch.

Instructors were Mike Guarino, owner/operator of Maine Wilderness Guide Service; Danielle Boutin, FOM Office and Courtesy Boat Inspection Coordinator; and Connor White, FOM Board member and Ecology Specialist.

The Messalonskee Plant Paddle program is modeled on the Lake Stewards of Maine statewide Invasive Plant Paddle program. The Lake Stewards is a non-profit organization dedicated to developing groups of "citizen scientists" on Maine lakes by offering classes and certifications in invasive plant identification and water quality monitoring while providing on-going support for those efforts.

FOM will continue this Plant Paddle project next summer and also explore the possibility of expanding the program for all ages by starting a Lake Stewards group focused on plant identification and monitoring.



Member Q & A: LakeSmart Lakefront and Lawn



My name is Sue and I was very happy to take part in the watershed survey of Lake Messalonskee back in late September. My husband and I own a lakefront property in Sidney, ME, and I have been vacationing on Lake Messalonskee since I was a little kid. I hope you don't mind me contacting you (got your email from the watershed training slides), but I do have a quick question that I wish I asked when meeting for the survey but didn't.

I realize that the survey was focused on erosion. I was wondering about the impact of treated and manicured lawns on lake health, particularly ones that are directly on the lake. Don't lawn treatments such as fertilizers, weed control and grub control chemicals cause problems for lakes as well? Are there any Maine state laws that ideally ban or limit use of lawn chemicals for lakefront properties, or is enforcement an issue? I was just wondering, as I do find it disturbing to see these nice green lawns on the lake and wonder what they are doing to make it look so nice and how much of what they are doing ends up in the lake. Would love to hear your thoughts. Many Thanks!

Hi Sue,
Use of fertilizer and pesticides in the shoreland zone is definitely something that gets documented during a watershed survey. The tricky part is that a green lawn isn't always an indicator that someone uses fertilizer, and without a landowner being present at the time of the survey it is difficult to know when it is and when it is not. Several properties I surveyed this year looked like they would have been fertilized but when I asked the landowner if they used fertilizer in 90% of cases they say no. In some instances the grass just grows well because of the wet conditions and lack of overstory, and in one instance the landowner had aerated his and his neighbors yards and it just came in very lush. I documented a site that had one of the little pesticide signs you see around town on a lakefront property- a clear indicator that they are definitely using herbicides or pesticides (see attached).

So- the long and the short of it is there is definitely an education and outreach need as many of the yards we saw were very manicured and not as lake-friendly as we'd like to see with natural vegetation along the shoreline. Another issue with grass is that it does not do a good job of infiltrating water, so there often ends up being sheet flow over the grass to the lake. Adding even a 10' wide natural buffer between the lake and lawn would do a lot of good for the lake and water quality. For the watershed survey the "LakeSmart Referral" form documented properties with grass straight to the lake even if there was no active erosion. There are ~ 120 properties on that list. My understanding is that FOM will be following up with the property owners on this list with educational materials about the importance of buffers and becoming LakeSmart. I've copied Janna Townshend here as she is the LakeSmart coordinator for FOM and will be coordinating that effort.

There is a state law that prohibits use of fertilizer within 25' of the lakeshore that was pushed through the legislature by Maine Lakes a few years ago (they were shooting for 75' but settled for 25' after some pushback). The state also prohibits the sale of fertilizer containing phosphorus and requires that stores include educational signage near these products. Enforcement is definitely an issue, but also education- the average homeowner has no way of knowing that this is even a law- let alone the towns adopting it in their ordinances. Thanks for reaching out.

-Jen
Jennifer Jespersen, Ecological Instincts, Environmental Consulting & EcoDesign





Watershed Survey Update

BY KATHY MOORE, FOM BOARD

The on the ground survey of possible sources of soil erosion and stormwater runoff in the 20 sectors in the Messalonskee Watershed was conducted on September 29 and 30. The survey was very well organized by EcoInstincts and the Maine Department of Environmental Protection (DEP) (Land Resources division).

Due to so many parcels of land in the watershed (>3,000 covering 46 sq. miles)), the survey focused on developed properties along the lake shoreline, Belgrade Stream, and stream crossings on camp roads and main roads that flow to the lake. The watershed is larger than we thought. For example, Sectors 11 and 12 (south end of the lake and Belgrade Stream) took more than three days to survey.

The survey was guided by 11 Technical Leaders. Four from the DEP; 1 from the Kennebec Soil and Water Conservation District, 2 from EcoInstincts; 1 from 30 Mile River Watershed Association (Mt. Vernon area); 1 professional watershed consultant; and Charlie Baeder and Peter Kallin from 7 Lakes Alliance generously donated 2 days each of their time and effort.

