

the Water Column



A Publication of Maine Volunteer Lake Monitoring Program

Vol. 13, No. 1

Provided free of charge to our monitors and affiliates

Summer 2008

VLMP's 2008 Lake Monitoring Conference

July 19 ~ Hallowell

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Join us for a discussion of how Maine lakes
have benefited from volunteer monitors.



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VLMP's 2008 Lake Monitoring Conference

*How have Maine lakes
benefited from 37 years
of volunteer monitoring?*

Maple Hill Inn, Hallowell

July 19, 2008

8:30 - 12:30

followed by lunch & re-certification
workshops for Secchi & DO monitors.

To Register

Send in the form on the back of this newsletter
or e-mail

vlmp@mainevlmp.org

or call the VLMP at

207-783-7733

Please Come & Share Your Experiences With Us at the Maine VLMP's 2008 Lake Monitoring Conference



Certified Water Quality Monitors and Certified Invasive Plant Patrollers who attend the Lake Monitoring Conference will be eligible to win this kayak and other prizes.

When Maine's VLMP was first established more than 35 years ago, program founders and the first volunteer monitors understood that there were at least two major goals of the program. The first was to train volunteers to collect credible water quality data that could be used for a wide range of purposes by the Maine Department of Environmental Protection and other state agencies, and by lake and watershed associations, town planners and other grassroots organizations committed to protecting Maine's lakes. However, an equally important goal was to establish a network of local, knowledgeable individuals in lake communities who could serve as lake experts, providing a strong basis for lake stewardship at the local level.

These two important goals remain the primary focus of the VLMP today. Our volunteer lake monitors now collect an increasingly broad and diverse array of lake data, including a number of indicators of water quality, information on a wide range of invasive aquatic species, and even watershed survey and assessment data.

But what becomes of all of the information collected by volunteer lake monitors? How has it been used in the past, and how will it be used in the future to benefit Maine's lakes? These questions will be explored in depth at the VLMP's Lake Monitoring Conference on July 19. We have asked representatives of the Maine DEP, Maine's Soil and Water Conservation Districts, Maine's only Watershed District, and the University of Maine Cooperative Extension to share their perspectives on the value of volunteer lake data.

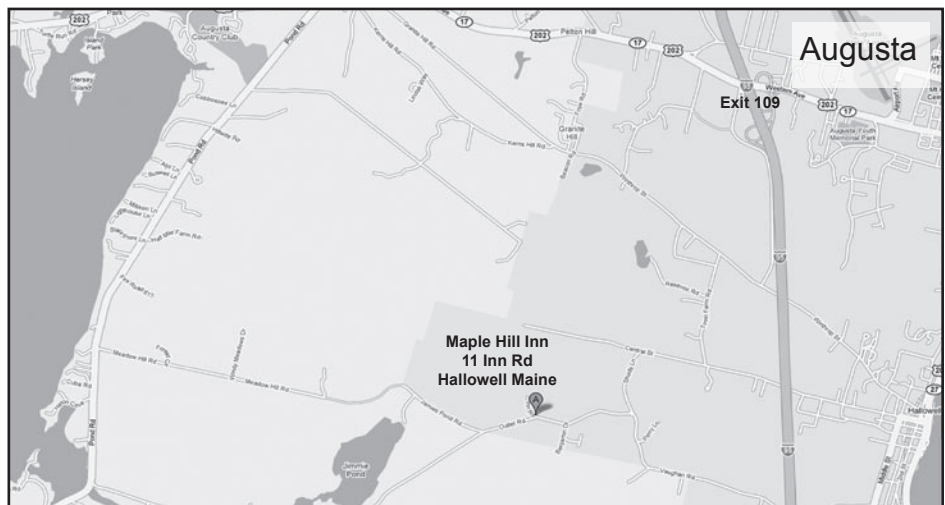
But we also want to hear from you! We know that many of you have used the data you've gathered for your lake, as well as the experience and knowledge you have gained as a volunteer, to benefit the lake(s) that you monitor. Please join us on July 19 at beautiful Maple Hill Farm, and share your stories with us. Volunteer monitors will have an opportunity to share their personal experiences with the group during the morning program.

Directions to VLMP's Lake Monitoring Conference

From I95 exit 109 (109A southbound): Stay in the left lane on the exit ramp for Route 202 West (toward Winthrop), then as soon as you get onto Route 202 West, scoot right over into the left turn lane and take a left turn onto Whitten Road (at the first traffic light only a few hundred feet from the end of the exit ramp). Then just watch carefully for our blue and white signs directing you through a series of turns during the next 4 miles to Maple Hill Farm Bed and Breakfast on the Inn Road (our driveway) off the Outlet Road in Hallowell.

www.maplebb.com ~ 1-800-622-2708

Please note: Do not confuse Maple Hill Inn in Hallowell with the address of the VLMP's Brackett Environmental Center at 24 Maple Hill Rd. in Auburn.



Lakeside Notes

Volunteers Fostering Lake Stewardship by Reducing their Carbon Footprint with the Secchi Simulator



Scott Williams
VLMP Executive Director

www.MaineVolunteerLakeMonitors.org/recertify

By now, most of you have probably seen and tried the VLMP's Secchi Simulator on our website. As of June 1, volunteer water quality monitors are able to use the Simulator to satisfy their recertification requirements and reduce the frequency of attending workshops in the field with VLMP and DEP staff.

For those of you who haven't yet seen, or tried the Simulator – please check it out! The concept and overall design for this online tool was developed by VLMP and Maine DEP staff. The actual construction wizardry of the site was done by a consulting group of University of Maine students who had never seen a Secchi disk before going out on the water with our staff during the summer of 2007.

The Secchi Simulator was designed to allow volunteers to fulfill their recertification requirements online, without having to travel to a workshop every three years. In order for that to happen, the Simulator needed to closely mimic the experience of taking an actual Secchi disk reading on a lake. We were pleasantly surprised,

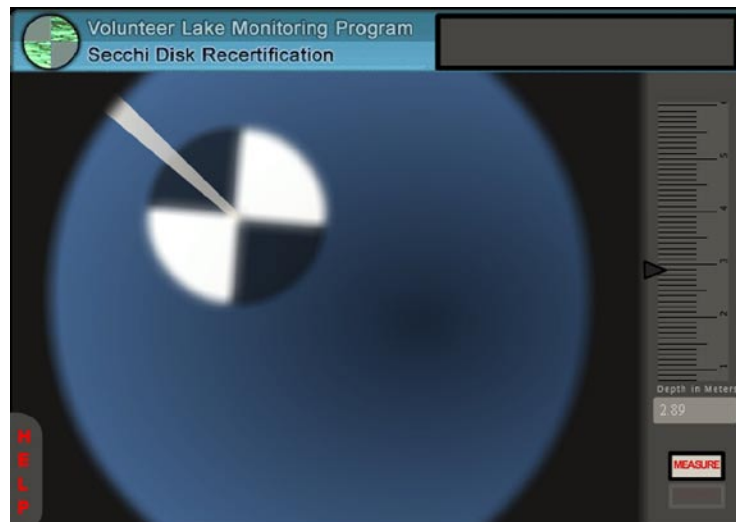
and frankly, amazed, as the product took shape over a period of nearly two years. The tool is more realistic than we had imagined possible with a computer generated program.

