

State of the Lakes Report 2011-12

July 7, 2012
(Minor Additions July 13, 2012)

To: Mountain Lakes District:
Commissioners, Planning Board, ZBA, Water and Recreation Committees,
Home and Lot Owners and Renters.

From: Tom Eighmy, Planning Board (tbeighmy@rcn.com)

The New Hampshire Volunteer Lake Assessment Program (VLAP)

The VLAP 2011 White Mountain Region Report has been received recently and is filed for use in the District Office. I encourage people to skim it both for a general overview and specific issues.

The 2012 VLAP sampling took place July 5. The selected date reflects water quality one day after a July 4 holiday marked by heavy beach use, toilet flushing, rainfall, hail and high runoff. This year care was taken in using GPS and a fathometer (depth measurer) to see that we were accurately sampling the deep spots and key inlet and outlet locations in each lake and would be able to return to these spots in 2013. Detailed Laboratory results of the 2012 testing will be available from DES in some months. The resultant 2012 final regional report will become available in about 10 months. Sara Steiner, the NH Coordinator VLAP and an intern conducted the sampling. (Don Drew had the boat prepared and I went along again to observe and haul the anchor.)

The 2011 Report represents a substantial improvement over previous years in that our two lakes and other lakes in the region are combined for easier comparison to each other and similar lakes on key measures of water quality.

APPENDIX B: BEST MANAGEMENT PRACTICES and RESOURCES for POLLUTION CONTROL is a 'must read' for Mountain lakes commissioners, board and committee members and residents from the point of view of public education ,awareness and action. My annotated copy is in the Office.

Six Sample Spots 2012 and Earlier

- 1] South (Inlet) Lake: Waterman Brook and nameless side stream. (shallow, muck, eutrophication)
- 2] “ “ “ Deep Spot (all indicators)
- 3] “ “ “ Beach (fecal matter E.coli- Goose, Human, Cow or Dog poop) *
- 4] North (Outlet) “ Beach (fecal matter E-Coli “ “ “ “ “ “) *
- * Previous tests have been trace, many times lower than beach closing level.
- 5] “ “ “ Deep Spot (all indicators)
- 6] “ “ “ Outflow (all indicators)

Major Indicators of Lake Quality

In the two key indicators of lake quality measured over 10 years, VLAP reports:

<u>Mountain Lake:</u>	<u>Chlorophyl-a</u>	<u>Surface Phosphorus</u>
South (Inlet)	Variable	Variable
North (Outlet)	Variable	Degrade

These are measures of nutrient levels which feed weed and algae growth.
Both lakes are above regional medians in both Chlorophyl-a and Phosphorus (not good).

Some of the problem may be related to the man made (dams) nature of our lakes versus the natural flow- through of most northern NH lakes. Nonetheless this is all the more reason to take active care of our lakes.

These indicators are summarized in my reports of the last two years which are also available in the office or from me by e-mail and this one will go on the web as well. (www.mountainlakesnh.gov) [COMPLETED]

Other Indicators

Transparency-- both lakes are below regional and NH medians (not good).

Deep Spot pH, Dissolved Oxygen at all levels, Deep Spot Conductivity and Chloride, and Turbidity (clarity) are also measured. Each of these has its own meaning for lake quality. The Mountain Lakes values are not presented individually in the 2011 Regional Report, but for previous years and once the laboratory reports are available for 2012, they can be compared to the regional and NH medians.

Invasive Species

In particular, I draw attention to the map of *Exotic Aquatic Plant Infestations in New Hampshire (page 9)*. Compared to the encroaching prevalence of *Rock Snot, Asian Milfoil and Poison Algae* in Southeast NH, the Connecticut River and Lakes Fairlee and Morey in Vermont, our own Haverhill Town shows only traces.

As noted in the previously prepared attachment to this report, we need to keep this stuff out of Mountain Lakes. As Don Drew said to me yesterday, some nearby towns did not pay attention and are now paying dearly in terms of lost water quality and incomplete and repeating clean up costs.

Muck.

VLAP does not test lake bottoms. However I have experienced the dense weed growth at Waterman Brook inlet and the knee deep sucking muck at the south end of South (Inlet) Lake during my 29 years at Mountain Lakes (and Beverly did the first lake quality baseline study in 1986 before VLAP came here.). It is evident that nutrient rich sediment runoff remains a long term issue. When I pulled up the mushroom anchor two days ago in North (Outlet) Lake, it was clean. When I pulled it up in South Lake it was overflowing with muck.

