



Storm Water Management Should be a Priority

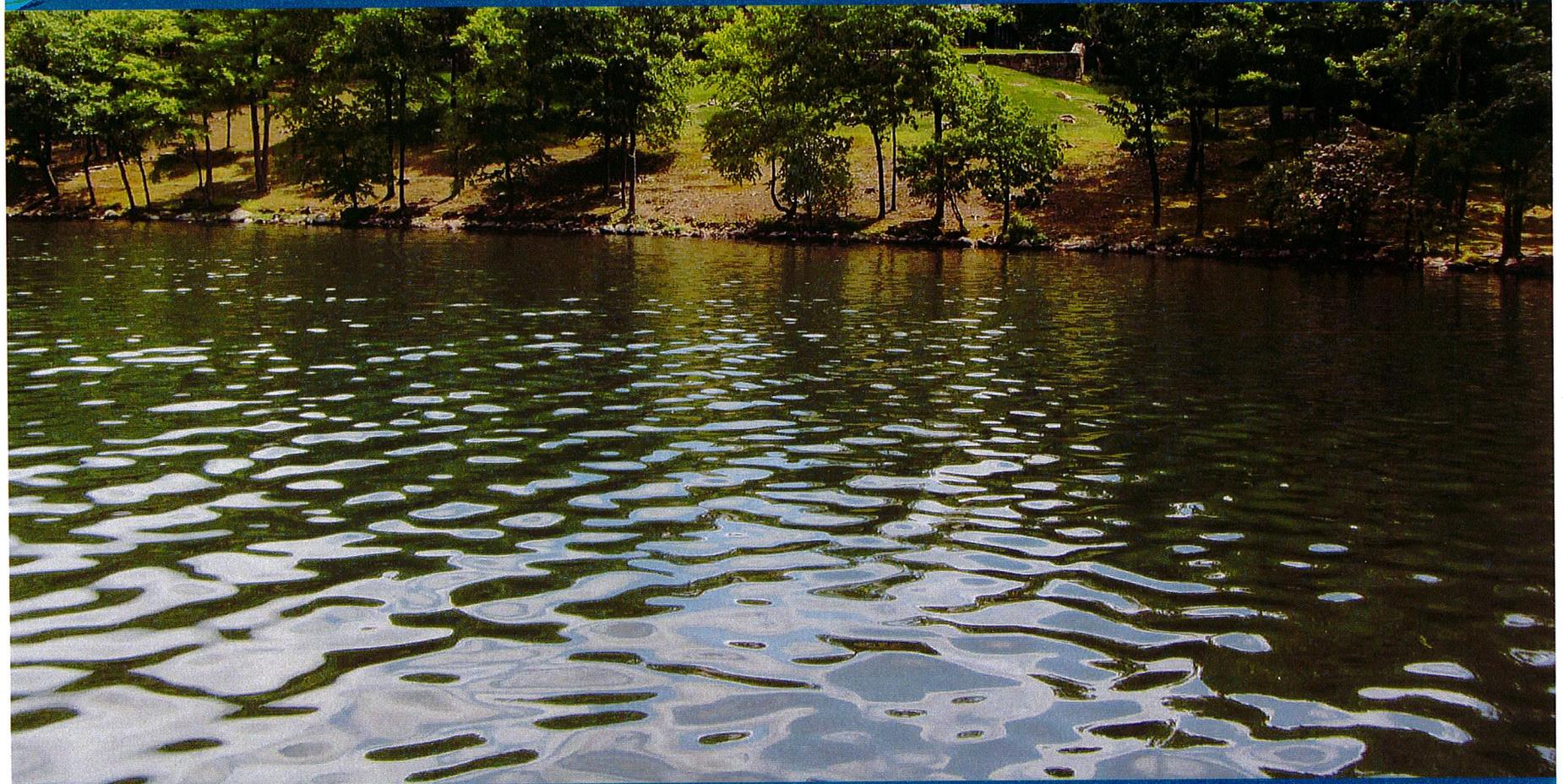




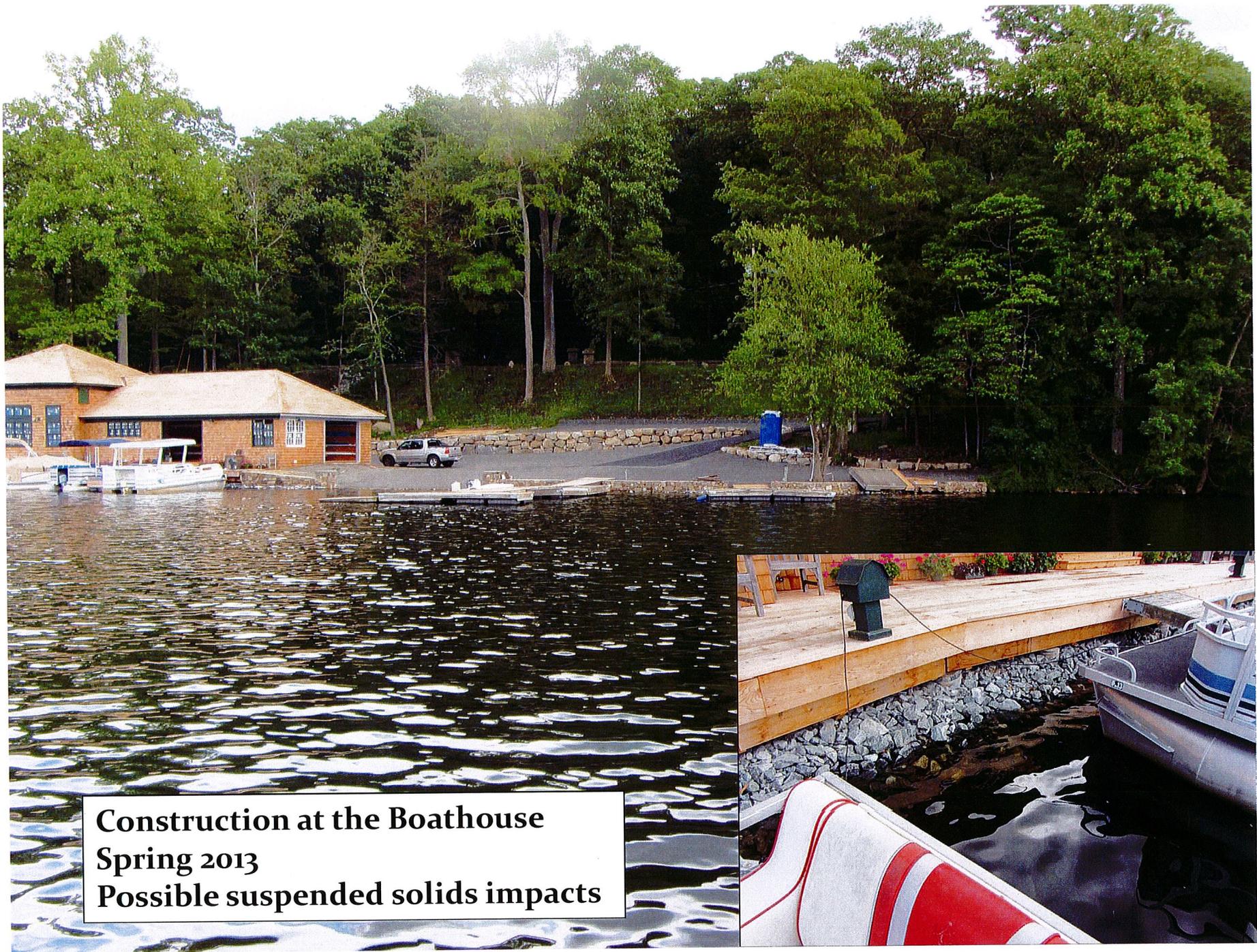
Better design with ground cover