Volunteers log on to the Simulator site using their certification number and a password. They are then asked to

the keyboard. If the volunteer's reading is outside of the acceptable range of error, the Simulator prompts the user to try again (and cleverly changes the depth of the reading each time). All of this information is automatically recorded in our database. The Simulator received rave reviews at a recent New England conference of lake scientists. From what we can determine, the VLMP Simulator is the first of a kind.

Recertification is an essential component of the VLMP's Quality Assurance process, through which we are able to assure users that the data collected by volunteers are credible, and can be used with complete confidence for a wide range of purposes, including scientific research on lake ecology, lake and watershed stewardship practices, and

the development of state and local lake protection standards. Quality Assurance is an important part of any scientific process involving the collection of data, without which there would be much less confidence in the data for both collectors (in this case volunteer monitors) and users.



The Secchi Simulator enhances QA/QC and helps reduce travel for water quality monitor re-certification.

answer a series of multiple choice questions related to taking a Secchi disk reading. After passing the written test, the user chooses a lake type for taking the Secchi reading. Five lake types are offered, so that volunteers can choose conditions that most closely match the lake that they monitor. Lowering and raising the disk is controlled with



2006 Secchi Re-certification workshop at Pennesseewassee Lake

The requirement for volunteer recertification is written into a Quality Assurance Project Plan (QAPP) that the VLMP shares with the Maine DEP. This document contains very specific information about how volunteers are trained, how Secchi disk readings and other forms of lake data are obtained, how the information is recorded, and more. We are required by the EPA and other users of volunteer lake data to maintain this QAPP. Ours is in the process of being updated to include information about the use of the Secchi Simulator for volunteer recertification purposes.

Life is pretty hectic for all of us these days, and weekends during Maine's brief summer are universally coveted. With this in mind, the Secchi Simulator was developed to minimize the time commitment and dramatically reduce travel costs for volunteers who are due to be recertified to take Secchi transparency readings. This electronic innovation also saves money by reducing staff time. The Simulator is potentially a great awareness and public education tool, as well. Anyone can try it, and for those who might not have a clear understanding of how water clarity relates to lake conditions, using the Simulator may help to bridge that gap.

Experiences with hundreds of volunteer lake monitors at workshops through the years have shown us that the recertification process is not only necessary from a quality assurance standpoint, but is viewed by monitors and staff as a valuable opportunity to discuss questions, ideas, recommendations (theirs and ours) on a wide range of topics relating to lake ecology and stewardship and watershed management. Questions and discussion initiated by one volunteer often strike resonant chords with others, all of which leads to better informed lake monitors (and staff!). The Simulator won't replace these valuable in-person workshops, nor is it intended to do so.

The opportunity for face to face meetings between staff and volunteers will continue at workshops for all new lake monitors, as well as for recertification purposes, because regardless of how realistic the Simulator may be, there is no substitute for the real experience. For those who

monitor dissolved oxygen and some additional indicators of lake quality, annual recertifications continue to be necessary. Equipment will still have to be checked (often maintained or repaired), proper meter operation verified and sample collection procedures reviewed. And even for volunteer monitors who choose to use the Secchi Simulator, there will still be a requirement to attend a workshop with VLMP and DEP staff in the field at least once every five years.

We recognized from the start that the Secchi Simulator would save fuel for both volunteers and staff. Of course, that was before gas prices reached the record levels of recent months. This dramatic course of events has made the tool even more valuable! That's where lake stewardship fits into the picture, because by significantly reducing the amount of fuel used in traveling to and from workshops, we are all reducing our carbon footprint. In this small way we are helping to minimize the potential negative influence of global climate change on our lakes and ponds, while continuing to maintain necessary standards to ensure the quality of volunteer lake data.



2008 Re-certification workshop at Mousam Lake
Photo by Skip Bartosch

Lakeshore Habitat Measures

Part III Statewide Protection Measures



By Maine DEP, Lakes Assessment Biologists Roy Bouchard (above) & Dave Halliwell (below)



This is the third and last installment of articles discussing littoral zones in Maine lakes: those mostly shallow, productive areas near shore on which so much of a lake's biology depends. We've looked at the littoral's biological importance and ways of evaluating the effects of human development on them. Much of what we know about the value of littoral zones comes from examining relatively undisturbed lake shores, like those found in the unorganized areas of northwest Maine. A take home message is that what happens along the lake shoreline is vitally important to how littoral areas function. This article explores Maine's existing rules and regulations (organized towns, primarily in south-central Maine) which were designed to protect these near-shore lake values.

There are many state or local regulations and programs that directly or indirectly affect lakes: we'll take a look at only a few of the most important ones. In the organized townships, town codes/ordinances and Maine DEP regulations both apply. Though there are some overlaps, they generally work in different ways and are administered differently.

In the unorganized areas, the Land Use Regulation Commission (LURC) permits activities and most building or disturbance of lakes and shores comes under their rules (for the most part, quite similar to existing Maine DEP standards). An important question is whether or not the relatively undisturbed and unique naturally occurring lake shores in the northwestern woodlands of Maine should receive a greater degree of protection, than what has been previously been afforded to lakes

in the organized areas to the south.

Many state rules apply only to "Great Ponds": lakes greater than 10 acres or man-made impoundments greater than 30 acres. Maine DEP's Natural Resources Protection Act (NRPA) regulates many activities in the very near shore, (usually within 75 feet) and in the lake itself. NRPA involves a permitting process through Maine DEP for construction activity, soil disturbance and/or vegetation removal within a 75-foot buffer. Disturbance of vegetation and soil in that buffer, such as might occur during the construction, shoreline alterations, and any disturbance below the normal high water line (vegetation removal, dredging etc.) are all covered. Certain types of routine activities, such as shoreline stabilization by rip-rap and limited removal of aquatic vegetation are allowed

by Permit by Rule (PBR)—which is essentially a notification process with relatively simple standards for compliance. More complicated activities, such as building a seawall, dredging a channel, or major shore alterations require a full permit and generally receive greater scrutiny by Maine DEP staff.



Cleared openings like this are prohibited within 100' of the shoreline through the MSZA.

photo by Rich Baker Maine DEP

Maine also has important habitat and water quality standards that apply to all Great Ponds as well as any natural pond, regardless of size. These standards are largely narrative in that they describe a goal for the quality of all Maine lakes, statewide. In essence, they require that water quality be stable or improving and that the habitat must be “natural”. Many of our lakes have been greatly altered (e.g., hundreds of lakes have dams), so “natural” in effect means that the essential biological and physical functions must remain intact. In order for that to be true, we have to limit the amount of changes that are imposed on a lake.

