

the Water Column



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Fall 2010

Getting *Into* Maine's Lakes

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Roberta Hill	Program Director
	VLMP's Center for Invasive Aquatic Plants
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Editorial Staff

Scott Williams	Jim Entwood, Layout
Roberta Hill	

To Contact Us

24 Maple Hill Road
 Auburn, Maine 04210
 207-783-7733
 vlmp@mainevlmp.org
 www.MaineVolunteerLakeMonitors.org

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Hello. My name is Tamara Lee Pinard and I am pleased to be the new VLMP Board President. I have served on the VLMP Board since the summer of 2005 and it is the best volunteer position I have ever had. First and foremost, I am involved with an organization whose quality is unmatched. This is demonstrated to me at the Annual meeting each year where volunteers are honored for 5, 10, 15, 20+ years of service. You don't see this with most volunteer organizations. Second, I am able to learn new things every step of the way—whether through volunteers or experts who present at the Annual Meeting, articles in *The Water Column*, or merely interacting with the experienced and knowledgeable staff, board members and volunteers. Third, the staff at the VLMP go out of their way to make each and every volunteer feel appreciated. (And then, of course, there's the VLMP Holiday Party a.k.a. the best party you ever travelled through a snow storm for! —mark your calendars now for December 10th).

This is an exciting time for the VLMP. We now own the Brackett Center, which will help us build a stronger and more sustainable organization and allow us to explore more educational opportunities for volunteers and the public. We are also preparing to enter our 40th year of monitoring Maine's lakes and ponds, which makes us the oldest volunteer lake monitoring




Tamara Lee Pinnard
 VLMP President

program in the country (and by my estimation—the best). We have grown nearly 158 times our size from our inception in 1971 when we monitored three lakes to today, when we are monitoring 474 lakes. I wholeheartedly believe that the great dedication and commitment of staff and volunteers have made this growth possible. We have grown into a volunteer monitoring program that is well respected in both Maine and around the country. Thank you for your efforts to make this possible. I look forward to another 40 years!



VLMP
Holiday Party Potluck
Friday December 10, 2010
Please RSVP to 207-783-7733
or jim@mainevlmp.org



VLMP's Brackett Environmental Center
 24 Maple Hill Rd, Auburn

Lakeside Notes

Remembering Last Summer

Hard as it may be to believe—and accept—another summer has passed. And a glorious summer it was for those of you who were gathering water quality data, or conducting an invasive aquatic plant screening survey on your lake. In dramatic contrast to the relentlessly rainy summer of 2009, the past several months have, for the most part, been bright, dry, warm, and relatively calm. It could not have been more pleasant—or could it?

Last summer will also be remembered for conditions that may have ominous implications for the future of Maine's lakes and ponds. It began in late winter when, following a period of extended, unusually warm weather, ice-out records were shattered throughout the state. Most lakes and ponds throughout Maine were free of ice nearly a month ahead of their historic average.

But we all know that Maine weather can fluctuate from one extreme to another in short order. And so, following the early departure of the ice, we braced for a two foot snowstorm and sub zero temperatures. But nothing even close to that happened. Instead, with only a few brief excursions, the weather continued to warm for the next several weeks, resulting in what may have been the warmest spring on record. The transition from winter to early summer, instead of being gradual, was immediate. I can honestly say that I have never experienced a winter-spring-summer period in Maine anything like it.

Compared to lakes throughout much of the country Maine's lakes are clear and clean—for many reasons, not the least of which is our relatively cool climate, which results in chilly water temperatures throughout much of the year. Temperature has a strong bearing on

the growth of algae and rooted aquatic plants, both native and invasive. Our northerly climate helps minimize algae growth, and it limits the species of rooted aquatic plants that are able to survive in our lakes. The fact that Maine lakes spend part of the year covered with ice and snow slows down virtually all biological processes in the ecosystem. Of course there are many other influences on these processes, but cold lake water plays a strong role in distinguishing our lakes from their southerly neighbors, which for the most part are less clear, greener, weedier, and they are unable to support coldwater fisheries.

Water that is rich in dissolved oxygen, and which stays relatively cool during the warmest time of the year, is essential to the survival of fish like trout and salmon, which spend much of their life cycle in the deepest, coldest areas of Maine's lakes and ponds. A relatively high percentage of Maine's lakes are able to provide such habitat, even during the late summer. But that could change if water temperatures begin to rise, and the deep, cold water sought by trout and salmon begins to lose more oxygen because the water is warmer and the period of thermal stratification lasts longer. Both are likely outcomes of a warming climate.

Virtually all of the known threats to the health of our lakes would very likely worsen in a warming climate. We may already be experiencing the early effects of this phenomenon. For the past several years, volunteer lake monitors and lake dwellers have reported increasing amounts of metaphyton (aka: filamentous algae, or "green cotton candy") growing in the shallow littoral areas of their lakes. Speaking from personal experience, I have seen a great deal more of this growth in the past decade than in several decades of living on and near