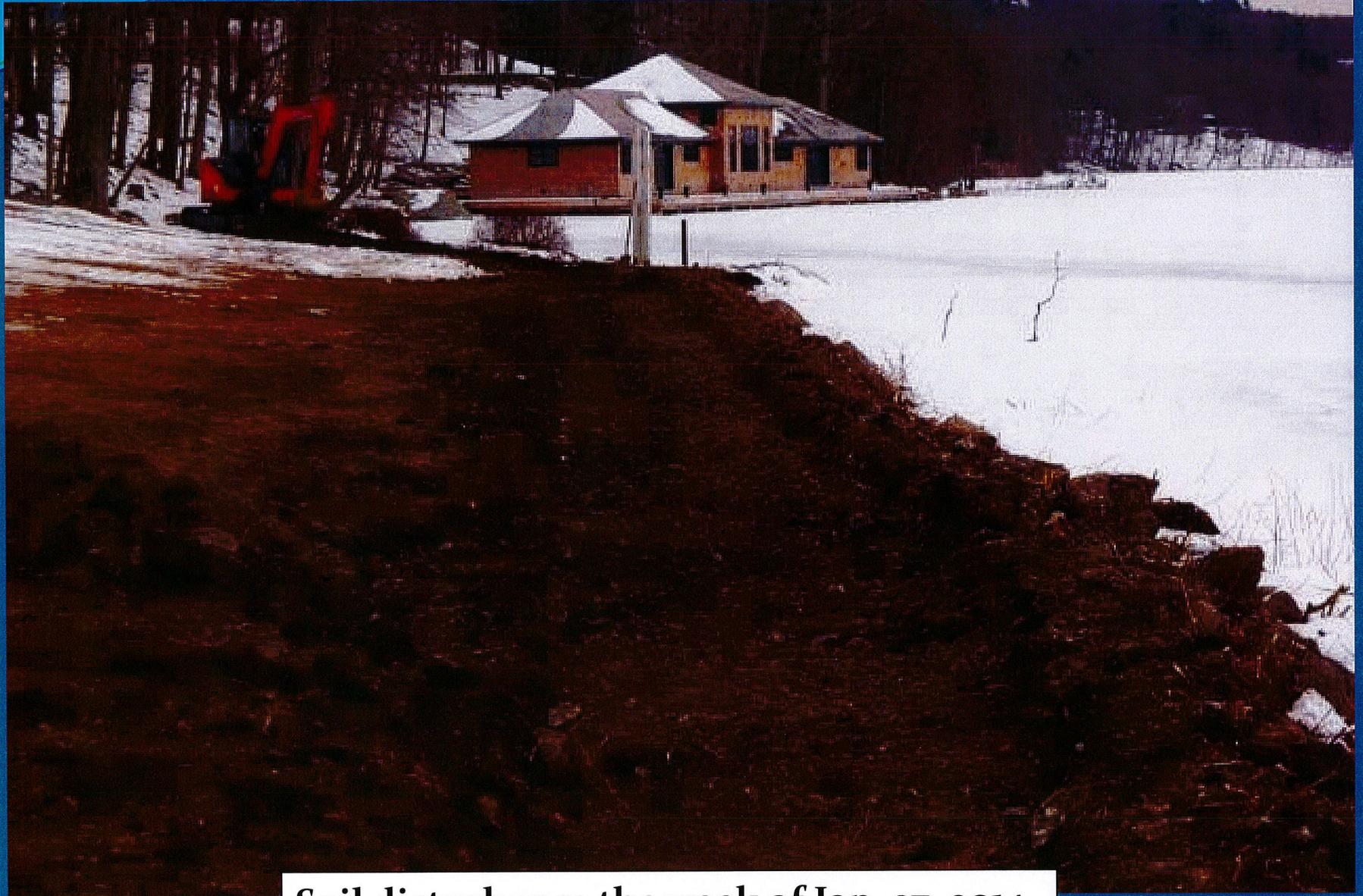
Mulch on steep slopes



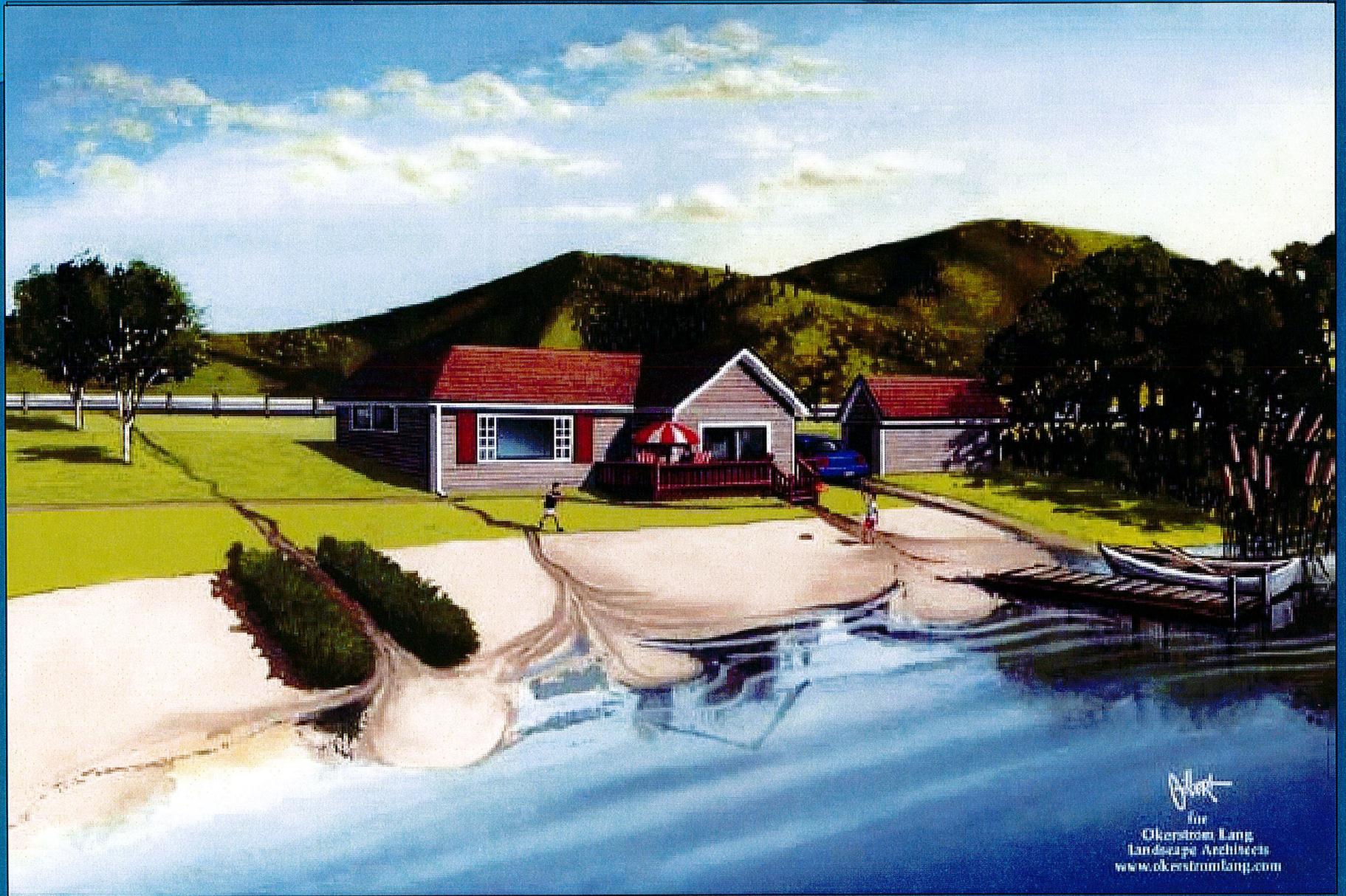
Steep Slopes, No Ground Cover



**Construction at the Boathouse
Spring 2013