A number of the NRPA rules as well as state-mandated local ordinances were based in part on these requirements. In practice, alterations such as those permitted under NRPA can usually be carried out without major disruptions to the functioning of lake habitat - although the cumulative effect of many small, seemingly benign alterations is not fully understood. One important thing to remember is that even if small ponds aren't regulated under NRPA, they can't be extensively altered, especially the lake bottom and aquatic creatures inhabiting it, without possibly violating state water quality standards. When in doubt, always ask the staff at the regional Maine DEP office (see contact listing at end of article).

One of the primary tools for protecting shoreline, in the organized towns of south-central Maine, is the Mandatory Shoreland Zoning Act (MSZA), which governs many activities within 250 feet of the normal high water line of Great Ponds and some associated wetlands and within 75 feet of streams. First enacted in 1971, the MSZA is intended to protect water quality, limit erosion, conserve wildlife and vegetation, and preserve the natural beauty and biological integrity of shoreland

areas. All towns are required to enact at least the state's minimum standards for building, maintaining vegetation, and land alterations in this zone. Town ordinances may provide additional, more stringent regulations for lake shoreline protection, including those lakes of 10 acres or less.

The MSZA includes rules about structure setback (usually 100-foot), amount of shoreline frontage per dwelling, and the removal of riparian trees as well as many other standards. For example, within a 100-foot buffer no more than 40% of the volume of trees greater than 4-inches in diameter may be removed in any 10-year period and the clearing of trees and shrubs cannot result in less than a minimum specified stocking density. Shrubs and ground cover vegetation less than 3-feet high are not permitted to be removed within the 100-foot buffer. Openings in the forest canopy cannot exceed 250 square feet, and “view corridors” cannot be cleared. There's a lot more in Shoreland Zoning, which in many towns is one of the few regulations, besides Plumbing Code and Subdivision Ordinance, that

effectively controls land use and protects water quality.

So how does this all fit into protecting the vital functioning of lakes? Students of natural history know that the whole is often more than the sum of its parts: everything is interconnected. For example, adequately protecting shoreline vegetation provides critical travel paths for birds, mammals and insects as well as benefitting water quality. Research has shown the removal of a large portion of shoreline tree canopy results in a very different, and much poorer, species richness of songbirds. Those beautiful dragonflies that delight children and put on such wondrous aerial displays rely on near-shore structure (vegetation, rocks, woody snags) to successfully emerge and complete their life cycles.

One of the more intriguing and little understood parts of lake habitat is “coarse woody habitat” (CWH... floating and submerged trees, branches, twigs, etc.). CWH provides valuable cover for fish, habitat for insects, algae and microbes, and grazing surfaces for



photo by Rich Baker Maine DEP

Vegetated lake shorelines provide shade and coarse woody habitat for littoral zones and buffer them from polluted stormwater by slowing and filtering runoff.

snails, among many other natural functions. Research in Maine and other states has found that developed lakeshore sites have a lot less of this vital habitat when compared to undeveloped sites – and the habitat effects are felt not just at the disturbed sites, but at the whole lake scale. The most dramatic effects of development are seen at ‘grandfathered’ sites, which have already been stripped of trees and are not required to replant to the standards of the MSZA. While the MSZA has served to preserve significant riparian

and shoreline vegetation around developed lakes in Maine, not all shoreline owners are adhering to the vegetation regulations. Over time “creeping” vegetation removal can result in slowly worsening shoreline vegetation conditions, even when properties started out adhering to shoreline standards. Many lakeshore landowners simply do not know the rules, or the value of what they have, and thus do not care to comply.

In a system that evolved for over 10,000 years with all its parts intact, it’s no

wonder that the major changes humans have recently imposed are taking their toll on lake habitat. CWH is often one of the first things people remove from lakes, thinking that its just nuisance “litter”. However, research in Wisconsin shows us that woody debris in lakes is often very old. If all the woody material is removed, it will take centuries for it to be replaced....and then only if the lakeshore trees and shrubs are left relatively intact.

In addition to CWH, intact rock and cobble bottoms and aquatic plants provide important habitat for both fish and aquatic invertebrate organisms. There is a direct negative relationship between the density and body condition of forage fish (minnows, shiners, chubs, and dace) and shoreline disturbance. Simply stated, forage fish are more abundant, much larger, and healthier when their “cover” is left intact. The presence of aquatic plants, CWH, or boulders provides significant cover, enhancing the biological integrity of the lake littoral zone.

A “one-size-fits-all” approach is not necessarily the best solution for shoreline habitat protection throughout the state of Maine. However, much as we would like to tailor regulations to each individual lake, we are stuck with the practical necessity of uniform standards in order to make them workable. Maine lakes are recognized as having among the very best in habitat protection in the United States. We developed this protective attitude in the early 1970’s, prior to much of the research that has since proved we were



photo by Ryan Burton - Maine DEP

Fish are more abundant, much larger, and healthier when their “cover” is left intact.

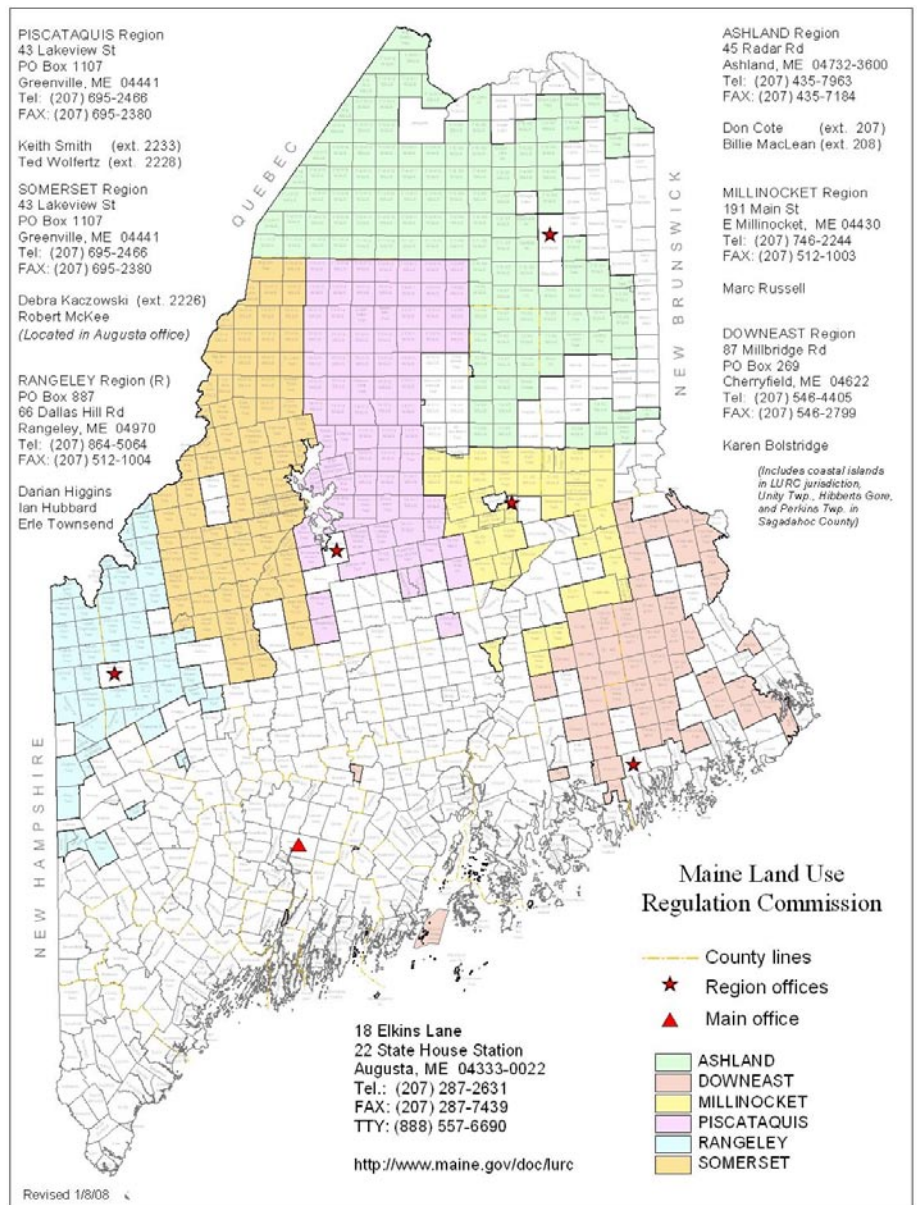
Listing of Maine DEP Contacts – Lake Shoreline Protection, Organized Towns

