the WATER COLUMN

The Newsletter of the Maine Volunteer Lake Monitoring Program

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What's Inside:

Cover Photo: Great Pond in Belgrade, courtesy of Ryan Burton

VLMP
Maine Volunteer Lake Monitoring Program
Keeping a watchful eye on the health of Maine lakes since 1971

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President's Message

Bill Monagle
President, VLMP Board of Directors

When I reflect on the past year at the VLMP, I see a year of both transition and progress. During the year, the Board of Directors experienced a significant amount of turnover, with several members resigning for either health-related or other reasons, and new members filling some of the respective vacancies. I would like to truly thank those who resigned from the board for your years of service to the VLMP and I wish you all the best. I'm sure I speak for all in saying that it has been a joy and privilege working with each and every one of you. And, I'd like to thank newly-elected board members for stepping up and helping to maintain a smooth transition.

This past year also witnessed increased activity on the part of the VLMP Development Committee, which is comprised of board members, volunteers, and staff members. The committee's main charge is to develop and implement a program aimed at ensuring the long-term fiscal viability of the program. The committee, under the leadership of board member Marsha Letourneau, has become more energized and focused over the past year. There's still much to accomplish, but progress to date has been very encouraging.

The VLMP's Advisory Committee is comprised of a diverse group of citizens and members of the scientific community with an interest in the mission of the organization, and a willingness to share their ideas, expertise and guidance on a variety of issues confronting the program. The group has met only once in-person as a committee; however, individual members of the group have made themselves available when called upon to share their wisdom on a particular issue. The full committee meeting, which took place last November, was stimulating and productive, and I'm hopeful that with their broad experience and knowledge, as well as the energy they provide, another meeting will be scheduled in the near future.

I would also like to recognize and thank the volunteer Regional Coordinators and Data Coordinators whose contribution to the program may fly a little under the radar, but whose efforts are critical to helping maintain the certification of volunteer monitors and the reliability and proper handling of the data that is collected. Last, but certainly not least, on behalf of the board of directors, staff, and program advisors, I would like to acknowledge and express our deep gratitude to the thousands of VLMP lake monitors throughout Maine who continue their tireless collection of critical lake data, keeping a watchful eye on our lakes and ponds, monitoring water quality, and screening for aquatic invasive species. You are the backbone of this organization, as well as its future.

To all of those I've mentioned above, as well as those of you who contribute to the program in other ways, we are all deeply grateful to you for making Maine's VLMP the preeminent lake monitoring program in the country!

Lakeside Notes

Gorgeous Fall Weather May *Not* Be Beneficial For Maine's Lakes!

By Scott Williams
VLMP Executive Director

One might expect that by early November, our thoughts of time spent on lakes last summer taking Secchi readings, or searching for aquatic invaders, would be rapidly fading. After all, frosty mornings and forecasts of snow in northern Maine/Western Mountains have replaced summer threats of thunderstorms and blazing heat. The weather this Fall has been wonderful for spending time outdoors. But the outside temperature today (November 6), here in central Maine, is forecast to reach 65 degrees F– breaking records for this date– one of many such days during the past two months. Perhaps I shouldn't have winterized my boat last weekend because I'm curious about how the extended warm weather has affected several lakes I've been monitoring for decades.

Although Maine experienced a cold, snowy winter and early spring in 2015, with later ice-out dates than in a number of recent years, the timing of ice cover on our lakes has been getting shorter on both ends. This change alone could have a profound effect on Maine lakes over time, because a shorter period of ice cover means that lake water stays warmer longer, allowing sunlight to penetrate lake water columns for a longer period of time. The obvious implication is that there will be more opportunity for aquatic plant growth, both algae and rooted plants, including invasive species.

If you've not read the study on earlier "ice-out" dates on Maine lakes and rivers, conducted by USGS Hydrologist Glenn Hodgkins and colleagues more than a decade ago, it's worth checking out: (me.water.usgs.gov/reports/OFR02-34.pdf). The take-home message is rather sobering, as is most of the substantial body of credible data pertaining to the effects of climate change on lakes.

Most of the Maine lakes that historically experience chronic, severe algal blooms, caused by bluegreen algae (cyanobacteria), begin to improve in the fall due to lower temperatures, reduced sunlight and diminishing phosphorus availability. But several of those lakes started to bloom again this fall, very likely due to unusually warm weather, abundant sunlight, and two intense rain events in late September and early October. Maine DEP staff have confirmed that the dominant algae blooming now in these ponds are cyanobacteria.

Sabattus Pond experienced a late-season algal bloom in November, 2015. *Photo courtesy of Jeremy Deeds, Maine Department of Environmental Protection.*

If the climatological outlook for the future is accurate, we will likely see more of this to come, and not just with the "chronic bloomers". Lakes that come very close to experiencing declining conditions during a "normal" summer may begin to change more rapidly soon. An overall increase in a lake's biological productivity due to warmer water temperatures and more sunlight throughout the annual cycle, may result in a greater future potential for higher cyanobacteria density during both summer and fall.

There are a number of ways you can help document changes to Maine's lakes from climate change, including tracking the period of ice cover on your lake and taking Secchi, temperature and dissolved oxygen readings both earlier and later in the season. Remember that lake water is colder on both ends of the monitoring season, and fewer people are likely to be on or near the water in early spring and late fall. As always, safety should be your highest concern.

For nearly 45 years, VLMP lake monitors have successfully tracked the health of Maine's lakes. We are very fortunate to have a committed and experienced group of citizen lake scientists to help document changes that may be taking place in our lakes during this critical time. ◔

Save the Date!

The 2016 VLMP Annual Lake Monitoring Conference is Saturday, July 30

Littorally Speaking

When the Hunt for Aquatic Invaders Results in a 'Find'

Maine's latest confirmed infestation

by Roberta Hill
VLMP Invasive Species Program Director

VLMP Certified Invasive Plant Patroller, Dennis Roberge, who many of you may know through his superb underwater photos, was starting to wrap up his busiest survey season ever. Dennis surveys his home lake—Mousam Lake in York County—on a regular basis; he also holds the record for the most waterbodies surveyed by an Invasive Plant Patroller in a single season. Beating his own record by conducting surveys on forty waterbodies this year, it was on the occasion of lake number thirty-three that Dennis turned his highly-trained eyes toward a portion of nearby Salmon Falls River. In this area, along the boundary of Milton, New Hampshire and Lebanon, Maine, the impounded river settles into three distinct, but interconnected, ponds, locally known as Milton Three Ponds. Northeast Pond, at 685 acres, is the largest of the three and flows into smaller Milton Pond (395 acres) to the south. Both straddle the ME/NH border. Townhouse Pond, similar in size to Milton Pond, is situated west of Northeast Pond and North of Milton Pond, and is entirely in New Hampshire.

Dennis began his survey at the public boat landing. Water clarity was not the best this day, but as a snorkeler, Dennis was able to dip down below the surface and could see to depths ranging from 5 – 8 feet. He was a couple hundred yards from the boat landing when he spotted a plant that did not "look quite right." It was a naiad, of that he was sure, but there was something about it which triggered his plant patroller instincts. He bagged the plant for closer examination back home. The rest of the session went smoothly; several more of these odd looking naiads were observed, but they were few and far between. The plants were not large—about 18 inches tall—and neither the size of the plants nor the sparse growth sent off any serious alarm bells. Still, a nagging feeling persisted.

Beating his own record set in 2007, Dennis Roberge conducted invasive aquatic plant screening surveys on forty different waterbodies in 2015. *Photo credit: Roberta Hill, VLMP.*

Later that evening, Dennis sat down in a pool of excellent light, at a table on his porch organized for just this activity. Surrounded by his plant identification books, his hand lens, microscope, and other implements of examination, he poured the Salmon Falls River naiad out into a tray. He was on the phone with fellow VLMP Certified Plant Patroller Marsha Letourneau, at the time. As soon as the specimen dropped out of the bag and unfurled itself in the tray of water, Dennis knew exactly what he was looking at. The leaves were slender and strongly recurved; serrations along the leaf edges were plainly visible, even without magnification. The leaf bases were blocky and serrated. "Uh oh Marsha," he said, "this is a *bad* plant." And he was right.

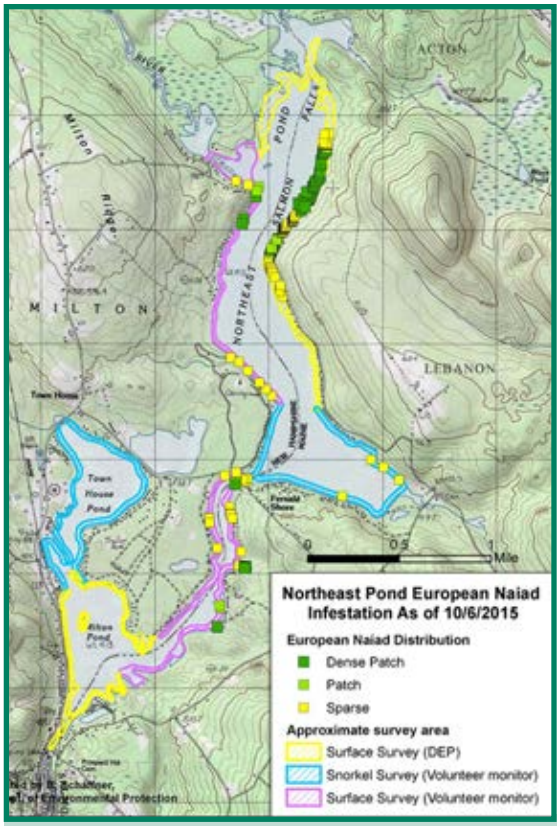
Following IPP protocol to a tee, Dennis immediately reported his find to the VLMP by email, attaching several clear, crisp photos of the plant spread out in the tray of water. A day or so later, at the request of the VLMP staff, he returned to the original survey area to collect additional live specimens, which he packaged and sent in for a confirmed identification. Seeing that the survey season was swiftly coming to an end, and not wanting to lose any time, Dennis used the collection visit as an opportunity to survey an additional 400 yards of shoreline of Northeast Pond. During that survey he saw about 50 suspicious plants, but no dense or extensive growth. Most of what he observed was a diverse, dense community of native plants. Overall, he thought, it could be worse. But there was still much uncertainty. To know the full extent of the infestation, all three ponds and their connecting streams would need to be surveyed. Accomplishing this before cold temperatures brought the survey season to an abrupt halt would require swift mobilization and a major collaborative effort.