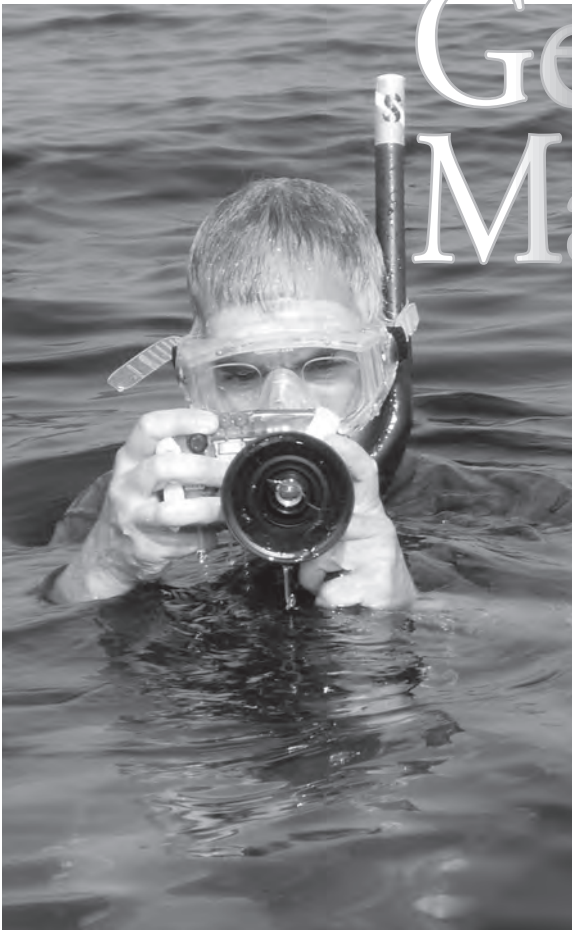


By Scott Williams
VLMP Executive Director

lakes in Maine. What is interesting, and perhaps ominous, is that the metaphyton is being observed and reported in lakes and ponds with a wide range of water quality—from Maine's clearest to those with relatively poor Secchi readings and moderate phosphorus levels. If phosphorus is not the primary driver of this phenomenon, it is likely that some function of the weather is. My out-on-a-limb hunch is that it is temperature-driven. Unfortunately, there is not much data available to track the presence and abundance of metaphyton in Maine's lakes and ponds. Whether you are screening your lake for invasive plants or taking Secchi readings, we could use your help with this!

Last spring and summer were pretty wonderful. It surely was a great time to be working on the water. But I hope it was an anomaly. Unfortunately, all of the credible scientific data suggest otherwise. Some of the consequences to lakes of climate warming are pretty intuitive. But the inter-relationship of complex aquatic ecosystems with their watersheds involves many variables, and we can only guess at some of the changes we face, unless we are able to confront climate change aggressively.

Next summer, the VLMP will launch a new workshop series for volunteer monitors, covering various ways in which they can monitor the effects of climate change on their lakes. We will also be posting information on our website. So please stay tuned!



Getting Into Maine's Lakes

**Roberta Hill interviews Dennis Roberge,
Maine's preeminent snorkeling Plant Patroller**

RH: You have been a certified Invasive Plant Patroller for only four years, but within that relatively short period of time, you have surveyed more lakes and covered more survey miles than probably any other volunteer monitor in the state. How did you get started down this path?

DR: I had grown up snorkeling in Mousam Lake with my father. In 2006 I decided it would be fun to broaden my horizons and snorkel around in other nearby lakes as well. I started with Arrowhead Lake. When I arrived I was met by the courtesy boat inspector, and saw big signs saying the lake is infested with milfoil. I assumed the problem at Arrowhead must be Eurasian water-milfoil, which was the "milfoil" I was familiar with, coming from New York. But I learned from the CBI that, no, the lake is actually infested with variable water-milfoil. So I started snorkeling around looking for this new milfoil, realizing that I really was not sure what I was looking for. And that led to the next thought, which was, well, if I am going to start snorkeling Maine lakes, I better know what all of the possible invasive plants look like, in case I come across something. I guess you could say that was the thought that got me started down this road.

RH: In the short time you have been doing this work, you have become quite an expert botanizer. How did you go about learning the native aquatic plants?

At each lake I visited that first summer, I would collect a sample of every different plant I saw. I would go to a new lake every day or so, and I was spending so much time in the water I did not have time to sit down and key the plants out so I froze them. At the end of the summer I had thirty or so frozen bags—each full of a dozen or more plants—so lots and lots of specimens. When fall came I decided it was time to figure out what I had collected. I took the frozen bags home to New York, got a bunch of books on-line, set up a work station in the basement, and started making my way through the bags, thawing them out one by one. I would spend about four or five hours down there at a time, just identifying plants. It was tough going in the beginning, but little by little, I would get one here and one there, and before I knew it I had learned dozens of species.

RH: It sounds like you worked your way through dichotomous keys. Some people find that keys can be pretty tricky; if you make the wrong choice at any juncture, you can get way off track and need to work your way back. Did you find that using the keys got easier after a while?

DR: Oh absolutely. You're learning the various characteristics and botanical terms and also just getting more familiar with the process. The repetition is great; it just gets easier and easier. Pretty soon you realize that there is only one pondweed that looks like this; only one floating leaved plant that looks like that; you don't need to run it through a key. After the

This summer Dennis Roberge, one of the Maine Volunteer Lake Monitoring Program's most active Invasive Plant Patrollers, conducted the first-ever Level 3 survey on Mousam Lake in the towns of Acton and Shapleigh. Dennis conducted the entire survey while in the water, progressing steadily along under his own flipper-footed propulsion, casting his expert eyes directly upon an estimated 95% of Mousam Lake's extensive littoral zone. (The lake covers 900 acres, with many twists and turns of the shoreline along its nearly six miles of length.) I sat down this fall to ask Dennis about his experience.

twentieth or so bag, I'm going, "hey, I know that one... and that one," checking them off one by one, no problem. Some plants of course are trickier than others. The grasses are tough... the real thin pondweeds; those are hard. If a plant got too frustrating I just put it to the side. Maybe I would try it again later, maybe not. Some I just had to leave unidentified.