MSZA: Rich Baker (Augusta 287-7730) and Mike Morse (Portland 822-6328)

NRPA: Colin Clark (Augusta 287-3901); Jeff Kalinich (Portland 822-6300); Jim Beyer (Bangor 941-4570);
Eric Hitchcock (Presque Isle 764-0477)

onto a good thing. As imperfect as they are, without these standards our lakes would look like those to the more developed south, and we would all be poorer for it. Maine is still refining lake protection standards as we gain knowledge, and some of these ideas are incorporated in a new report to the legislature on ways to better protect our lakes in the organized towns of south-central Maine.

LURC is currently in the process of revising their comprehensive plan which considers changes to improve the protection of the biological integrity of undeveloped lake shores within its jurisdiction (see map at right). But there are limits to what regulations will do. We need to educate landowners and town officials about the rules, and also about the value of keeping shoreline areas intact, including the north Maine woodlands—that is the real challenge for the future.



Selected References

- Butler, R.G. and P.G. deMaynadier. 2008. *The significance of littoral and shoreline integrity to the conservation of lacustrine damselflies (Odonata)*. Journal of Insect Conservation 12:23-36.
- LURC: www.maine.gov/doc/lurc
- MSZA: www.maine.gov/dep/blwq/docstand/szpage.htm
- Maine NRPA: www.maine.gov/dep/blwq/docstand/nrpapage.htm
- Maine DEP. 2008. *An evaluation of ways to protect or improve lake water quality by addressing development impacts*. Maine DEP Lake Water Quality Report to the Maine Legislature www.maine.gov/dep/blwq/report/2008/lake_report.pdf
- Meyer, M., J. Woodford, S. Gillum, and T. Daulton. 1997. *Shoreland Zoning Regulations Do Not Adequately Protect Wildlife Habitat in Northern Wisconsin*. Final Report – USFWS State Partnership Grant P-1-W, Segment 17.
- Ness, Kirsten L. 2006. *The Effects of Shoreline Development on Lake Littoral and Riparian Habitats: Are Shoreline Protection Regulations Enough?* MSc. Thesis, University of Maine, Orono.
- Whittier, T.R., D.B. Halliwell, and S.G. Paulsen. 1997. *Cyprinid distributions in northeast USA lakes: evidence of regional-scale minnow biodiversity losses*. Canadian Journal of Fisheries and Aquatic Sciences 54:1593-1607.

Life Long

35 Years

Joe Emerson, Upper Narrows Pond

34 Years

Robert Susbury, Howard Pond

33 Years

David Hodsdon, Clary Lake

32 Years

Ralph Johnston, Highland Lake
Charles Turner, Panther Pond

31 Years

Charles McClead, Phillips Lake
Richard Offinger, Cathance Lake
Frank Perkins, Square & Wiley Ponds

30 Years

Thomas Dionis, Balch & Stump Ponds
Kenneth Holt, Bear Pond

20 Years

Dirk Brunner, Clark Cove Pond
Dana Hallowell, Madawaska Lake
John Schooley, Watson Pond

28 Years

John Wasileski, Kennebunk Pond
Stan Wood, Swan Lake

27 Years

Kenneth Forde, Stearns Pond
Charles Hodsdon, Great East Lake

26 Years

Bill Mann, Round Pond
William Reid, Wesserunsett Lake

25 Years

John Laskey, Tripp Pond
Donald Robertson, Long Lake
John Wilson, Hobbs Pond

15 Years

James Cook, Pitcher Pond
Ralph Jewett, Alamoosook Lake
Mark Mattson, Thomas Pond
Lee Sochasky, Mcadam Pond

Lake Monitors

10 Years

Steve Ames, Wilson Pond
Robert Boulette, Sabattus Pond
Scott Cianchette, Hammond & Hermon Ponds
Jeff Cole, Pleasant Pond
Bob Croce, Spencer Pond
Bob Francis, Parker Pond
Patty Hutchings, Echo Lake
Steve Kahl, Hopkins Pond
Tana McNutt, DrewsLake

Mertice Moore, Dutton, Sanborn & Sandy Ponds
Richard Moore, Dutton, Sanborn & Sandy Ponds
John Pucciarelli, Togus Pond
Don Rung, Keoka Lake
Dr. Eberhard Thiele, Black Lake
George Tranchemontagne, Sand Pond
Jackie Tranchemontagne, Sand Pond
Ann Wattles, Porter Lake
Ralph White, Silver Lake