In the meantime, the VLMP sent micrographs of key features—leaves, leaf base, seeds—by email to Maine's panel of aquatic plant experts. Consensus came back within several days—there was no question about it: the plant was European naiad, *Najas minor*. This find means that Maine has another infested waterway, bringing the total number of known infested water systems to twenty-five, encompassing 46 distinct waterbodies. (To learn more about how to identify European naiad, please see page 7.)

Confirmation of European naiad in Salmon Falls River system set off a flurry of activity at the state and local level. Laurie Callahan, founder and coordinator of York County Invasive Aquatic Species Project (YCIASP) took the lead on the response, coordinating an extensive survey of Milton Three Ponds and connecting waterways, to determine the extent to which the invader had spread. In addition to Laurie, who serves as IPP Regional Coordinator for York County,

the response team was comprised of VLMP/YCIASP Invasive Plant Patrollers: Dennis Roberge, Marsha Letourneau, Jeanne Achille, and Melissa (Missy) Brandt, Three Ponds Protective Association volunteers, and personnel from both the Maine Department of Environmental Protection (DEP) and New Hampshire Department of Environmental Services (DES).

The survey took place over a period of several weeks, starting in early September. It covered most of the littoral zone of all three ponds and their connecting streams (please see map). With Laurie Callahan coordinating schedules, communications, and documentation of the survey, the survey team set to work scouring assigned sections of the shoreline, recording the locations of any invasive naiad plants encountered, and—in areas where plants were sparse—removing the offending plants in accordance with established protocol.



This map shows the portions of Milton Three Ponds that have been surveyed in response to Dennis's find. *Map source: Maine DEP.*

As the survey proceeded, it became clear that European naiad plants were scattered lightly (with a few dense patches) over an extensive area in Northeast Pond and the stream segment locally known as "the river" that connects Northeast to Milton Pond. Even more discouraging news came on September 27 when DEP's John McPhedran reported that an extensive, well-established "mother-lode" of European naiad had been found growing densely along the northeast (Lebanon, Maine) shore of Northeast Pond, just east of where the Salmon Falls River flows in. Additional large dense patches were found near the Branch River confluence (on the New Hampshire side). A more comprehensive management strategy will be needed to address these more extensive areas. There was some good news, too: to date, no invasive naiad plants have been found in either Milton Pond or Townhouse Pond.

In addition to assisting with the survey, ME DEP and NH DES have distributed invasive species warning signs to be posted at boat ramps, urging boaters to inspect for, and remove, plant debris before and after boating in the area. Boat ramp and other land owners, fishing tournament organizers, and fisheries and warden services from both states were also notified.

Officials from Maine and New Hampshire will be meeting with local stakeholders over the winter to come up with the best strategy for controlling the infestation. The strategy will no doubt include ramping up the Courtesy Boat Inspection program at area public boat landings. A targeted control effort—likely employing one or more manual control methods—will be organized and activated. Careful monitoring will need to be ongoing in the area for the foreseeable future. The VLMP stands by to assist with IPP training.

Whatever the determined plan of action, two things are certain: 1) trained volunteers will have an important role to play in all of these efforts; and 2) Dennis's vigilance as an Invasive Plant Patroller has greatly increased the chances that efforts will ultimately be effective. Who can say how much further this invader would have spread within Milton Three Ponds, or to nearby waterbodies, if it had remained undetected for another year, or two, or even longer?

There is another important take away here: while much of the focus has been on 'milfoil' here in Maine, invasive milfoils are not the only threat to Maine waters. The State of Maine has officially listed eleven invasive aquatic plants that pose an imminent threat to Maine waters; only three of the eleven are milfoils. Norman Turgeon, a board member of the Three Ponds Protective Association, put it succinctly, "Unfortunately, this one was off our radar."

Dennis admits that he has been somewhat conflicted about his find. Though while he is out surveying he is always aware that he is hunting for something he hopes never to find, most of the time he just gets caught up in the sheer joy of the work—being on and in the water on the finest days of the season, observing the plants and the wildlife, tallying up native plant species found in each lake, discovering new lakes, spending time with fellow plant patrollers, and continually learning something new. "After seven years of surveying, however, it suddenly got real. I had a moment when I started thinking . . . I'm not sure if I want to do this anymore. I don't want to find any more bad plants."

Luckily for us and Maine lakes, that moment passed. Dennis says he is now "more determined than ever" to keep doing what he does, because he knows now, firsthand, just how important this work is. "Plant Patrollers really are making a difference here in Maine. We can all be proud of that." Dennis is right about this as well. Informed and alert citizens are responsible for finding nearly all of Maine's known aquatic infestations. Early detection of a new infestation provides the best hope of eradication. In cases where eradication is not possible, the earlier an infestation is detected, the greater the chance that the invasive plants can be managed effectively, and with the least amount of collateral damage to the native ecosystem.

To learn more about how you can get involved in Maine's Invasive Plant Patrol, please contact the VLMP today!

Quality Counts!

Stowing Away Your Gear for Winter

So You'll Be Ready to Go Next Spring!

by Linda Bacon
VLMP Quality Assurance Officer; Maine Department of Environmental Protection, Aquatic Biologist

Another year of sampling behind us… **Thank *you*** for the tremendous contribution you've made to understanding Maine's lakes! If you haven't already turned in your field sheets, please check them for completeness, then sign and submit them to the VLMP as soon as possible, so that we can get lake reports produced in a timely manner.

On that note, I need to thank you all for your patience regarding the reports. The last few years have been quite challenging for the Lake Assessment Section at DEP. At one point, with retirements and vacant positions, we were down to one full-time person, little old me, trying to keep all the 'balls in the air', so to speak. Over the last few years, all the vacancies have been filled and I'm hopeful that the 2015 data will be processed on schedule, and will include the creation of data reports and updates to many of the report narratives. Our goal is to have most, if not all, of this done by the end of next February, which will allow Scott Williams and the VLMP staff time to produce a full annual report before field activities begin.

In addition to submitting your data, please take the time to care for your equipment properly. Your Secchi disk and Aqua-Scope are simple to maintain. If the surface of your disk is showing signs of wear, you can obtain a 'freshen-up' decal from the VLMP to install over the existing surface. Contact the VLMP and they will mail one to you. The best way to install the decal is to disassemble the disk, clean the disk surface with Windex®, allow it to dry, carefully remove the new decal's backing, adhere the decal to the disk, being careful to make sure there are no wrinkles, trim off the excess, then reassemble the disk. If you are unable to remove the eye-bolt, the actual installation of the decal is a bit trickier – you might need a second pair of hands to assist. Carefully cut a slit in the center of the decal long enough to fit over the eye-bolt (3/4"–1"), then remove a tiny portion of the decal's center to make room for the decal to fit around the bolt. Clean the disk and allow it to dry. Peel the backing off to expose one-half of the decal, to the center opening you've made for the eye-bolt. Carefully work the decal over the eyebolt, while holding the sticky part of the decal off the disk. Align the unexposed half of the decal carefully to the disk. Then allow the sticky side to adhere to the disk: start at the center-line, then gently smooth it down, working from the center out towards the edge. Remove the backing from the second half of the decal and again, allow the sticky side to adhere to the disk, starting at the center-line, then smoothing out toward the edge.

Water quality monitoring 'tools of the trade' (L-R): dissolved oxygen meter with probe, view scope, and Secchi disk with measuring tape.

The inside of your Aquascope should be cleaned with warm soapy water. You might need to get creative and attach a sponge to a stick to reach all the way to the bottom of the scope to gently clean the clear Plexiglas®. Rinse out the soapy water and allow the scope to dry. Once dry, cover the open end of the scope with a plastic bag and secure it with an elastic or tape to keep out dust, spiders and mice. Store both the scope and disk indoors, rather than in a boat stored outdoors.

Properly winterizing your dissolved oxygen meter will likely double the life of your probe, and save money. First and foremost, REMOVE THE BATTERIES. If the batteries still have life in them, use them in a flashlight or a child's toy and plan to install high quality, fresh batteries in the spring. Second, remove the membrane or membrane cap from the probe. To do this, unscrew the probe protector, then either remove the 'O-ring' and membrane, or, unscrew the membrane cap. Rinse the probe with distilled water. Once dry, cover the probe with a small plastic bag, and then store the meter in a dry location. If you have an optical dissolved oxygen meter (ODO), the manufacturer recommends replacing the cap at the beginning of each year. It is critical that these optical probes never dry out, otherwise the cap will need replacement. So you can either plan to replace the ODO cap next spring, or, you can come up with a creative way to store the probe in distilled water so that it doesn't dry out. If you have room, one possibility is placing the probe in a gallon jug of distilled water, then use electrical tape (because it is easily removed and does not leave much adhesive residue) to seal the opening around the mouth of the jug and cable. Regardless of what storage method you decide to use, check the probe periodically to make sure the water level is adequate to cover the probe.

That's all from me! Enjoy the 'ice-on' season, whether you head south or head to the mountains! And again, **thank you** for your dedication to Maine Lakes!