I learned a lot that first winter and it was great fun. The next spring I could not wait to get back in Mousam Lake. As soon as I got in the water I found myself saying, "Well that's so-and-so, and that's that." It was really great to be able to just pick them out like that. At that point, I probably had a few dozen natives that I could easily identify; I have just built on that. Every year I add a few new ones.

RH: How did you become a volunteer Invasive Plant Patroller?

DR: In 2007 I attended my first VLMP Invasive Plant Patrol workshop in Alfred. I remember leaving that workshop saying, "Wow. This is it; this is what I want to do." I was very excited. It was like I found my niche so to speak. Snorkeling was something I could do physically, and by now I was familiar with a bunch of plants. I had also found out that I was capable of learning and retaining the kind of information needed to do this work.

RH: Speaking of the snorkeling... the vast majority of our Plant Patrollers conduct their surveys from a shallow draft boat. Why did you decide to snorkel your surveys as opposed to surveying from a boat?

I used to do construction back in New York, and eventually that work destroyed my back. In 2002 I had major surgery. That set me way back for a few years. Having back issues, sitting is tough, and I am not able to spend much time in a boat. Snorkeling, on the other hand feels great.

RH: I imagine it is even therapeutic.

DR: Absolutely. Zero gravity... that's my world. I'm a good swimmer, but after fifteen minutes of swimming, my back starts to hurt. But I can snorkel all day. You're not using your back muscles when you snorkel; it's mostly in the legs. And as I said, my father was big into snorkeling when I was growing up, and we did a lot of it together on Mousam Lake. So I was really comfortable with it, and I had all the gear. It works really well for me.

RH: At this point, how many different Maine lakes do you calculate you have surveyed for aquatic invaders?

I'm going to say that so far I have done about 50 lakes, roughly.

RH: On most of these lakes you were obviously not conducting Level 3 surveys. (A Level 3 survey covers all areas in the waterbody where sunlight penetrates to the bottom and rooted aquatic plants grow.) What was your focus?

DR: Mostly Level 1 areas: public boat launches and nearby coves; areas that would likely be hot spots, so to speak. Some lakes that I surveyed actually didn't have boat launches. I would just walk through the woods and get in where I could. But you never know. The Eurasian milfoil infestation in the quarry pond in Scarborough and hydrilla infestation in a remote cove on Damariscotta Lake have taught us that these plants could be just about anywhere.

RH: How have you picked which lakes to survey?

DR: So far it has pretty much been by proximity to Mousam Lake. I have been trying to hit everything within an hour radius of my place on Mousam. That seemed to be the likely first area to tackle. Eventually I'd like to survey all the lakes in York County. That's definitely a goal.

One challenge to accomplishing this is access. For a lot of these lakes, there is no public access. One of the ways I find a possible access point is through



Taking a break from the bracing fall water temps on Damariscotta Lake. Dennis is also a member of the IPP 1st Responders

Google Earth. I zoom in on the lake and site along the shoreline looking for spots where the public road comes very close to the lake; places where I can just park and jump in. I have done this several times and it actually has worked out very well. I have met people out on the lake as I am going along, and I have made some great contacts this way.

RH: Mousam Lake was your first Level 3 survey and Maine's first Level 3 survey on a lake of this size by a single surveyor snorkeling the entire way. If you knew at the beginning of the summer what you know now, would you have tackled this project?

DR: (long pause... sigh) Ahh... yes, and no. I feel good that I did it. It was something important that had to be done. I wanted to make sure that there were no invasive plants lurking out there in Mousam Lake, hidden where nobody could see, slowly spreading like a cancer. On the down side was the time required. It became a real job in a way, and once I told the Mousam Lake Association Board that I was going to do it; then it became an obligation.

RH: Let's talk about the immensity of the project. How much territory did you cover?

continued on page 10

Thank You! Spring Appeal Donors

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IPP Workshop Hosts

30-Mile River Watershed Association
Belgrade Regional Conservation Alliance
Crystal Lake Association
Damariscotta Lake Watershed Association
Highland Lake Association
Pemaquid Watershed Association
Sabbathday Lake Association

Lake & Watershed Groups

Abrams Pond Association
Alford Lake/Lermond Pond Association
Allen Pond Improvement Association
Androscoggin Lake Improvement Corporation
Cathance Lake Association
Citizens Association of Liberty Lakes
Clearwater Lake Improvement Association
Clemons Pond Association
Cold Stream Campowners Association, Inc.
Craig Pond Association
Damariscotta Lake Watershed Association
Dexter Lakes Association
Embden Pond Association
Frenchmans Hill Road Association
Friends of the Cobbossee Watershed
Great East Lake Improvement Association
Green & Mirror Pond Association
Hancock & Sand Ponds Association
Howard Pond Preservation Association
Keoka Lake Association
Lake Anasaguticook Association
Lake Moxie Campowners Association
Lawry Pond Association
Little Wilson Pond Improvement Association
Little Wilson Pond Improvement Association
Loon Lake Association
Lovejoy Pond Improvement Association
Madison Water District
Meddybemps Lake Association
Megunticook Watershed Association
Nickerson Lake Wilderness Preservation, Inc
Pattee's Pond Association
Pemaquid Watershed Association
Pequawket Lake Preservation Association
Pickerel Pond Association
Piper Pond Association
Pleasant Lake & Parker Pond Association
Pleasant Lake & Parker Pond Association
Pleasant Pond Conservancy
Porter Lake Association
Range Pond Environmental Association
Sabattus Pond Watershed Partnership
Sabbathday Lake Association
Sand-Locke Pond Association
Saturday Pond Watershed Association
Sebasticook Lake Association
Summer Haven Lakes Association
Taylor Pond Association
Thompson Lake Environmental Association
Washington Lakes Association
Webb Lake Association
Whitmore Landing Lake Association

Lake or Pond???

