



# THE FRIENDS OF LAKE WARNER AND THE MILL RIVER

## NEWSLETTER

FALL / WINTER 2015

### From The Chairman

We've had a pretty amazing year and I am thankful for it.

I'll mention five highlights: the raising of the funds necessary to restore the dam, the appointment of Jason Johnson as our Executive Director, the IRS approval of our 501c3 non-profit corporate designation, the robust invasive weed removal effort, and the launch of our lake mapping and water testing program. Any one of these five successes would have made for a good year.

We would be remiss if we did not offer thanks to the many people who made these past months so successful for the Friends and the pond. I'll begin with the Kestrel Land Trust folks who have been so very patient - working with the Town of Hadley and the folks who care about the pond. With dozens of competing projects on her desk Kestrel's Executive Director Kristin DeBoer has put the pieces together to avoid removing the dam. We are confident Kristin and her board will continue to support preservation and conservation of our amazing little lake.

We thank the people of Hadley who came out to let Kestrel know they care about keeping the pond and voted to appropriate over \$100,000 of Community Preservation Act money to saving the lake. We thank the individual donors who contributed to the matching funds that leveraged town and state funding. We thank the volunteers who are working with our Board of Directors and Project Managers - raising awareness, cleaning the pond, and laying groundwork for future stewardship. They are our 'boots-on-the-ground' heroes. Going door to door in the pond neighborhood, cooking burgers and dogs at our outdoor gatherings, pulling invasive weeds all day, laser-mapping the lake, conducting water quality testing, chasing grant money and fund-raising are all tasks worthy of praise and thanks.

Over the coming months we will be doubling our efforts to raise awareness and raise funds to support the long term survival and health of the pond. Please join us. We need strong public support and participation to make this happen. We'd like to stay in touch through email or in person. Again, thank you one and all. Keep paddling!

*David Moskin*

### Dam Repair On Schedule for 2016

*by Kristin DeBoer, Executive Director, Kestrel Land Trust*

Plans to repair the dam at Lake Warner are moving forward! The engineer has substantially completed the repair design. Environmental and work permits from the town and state will be sought over the winter. An RFP for construction bids is expected to be ready by March 2016. Construction is planned to begin in July 2016.

Thanks to the persistent support of Representative John Scibak, and Senate President Stanley Rosenberg, state funding of \$125,000 for the restoration of this historic structure has been approved in the state budget. This along with \$100,000 Hadley CPA money approved by town meeting, \$75,000 raised by Friends of Lake Warner and Kestrel Land Trust from individuals, and \$75,000 committed by Kestrel Land Trust is intended to cover current estimated repair costs as well as an endowment for future maintenance. Final costs will be determined after all the repair work is complete.

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### UPCOMING EVENTS

#### Concert

**December 10th, 730pm**

World renowned Jazz Vocalist and local resident Karrin Allyson is giving a performance to help support the Friends of Lake Warner and the Mill River. The concert will be held at the Wesley United Methodist Church, 98 North Maple Street Hadley, MA. Tickets may be purchased online at [BrownPapertickets.com](http://BrownPapertickets.com) or at the door prior to the event.

#### Christmas Tree Lighting Sunday, Nov. 22 , 4:00pm

The 4th annual tree lighting party will take place on the bridge near Hahn Park, corner of Rt. 47 and Mt. Warner Rd. Made Possible by: North Hadley Market Free Donuts and Hot Cider! A Great Family Event!

**Please attend a FoLW meeting. The first Tuesday of each month at the North Hadley Congregational Church: 6:00pm. You'll be glad you did!**



Hawkes at his favorite spot, North Hadley Pond around 1940

## Clarence Hawkes: The blind poet of Hadley

The once-prominent author of nearly 60 books of poetry and prose, naturalist Clarence Hawkes (1869-1954) survived rural poverty, lost half a leg at age nine and was blinded at thirteen. Writing with uncanny accuracy and empathy about people and a natural world he could not see, Clarence Hawkes lived most of his life in western Massachusetts, and was known nationally as the "Blind Poet of Hadley."

### At Natures Feet

I love to be a child at Nature's feet,  
And on her mossy footstool sit and dream,  
Awhile the wild wind and the mountain stream  
Delight my ears with music wondrous sweet.

### My Aviary

My aviary is the deep green wood,  
I would not cage its songsters if I could;  
Sweeter the song of one wild bird to me  
Than all the notes of sad captivity.

*From: Pebbles & Shells 1895*

## Calendar Game a Big Success

The first Friends of Lake Warner calendar game was an unqualified success raising almost \$800 for the group. 64 cards were sold and 35 prizes given away to our supporters. Next years calendar game could be even bigger, so look for it next summer. Special thanks to the following:

Dicks Sporting Goods; who supplied prizes at a 15% discount. Mount Warner Vineyards; Hampshire Bike Exchange and Valley Bike & Ski Werks who donated gift certificates. Also thanks to two FOLW board members: Gail Garrabrants and David Moskin for game management and prize acquisition.