Under the Hand Lens:

European Naiad

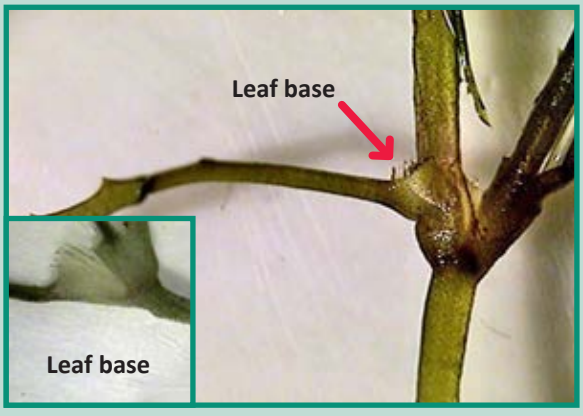
Najas minor

This aquatic invader can be tricky to recognize. Here is a quick primer on some of the key characteristics to watch for.

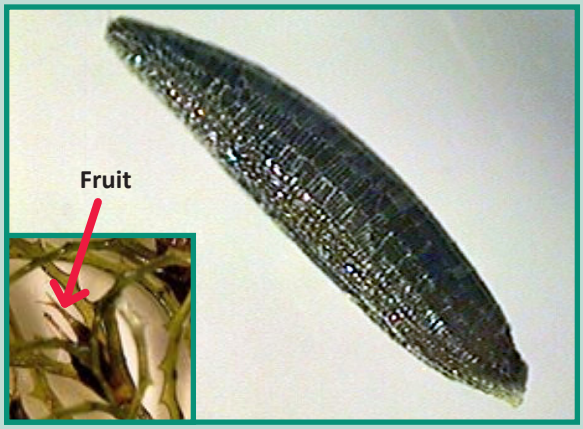
Plants grow from slender roots, developing stems up to 2.5 meters long, that often branch profusely near the top.

The leaf arrangement is not strict: leaves may appear to be opposite, sub-opposite, in whorls or clumps. The leaves are small (rarely more than 3.5cm long) and very slender (0.3 – 0.5mm wide), strap-shaped, gently curving with pointed tips, and serrations along the outer margins.

Unlike most native naiads whose leaf serrations or spines are virtually "invisible" to the unaided eye, the leaf serrations of European naiad, though tiny, can usually be observed without magnification. Tip: use a hand lens to find serrations, then take the lens away. Can you see the serrations? If yes, be suspicious!



The base of the leaf is blocky or fan-shaped (as opposed to gently flaring). The upper margin of the leaf base is finely-toothed or "fringed" in appearance. You may need to carefully pull the leaf away from the stem and use a hand lens to see the base clearly.*



Like all naiads, European naiad is an annual. The flowers and fruits are small, inconspicuous, and borne in the leaf axils. The seeds are purplish, 1.5 to 3.0mm long, spindle-shaped and may be slightly curved, with rectangular indentations arranged in distinct, longitudinal rows.

**Thread-like naiad (Najas gracillima), a less-common native naiad, also has visible serrations and blocky leaf bases. When in doubt always rule on the side of caution and treat the plant as a suspected invader, i.e., mark the location of the plant (ideally on a map and with a buoy), collect a specimen, and contact the VLMP for further instructions.*

Was Your Lake Clearer, Less Clear, or Average in 2015?

By Scott Williams & Linda Bacon

Once again, VLMP Certified Lake Monitors took several thousand Secchi transparency (water clarity) readings on several hundred lakes in 2015! The exact numbers will be available in early 2016, including summary information for each lake monitored, following our intense quality assurance review of all data submitted for the year. This process, which involves VLMP Regional and Data Coordinators, VLMP and DEP staff, takes a few months, all of which is necessary to ensure the credibility of YOUR data to current and future users.

There has been a fair amount of speculation during the past few months about how Maine lakes fared in 2015. As most seasoned lake monitors know from experience, *one very powerful influence on the variability of lakes from one year to the next is the weather.* Temperature, wind, sunlight, and precipitation also influence the biology, chemistry and physical aspects of lakes throughout the year. Understanding how weather-related variability affects lakes from year to year can be daunting. Factors include: 1) duration of ice cover, 2) long and short-term precipitation amounts, 3) storm event intensity, 4) fluctuations of lake water levels, 5) timing of the onset, and duration of thermal stratification, and others.

Lake water clarity (and corresponding Secchi transparency readings) seem to have a significant correlation to precipitation. **Figure 1** illustrates the relationship between annual precipitation (January through July, Portland, Maine) and the annual average Secchi transparency for monitored Maine lakes over a period of fourteen years. There is an apparent inverse correlation between the two variables; in other words, as annual precipitation increases, Secchi transparency decreases in most, but not all, years. Preliminary statistics indicate that one-third of the variation we see in lake transparency is due to precipitation.

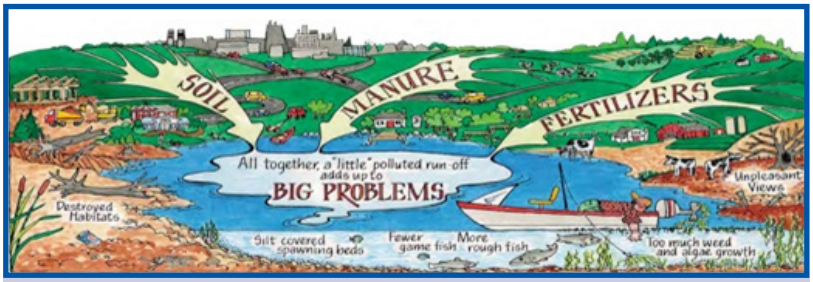


Figure 2 Stormwater runoff from developed lake watersheds contains nutrients and other pollutants that can cause reduced lake water clarity (Secchi Transparency). *Image: US EPA.*

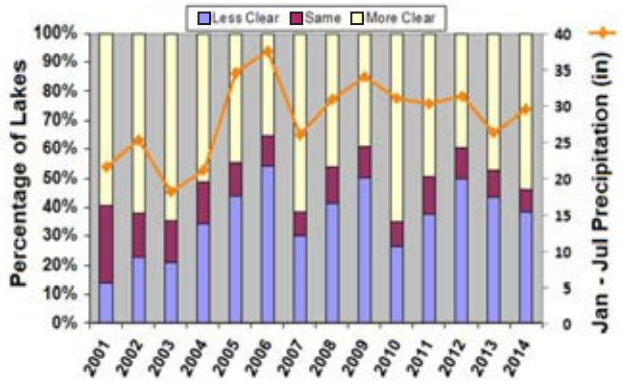
The correlation is significant, but not perfect by any means, due, no doubt to the interaction of many variables that make each lake somewhat unique, including the fact that the precipitation data from the National Weather Service is from one region of the State of Maine (Portland), whereas the Secchi average includes lakes throughout the state. Maine is a large state, and weather can vary considerably from north to south, east to west, and in between. However, a substantial percentage of the lakes represented in the VLMP database are situated in the south/southwesterly area of Maine, relatively close to Portland. A stronger correlation might exist if the graph were to only represent lakes situated within a short distance of where the precipitation was measured.

Given the correlation discussed above—imperfect or no—it is reasonable to assume that, on average, a majority of Maine lakes will be less clear during high-precipitation years, especially if precipitation occurs the winter before and/or during the lake monitoring season. Why? Because lakes are the natural repository of much of the stormwater runoff that results from precipitation events. As stormwater (including snowmelt) moves across the landscape, it picks up pollutants that can negatively impact water clarity, such as phosphorus—which stimulates algal growth— and eroded soil particles. (See **Figure 2**.)

A significant percentage of the annual phosphorus transported to Maine lakes typically occurs during the "spring runoff period", when the winter snowpack is melting, spring showers are taking place, and soils are often either frozen or saturated with water (resulting in greater runoff).

As suggested above, the correlation between precipitation and water clarity is not entirely straight forward. Qualitative factors, such as the timing and intensity of storm events can have a strong bearing on the extent to which precipitation runs off, as opposed to filtering slowly into the ground. Frequent low-intensity rain events cause less soil erosion and phosphorus export to lakes than high intensity storms, in which rain comes too fast to filter through the soil, often resulting in significant erosion and stormwater runoff to lakes. Also, for a relatively small group of lakes that experience internal phosphorus recycling, frequent rain events—by regularly flushing phosphorus-laden water from the lake—may actually have the opposite effect, causing an improvement in Secchi transparency.

Figure 1 Comparison of Annual Lake Transparencies and January through July Precipitation



Back to the question of the clarity of Maine lakes in 2015! Let's begin by looking at summary weather information from the National Weather Service (NWS) for the Portland, ME area from January through September, and use this information to make at least a partially-informed prediction about how Maine lakes may have fared last spring, summer and fall.

Highlights from 2015 National Weather Service Summaries for Portland, ME.

Month	Temperature	Precipitation	NWS Comments
Jan	1.2ºF below normal; coldest Jan in 6 years	1.29" above normal; wettest since 1999	8th snowiest Jan on record (40.7")
Feb	11.7ºF below normal; coldest Feb on record	0.44" below normal	Snowfall 22.5" inches above normal for Feb
March	3.3ºF below normal	2.45" below normal	Cold temperatures resulted in slow melting of snowpack
April	0.7ºF above normal	0.71" above normal; first rain since Dec	Snowpack continued to melt slowly
May	5.6ºF above normal	1.7" below normal	Warmest May on record
June	2.0ºF below normal	2.6" above normal	Average June temp lower than in May; year-to-date precip 0.02" above normal
July	Normal	2.35" below normal	11th driest July in 145 years
Aug	3.3ºF above normal; 7th warmest on record	0.65" below normal	Driest year to date since 2003
Sept	5.2ºF above normal; warmest Sept on record	3.37" above normal; 9th wettest Sept on record	5.9" rain Sept 29/30; 7th wettest calendar day on record

Synopsis:

None of us need to be reminded that the winter of 2015 was long, cold and very snowy! However, precipitation in February and March was below normal in Portland, even though snowfall and the standing snowpack was above normal during that period. Very little melting occurred in February, and March was also colder than normal, the net effect of this being that in late winter/early spring, there was still a great deal of snow on the ground throughout much of the state. All of this set the stage for potential flooding and heavy runoff in the spring– not the best scenario for lakes.