One of the most frequently asked questions posed of biologists in the Lake Assessment Section of Maine DEP, is “*what is the difference between a lake and a pond?*” About half of Maine’s 6,000 lakes and ponds that have been assigned a state identification number have been named, many having two or three names. At least thirty have one name with the word *lake* in it and the other with the word *pond*. For example, *Bryant Pond* is also known as *Lake Christopher* and **Dexter Pond** sports the name *Wassookeag Lake!* It is often these dual names that make folks wonder exactly where do we draw the line in Maine?

One classic distinction is that sunlight penetrates to the bottom of all areas of a pond in contrast to lakes, which have deep waters that receive no sunlight at all. Another is that ponds generally have small surface areas and lakes have large surfaces. In Maine the latter distinction totally breaks down when one considers that one of the three *Great Ponds* is over 8,800 acres and one of

the thirty-six *Long Ponds* is 2,500 acres!

So a combination of surface area and depth are considered from a technical perspective.

Some of Maine’s large and deep bodies of water are indisputably lakes. Others are ponds – small and shallow. But there is a transition between the two where the definition becomes fuzzy. If we held to the depth distinction, some ponds would become lakes mid-summer when algal populations limit light penetration to the bottom. The surface area distinction makes no sense for seven-acre waters that are 50 feet deep (like Maine’s kettle ponds), or for 400-acre waters that have emergent vegetation across their entire surface.

So to answer the question above: no definitive line exists between lakes and ponds. The one distinction that has any legal application is the designation of a body of water as a *Great Pond*. Maine state statues define lakes and ponds greater than ten acres in size as *Great Ponds*. If an impounded waterbody is greater than thirty acres in size it is also legally considered a *Great Pond*; impounded waters less than thirty acres that were greater than ten acres



By Linda Bacon
Maine DEP Technical
Advisor

before being dammed are also *Great Ponds*.

Thus there is no exact technical distinction between lakes and ponds. All lakes and ponds provide critical habitat for other living creatures – aquatic macroinvertebrates, plankton, fish, wildlife and vegetation – and all need protection, so that clean fresh water continues to be one of Maine’s premier natural resources.

Fall Fundraising Appeal

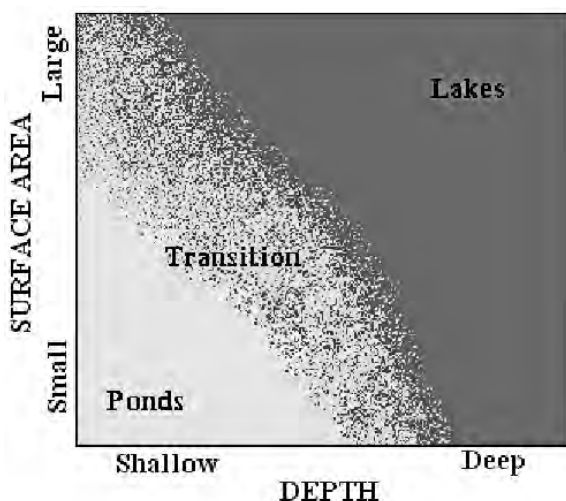
Keeping an eye on the health of Maine’s lakes involves the dedicated efforts of over 900 volunteers around the state who monitor and respond to threats facing our waters. It also takes significant financial resources to coordinate, collect, equip, and support those volunteers, and to track and publish their data.

Please consider supporting VLMP volunteers in these efforts by contributing to our Fall Appeal. Every donation contributes to ensuring the health and protection of Maine’s lakes.

Web Updates

Check out the VLMP’s new website offerings:

- 2010 Secchi Data
- Native Plant Lists for your lake
-  New Facebook Page
- New *Meet the Monitor* Posts



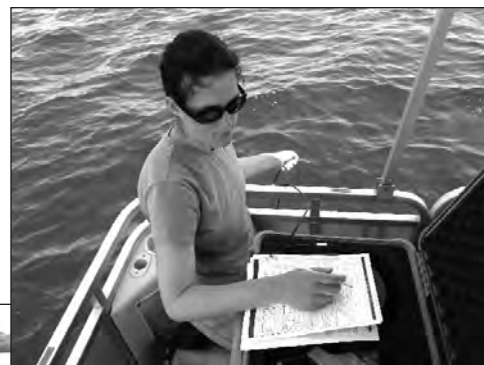
Welcome Aboard

Thanks to the commitment of these volunteers there are now a total of **923** Certified lake monitors keeping an eye on the health of Maine's lakes!



New Certified Water Quality Monitors

Mary Ellen Bell, Nequasset Pond
Ainsley Bodman, Loon Lake
Robert Chase, West Harbor Pond
Joan Chase, West Harbor Pond
Maurice Collin, Long Lake
Julia Davis, Damariscotta Lake
Georgann Dickey, Sheepscot Pond
Eric Falconer, Maranacook Lake
William Gilliland, Hills Pond
Christine Greenleaf, Ellis Pond
Jack Heineman, Little Pushaw Pond
Todd Johnson, Lower Mason Pond
Norton (Buzz) Lamb, Lobster Lake
Jon Lawton, Brewer Lake
Charlotte Lawton, Brewer Lake
Adam Macy, Knickerbocker & Adams Ponds
Matt Montgomery, Webb Pond
Leslie Muir-Volpe, West Harbor Pond
Donald Richardson, Crystal Lake
Richard Salminen, Toddy Pond
Pat Thomas, Kezar Pond
Dennis Volpe, West Harbor Pond



New Lake Monitors!