A few of this years big winners were:

Pauline Keener, 4-person tent  
Abby Smith, over flight of the pond.  
Trevor Fil, kayak  
Joan Zaskey, inflatable boat  
Rich Kicza, 3-person tent



## Counting Nuts

"He who lives by the word, dies by the numbers."  
The Gospel According to Harvard Busy School.

You are hot, sunburned, wet, bug bitten and dirty. You've just spent the last three hours cramped into a kayak or canoe harvesting Water Chestnut (WC). You've hauled in three stinking, dripping, 40lb. bags of weed. Someone says: "Thank you, that's a lot of WC that won't grow next year." And you ask: "How much is a lot?" And no one can answer you. No one knows. Some of us have been asking questions like that. So we collected 300lb. of WC, weighed it, spread it out and counted.

We actually counted every nut we could find, accounted for nuts dropped before and during harvesting, counted every flower, bud, nut and bundle scar on the rosettes we had, did a little calculating and figured out that the twenty nuts per rosette reported in the literature is rather conservative. We found that each forty pound bag of wet, drained, harvested WC contains 150-160 rosettes. If each rosette can produce 20 or more nuts over it's lifespan then each 40lb. bag contains 3000-3200 potential nuts., 75-80/lb. The WC literature indicates that most nuts germinate within two years. Thanks to you, we removed 2220 lbs. from Lake Warner in 2015. This could have produced 9000+ nuts this year and 1,800,000+ nuts next year! Thank you!

A 7 page report of this research is available from  
pmaleady0786@charter.net



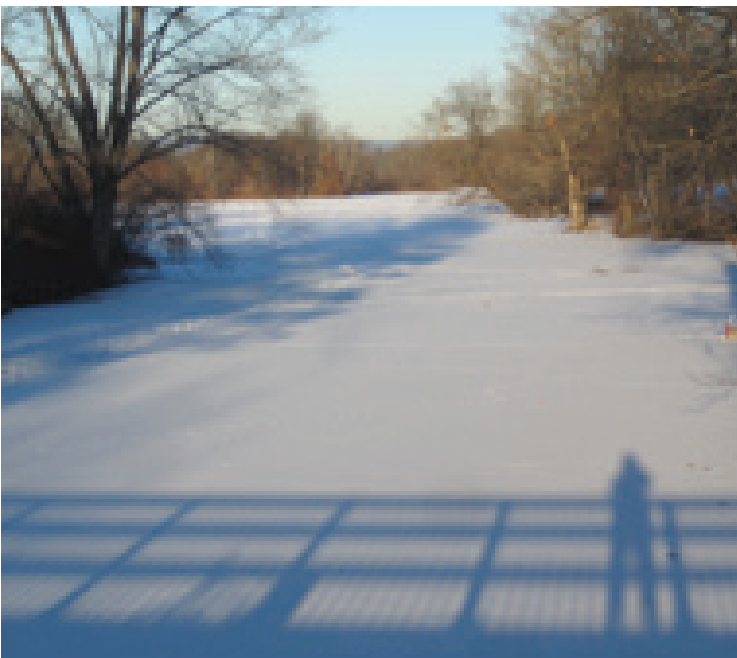


## Airboat Available for Research



**A friend of Lake Warner** is making an airboat available to us for research and lake management at no cost to the FoLW. This will allow us to operate year round in areas of the lake impossible to reach now. We will be able to work during possible future draw downs. It will carry a work crew of three to five.

Considerable effort is being spent to make this boat as quiet as possible, well below legal thresholds. It will be quieter than a lawnmower or your neighbour's Sunday morning leaf blower, or the trucks and motorcycles routinely operating on Rt47. This is a work boat, not a toy; responsible operation during restricted hours will play a large part in keeping potential noise within reasonable limits. However, once all the noise, legal and safety issues are resolved, we will give a few autumnal lake scouting tours.



## Lake Warner and Mill River 2015 Monitoring Results

In 2013 the Friends of Lake Warner and the Mill River obtained a small grant from the Community Preservation Act Fund to assess the lake. By utilizing the remaining funds from this grant and from donations from supporters, FOLW have been able to make a more thorough investigation of the chemical and biological parameters of lake health this year. Dissolved oxygen, temperature, phosphorus, Chlorophyll a, the nutrient content of sediments and plant tissue, and heavy metals have all been sampled this season in Lake Warner. Vegetation transects identifying plant species and water depth were also completed on more than half of the lake area, we will be able to complete this work next year, which will give us an updated map of the lake bottom, which was last mapped in 1952. Plant species composition and the water quality perimeters described above had not been taken throughout the lake since 2003/2004.