Fortunately, April was only slightly warmer than normal, and precipitation—the first rain since December—was less than an inch above normal. As a result, the snowpack continued to melt slowly, with little flooding, and minimal runoff to lakes from their watersheds, as the snow and rain slowly infiltrated into the gradually warming soils.

Although May was unusually warm, precipitation was below normal, and with the exception of one storm that produced just under an inch of rain, much of what fell from the sky in May was likely to have infiltrated into the soil.

June was unusually cool, and although rainfall for the month was above normal, year-to-date precipitation was only .02 inches above normal.

Temperatures moderated in July, but precipitation was substantially below normal, being one of the driest Julys in 145 years! During such conditions, very little, if any, stormwater runoff made it to Maine lakes.

August was warmer than normal, but precipitation for the month remained below average, and conditions on the ground were becoming very dry. Once again, very little stormwater runoff occurred in the area. During the month of August, a number of volunteer lake monitors reported "better than average" Secchi readings for the month.

Warmer-than-average conditions persisted into September, and precipitation for the month was above normal, making it a notably wet month. However, much of the precipitation occurred in a 6 inch rain event on the 29th and 30th of September; too late to have any bearing on summer Secchi readings.

In summary, weather conditions in the Portland, Maine area during the first several months of 2015 would likely have had a favorable influence on lakes in the region, as a result of 1) relatively slow warm-up and snowpack melt in the spring, followed by 2) average, to below average rainfall during the mid and late summer period, likely resulting in relatively little runoff and soil erosion from lake watersheds during the period.

Note: The complete NWS narrative weather summary on which this information is based can be viewed at: http://www.mainevlmp.org/wp-content/uploads/2015/11/NWS-2015-Narrative-Summaries.pdf.

Now for some disclaimers: While the conditions noted above could have an overall beneficial effect for many lakes, weather is just one of a myriad of factors that determine how individual lakes will "behave" during the lake monitoring period. Moreover, Secchi transparency is only one indicator of lake water quality – albeit a pretty good one for gaging the overall health of a lake. For every year when a relatively high percentage of Maine lakes are clearer than they have been historically, many are also less clear, as the two pie charts in **Figure 3** illustrate (note the differences in precipitation for the two years).

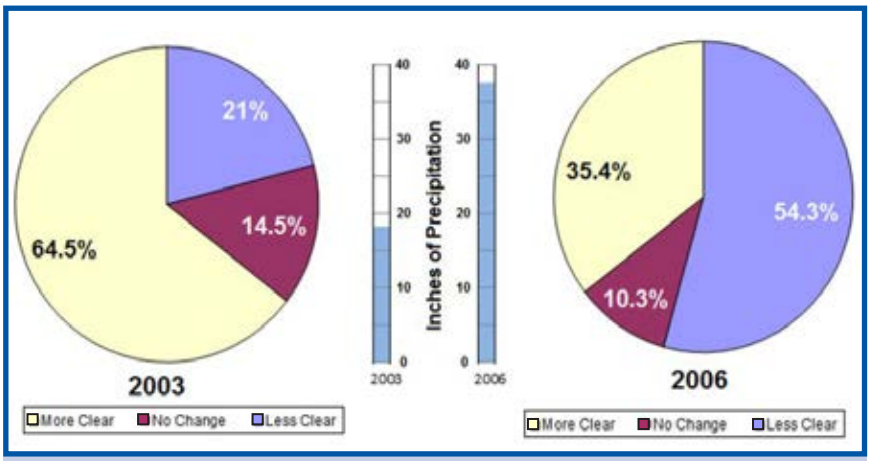


Figure 3 Percentage of more than 400 Maine lakes that were clearer, less clear, or unchanged from their historical average for the years 2003 and 2006. Note variation in precipitation for the two years correlates with lake clarity.

...continued on page 20

Invasive Plant Patrol

Notes from the Front Lines

This issue of *the Water Column* features several stories that make clear the critical role that VLMP Invasive Plant Patrollers are playing in the effort to protect Maine waters from the threat of aquatic invaders. What is your story? What is the status of early detection in your community? Your IPP experience may be invaluable to your fellow patrollers, as well as those considering getting involved. Please share your stories with us, so we can pass them along! Thank you all for helping to build one of the nation's most comprehensive invasive aquatic plant early detection programs.

Rangeley Area IPPs Takes Swift Action In Response to Boat Launch Scare

By Ellie White

IPPers from the Rangeley area formed their own rapid response team earlier this year after a scare at the Cupsuptic boat launch. (A suspicious milfoil fragment was found on a boat about to launch on a NH lake, and the boater reported that Cupsuptic River had been the "last waterbody visited.") Under the direction of Anthony Colello from RLHT and VLMP Regional Coordinator, Ellie White, the team conducted a very thorough and professional survey of the river to the north and south of the boat landing. In addition to Anthony and Ellie, the response team was comprised of local Certified IPPers: Willis White, Joan Yankee, Brian and Laurrie Chandler, John and Claudia Scholz, Pam and Don Mantovani, and Bob and Janet Bissell. To everyone's relief, after three hours of intense searching, no plants of concern were found. *Great job everyone! We are very proud of you!!*

(L-R) Pam Manovani, Ellie White and Janet Bissel take a closer look at some milfoil look-alikes. *Photo courtesy of Ellie White.*

Androscoggin Lake "Eyes on the Water"

by John (Buddy) Cummings

We've been working very hard this summer on growing our "Eyes on the Water" program on Androscoggin Lake. Our primary goal is to engage as many lake residents as possible in effort to monitor the lake for aquatic invaders. In addition to asking residents to adopt a segment of the shoreline where they will keep a wary eye out for suspicious plants, we are encouraging everyone to learn the native aquatic plants, not just in their adopted segments, but throughout the lake.

Members of the *Eyes on the Water* team for Androscoggin Lake gathered at the end of the season to celebrate their first year's accomplishments. Lake Leader Buddy Cummings hosted, assisted by veteran plant patroller Debbie Hite. View scopes made by the lake association's board member, George Bardaglio, were distributed among team members. Pictured are (back row, L-R) Buddy Cummings, Margaret Lane, Graham Pratt, Lesley Elway, a visitor, Jennifer Brown, Kathleen Cousins, Bill Cousins, Patt Koscinski, Bob Clark, Allen Unrein, and (front row, L-R) Cynthia Giguere, Gail Burke, and Debbie Hite.

As coordinator for the program, I've now provided training and ongoing mentoring to over twenty *Eyes on the Water* volunteers. I typically train only one or two persons at a time. We spend about an hour collecting plants, while I talk about things like survey techniques, plant collection tools, and how to mark and document suspicious plants (using cell phones when possible). We then spend another hour or two on-shore identifying plants. Androscoggin Lake Improvement Corporation (ALIC) provides each volunteer team with the Quick Key, ID Cards, Field Guide, a magnifier, and a handout providing links to online resources. I tell people to start with the Quick Key, learn how to use it to rule out any possible invasives, then move on to the ID Cards, Field Guide, and online resources to actually identify both look-alikes and other natives.

These newly-trained individuals have greatly augmented the capacity of our team. Between the new members and our core group of VLMP certified patrollers, we are now twenty-eight strong! We continue to encourage all our "Eyes" volunteers to become officially trained, certified, and more active in the VLMP.

I recently hosted an end-of-season party for our "Eyes" volunteers at my home, and over 15 people attended. At one point, we went around and asked everyone to talk about their experience in the program. To my delight, several people indicated that they've become hooked on aquatic plant identification ... wherever they are on the lake, they can't help but try to identify the plants that they see.

Androscoggin Lake was well represented at the 2015 Conference, sending eight IPPs to the gathering. The ALIC board voted to fund scholarships this year to encourage volunteers not yet certified to attend. Pictured (L-R) are Bill Cousins, Debbie Hite, Sara Cummings, Patt Koscinski, Jennifer Brown, Buddy Cummings, Susan and Bob Reed.

Invasive Plant Patrol

2015 Training Season

Maine's Invasive Plant Patrol continues to grow by leaps and bounds! A variety of training opportunities were offered once again this year, including Introductory, Field Methods, and Manual Control workshops, Plant Paddles, a Scope Clinic, How to Conduct a Plant Paddle, Advanced Aquatic Plant ID, Milfoil Rapid Responder training, and the annual IPP Leadership Roundtable. Of the 280 people participating in one or more of seventeen training events, fifty individuals opted to become 'certified' through the program, bringing the total number of active, certified IPPs to 567. None of this would have been possible without the generous efforts of our 2015 IPP Hosts. Many thanks to all who contributed to this enormously successful training season!

VLMP's Invasive Plant Patrol program has been widely adopted as a model for Invasive Aquatic Species early detection by our neighbors in Quebec and New Brunswick. Here, Donald Killorn and Danielle St. Louis from Eastern Charlotte Waterways experience IPP training first hand, participating in the Branch Lake Field Workshop.

Scope master Ross Wescott passes along handy scope-making tips to novice scope builders at this year's View Scope Clinic.

The Advanced Plant ID Workshop, this year held at the Belgrade Lakes Center, was once again a popular event for seasoned plant patrollers, with 21 eager botany enthusiasts in attendance. Of those who opted to take the plant identification exam, eleven qualified for "Advanced Aquatic Plant Identification Proficiency" Certification. A great job was done by all. *Congratulations!*

IPP Introductory Workshops provide attendees with everything needed to become effective early detectors, including hands-on plant identification practice with live native and invasive aquatic plants.

The VLMP now offers Courtesy Boat Inspection training as an optional add-on to an IPP Field Methods workshop.

Milfoil Rapid Responders training was offered for the first time in 2015, and we are very pleased with the results! Twenty-four people attended; eighteen opted for certification, and responders have already begun taking action, finding and properly removing milfoil plants.