5 Years

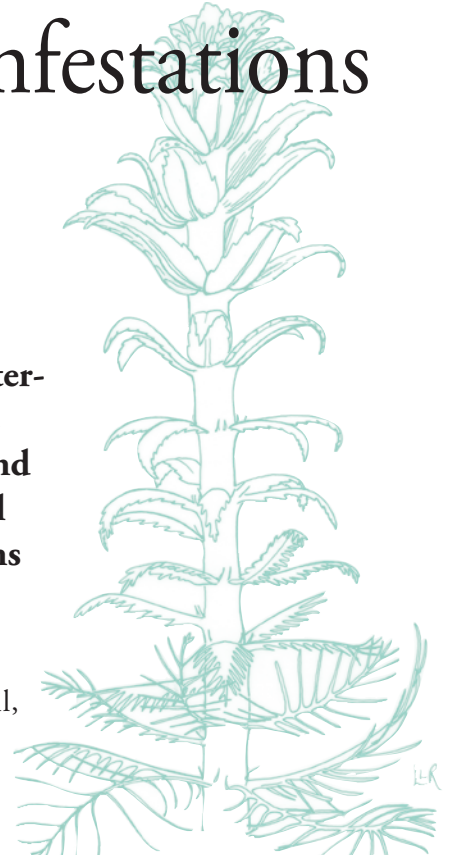
David Ackley, Ell Pong
Carol Bassett, Kimball Pond
Michael Bernstein, Great Pond
Mike Bouchard, Black Lake
Kendall Brann, Pease Pond
Emily Brodsky, Branch Lake
Alvena Buckingham, Alford Lake
Gary Bucklin, Notched Pond
John Burgess, Rangeley Lake
Michael Cannon, Leigh'S Mill Pond
Alan Charles, Great & Long Ponds
Harvey Chelsey, North & Little Ponds
Gail Clark, Pemaquid Pond
Gerry Clark, Pemaquid Pond
Diane Clay, Jimmy Pond
Mary Corr, Lower Togus Pond
Mark Courtenay, Nequasset Pond
Lainey Cross, Songo Pond
Janie Crowell, Craig Pond
Bruce Fenn, Great & Long Ponds
Tom Goodridge, Indian Pond
Fred Grant, Hatcase Pond
Bob Hall, Sebec Lake

Warren Keene, Webb Lake
Bob Kramer, Mooselookmeguntic Lake
Dana Little, Taylor Pond
George London, Carlton Bog & Long Lake
Philomena McPhee-Brown, Little Wilson Pond
Peter Melgard, Washington Pond
Dick Neal, Horn, Moose, & Loon Ponds
Patsy Nelson, Parmachenee Lake
Tom O'Rourke, Big Kennebago Lake
Lynda Palmer, Faulkner Lake
Candy Russell, Lower Wilson Pond
Maynard Russell, Lower Wilson Pond
Lonny Schneider, Indian Pond
Richard Schneider, Indian Pond
John Schultz, Great & Long Ponds
Ed Simmons, Beaver Mountain Lake
Rollie Stemland, Mooselookmeguntic Lake
Evan Stout, Threecornered Pond
Ozro Swett, Webb Lake
Susan Therrien-Fenn, Great & Long Ponds
Jim Tonolini, Indian Pond
Alden Wattles, Porter Lake

Researching the Ecological Impacts of Variable water-milfoil Infestations



By Jackey Bailey



How does variable water-milfoil impact Maine's aquatic ecosystems? And what are the ecological consequences of actions taken to control this plant?

The impacts of the spread of invasive aquatic plants are well known: habitat disturbance, loss of native plant diversity, reduced property values, impaired recreational activity, and enormous and ongoing control costs. A number of studies have documented the negative impacts caused by a particular invasive aquatic plant—for example hydrilla—upon a particular group within the native wildlife community—for example fish. However, very few of these studies have focused upon variable water-milfoil, the most common invasive aquatic plant in Maine. And among the sparse literature that has been published on this topic, little has been written on how the ecosystem as a whole (a profoundly complex and dynamic community of organisms, all intricately interconnected) is affected by this particular invader. Even less has been documented concerning how these same native communities are impacted by human activity designed to control the invading organism. Jackey Bailey's research will provide the important data needed to begin addressing this gap. And none too soon. As the number of variable milfoil infestations in Maine rise and the recreational and economic impacts begin to be felt, pressures increase upon communities to take swift, bold actions to eliminate the threatening invader. Jackey's research will help provide the data that is urgently needed to more competently assess potential risks and benefits of a proposed management plan.

~ Roberta Hill

Variable-leaf water-milfoil, (*Myriophyllum heterophyllum*) has become a species of great concern in the state of Maine. It is a known nuisance for water recreation.

However, its effect on the natural ecosystem of a lake, as evidenced by lake-fauna, is not documented in the literature. The question of whether variable-leaf water-milfoil changes the community dynamics of lake aquatic beds is unknown.

The most commonly implemented management techniques in Maine include manual removal, the placement of bottom barriers, and diver-assisted suction harvesting. All of these methods have the potential to spread numerous plant fragments which cause new growth, and in some cases there can be mortality of aquatic organisms and physical disruptions to the bottom sediments. Most of the research on invasive aquatic plants has focused on control techniques and their efficacy for management. However, understanding the effect of control methods on the aquatic ecosystem is an equally important, but less researched part of the management strategy.

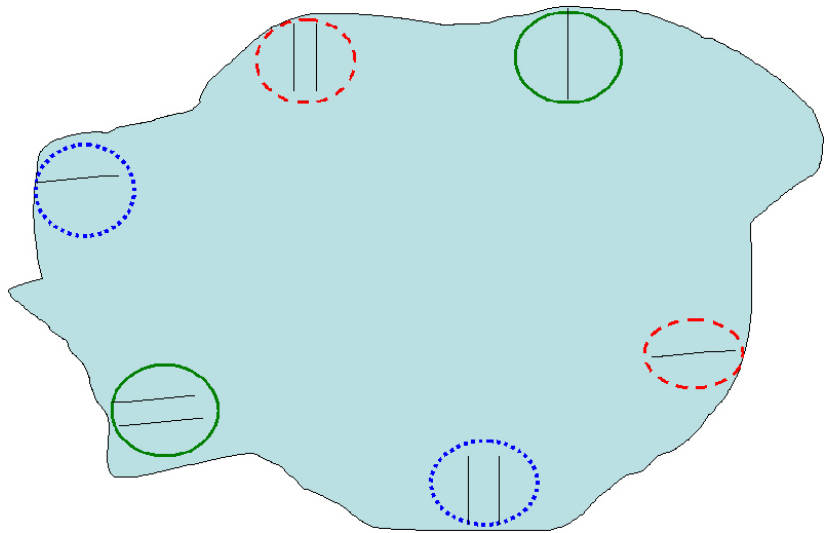
Objectives

The objectives of this proposed research are to:

- 1) document fish, amphibian and invertebrate communities in native aquatic plant beds, managed milfoil beds, and unmanaged milfoil beds,
- 2) measure the relative abundance and presence/absence for each of three taxa: fish, amphibians, and invertebrates,

- 3) measure plant community composition and structure in native aquatic plant beds, managed milfoil beds and unmanaged variable milfoil beds,
- 4) determine if there are differences in communities in native aquatic plant beds, managed milfoil beds, and unmanaged milfoil beds, and
- 5) determine potential differences in these communities among control techniques.