New Certified Invasive Plant Patrol Monitors

Marygrace Barber, Pleasant Lake
Peter Barber, Pleasant Lake
Martin Bartlett, Quantabacook Lake
Eva Baughman, Threemile Pond
Colleen Bennett, Little Wilson Pond
Steve Carroll, Damariscotta Lake
Marsha Clark, Flying Pond
Ian Collins, Stevens Pond
Stephen Craig, Province Lake
Connie Cross, Panther Pond
Julia Davis, Damariscotta Lake
Corinne Dawson, Multiple in Belgrade Region
Charles Day, Worthley Pond
Andrew Dumont, East Pond
Pat Durkin, Megunticook Lake
Suzanne Dwyer, Damariscotta Lake
Charlie Evans, Saint George Lake
Peter Farnsworth, Flagstaff Lake
Susan Frewert, Saint George Lake
Kevin Frewert, Saint George Lake
Fred Frodyma, Estes Lake
Jim Gameros, Forest Lake
Ed Gelina, Piper Pond
William Gilliland, Hills Pond
Leslie Gilliland, Hills Pond
Peter Goffin, Flying Pond
Joyce Gosselin, Kezar Pond
Whitney Grass, Multiple in Cobboossee Watershed
Bruce Hanke, Damariscotta Lake
Norm Harte, Mattawamkeag & Pleasant Lakes

Cindy Hesson, East Pond
Ted Hesson, East Pond
Erika Higgins, Branch Lake
Bill Higgins, Branch Lake
Robert Hill, Sand Pond
Susan Hill Vangelii, Sand Pond
Peggy Jensen, Panther Pond
Neil Jensen, Panther Pond
Rob Jones, East Pond
Tim Kinney, Minnehonk Lake
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Irene Krysko, Middle Pond
Sarah Lafond, David Pond
Janet Lewin, Damariscotta Lake
Ted Lewin, Damariscotta Lake
Taylor Ligay, Mousam Lake
Joe Longtin, David Pond
Tom Lyons, Damariscotta Lake
Ethan McGuire, Multiple in Cobboossee Watershed
Candy McKellar, Pleasant Lake
Karen McLean, Saint George Lake
Tim Merten, Damariscotta Lake
Phil Miller, Damariscotta Lake
Amanda Moeser, Damariscotta Lake
William Moore, Horne Pond
Susan Motley, Quimby Pond
Linda Nelson, Pondarker Pond
Tom Nigro, Pondapoose Pond
Marcia Nigro, Papoose Pond



Gloria Pasquini, Estes Lake
Sherry Pettyjohn, Pleasant Lake
Jack Richardson, Kennebunk Pond
Louise Riley, Pemaquid Pond
Lynn Roberge-Ligay, Mousam Lake
Donna Rosenkrans, Square Pond
John Shambroom, Middle Pond
Richard Sharf, Great Pond
Jeanne Siviski, Damariscotta Lake
Alison Smith, Echo Lake
Pat Thomas, Kezar Pond
Ben Thompson, Damariscotta Lake
Mike Whitmore, Embden Pond
HL Whitney, Lakeittle Pond
Willy Wilmoth, Saint George Lake
Steve Woodard, Damariscotta Lake
Gordon Woods, East Pond



DR: I haven't really done the math with any precision, but I imagine I covered about one square mile in all. In terms of linear distance, snorkeling tight transects to cover some of these areas, back and forth, back and forth; I would say I must have snorkeled at least a hundred miles. I know that I snorkeled at least seventy five miles in Lower Mousam alone. (At this point Dennis unrolls his map of Mousam Lake.) OK, here we go. This shows all the areas I covered.



Dennis in his element. The bright red shirt is his standard safety attire.

RH: How did you approach an area like this? (pointing to Lower Mousam, which is almost entirely littoral)

DR: After doing the entire shoreline, I would start here, snorkel directly across to here, move up the shore 15 feet, snorkel back, roughly parallel to my first transect, but heading for a point 15 feet up from my original starting point, all the time using landmarks on the shore to keep me on course, moving up transect by transect until I had completely covered an area.

RH: Why fifteen feet?

DR: Swinging my head back and forth, I could visually cover a swath about twenty feet wide. If I kept my transects fifteen feet apart, that provided some overlap, so I could be sure I was not missing anything. I didn't cut any corners. I really did complete coverage throughout the entire survey. This area here (again pointing to Lower Mousam) took weeks, and weeks, and weeks.

This area (Dennis points to a spot in the middle of the lake) was a surprise. I came out of a cove and noticed some plants continued out further. The area was like a submersed island fifteen to eighteen feet deep. So I covered that shoal the same way, transects back and forth, back and forth. I wasn't really expecting to see anything invasive way out there, but it was part of the littoral zone, so I wanted to cover it. It was mostly *Potamogeton amplifoliosus* and *Elodea canadensis*; you see those two species quite often in deep water.

RH: Do you think you would have noticed this area if you had been in a boat?

DR: Maybe, but you never could have surveyed that area completely from a boat. It was just too deep.