Uber-IPPers and IDEXX volunteers came together on September 23 to conduct a Level-3 survey on Sand Pond in Chesterville, at the request of this year's IPP Tenacity Award recipient, Ellie Hopkins. The award qualified Ellie for "the expert services of some of Maine's most experienced plant patrollers for one day, redeemable for whatever IPP services are seen as most-needed." No invasive plants were detected, and a good time was had by all!

This year's two-day IAP Manual Control Training was held in Belgrade. Thirty-five individuals participated and qualified to become members of Maine's certified IAP manual control team.

IPP Field Methods Workshops provide an on-lake opportunity to learn and practice new survey skills. Plant specimens collected by participants during the workshop are sorted, screened for invasiveness, and identified.

Students at Massabesic Middle School joined forces with local lake associations to increase the scope of regional early detection efforts.

Thank You! In Appreciation of our Recent Generous Donors

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Major funding for the VLMP is made possible by grants from the US Environmental Protection Agency and the Maine Department of Environmental Protection, through Section 319 of the Clean Water Act.

In Kind

And for those of you who have donated your time, expertise, and dedication to the work of the VLMP in the past year – many thanks!

In Memory Of

Lucienne Cloutier; from Mike & Joan Cloutier
Ernest Roland Johnson; from Shelley & Richard Rau

In Name Of

A Gift Donation in the Name of Herb Thomson & Julie Erb; from Margaret Janco

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Androscoggin Lake Improvement Corp.
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Toddy Pond Association
Torsey Pond Association
West Harbor Pond Watershed Assoc.
Wilson Lake Association
York County Invasive Aquatic Species Project

2015 Lake Monitoring Conference

The VLMP's 2015 Lake Monitoring Conference was attended by a record-breaking 146 individuals! *The Great Outdoors* on Pleasant Pond in Turner continues to be the perfect venue, and thanks to the stellar volunteer crew in the kitchen, everyone was well-fed. Presenters covered a wide range of topics of interest to Maine lake monitors. Additionally, many volunteer monitors were recognized for their long-term commitment, and for unique contributions that they have made toward monitoring and protecting the health of their lakes!

Monitors for Manhanock Pond (L-R) Dick and Pat Bell and Middle Range Pond monitor Barry Kutzen (R) received awards for three decades of service!

10-Year Award Recipients (L-R) Becky & Rick Southwick, Debbie Hite, Barb Zamierowski, and John Scholz.

John McPhedran, Maine DEP Invasive Aquatic Species unit leader, provided an update on the status of Maine's battle to prevent the spread of aquatic invaders.

Barre Hellquist, VLMP Advisory Board member, walked us through the newest information pertaining to aquatic plant identification, focusing on plants VLMP Invasive Plant Patrollers are likely to encounter.

Jim Chandler has been on the forefront of milfoil control in Maine and was formally recognized for his contribution to Maine lakes with the VLMP Outstanding Invasive Aquatic Plant Control Award.

Development Committee members Mike Cloutier (L) and Bob French (R) present a fundraising challenge/match to conference attendees.

Generous donors lined up at the *Challenge Match* table to support the work of volunteer lake monitors throughout Maine. A big ***thank you*** to all that participated!

Linda Bacon, the VLMP's liason to the Maine DEP and Quality Assurance Officer, speaks to the group.

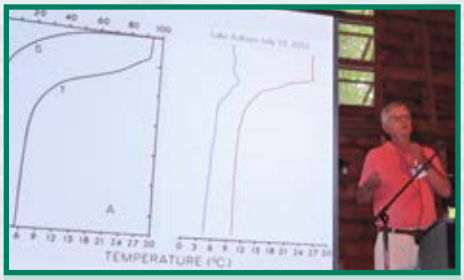
The University of Maine's 'ASAP' crew demonstrates the new VLMP app prototype: *Maine Field Guide to Aquatic Phenomena.*

A rousing group cheer in support of Maine's citizen lake scientists!

Lake monitor Josephine Ewing is awarded for 25 Years of commitment on Sewall Pond.

2015 Lake Monitoring Conference

Nearly 150 of Maine's finest attended!



Dan Buckley, VLMP Advisory Board member, discusses his research on thermal stratification variability in Maine lakes.

The IPP Tenacity Award was presented to six intrepid IPPs; pictured (L-R) Dennis Roberge, Mousam Lake; Elin Haugen, West Harbor Pond; Roberta "Sookie" Weymouth, Lovejoy Pond; Charlie Day, Worthley Pond; and Ellie Hopkins, Locke Pond. Award winner Jeanne Achille, Wilson Lake is not in photo.

(ALIA) Annabessacook Lake Improvement Association was recognized for its rapid response to a new variable milfoil infestation with the IPP Team of the Year Award. Accepting for ALIA President Sue Neal, was Cobbossee Watershed District's Wendy Dennis.

Ellis/Roxbury Pond monitor, Ross Swain, demonstrates erosion control projects he has designed for lake water quality protection.

Steve Norton, member of the VLMP Advisory Board, presented his research results on the relationship between lake sediment geochemistry, and water quality.

Alexa Ortiz from Maine Audubon discusses lead-free fishing tackle and the benefits to loons and other wildlife.

Volunteer kitchen crew (L-R) Michelle Deblois, Phoebe Hardesty, Sibyl French & Marsha Letourneau. *Thank you!*

IPP Tenacity Award recipient, Ellie Hopkins, won a special prize drawing entitling her to a VLMP-coordinated lake survey, with "expert services from some of Maine's most experienced plant patrollers."

5-Year Award recipients (L-R) Charles Elvin, Charlie Day, Kevin & Susan Frewert, Christine Swain, Sue Carrington, and Marygrace Barber.

Ensuring the Future of Maine's Citizen Lake Scientists in the Protection of Maine's Lakes

Thanks to the vision and generosity of one of Maine's longest-standing volunteer lake monitors, a strategic financial plan for the future of citizen lake science in Maine is well underway.

Earlier this year, the VLMP launched its **Guardian Angels** initiative to provide an opportunity for major donors to play a key role in ensuring the long-term growth and sustainability of the organization.

Funds raised through the Guardian Angel initiative will be used specifically to strengthen development capacity throughout the organization. This, in turn, will allow the VLMP to meet a growing demand for services, explore new opportunities for collaboration, train more citizen lake scientists, reach new audiences, incorporate new technologies, and more.

In keeping with the VLMP collaborative spirit, the Board of Directors, Development Committee, staff, and other friends of the VLMP have banded together to form a "Community Angel."

We welcome your participation in this visionary effort to secure the future of citizen lake science – and the health of Maine's lakes.

If you are interested in joining our Community Angel—your dollars being matched many times over by your fellow Guardian Angels—please contact VLMP Executive Director, Scott Williams, today. ◔

2015 Water Quality Monitoring Season at a Glance

Ross Swain (Ellis/Roxbury Pond Certified Lake Monitor) takes a temperature and dissolved oxygen profile in August.

Several decades of experience and commitment are represented in this photo taken at the re-certification workshop on Pemaquid Lake: Steve O'Bryan (left), monitors Biscay and Paradise Ponds; former Knox and Lincoln Counties Regional Coordinator, Peter Fischer (center), has monitored Biscay Pond since 1989; Ed Knapp (right), retiring Regional Coordinator for Knox/Lincoln Counties, and McCurdy Pond monitor. All are VLMP certified lake monitors. Ed will long be remembered for his well-organized workshops and superior record-keeping. **Thank you, Ed!**

Following a cold winter, and a seemingly interminable spring, VLMP lake monitors experienced unusually warm weather at the onset of the monitoring season in May. The weather, and conditions on the water, continued to improve through the remainder of the summer.

Four new water quality monitoring training workshops were held, at which 72 individuals became certified lake monitors. Thirteen new lakes were added to more than 450 current lakes in the program.

Two dissolved oxygen and temperature monitoring workshops were held, at which 21 experienced (Secchi certified) lake monitors received special training and certification in the monitoring of these important indicators of lake health.

Twenty-three water quality re-certification workshops were held throughout Maine, at which 146 lake monitors updated their quality assurance credentials. Over 100 individuals were re-certified online using the Secchi Simulator. ◔

Bill and Beatty Watts (left and center), VLMP certified monitors on Sysladobsis Lake, and Ellen McLaughlin, certified monitor on Norway, Keg, and Bottle Lakes, were among those who attended the Washington County re-certification workshop in August on Lewy Lake in Princeton.

Roger Cady records temperature and dissolved oxygen readings at a DO training workshop on Lake Auburn. Roger is a VLMP certified monitor on Washington Pond.

VLMP Certified Lake Monitors and Lake Associations Participate in Pilot Project to Update and Refine Maine's Lake Vulnerability Index

Or – How to more accurately predict a lake's "tipping point"

by Scott Williams

The VLMP, in collaboration with the Maine DEP, the University of Maine, and the University of Southern Maine (USM), has received a grant from the George J. Mitchell Center for Sustainable Solutions. The ultimate goal of the grant is to be able to more accurately predict the sensitivity, or vulnerability, of individual Maine lakes to a future decline in water quality. The initial pilot project involves 24 Maine lakes, with plans to expand the numbers substantially over the next few years.

VLMP Certified Lake Monitor, Dan Guerette (R), and University of Maine Graduate Student, Kaci Fitzgibbon (L), sample water chemistry on Sabattus Pond, one of 24 Maine lakes involved in this study of lake vulnerability.

During the past several months, each of the 'pilot lakes' has been visited and sampled on multiple occasions. Lakes selected for the study represent a wide range of trophic states (lake productivity, as measured by Secchi transparency, total phosphorus, chlorophyll-a, and other indicators) and a wide range of lake association activity, from well-established to non-existent.