- - - Unmanaged
 — Native
 ••• Managed
 — Transect (30 meters)



Part of Jackey's study of the impacts of variable water-milfoil will involve setting up three experimental sites on infested lakes. Three distinct plant communities will be evaluated: unmanaged invasive milfoil beds, managed invasive milfoil beds, and native aquatic plant beds. Establishing transects through each site, Jackey will be recording and assessing the plants and animals that are found in those areas throughout the summer and fall.

Methods

The study will take place over three years and will involve three treatments (1) native aquatic plant beds, (2) managed variable-leaf water-milfoil beds, and (3) unmanaged variable-leaf water-milfoil beds. Each of the three treatments will be implemented in four variable-leaf water-milfoil infested lakes. For each treatment type there will be two beds in each lake: Bed1 will have one transect and Bed2 will have two transects (so that the characteristics of the bed can be studied). Transects will be 30 meters long with sample points taken every 5 meters. If there is low variability between sample points in year 1, the following years sampling will occur every 10 meters. Sampling of representatives of common taxa (invertebrates, fish, amphibians, and macrophytes) will occur throughout the spring, summer, and fall in order to ensure detection of seasonal species. A variety of sampling techniques will be used for each taxa to establish species diversity, evenness, and age class diversity during sampling:

- Invertebrates: kick and sweep, rock picking, minnow traps, and grab samples
- Fish: minnow traps, dip net, and observation
- Amphibians: dip net, visual encounters, egg mass counts, and call surveys
- Aquatic plants: square meter quadrant to estimate density, percent cover, and evidence of disease, predation and exuviae (the molted exoskeleton of an invertebrate)
- Additionally: primary productivity, water chemistry and substrate chemistry will be collected and measured and shoreline conditions/development will be noted for each site.

Information from this research will allow comparison of aquatic community composition in unmanaged infested plant beds, managed infested plant beds, and native aquatic plant beds in infested lakes. This data will help natural

resource managers and researchers in Maine and beyond better understand how variable water-milfoil and the associated management techniques affect the native plant and animal communities in infested lakes. It will also provide regional managers with the appropriate data for determining best management practices.

This research will be conducted in conjunction with the Maine Volunteer Lake Monitoring Program with funds from the Maine Department of Environmental Protection, as well as funds from the New Hampshire Department of Environmental Services and the University of Maine, Department of Wildlife Ecology.

Would you like to assist with this research?

If you are interested and available to help at one of the lakes listed below please contact Jackey at 783-7733 or jackey@mainevlmp.org.

Possible Test Lakes

The Basin, Auburn
 Collins Pond, Windham
 Hogan Pond, Oxford
 Little Sebago Lake, Gray
 North Gorham Pond, Windham
 Thompson Lake, Poland

2008 Invasive Plant Patrol Workshops

Introductory Invasive Plant Patrol

The primary goal of this comprehensive, 5 ½ -hour workshop is to provide those who wish to join Maine's "early detection" effort with information and guidance needed to get started. All IPP training sessions are open to the public and FREE to anyone interested in learning more about the threat of invasive aquatic plants in Maine. All workshop participants receive an "Invasive Plant Patroller's Handbook," and *Maine's Field Guide to Invasive Aquatic Plants*.

The workshop is presented in four parts:

- 1) Overview of invasive species issues in Maine and beyond
- 2) Plant identification fundamentals
- 3) Plant identification hands-on exercise with live plants
- 4) Conducting a screening survey, tools and techniques

Date	Time	Location, Town	County
June 24	2 – 7:30 PM	Scout Hall, Wiscasset	Lincoln
June 26	3 – 8:30 PM	Fryeburg Fairgrounds, Fryeburg	Oxford
July 2	3 – 8:30 PM	Hartford Town Hall, Hartford	Oxford
July 8	2 – 7:30 PM	City Hall, Ellsworth	Hancock
July 10	3 – 8:30 PM	Hartland Town Offices, Hartland	Somerset
July 16	3:30 - 9PM	Central Fire Station, Casco	Cumberland
July 22	3 – 8:30 PM	Kiwanis Hall, Standish	Cumberland
July 30	2 – 7:30 PM	Town Office, Portage	Aroostook
July 31	9AM – 2:30 PM	Lodge at Birch Point Camp, Island Falls	Aroostook
August 6	3 – 8:30 PM	Greenville School, Greenville	Piscataquis

Advanced Invasive Plant Patrol

Survey Field Methods

This workshop is for those who have already attended the basic IPP training and would like some guided field experience before setting off to conduct an invasive plant screening survey. Bring your own shallow draft boat or contact VLMP to make alternative boating arrangements. Previous attendance of an Introductory IPP workshop is recommended but not required.

July 12, 8AM-Noon	Damariscotta Lake
August 2, 8AM-Noon	Gardiner/Richmond <i>This workshop will be conducted on an infested waterbody. Invasive aquatic plant monitoring and mapping will also be covered.</i>
August 9, 8AM-Noon	Moosehead Lake
August 23, 8AM-Noon	Penobscot River

Advanced Plant ID

Two workshops are offered, each focusing on a different aspect of aquatic plant life and the identification of different plant groups (primarily native plants). Hone your identification skills with live specimens. Bring plants from your favorite lake, pond or stream to identify and share with others. Previous exposure to plant identification (e.g., attending an Introductory IPP workshop) is helpful, but not required.

August TBA	TBA, York County
August 19, 1–5PM	Ellsworth

To register for any of the Invasive Plant Patrol workshops please contact the VLMP at 207-783-7733 or vlmp@mainevlmp.org

The Moosehead Lake Volunteer Monitoring Initiative is Off and Running!



As many of you know, the VLMP Center for Invasive Aquatic Plants recently received a major grant from The Betterment Fund to launch an exciting project in the Moosehead Lake region. The primary goals of the Moosehead Lake Volunteer Monitoring Initiative include:

- Laying the foundation for an ongoing, volunteer-based, invasive aquatic plant prevention and early detection program in the Moosehead Lake region
- Engaging trained volunteers in the largest invasive aquatic plant screening survey ever attempted in Maine
- Screening the entire littoral area of Moosehead Lake for the presence of invasive aquatic plants over the next two field seasons

In the process, volunteers will establish important baseline information on Moosehead Lake's native aquatic plant communities. Additional objectives for this project include establishing a team of volunteer water quality monitors on the lake, and developing a Courtesy Boat Inspection program in the region.

The response to the initial public announcement of this project was overwhelmingly positive, and VLMP staff have been busy communicating with folks in the Moosehead Region and making preparations for the 2008 field

season. Please mark your calendars and join us for one or more of the following project events:

Wednesday August 6 ~ Introductory Invasive Plant Patrol Workshop, 3:00 - 8:30 PM, Louis Oaks Multi-Purpose Room, Greenville School

Saturday August 9 ~ Conducting an Invasive Aquatic Plant Screening Survey Workshop (on-lake instruction and practice), 8AM - Noon, Location TBA, Moosehead Lake

Sunday August 10 ~ Moosehead Lake IAP Screening Survey Orientation and Kick-Off, 9AM - 3PM, Location TBA, Moosehead Lake

August 11 through September ~ survey teams will conduct surveys in their assigned sectors (on the water one to three days)

August 9 through August 16
Moosehead Lake Survey Week ~ Free lodging will be available for a limited number of plant patrolers "from away" on a first-come-first-serve basis. Please contact us if you wish to reserve a bed for one or more days during the week of 8/9 to 8/16. (Please note: accommodations are very nice but definitely bunk-house style.)