RH: The best you could have done from a boat would have been to point sample with a weed weasel.

DR: That's right. There were actually lots of areas on the lake like that—deep—very hard to see the plants from a boat.

RH: Did you approach the project in a linear way, starting at one point and working your way around the entire lake?

DR: No. Mousam Lake gets busy on the weekends, so you avoid the busier areas on those days, primarily for safety reasons, but also turbidity. You also consider light conditions, just as you would if you were surveying from a boat. On the other hand, surface disturbance, glare and certain kinds of weather are not really issues when you are snorkeling as they can be when you are surveying from a boat. I could be out in whitecaps or in pouring rain. It is calm as can be below the surface. When weather conditions were less than perfect, I would just look for a shallower area where the light was sufficient, and I was good to go. So you are always looking for the best viewing conditions, which means you bounce around a bit.

You just need to keep track of where you have been on the map.

RH: So what about your gear. You had a map. You had your snorkeling gear. What else?

DH: I had a boat; a fourteen and one-half foot aluminum work boat with a 15 horsepower motor on it. I would take that out to the area I was going to survey and jump out of the boat and pull the boat behind me. At that point, the boat was for protection more than anything; something big that other boaters could see from the surface.

When I first started doing the survey, people would come by and ask if I needed help because they figured I had broken down. But after I spoke at the Mousam Lake Regional Association (MRLA) annual meeting about what I was doing, people started approaching me and asking, "Hey, have you found anything?" They knew right away what I was up to. So that was great; the project had begun to raise awareness and generate interest on the lake. I also got several volunteers at the meeting. I begged—I pretty much begged for help, and several folks stepped up to the plate, which is great.

RH: How have the volunteers helped?

DR: Mostly, they assisted by running the boat, following me while I surveyed so I didn't have to pull the boat behind me. They also bagged plants and checked species off on the data sheet, that kind of thing. Eventually I'd like to take GPS readings around the whole littoral zone of the lake, and mark all the places where we have native milfoil. Having someone in the boat who can actually take the readings while I'm in the water marking the spot will be a big help.

RH: This brings up the important issue of safety. You conducted much of your survey solo, not really a method we would recommend to other Plant Patrollers. For safety reasons, a snorkeler should always have a tender or spotter.

DR: Absolutely. Snorkeling by yourself—things can happen. You never know, no matter how careful you are; it's just not a good thing to do. But at the beginning there was really was nobody around to help me. But now I have these four people who *are* helping me, and my hope is that they will learn more about the whole process and want to take on their own sectors next season. We just need to get them trained, and get some more people involved as well. If we had a couple dozen trained Plant Patrollers on the lake—that would be great. We have established a connection with two other local lakes and are hoping to co-host an Introductory IPP workshop in our area next summer.

RH: Going back briefly to the boat, I've got to ask. How heavy was the boat when you were pulling it yourself? How much extra effort was involved in snorkeling this way?

DR: I guess I did about three-quarters of the survey by myself, pulling the boat along behind, and I gotta say, I did not realize how much work it was until I started getting help from the spotters. When I was pulling the boat, I was attached to it by about twenty feet of rope. To survey the deeper areas I had to haul the boat up close to me so I would have enough line to dive down, then I would move forward a little bit and have to pull the boat close again, and so on. It was a lot of work. When I started getting help, I couldn't believe it. I could just zip along. It made a world of difference.

When I was doing the Level 1 surveys on other lakes—areas that I could easily cover without getting into a boat—I would pull a small bright orange inflatable along instead. Pulling a boat like that is no trouble at all.

RH: What about your schedule, your daily routine?

DR: Well, fortunately my schedule is pretty much wide open. Because of my back, I am no longer able to work, so I don't really have to stick to a strict

schedule. I could get up in the morning and say, "well this looks like a good day." I guess I was in the water an average of two hours, four or five days a week, all summer long.

RH: What did you learn about Mousam Lake from this experience?

DR: First and foremost I learned that there are no invasive plants in Mousam Lake. That is huge. But there was lots more. For example, snorkeling the lake, I began to piece together bits and pieces of Mousam's past. Mousam Lake is a flooded river valley. I found places where the old course of the river and the riverbanks are very clear, the remains of what must have been bridge foundations, submersed tree trunks and wooden structures, that kind of thing. I really like finding stuff like that.



When asked, "What's next?" Dennis says he is always looking for new lakes to explore

RH: What did you learn about yourself?

DR: I learned that I could accomplish something that turned out to be a pretty daunting task. I also learned that I will never do again; not without help at least. I have actually framed my original survey map and hung it on the wall to remind me of just how crazy it was to do it alone.

And actually, one important thing I learned is that in order to *get* help, I have to get out of the water and talk to people. So I am doing that. I am on the Board of the Mousam Lake Regional Association (MRLA) and the Acton/Shapleigh Youth Conservation Corps now. This summer I was asked to speak at the MRLA annual meeting and was really nervous about it; I have never done any public speaking. But I got up there, and once I started talking about invasive plants, what they could do to the lake, and what needed to be done to protect the lake, I wasn't nervous anymore. I actually think I did a good job. People seemed interested and asked lots of questions. So I learned I could do this too.

RH: What's next?

DR: As I said earlier, one of my goals is to survey all the lakes in York County. But I also want to branch out further. I'm pretty much willing to go anywhere in the southern half of the state. Ideally I'd like to team up with people on other lakes and help them get started on their own surveys. If, for example, someone was able to put me up for a day or two and ride me around in their boat, I could spend a couple of days screening areas for invasives and photo documenting the dominant native plants in these areas free of charge.