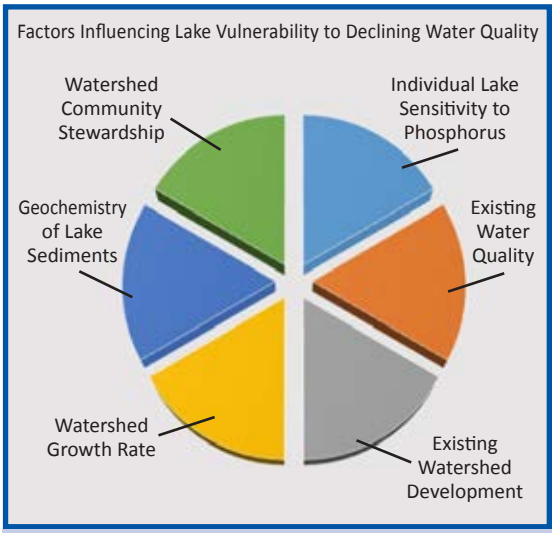
VLMP Certified Lake Monitors and their lake associations have been, and will continue to be, key players in this project, which involves their integration with professional lake scientists, university faculty and graduate students. Each is playing a valuable role in the gathering of information. Lake data gathered last summer included not only indicators of water quality, but also samplings of sediment to determine the geochemistry of lake-bottoms. This information will be combined with what is already known about the water quality of the pilot lakes to further refine our ability to predict individual lake vulnerability or sensitivity to increasing phosphorus over time from watershed development, and also to climate change.

VLMP Advisory Board members, and University of Maine Professors, Steve Norton (Emeritus) and Aria Amirbahman, have conducted groundbreaking research that has significantly improved our understanding of the relationship between lake sediment geochemistry and the vulnerability of lakes to declining water quality. Steve's presentation slides on this subject from the 2015 VLMP Lake Monitoring Conference can be seen at: http://www.mainevlmp.org/wp-content/uploads/2015/08/Phosphorus-in-Lakes.pdf.

Of equal importance will be our attempt to answer a very fundamental and poignant question, and one that is frequently—and reasonably—asked by lake stakeholders and others who have an interest in the health of our lakes: "*How will such knowledge actually benefit Maine lakes in the future?*" What is often missing in the "knowledge=>awareness=>action" paradigm is an understanding of the capacity of individuals and organizations in individual lake communities to transform lake dynamics and sensitivity information into actual lake stewardship practices that benefit water quality over time.

USM Professor of Geography and VLMP Advisory Board member, Firooza Parvi, teaches and conducts research with a focus on (among others) society-environment interactions. She has designed surveys for VLMP lake monitors and lake associations that are participating in the pilot study. The survey results will serve as a starting point to enhance our understanding of how to best translate knowledge-to-stewardship in lake communities throughout Maine. In addition, we hope to evaluate how local stewardship activities influence lake vulnerability. It will also allow us to explore ways in which VLMP lake monitors, their lake associations, and their larger lake communities and watershed organizations may serve as catalysts in this process.

During the next several months, project staff will conduct workshops with participating lake monitors and lake associations to discuss with them how lakes function, what is known about their lakes, and how they might use a refined index of lake vulnerability to enhance stewardship in their lake communities. The information gathered through this project will increase our understanding of lake vulnerability from an integrated physical and social science perspective.



Factors that influence individual lake sensitivity/vulnerability to declining water quality. *For the purposes of illustration, each factor is equally weighted.*

Save the Date!

The 2016 VLMP Annual Conference is Scheduled for Saturday, July 30

New IPP Instructor

We are very pleased to have welcomed **Alecia Tenney** to the VLMP IPP Training Staff this year. Since earning her Bachelor of Science in Environmental Policy and a Master's degree in Environmental Education, Alecia he has been active in several environmental organizations in Maine. Most recently she served as Invasive Plant Control Coordinator for 30 Mile River Watershed Association, and Courtesy Boat Inspection Program Coordinator for Echo Lake Association. Alecia has been an active volunteer over the last six years, providing plant identification assistance to local lake organizations and individual volunteers in her local watershed, and helping to organize and conduct invasive aquatic plant surveys. Alecia, a native Mainer who grew up in the mid-coast region, now lives in Mount Vernon with her husband Mark. In addition to her love of lakes, Alecia loves to sail and hike the mountains of Maine.

Welcome New Advisory Board Member Firooza Pavri

Firooza Pavri is professor of geography in the Geography-Anthropology program at the University of Southern Maine. She is also currently the Chair of the Master's program in Policy, Planning, and Management at the Muskie School of Public Service. Firooza received her M.A. and Ph.D. degrees at the University of Toledo and Ohio State University, respectively. She is originally from India, and research and family take her back frequently. Firooza teaches and does research in the area of environmental geography, with a focus on society-environment interactions, natural resource conservation and policy, sustainable development, and geospatial technologies, including remote sensing and GIS. Her research uses remote sensing and other geospatial tools and techniques to monitor landscape changes across wetland, freshwater, urban, and forested ecosystems, both in the United States and India. She is the co-author of two books, *Wetland Environments* and *Windscapes: A Global Perspective on Wind Power*. More recently, her work has focused on examining the role of citizens and the public in conservation stewardship.

2015 VLMP Intern

Bates College student, **Nora Stoner,** joined the VLMP as an intern this past spring. Her positive attitude and 'can do' spirit were a great asset to the organization, as she helped out with many tasks, including the upcoming VLMP app, the *Maine Field Guide to Aquatic Phenomenon*. We greatly appreciate your hard work and dedication, Nora!

Save the Date!

2016 VLMP Annual Lake Monitoring Conference is Scheduled for Saturday, July 30

Remember to Document Your Lake's Ice Cover

The winter season is upon us, so please be sure to document your lake's ice cover. The VLMP acts as a state repository for ice-in and ice-out records, some stretching as far back as the mid-1800's. Your lake's ice cover data, when paired with water quality data, may improve our understanding of the relationship between the duration of ice cover and water quality. You can report ice-in/out dates via e-mail directly to Christine@mainevlmp.org, or you can report by phone at 207-783-7733.

Welcome, New Lake Monitors!

New Volunteer Lake Monitors Certified in 2015

Derek Abbott, Raymond Pond
Dave Allen, 30 Mile River Watershed Lakes
Jim Arsham, Pleasant Lake
Marygrace & Peter Barber, Pleasant Lake
Kathleen Baynes, Cold Stream Pond
Bridget Beaulieu, Rangeley Lake
Raymond Bersch, Crescent Lake
Kelly Bickford, Twitchell Pond
Patricia Bickford, Horseshoe Pond
Bob Blake, Parker Pond
Meryl Bond, Cobbossee Watershed Lakes
Kristi Borst, Mousam Lake
Sheila Bourque, Crescent Lake
Jared Bragdon, China Lake
Peter Brawn, Worthley Pond
Seth Bridges, Lake Sherburn
Maggie Burns, Kezar Lake
Ryan Burton, Cobbossee Watershed Lakes
Patrick Button, Mud Pond
Nic Buxton, Pinkham Pond
Clarence Campbell, Adams Pond & Knickerbocker Pond
Dennis Capuano, Pemaquid Pond
Jack Carson, Sebasticook Lake
Laurrie Chandler, Mooselookmeguntic Lake
Don Collins, Nickerson Lake
Jay Conway, Wesserunsett Lake
Cheryl Daigle, Phillips (Lucerne) Lake
Ron Davis, Webb Lake
Joel Deckler, Cold Stream Pond
Wendy Dennis, Cobbossee Watershed Lakes
Jim DeWachter, Raymond Pond
Gavin Dixon, Little Ossipee Flowage
Deidre Donovan, Little Ossipee Lake
Stephen Drossel, Blood (Duck) Pond
Jamey Epstein, China Lake
Brendan Fedrizzi, Little Ossipee Lake
James & Laurie Fenwood, Cold Stream Pond
Lindsay Frazier, Little Ossipee Lake
Greg Freeman, Little Ossipee Flowage
Lynn & Sal Girifalco, North Pond
John Gorham, Forest Lake
Ed & Sandy Graham, Wassookeag Lake
James Graul, Beaver Mountain Lake
Julia Gregoire, Little Ossipee Lake
Dacota Griffin, Lovewell Pond
Dermot Groome, Locke Pond
Carol Guiel, Rangeley Lake
Mike & Patty Gustafson, South Pond
Samantha & Nathan Hall, Little Ossipee Lake & Little Ossipee Flowage
David Hallee, McGrath Pond
Dave Hanson, Indian Pond
Neera Harmon, Winnegance Pond

Tammy Heiselmeyer, Coffee Pond
Billy Helprin, Somes Pond
Rebecca Hotelling, Big Kennebago Lake
Kristy Johnson, Swan Lake
Jeffrey Jones, Coleman Pond
Robert Joslyn, Watchic Pond
Kristal Karatsanos, Highland Lake
Gretchen Kimball, Big Bear Pond
Kerry Kowalczyk, Togus Pond
Benny LaPlante, China Lake
Sandra Larned, Kennebunk Pond
Nina Lawonn, Harriman Pond
Benjamin Levesque, Little Ossipee Lake
Rob Lively, Wilson Pond
John Loomis, Salmon Lake
Wyatt McCurdy, Rangeley Lake
Jessica McKenna, Rangeley Lake
Paul McNulty, Watchic Pond
Jacob & Joan Meerman, Rangeley Lake
Jeffrey Mellon, Little Ossipee Flowage
Trevor Morin, Adams Pond & Knickerbocker Pond
Sandra & Wynn Muller, Wilson Pond
Dr. Jeremy Nettleton, Indian Lake, Hadley Lake, & Gardner Lake
Bruce Palmer, Adams Pond (Rock Haven)
Lark & Lianne Parmalee, Panther Pond
Bruce Paster, Worthley Pond
Tim Placey, Worthley Pond
Tom Prescott, Hosmer Pond
Audrey Puleio, Lake Auburn
Pat Robinson, Loon Lake
Ed Roche, Kennebunk Pond
Kevin Ryan, Kezar Lake
Bonnie Sammons, Mcgrath Pond
Linda Sango, Wilson Lake
Constance Sasser, Pleasant Lake
Donna Savastio, Middle Pond
Steve Seidell, Coleman Pond
Deborah Shapiro, Pleasant Lake
Jeanne Silverman, Sand Pond
Chris Smith, Sebec Lake
Deb Thomas, Lower Narrows Pond
Ray & Sharon Thompson, Kennebunk Pond
Amy Webb, Pinkham Pond
James & Judy Weber, Loon Pond
Allen Wicken, Gull Pond
Jonah Wilson, Sebec Lake
Rich Woodbury, Moose Pond
Callie Wronker, Dyer Long Pond
Heinrich Wurm, Kezar Lake
Stephen Zeeman, North Pond & Pennesseewassee Lake
Matt Zetterman, China Lake

...*Lake Clearer*, continued from page 9

Figure 4 represents Secchi readings taken in 2015 by a group of volunteer lake monitors who are participating in the VLMP's "Near Real-Time Lake Data" (NRTLD) project. The 8 lakes represented here were chosen based on their relative proximity to the Portland, ME area. Within this group, several lakes show a deepening trend in Secchi readings of a few to several meters depth during the July-August-early September period, and one lake (Highland, which may have been experiencing internal phosphorus recycling) experienced substantially shallower readings.