Weeds and General Water Quality.

This is very good news. There were no noxious invasive weeds observed in the 2011 Report. No noxious invasive weeds were visually apparent in the 2012 sampling, but definitive results await lab reports. The commonest weeds observed were native New Hampshire *floating pond weeds* and *emergent burr weeds*.

The early ice-out in 2012 means that the weed growing season started early. Weeds will be more common as we get into August.

Moderate weed growth improves water oxygen for fish but excessive weed growth impedes recreational use. Natural biologic decay and decay speeded by human activity (*cultural eutrophication*) depletes oxygen and causes unpleasant *stench* and general *water quality deterioration* for swimming, boating, fishing and ultimately drinking. Thus we keep close track of *Phosphorus* and *Chlorophyll-a* as indicators of any water quality degradation.

Summary.

General lake quality remains good, as it should be for a recreational and purely residential lake in northern New Hampshire. The visual beauty, enjoyable recreational use, property values, public health, our water supply and tax burden in the District require continued high lake quality. The *Covenants* and state approved *Zoning Ordinance* are available on the website. These cover *septic treatment, motorized recreational vehicle use, timbering, vegetative buffers* and *setbacks*. Good management practices include limited fertilizer use and no or low phosphate detergents. The information base and administrative framework for continuing good lake quality are now in place if all lake users are aware and abide by them.

Public Education, Information & Distribution and Attached Notice

This concluding section provides some simple steps for wider spread public education, information and distribution with specific reference to *invasive species*. (See also 2011 Regional Report Appendix B.)

Ideally this information should be available in every house and to all lake users.

1] Include in Annual Mt. Lakes Water Bills which reach every owner.

2] Include in Twice Annual Tax Billings to District owners.

(According to Haverhill Town Tax Office, this can be done by approval of Haverhill Selectmen and has been done before for other notices.).

3] Owners who rent their houses are strongly encouraged to educate renters about the problem.

Within the District Transparent Plastic Covered Copies Should be Posted;

4] At Snack Bar (absent, but the bleach solution itself is stored with the oars) with *Note that bleach washing fluid and brush are located inside or other available location*).

5] Elsewhere at the Office when the Snack Bar is closed,

6] At South Lake Canoe Rack (present) and North Lake Canoe Rack (absent) with *Notes that bleach washing fluid and brush are located in Snack Bar and other available location*).

7] Office Door (absent).

8] District Bulletin Board (present).

9] Beach Playhouse (present) and North and South Lake Refuse Containers (absent).

10] Swimming Pool (absent).

11] At the two secondary beaches where kayaks, canoes and flotation devices, which may have been used elsewhere, are being launched. (absent)

12] At the lodge where users may also be lake visitors. (absent).

13] Inform Life Guards of the problem so they may prevent launching of such devices in their presence.

14] At high use locations and times, position volunteers among the beach users to forestall accidental infestation. (Not presently used. Volunteering would rarely interfere with beach use—only polite intervention when likely boat launchings appear. This approach is used elsewhere in NH and I believe widely in MA where state regulations are more stringent. Informed volunteerism is a worthy substitute for complaints, inaction and future infestations. The continuation of VLAP depends upon volunteers at each sampled lake)``

15] Post this information prominently on the District Website (www.mountainlakesnh.gov.)

All Mountain Lakes owners, renters, visitors and building contractors should be aware of this website, and the need to “drill down” through the *Planning Board* and *ZBA* for key documents such as the *Wetlands Study* (2 copies), *Watershed Management Plan*, *Zoning Ordinance*, and *Building Information*. The current *2009 Mountain Lakes Master Plan* needs to be restored to the website. [COMPLETED]

16] Suggested by attendees at July 7 '12 Commissioners Meeting.

Organize a summer “Clean Lakes” day with kids. (For example, Lake Ecology talk. two person canoe or rowboat teams scour the lakeshores. Prizes : two points for beer and cola cans, one point for bait boxes, burger wrappers, plastic bags or other lake quality impediments.) [NOTE: Beverly and I cleaned the east side of South (Inlet) Lake in about 45 minutes. The west side and main inlet plus North (Outlet) Lake remain at this time.]

Cc: Don Drew, Maintenance,
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Sara Steiner, VLAP Coordinator, NH DES

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