I also am really excited about getting a Mousam Lake Invasive Plant Patrol Team up and running. We should be screening the lake for invaders every year. The more people we can get to participate in this effort the better. Believe me... I know.

To see an on-line collection of underwater photographs and video taken by Dennis this summer, please visit the VLMP website at www.MaineVolunteerLakeMonitors.org/WCFall2010

VLMP to Offer New Volunteer Training Workshop Series for 2010

A number of volunteer lake monitors have expressed interest in expanding their knowledge and capabilities for monitoring their lakes through advanced training options. Many have indicated an interest in learning to link the data that they gather on the water with conditions in the lake watershed. Others are concerned about the potential effects of global climate change on their lakes. The VLMP will offer two new workshops in 2010 to provide volunteers with information to help them gather holistic data for their lakes and watersheds:

Monitoring Your Lake Watershed: How to Identify, Monitor and Mitigate Ways in Which Watershed Land Use Influences Lake Water Quality

Virtually all of the natural characteristics of a lake are influenced by the land area, commonly known as the watershed, that drains to the lake. But human activities that alter the natural protective features of lake watersheds can result in serious degradation of water quality and aquatic habitat over time, unless conservation measures are taken to protect the lake.

The workshop will focus on the following topics:

- How to identify your lake watershed (lake-specific watershed maps will be provided for each attendee)
- Lake and watershed connectivity: understanding how pollutants travel through the watershed to the lake
- How land use influences water quality: a discussion of how different land uses affect the lake, including the short and long-term effects of watershed development

on water quality

- Surveying and monitoring the effect of watershed land use on lake water quality: How to conduct and document the findings of a lake watershed survey
- The use of conservation practices to minimize the effect of watershed development
- Lake and watershed stewardship: Ways in which volunteer lake monitors can foster lake protection at the community level

The workshop will include a site walk through a local lake watershed. We will discuss guidelines for conducting a lake watershed survey, including options for seeking financial support. This workshop will be offered in the early summer of 2011.

Monitoring the Effects of Climate Change on Lakes: An Overview of Ways in Which Warming May Influence Lake Ecosystems, and How You Can Help Document The Effects

There is overwhelming, credible scientific data indicating that our climate is warming. As air temperatures and lake water warms, many of the existing threats to the health of our lakes will likely be exacerbated, and a number of new threats are likely to emerge. VLMP volunteer monitors are already providing data for many of the most important indicators of climate change on lakes, including Secchi transparency, temperature and dissolved oxygen data, and other indicators of lake productivity. This workshop will provide an overview of the ways in which Maine's lakes are likely to be affected by climate warming, the implications

of these changes, and ways in which volunteers can document them.

A few of the topics to be discussed in the workshop include:

- The effect of warming on lake ecosystems
- Potential changes in lake productivity, resulting from warmer water, including greater algae growth, reduced water clarity and lower concentrations of dissolved oxygen
- The effect of more severe storm events on stormwater runoff from lake watersheds
- Invasive and native plant proliferation—it is not going to get better if the water is warmer
- The apparent increase in metaphyton (aka: green cotton candy) in lakes: An early indicator of warming? How can we monitor this phenomenon?
- What can you do to monitor changes in your lake?

The first workshop on the influence of climate change on lakes will take place in summer, 2011

The following link provides a good overview of the effects of climate change on water resources in the U.S:

http://water.epa.gov/learn/training/wacademy/upload/2009_10_27_slides.pdf

Is Your Lake “All Mixed Up”?

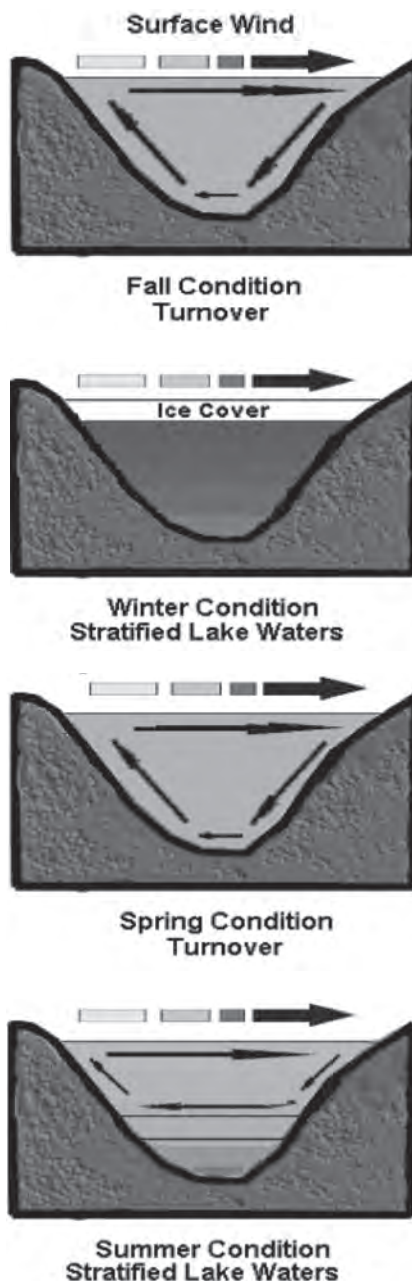
Most of Maine’s lakes and ponds are classified “dimictic”, which means that they mix, or “turn over” twice annually—once in the spring just after the ice melts, and again in the fall when the water temperature drops to the point where the temperature is uniform from the surface to the bottom.