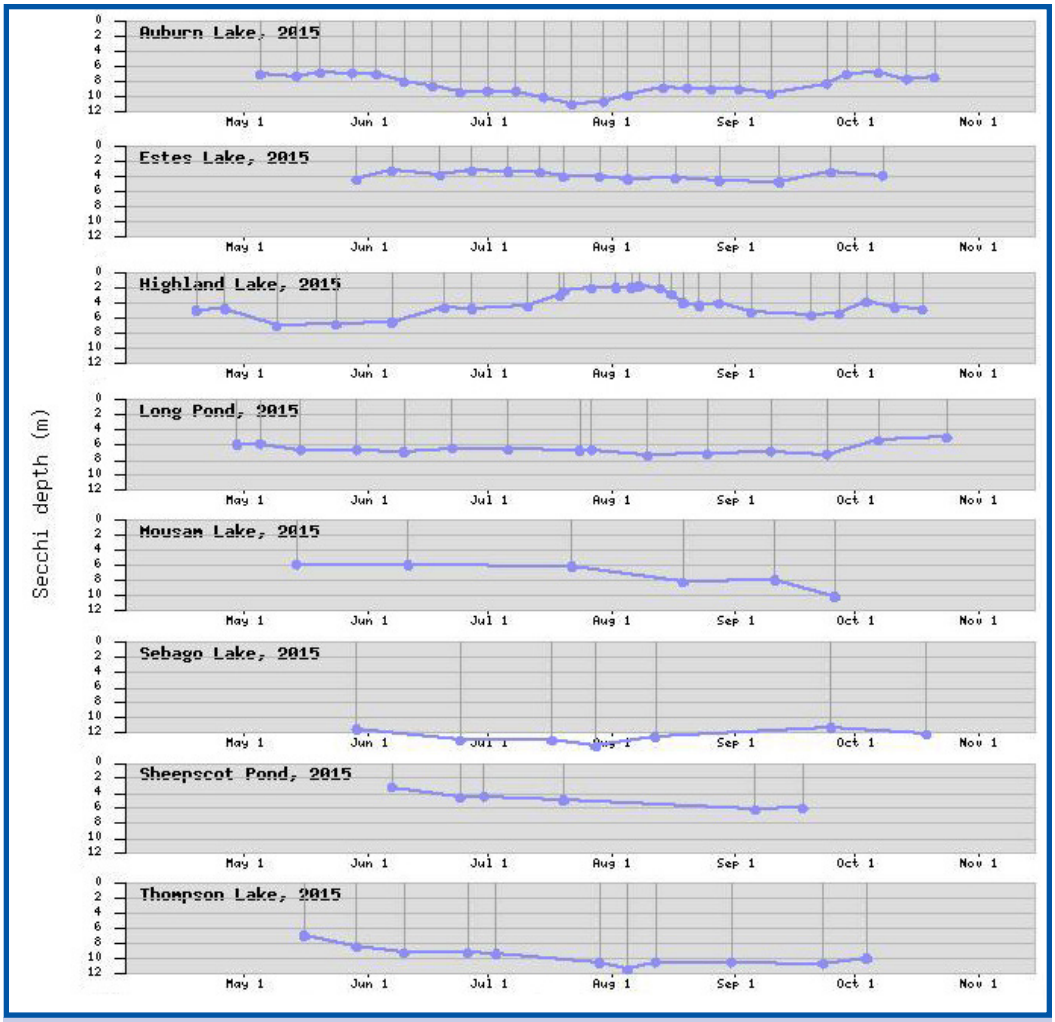


Figure 4 2015 Secchi transparency readings for 8 lakes situated in relatively close proximity to Portland, ME. *Data Source: VLMP NRTLD Website.*

All 18 lakes participating in the NRTLD project can be viewed at: http://mainelakesdata.org/. If you would like to participate in the NRTLD project in 2016, please contact the VLMP office. By participating in this initiative, you will be able to immediately post your Secchi readings online for public viewing.

Perhaps you already know whether or not your lake was clearer in 2015 than its historical average. But are you ready to make a prediction on a larger scale? Soon after VLMP and Maine DEP staff have reviewed and entered all of the 2015 Secchi data, we will post summary information on the number of Maine lakes that were clearer, less clear, or unchanged from their historical average. In the meantime, feel free to make your own prediction, and post the information on our Facebook page: https://www.facebook.com/MaineVLMP/. Good luck!

It's Easier than Ever to Become an Invasive Plant Patroller!

2015 IPP Plant Paddle on Lake Messalonskee

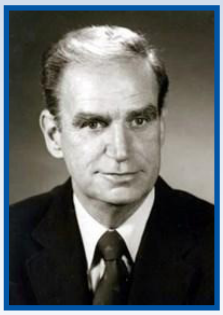
The IPP Plant Paddle is a 3-hour guided exploration that takes place on shore and on the water. This is a fun, informal way to learn about the threat of invasive aquatic plants and the importance of early detection. For several years the VLMP has offered a train-the-trainer workshop for IPP leaders called *How to Conduct an IPP Plant Paddle*. This year, the VLMP piloted the idea of offering Plant Paddles directly to the public as an entry level course for prospective patrollers. The pilot was very successful! So—starting in 2016—IPP Plant Paddles will be considered the VLMP's new IPP *Introductory* Workshop, and our comprehensive 6-hour IPP trainings (formerly billed as "introductory") will have a new name: IPP *Certification* Workshop. By making it easier than ever to "get your feet in the water" as an early detector, we are hoping to greatly expand the numbers of trained eyes out there on Maine lakes. Meanwhile, plant paddlers who wish to continue their training will be encouraged to attend a 6-hour workshop as soon as they are able, at which time they will qualify for IPP certification.

Passings

John Joseph Bernazzani

John Bernazzani passed away in April, with his wife of 68 years, Elizabeth, and their children at his side. John will be remembered as a great dancer, committed tea drinker, and a man who felt so blessed in every way a man could be in life. His family lovingly called him "Pal." He was a volunteer lake monitor for several years on Pequawket Lake, in Brownfield. From April to October, on a bi-monthly basis, John would check the clarity and depth of the water at its deepest point, and also check for invasive plants. John thoroughly enjoyed the project, and loved Pequawket Lake.

Kenneth George Holt



Dr. Kenneth George Holt passed away at the age of 86, in late 2014. After obtaining his Bachelor's Degree in Education from Bates College in 1951, he enlisted in the Marine Corps where he actively served until 1953, and then served with the Marine Reserve Corps until his Honorable Discharge in 1959. In 1957 he received his Masters Degree in Education from the University of Connecticut. He was most proud of receiving his PhD in Education from the Graduate School of Boston College.

In 1969 he purchased a cottage on Bear Pond in Hartford, Maine where he would "summer" for the rest of his life. For many years he was a volunteer lake monitor with the VLMP, a long-time member of their Board of Directors, and also served as a Regional Coordinator. He was extremely dedicated to the Bear Pond Improvement Association, before retiring from the annual loon count in 2011. He is survived by several nieces, nephews and extended family throughout the country.

E. Roland Johnson

Roland Johnson passed away at the age of 83, in October. He is survived by his loving wife of 61 years, Barbara, and their many descendants. He was a graduate of Everett Vocational High School in 1950, and then in May, 1952, he enlisted in the U.S. Army, and proudly served his country while stationed in Germany during the Korean War, until 1954.

After a long career, Roland retired to Maine in 1997. He loved woodworking and will always be remembered for being an avid outdoorsman who enjoyed cycling and running in his earlier days. He spent his retirement years at his camp on Sandy Bottom Pond, in Turner, where he was also a volunteer lake monitor, for many years. He was well-known for being humble and patient, because of his strong faith and love of God. Roland was a wise man, full of integrity, friend and mentor to many, and will be sorely missed on the pond.

Mary Frances Nelson

Mary "Meg" Frances Nelson passed away at her home on Cushman Pond in Lovell, Maine in January, after a long illness. Meg is survived by her husband of 64 years, Gerry, as well as their three children and one stepson, and their offspring.

Meg's spirit and positive attitude about any new adventure was infectious, and her beautiful character will be remembered by all who came in contact with her. She and Gerry were noted for their profound interest in a variety of activities. They were licensed private sailplane pilots, had an active interest in geology, were avid photographers, and won many awards for their work. They were also dedicated to the sport of fly tying and fly fishing.

Upon retirement, they volunteered for the Town of Lovell, the State of Maine and, in particular, the Volunteer Lake Monitoring Program, serving as Directors, as well as lake monitors on Cushman Pond, for many years.