23 adult volunteers, 9 Maine Arts Academy students and their Science Teacher assisted the Technical Leaders. Seventeen of the adult volunteers were FOM members. Several of the others were from Belgrade-related organizations (i.e. Belgrade Lakes Assn., Pine Island, Town of Belgrade). The volunteers were excellent, performing their tasks with enthusiasm and commitment to lake stewardship. All volunteers reported that they learned a lot and had a good time!

Results indicate 247 documented sites as having an impact on the lake, mainly residential properties (51%), driveways (14%), private camp roads (13%), and town roads (6%). The majority (91%) are low (104) or medium (120) impact sites related to the lack of, or inadequate, shoreline vegetation on residential shorefront properties or needed pathway and/or driveway improvements. There are 23 high-impact sites. A common example is an open grassy waterfront (grass is not a strong erosion control), or a severely eroding shoreline. A tremendous amount of data was generated due to the watershed size.

All volunteers and FOM members who have an email address on file will receive an electronic copy of the final watershed survey report in February. It will also be posted on the FOM website. No specific landowner names or addresses will be disclosed in the report. Only landowners with a documented site will receive a follow-up letter in early March. The letter will describe the problem identified and specific recommendations proposed for the site. The results will be translated into a Watershed-Based Protection Plan that will be used to apply for grant funds that can help landowners with documented sites address the identified issues. For more information, contact FOM at www.friendsofmessalonskee.com.

Thank you to our major donors, Tobi L Schneider and Patricia Collins, whose generosity helped to jump-start the project and to all the donors whose lake stewardship continues to make this project possible.



IMPORTANT DATES

July 4, 2022 - Boat Parade

July 7, 2022 - FOM Annual Meeting

July 16, 2022 - Loon Count



A LakeSmart Visit - Be LakeSmart!

BY JANNA TOWNSEND, LAKESMART SURVEYOR



This 2021 season 9 families and two condo communities, all residing within the Messalonskee watershed, invited FOM LakeSmart to insure that the development of their property was protecting the lake. Because every parcel matters, FOM hopes you'll sign up in the coming years. Read on to see if LakeSmart meets your needs:

Cedar Village resident and FOM Board member, Kathy Moore, was concerned about the culvert that runs south of her camp. At first sight, at its peak where water collects and begins to descend, I thought, "what a graceful rocky stream dappled with Colt's foot and fern", but as we walked further menacing clues became apparent. During storms, great gushes of rainwater move swiftly from the top of the steep slope eventually draining into Messalonskee. Sediments of soil, tree branches, and all that the earth produces commingle, bringing something wonderful yet dangerous to our lake. Over the years it has created a beautiful sand bar. A shorefront that is a soft, warm comfort to the feet is also a perfect bed for milfoil to rest, nest and develop. We pulled handfuls of baby milfoil as we stood at the water's edge with Lisa Tarzia, Sally Dunning and Judy Mitchell, who quickly learned how to identify and gently remove milfoil, carefully gathering every bit of its roots and stems as each part can develop into a giant invasive plant.

Woodland refuse was mounting along the shorefront and we wondered just how much this was contributing to the developing phosphorus at the lake bed. The Cedar Village team walked the entire property as we observed how much care the community had already invested to enhance their parcel of the vast FOM watershed as well as the measures that need to be taken to further protect it.

At the top of the steep slope (slopes are erosion enhancers), berms or plantings are needed to slow the rainfall. Swales can divert water away from the lake toward gardens or water pits. Creating small gardens rather than great lawns and building a wide buffer across the shoreline will encourage rain runoff to soak in and cleanse before speeding down gathering and dumping phosphorus (an algae bloom source) into the lake.

Many of these suggestions are inexpensive (gardens), if not costless (swales), others require some expertise, time and financing (road enhancement), which property owners prioritize and address in their own manner or aesthetic as they are able. Once the property has met its protective status, a LakeSmart sign is awarded, which can be posted to share the accomplished effort. Because FOM performed a watershed survey, we will be qualified to apply for grants to help towns and landowners defer the bigger costs of erosion protection.

Messalonskee is among the THREATENED Lakes of Maine. LakeSmart is working property by property to develop an environmental ethic among watershed property owners to keep out phosphorus and other poisons to avoid algae bloom and monitor for milfoil. It's a great deal easier and much more inexpensive to prevent an algae bloom than fix one! And it's an endless job, but with your help we can keep Messalonskee cleaner, bluer and safer for ourselves and all wildlife.

To make a LakeSmart appointment...Call 207-618-8723 or email: friendsofmessalonskee@gmail.com



Residents and FOM surveyor create a LakeSmart property

PLEASE BOAT RESPONSIBLY



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For the lake shoreline, to reduce erosion and preserve water quality.

For the loons who carry their hatchlings on their backs.

For the community, to ensure safety and wellbeing on the lake.

<https://www.maine.gov/ifw/docs/maine-boating-laws.pdf>