Fall turnover can occur as early as late summer or early September in shallow lakes, and as late as October and November for some of Maine’s larger, deeper lakes. In both cases, the weather has a strong bearing on the timing of the mixing event.

Air temperature, sunlight and wind are all factors that influence exactly when the fall turnover takes place. A period of strong, cold wind can produce enough energy to overcome the barriers to mixing that exist during the summer months when most lakes experience thermal stratification.

Fall turnover/mixing has a strong effect on lakes that have been stratified for up to five months, during which time the coldest water near the bottom of the lake is unable to replenish dissolved oxygen that is consumed by bacteria, in the process of decomposing accumulated organic matter.

When the mixing event occurs, water from the bottom is swept up to the surface, where exposure to the wind and the atmosphere quickly replenishes the oxygen. The turnover experience is quite literally like a “breath of fresh air” for our lakes!



Passings

Ron Gestwicki



Ron Gestwicki was an active VLMP lake monitor for 13 years, during which he monitored the Five Kezar Ponds. He also worked with the VLMP in program development. Ron loved the outdoors, and was a passionate conservationist, serving on the board of the Greater Lovell Land Trust, and as President of the Five Kezar Ponds Watershed Association. After retiring from his distinguished teaching career, Ron earned a graduate degree in Environmental Studies. He then worked as a field biologist for the Sanibel-Captiva Conservation Foundation from 2001-2007. Ron was also an intensive journalist consultant, and a published author.

DEP Declares Pleasant Lake in Casco Free of Plant Invasion

Invasive Plant Patrollers trained by the Maine Volunteer Lake Monitoring Program are once again credited with helping to save a lake from aquatic invaders.

On October 5, 2010, the Maine DEP announced that Pleasant Lake in Casco, which was once infested with variable-leaf milfoil, is now free of this invasive plant for the third consecutive year, permitting environmental officials to officially remove the lake from the state roster of 34 infested waterbodies.

Variable milfoil was first confirmed in the outlet cove of Pleasant Lake and nearby Lily Brook in 2001. Once the infestations were confirmed, the Pleasant Lake/Parker Pond Association sprang into action. Led by Joel Bloom (recently deceased) with Lew Wetzel, Pixie Williams, Fred Cummings, and Trevar Tidd, a methodical, multi-year, community-based campaign to control the infestation in Pleasant Lake and nearby Lily Brook was mounted. Large patches of milfoil were deprived of sunlight with the use of weighted mats called benthic barriers; individual plants were carefully removed by hand.

Years of hard, painstaking work and dogged determination have paid off at last: Pleasant Lake has been officially declared free of variable-leaf milfoil, and control efforts in Lily Brook seem to be edging close to a similar happy end. In the process, the volunteers taking part in this effort have added greatly to our knowledge of what works and what doesn't, and have helped to improve existing control methods and technology. It was Mr. Tidd, for example, who invented the now popular, small-scale "clamshell" benthic barrier.

Only one other Maine waterbody, Great East Lake of Acton, Maine and Wakefield New Hampshire, has been officially removed from the state list of known infestations. In that case, a single, newly established variable milfoil plant was properly removed soon after it was detected by trained volunteers.

In both of these cases—Pleasant Lake and Great East Lake—VLMP trained Invasive Plant Patrollers played critical roles in the actions and events that eventually led to the delisting.

This year, only a handful of variable milfoil plants have been found in nearby Lily Brook (also in Casco), leading local project leaders to speculate that the brook may very well be among the next bodies of water to be removed from the ranks of infested lakes. Other infested Maine lakes that appear to be close to winning the battle against variable milfoil as the result of concerted volunteer action include Cushman Pond in Lovell and Middle Range Pond in Poland. So please stay tuned!

To learn more about how you can get involved in the volunteer effort to protect Maine Lakes from aquatic invaders, please visit these websites:

Maine Dept. of Environmental Protection
www.maine.gov/dep/blwq/topic/invasives

Maine Volunteer Lake Monitoring Program
www.MaineVolunteerLakeMonitors.org



Pleasant Lake & Parker Pond Association volunteers installing a benthic barrier to control invasive variable leaf milfoil.

CONFERENCE HIGHLIGHTS

PRESENTATION SLIDES AVAILABLE AT WWW.MAINEVOLUNTEERLAKEMONITORS.ORG/CONFERENCE



2008/2009 Moosehead IPP Jump Start ~ IPP Team of the Year Award
L to R (holding awards): Keith Williams, Bob & Sibyl French, Willis & Ellie White, Dennis Roberge, Elin Haugen, Ross & Bunny Wescott. Team members not present: Sally Breen, Gabriel Gunning, David Lamon and Mark Whiting



David Hodsdon (center)
35 Years of Service



Bart Hague on behalf of Five Kezar Ponds Watershed Association
Invasive Aquatic Plant Prevention Award



Barry Kudzen (right)
25 Years of Service



Lew Wetzel (center)
2010 Outstanding Volunteer Lake Monitor



Brackett Center Upgrades!

Many thanks to volunteer lake monitors Lew Wetzel (left) and Don Richardson (right) for restoring this classic out building at the Brackett Center. Lew and Don put in many days of hard, skilled labor to make the building ready for future volunteer training workshops.



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Lake Monitoring Program
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Volunteers—Please send in your data!

Please remember to send in your field sheets from the 2010 season ASAP!

- ➔ Water Quality Monitors to your Regional Coordinator
- ➔ Invasive Plant Patrollers to your Regional Coordinator or directly to the VLMP office