Moosehead Initiative Advisory Team meetings ~ TBA

Pre-registration is requested for all of these events. Please contact us at

mciap@mainevlmp.org or 783-7733 for more detailed information and/or to register.

There are still many logistics to work out for the 2008 screening survey. We invite you to participate in the planning process as part of the project's advisory team. We are seeking help on a number of fronts, and if you can contribute any of the following, we especially hope you will consider joining the advisory team:

- Ideas and recommendations for building local interest and involvement in this project and conducting outreach to the various conservation groups, hunting and fishing clubs, camp owners, etc. in the Moosehead Lake region
- Intimate knowledge of Moosehead Lake including navigational experience on the lake
- Screening survey and/or botany expertise and a willingness to lead a team of novice volunteers
- The boat, equipment and wherewithal to help shuttle teams of volunteers and their small watercraft to remote survey sites

The advisory team will meet in Auburn at least once, and will also meet in the Greenville area, but most of the interaction will likely take place via email, so please consider joining the team, even if you cannot attend the actual meetings.

Passings

Patty Gagnon Silvia

Written by Shelby Rousseau



Born and brought up in the region, Patty was a Rangeley resident and part-time teacher at the Rangeley Lakes Regional School. She was an avid outdoor enthusiast who fished and recreated throughout the entire western Maine region. As a dedicated volunteer to the Maine Department of Inland Fisheries and Wildlife, Rangeley Lakes Heritage Trust, Rangeley Region Guides and Sportsmen's Association and Trout Unlimited, and the Volunteer Lake Monitoring Program, she served in a several capacities from regional steward, board member, advisory council, water quality monitor and more. In 2002, she was titled the Ladie's Maine State Sporting Clays Champion. In her spare time she enjoyed flytying and sharing her experiences with others.

William A. "Bill" Holman

Excerpts from a tribute to Bill Holman given by Wendy Dennis at the May 13, 2008 Cobbossee Watershed District annual budget meeting.

Bill was a very dedicated and much appreciated volunteer for Cobbossee Watershed District and the Torsey Pond

Association, and, he was our friend. Three of his many volunteer activities were directly related to the lake. Bill was Harbormaster of Torsey Pond, which is a rather unique position, as not many lake associations in this area have a harbormaster. As harbormaster he was responsible for placing the wake speed buoys in the lake and educating boaters on proper behavior. Bill was also a water quality volunteer monitor for CWD. Like other volunteers for CWD and the Maine VLMP, he went out in his boat and measured water clarity with a Secchi disk. CWD monitors water quality too, and with Bill's additional data, we have had a very good picture of Torsey Pond's water quality for many years. Thirdly, Bill was keeper of the Torsey Pond Dam, and it's through that volunteer job that we had the most interaction and how I best got to know him.

Bill was a really busy person, but somehow was never too busy to do the damkeeper's job. He made more than 1000 trips to the dam to measure the lake water level. He was responsible for putting boards in and taking boards out of the dam, which was not always easy. It's not like turning a wheel to open a gate. He would have to attach a come-along to the boards to pull them out, and sometimes had to balance dangerously on a beam across the water, something that he insisted no one else should do because it was too dangerous. He was always fiddling around with the system, trying to fine-tune it. He would put chocks, small blocks of wood, between the boards when water wasn't going over the top in order to keep water flowing into the stream below. When the boards leaked too much he jammed a piece of plywood behind some of them – something that took a lot of work and he told me no one was ever going to be able to get out. He created a "keeper" board, a short board to add to the top of the dam in summer – I don't know if he called it that because he was the dam "keeper",

or if it was to keep 'er full – but the idea was to maximize water in summer. Now this meant more work for Bill because if it rained in summer he would have to go take the extra board out, then a few days later go put it back in, and repeat this several times during the season. But Bill wasn't afraid of more work – he was a worker. He was in charge of dam repair projects. He coordinated a major dam repair projects which required a bit of contracting, but most repairs he saw as do-it-yourself project, which he viewed as do-it-himself. One other task was to determine when the lake froze over or when ice went out. He didn't just do this from looking out the window of his house; he drove all the camproads he could get down so he could accurately say that "yesterday the ice was completely out of the south end, and today all out of the north end". That isn't necessarily a normal part of a damkeeper's job- it's something extra he did for me. Doing extra was Bill's way.

Bill developed the habit of stopping by my office to report on Torsey Pond, and he became my #1 visitor. I loved his dry sense of humor. I enjoyed his stories about the dam and the lake, and I really liked his stories that had nothing to do with the dam and showed me another side of Bill. We laughed together. We complained together. He was the most good-natured complainer. He would describe something that was "not right", and then he would give me a prolonged shrug and chuckle. Or, he would relay an idea that he thought was offbeat, then say emphatically "I don't think so" and we'd laugh. Bill had a really good attitude. The last phone conversation we had was when he was in the hospital, and he ended by saying to me "you made my day". There were many times when Bill Holman's visits "made my day" at work. I will miss him.

Maine VLMP Launches Initiative to Monitor “At Risk Lakes”

Beginning this summer, the VLMP is seeking to train volunteers to monitor “at risk” lakes in Maine that are *not currently being monitored*.

This undertaking will entail the recruitment of volunteers to monitor lakes that are considered to be vulnerable to a decline in water quality, or to an infestation by an aquatic invader, including those lakes that are currently in decline, and/or are infested. This focused approach is intended to put trained volunteers on some of Maine’s most sensitive and vulnerable bodies of water.

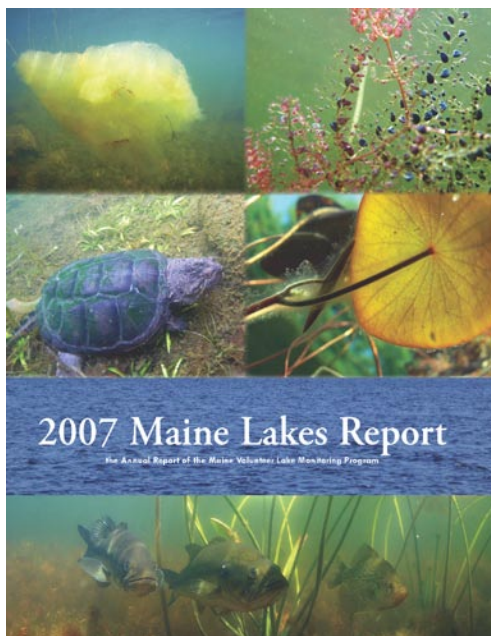
The Maine DEP’s Stormwater Management Law identifies lakes that are “most at risk from new development”. The VLMP has identified about 100 lakes on the list that are not currently being monitored. The criteria for determining the “at risk” designation can be found in Chapter 502 of

the Stormwater Law at: <http://mainegov-images.inform.org/dep/blwq/rules/stormwater/2006/ch502.pdf>

We will solicit volunteers to monitor target lakes by contacting lake and watershed associations, conservation commissions, planning boards, Soil and Water Conservation Districts and other local and regional entities that are likely to be in touch with individuals who might be interested in monitoring a local lake.