We established ten permanent transects of the lake. We identified plant species at 15M GPS located intervals along these transects. We measured depth, transparency and temperature at 50 points. We took further temperature, dissolved oxygen, transparency, total phosphorus, Chlorophyll a and E. coli bacteria measurements in Lake Warner between May and October, 2015. We ordered plant tissue

Date	Transparency Secchi Depth (meters)	Dissolved Oxygen (ppm)	Temperature Degrees Celcius
6/10/15	2.0	7.3	21.4
6/17/15		6.85	20.6
6/20/15	2.5	5.9	21.6
6/30/15	1.8		19.0
7/2/15		8.56	20.7
7/25/15	1.8	7.56	24.6
8/11/15		8.39	22.5
8/19/15	2.4	7.51	26.1
9/12/15	2.3	3.36	22.3
9/17/15		4.57	19.5
10/2/15		5.05	16.2

2015 Lake Warner Water Quality Monitoring Results  
(Oxygen and Temperature at 1 meter depth)

analysis of water chestnut. We took sediment samples from four locations. We have not measured all the plotted transect data points yet.

Temperature and dissolved oxygen are principal indicators of aquatic health. Aquatic animals have habitat preferences and lethal tolerances to temperature and all aquatic animals need dissolved oxygen to survive. Temperatures, taken in many locations, ranged from 18.6C to 23.2C at 2M to a maximum of 26.1C at the surface.

The state threshold for dissolved oxygen (D.O.) in lakes is 5 parts per million (ppm). In spring there are ample amounts of dissolved oxygen in the lake. But by mid-August D.O. levels at 2M in depth decrease dramatically as light is cut off to these regions by excessive plant growth. This drop in D.O. is also influenced during peak growth by excessive decomposing plant material. This is coupled with reduced oxygenated flow from tributaries. The very dry summer stressed the lake environment. There was no fish kill, so there must be areas of the lake where fish can find refuge. Groundwater flow may be helping maintain tolerable conditions.

Phosphorus is the limiting plant nutrient in lake ecosystems. Excessive amounts are a primary cause of eutrophication (nutrient enrichment). We measured Phosphorus levels at mid lake as well as upstream on the Mill River and other tributaries. Levels in the lake were very low, at times below levels of detection. Levels of Phosphorus were higher in the Mill River above the lake. The results are still be analyzed to determine potential sources. Analysis of the four sediment samples may give us an indication supporting prior studies assertions that phosphorus availability is coming from the sediments.

Transparency data was collected using a Secchi disc, a black and white quartered disc lowered into the water until it can no longer be observed. Transparency readings were

generally better than those from studies a decade ago, exceeding the state standard for swimming throughout the season. The lowest measurements of 1.8m were observed in late June through late July. The state standard is 2.0m, anything less is considered eutrophic. Observations of 2.4m were made in late August but by this time of year the majority of the lake surface was covered with floating vegetation or algae preventing light penetration and causing low D.O. readings.

Chlorophyll a are photosynthetic cells that are measured by filtering through a specific volume of water. Samples collected in early September were very low. We don't know why. There can be seasonal variability and water quality monitoring projects across the state are also getting below average values.

Bacteria samples were collected between June and September. E. coli bacteria comes from animal waste or leaking septic systems. There are state standards for levels involving primary contact like swimming and secondary contact like boating. The Mill River and Lake Warner have previously exhibited high levels of E.Coli.

We are pleased to report that the level of bacteria in the lake never exceeded the primary contact level. However, the Mill River above the lake nearly exceeded secondary contact levels in one sample. We need to find the source of these high bacteria levels.

This monitoring work is very important as we get closer to dam repair and can turn our focus on promoting and preserving lake health. The physical and biological understanding of the lake is going to enable us to recommend management strategies that will benefit fish, wildlife and improve recreational experiences. Look for further information and explanation in our State of the Lake Report which will be available this winter

Date	Phosphorus Lake Warner (ug/L)	Phosphorus Mill River (ug/L)	Chlorophyll a (ug/L)	E. Coli Lake Warner (MPN/100mL)	E. Coli Mill River (MPN/100mL)
6/17/15				178.5	488.4
7/2/15	15.2	No Detection		42.0	547.5
7/30/15				5.2	387.3
8/11/15		77.8			
8/20/15				45.0	Mill River Amherst, 12.0 Mill River Hadley, 17.2
8/22/15			2.1		
9/17/15				17.3	83.9

2015-Lake Warner and Mill River Nutrient and E.coli Bacteria Results



**Please donate to:**

The Friends of Lake Warner  
P.O. Box 11 Hadley, MA  
01035.

Or go to our website:  
<http://friendsoflakewarner.org/donate/>