Paul D. Porter

Paul D. Porter passed away at the age of 81, in January. Paul is survived by his wife of 59 years, Glynn, their two sons and four grandchildren, and his sister and two nieces.

Paul was valedictorian of the Class of 1951 at Houlton High School. He earned a degree in mathematics from Bowdoin College, where he was a member of the R.O.T.C. program, and graduated as a 2nd Lieutenant in the U.S. Army. Following active duty, Paul began a long career in education, and received the Master Award for outstanding teaching.

Paul retired to Maine in 1998, became very active in many local organizations, and was well-known for his wood-turning skills. He was a dedicated volunteer lake monitor on Nickerson Lake in Aroostook county for nearly 15 years.

We care deeply about Maine's volunteer lake monitors. If you would like to share news of a monitor's passing, please contact us.

Cyr Bus Line supports the work of the Maine Volunteer Lake Monitoring Program.

Cyr Bus Line is 4th generation family owned & operated, providing motorcoach and school bus charters for school and athletic groups, conventions, clubs and private outings.

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WANTED:

Volunteer Water Quality Regional & Data Coordinators

Help with activities such as scheduling re-certification workshops, communicating with volunteers, and lake data entry. For more information, please contact us at vlmp@mainevlmp.org or 207-783-7733.

Reminder to all Volunteer Lake Monitors:

Help ensure the *2015 Maine Lakes Report* will be complete by sending any late data *now!*

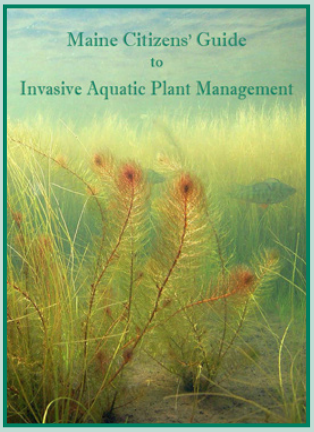
Sponsorship and Underwriting Opportunities in *the Water Column*

The value of Maine's lakes to the state's economy is substantial; studies have shown that our lakes conservatively generate 3.5 billion dollars in economic activity annually. An increasing number of Maine businesses—companies who not only see the connection between clean lakes and economic prosperity, but who also understand the value of volunteer "match"[1] — now support the work of the VLMP. It is in this spirit of mutually-beneficial collaboration that we welcome this issue's corporate sponsors.

If you, or your company, are interested in supporting the work of the VLMP through sponsorship or underwriting, please contact us. Underwriting notices will be accepted at the discretion of the staff and VLMP Board of Directors.

1. Every dollar donated to the VLMP is matched at least *10 times over* by volunteer support!

Maine Citizens' Guide to Invasive Aquatic Plant Management



Once an infestation has been confirmed, rapid response is crucial. The prospects for effective management or even eradication, is greatly increased by swift, well-planned, and properly executed controls. The purpose of the *Maine Citizens' Guide to Invasive Aquatic Plant Management* is to provide the information necessary to effectively manage invasive aquatic plant (IAP) populations, to prepare for such an eventuality, and to address all associated activities. Methods described in this Guide are based upon tested best-management practices for controlling aquatic plants effectively and in a manner that protects wildlife and habitat. To view and/or download this new publication, please visit the VLMP website at **www.mainevlmp.org/citizensguide**.

FREE T-Shirts for Certified Lake Monitors!

Certified lake monitors are eligible for one of these beautiful t-shirts, free-of-charge! T-shirts are currently available, and may be picked up at any water quality re-certification workshop, IPP workshop, or other VLMP event, including our annual conference. If you are unable to pick up your t-shirt, we can arrange to have one sent to you for the cost of shipping and handling.

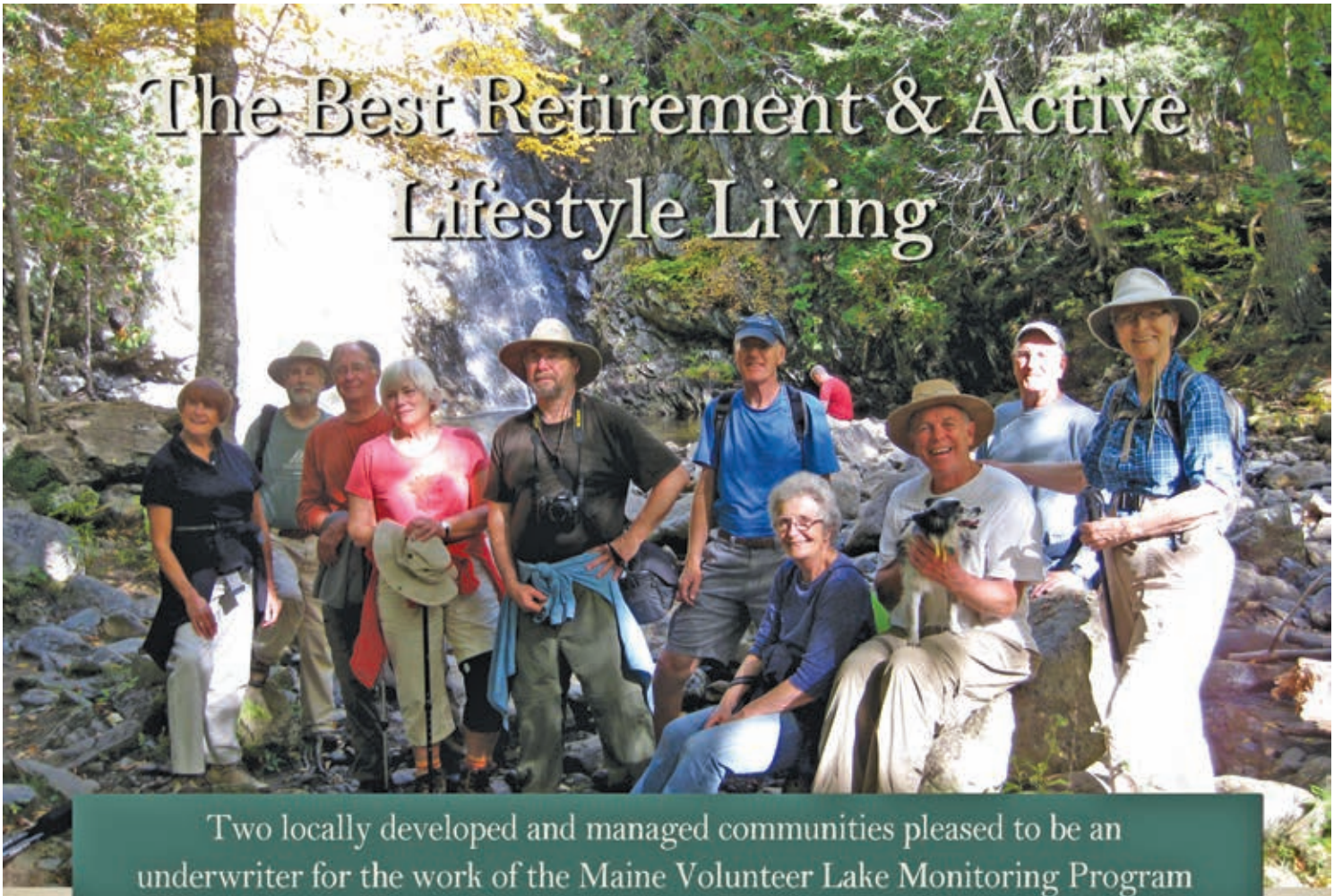

Front

Back

Don't miss out! Please contact the VLMP with your shirt size, either by email or phone, at vlmp@mainevlmp.org, or 207-783-7733.

Thank you to our corporate sponsor, **YSI Incorporated**, whose generous support made these t-shirts possible!

Show Off Your Pride as a VLMP Certified Lake Monitor!



Two locally developed and managed communities pleased to be an underwriter for the work of the Maine Volunteer Lake Monitoring Program

OceanView at Falmouth With a proud 30 year history, OceanView is just minutes from downtown Portland, overlooking Casco Bay. OceanView's beautifully wooded and landscaped 80-acre hillside campus offers a wide variety of spacious cottages and apartments and an active, stress-free retirement lifestyle combined with peace of mind for the future with a care continuum.

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Highland Green Directly next door to the college town of Brunswick, Highland Green is Maine's premier 55+ Active Adult community. It's vast 635-acre campus features the unprecedented incorporation of a working nature preserve, custom-built free standing homes, lower maintenance living, golf and new friends who share interests from 29 different States and counting.

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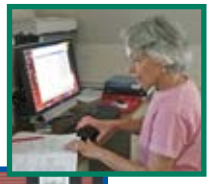
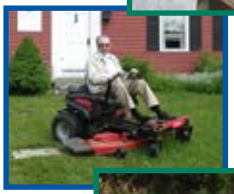
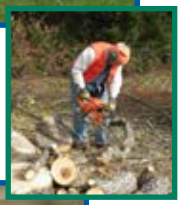
If you would like to go green and receive *the Water Column* in electronic format, please contact the VLMP at vlmp@mainevlmp.org.

Support comes in many forms – Become a 'Friend of the VLMP' today!

The VLMP is a uniquely volunteer-powered organization. Most volunteers are committed to the critically important task of monitoring the health of Maine lakes. But there are many other off-the-water tasks that need to be done in order to keep the entire statewide lake monitoring enterprise moving forward smoothly. As the organization grows, these essential behind-the-scenes tasks are also increasingly being shared by our volunteers.







Friends of the VLMP lend their time, talents and creativity to help us build and maintain one of the largest and most active citizen-based lake monitoring programs in the nation. With their much-needed and greatly-valued help, the organization is better able to meet the demands of Maine's ever-growing statewide network of volunteer lake monitors.

Interested? We are eager to help YOU find and/or expand your special niche in the VLMP. We can use your help with a wide range of seasonally-variable tasks, from data entry and assembling bulk mailings, to helping with yard work and making repairs to the property. Please contact us today to learn more!