Of course, we will also continue to train volunteers to monitor lakes that have not been designated as particularly vulnerable, because in one sense, all of Maine’s lakes are sensitive and at risk from a number of threats, including watershed development, aquatic invaders and riparian habitat loss, to name a few.

2007 Maine Lakes Report Now Available



The Maine Volunteer Lake Monitoring Program (VLMP) has released the *2007 VLMP Maine Lakes Report*. Produced by the Maine Volunteer Lake Monitoring Program with support from the Maine Department of Environmental Protection, the *VLMP Maine Lakes Report* is the most comprehensive statewide annual document summarizing water quality data and invasive aquatic plant screening surveys for several hundred lakes in Maine. The report includes summary information about what is known about lakes and ponds throughout Maine, including how lake systems function, how they are monitored, and how they are assessed.

Highlights of the *2007 VLMP Maine Lakes Report* include:

- Water quality summary data for more than 400 Maine lakes
- Invasive aquatic plant screening survey data for more than 350 Maine lakes
- Information regarding training options for volunteer monitors
- An overview of how lake systems function

If you have any questions about this publication, would like to learn more about a lake near you, or to receive a free copy, please contact VLMP at (207) 783-7733 or vlmp@mainevlmp.org. The report is also available online at: www.mainevolunteerlakemonitors.org/VLMP2007MaineLakesReport.pdf

Brackett Environmental Center News

Maine's Lake Campus and Volunteer Training Center

Each year, the VLMP hosts several hundred people at the Brackett Environmental Center from all over the state of Maine for trainings, workshops, speakers series and meetings. In order to keep up with the growth of the program, we've established goals for Center improvements, which include:

- 1) making building capacity upgrades, in order to train more volunteers
- 2) establishing a training laboratory, and improving workshop facilities for technical presentations
- 3) demonstrating lake conservation practices

Thanks to a generous contribution from Nestle Waters, Inc., many exciting improvements are underway! This spring, new garage doors were installed, and a building electrical system upgrade is on its way. A new sign will be posted shortly for the Brackett Center (no more will people get lost after passing our driveway), and we will be upgrading audio-visual equipment for technical and outreach workshops. We will have an Open House honoring the contribution of Nestle Waters, Inc. this fall. Thanks again to Nestle! More event details to come.

Additional Bracket Center News

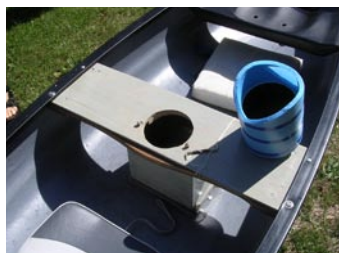
The VLMP Building & Maintenance Committee, working closely with the Auburn Water District, applied a new coat of paint to the buildings last fall. And, the Committee will soon be implementing energy conservation upgrades to the Brackett Center, as well as lake-friendly conservation practices on the grounds of the Center.

We are also constantly challenging ourselves to decrease our own impact on the environment by looking at the combined environmental impact of running the VLMP office. Currently, we use:

- e-mail and web-based resources when possible
- recycled paper
- real tableware at workshops
- and bio-heating fuel.

We still have many opportunities to increase efficiency and lessen our consumption and waste. The challenge we have made among ourselves for this summer is to be zero waste by fall. All of our garbage will be eliminated by reusing, recycling, and composting (and not purchasing anything that can not be reused, recycled, or composted). If any of our readers have achieved zero waste at home or work we would appreciate any suggestions or anecdotes.

Build a View Canoe



Instructions on how to build a view scope into your canoe for conducting plant surveys can now be found on the VLMP website. Thanks to George Lewis, Certified Invasive Plant Patroller, from Branch Lake for sharing his design for the View Canoe.

View Canoe Instructions: www.MaineVolunteerLakeMonitors.org/publications/ViewCanoe.pdf

New VLMP Staff

Kelly Stewart just finished her junior year at Mills College in Oakland California, where she is majoring in Environmental Studies. Last fall she spent three months studying renewable energy and sustainable living in Solheimar, Iceland. She has volunteered extensively throughout Central and South America at hospitals for the uninsured, cloud forest reserves, organic farms and within many rural communities. Kelly has been a member of the Mills College swim team since her freshmen year and is currently training for Nationals.



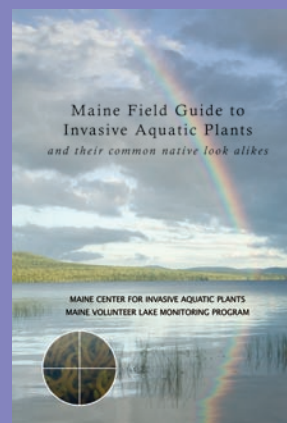
Anna Snow is a Summer Intern with the Maine Volunteer Lake Monitors Program. She divides her time between the VLMP office and the office at the DEP in Augusta. She has been working on various projects including collecting water quality data, and the monitoring online plant shops, that could potentially sell invasive aquatic plant species to Maine residents. Anna is a fourth year student at the University of Maine, majoring in Ecology and Environmental Science with a concentration in Water and Soil Sciences. In the Fall she plans to spend a semester studying in Costa Rica.

Maine Field Guide to Invasive Aquatic Plants Price to Increase on July 20

Due to rising costs, the *Maine Field Guide to Invasive Aquatic Plants* will be increasing in price from \$13.00 to \$19.95, with shipping costs increasing slightly as well.

We'd like to give you a last chance for ordering the Field Guide at its current price from now until July 20th.

We will also have copies available for purchase at the VLMP's Brackett Environmental Center in Auburn and the VLMP Lake Monitoring Conference on July 19th, where you can save on shipping and handling.



For online orders go to:
www.MaineVolunteerLakeMonitors.org/publications/FieldGuide



Maine Volunteer
 Lake Monitoring Program
 24 Maple Hill Rd
 Auburn, Maine 04210

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Sign me up for the 2008 VLMP Conference

July 19, 2008 ~ Maple Hill Farm Inn, Hallowell

Name(s)	Lake/Organization	Cost— Free to Certified Volunteers \$36 all others (lunch included)
_____	_____	_____
_____	_____	_____
_____	_____	_____

Total Enclosed _____

I would like to carpool. I am coming from (town) _____

Please share my contact info with others who are interested.



Phone _____

E-mail _____