Possible suspended solids impacts**



Soil disturbance the week of Jan. 27, 2014



Cherstrom Lang
The
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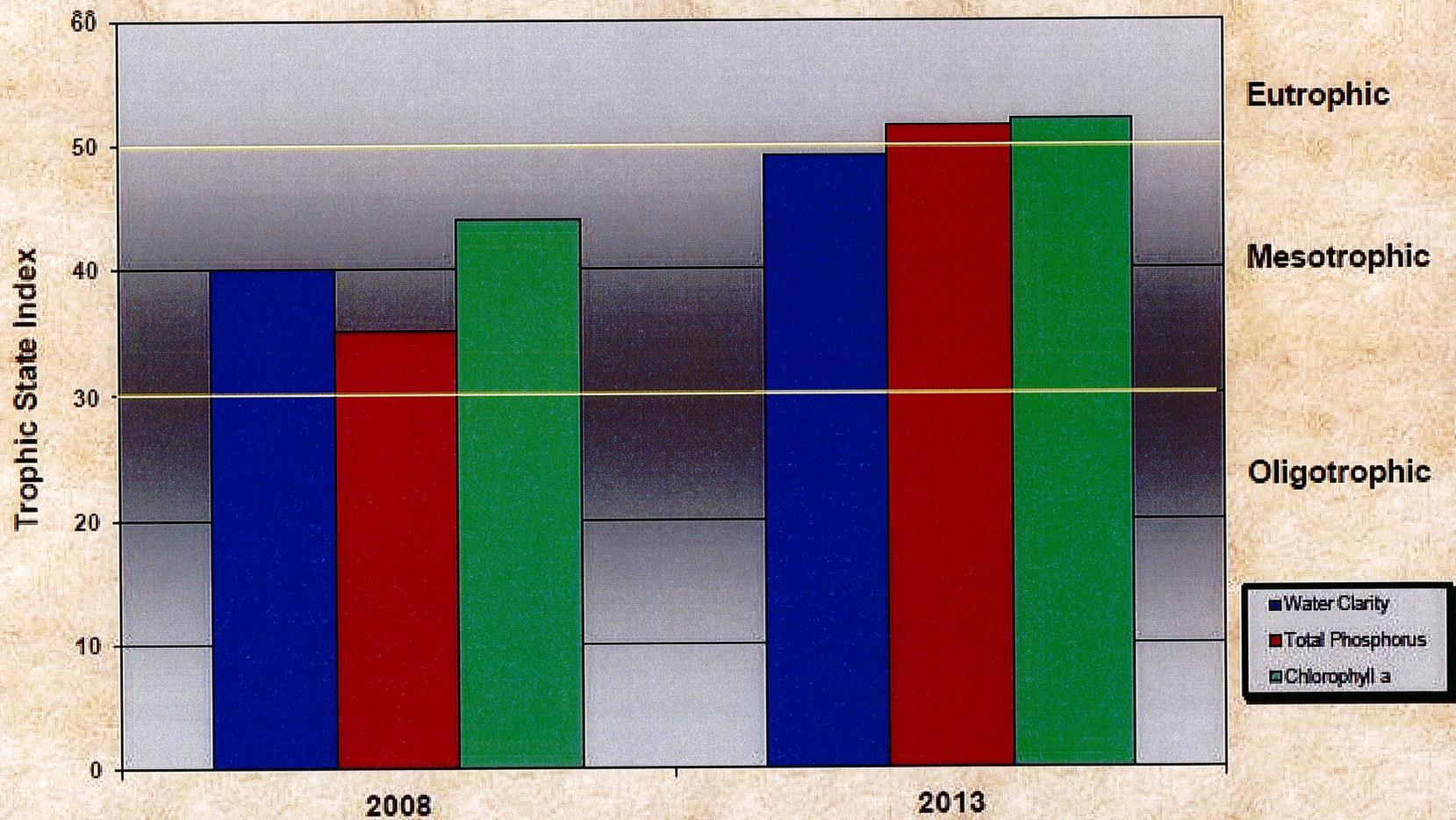
Source: The Massachusetts Buffer Manual

Carlson's Trophic Status Index (TSI)

- A log based calculation to assign status to a lake
 - **Oligotrophic** (<30) not productive
 - **Mesotrophic** (30-50) moderately productive
 - **Eutrophic** (>50) productive
- Uses Water Clarity, Total Phosphorus and Chlorophyll *a*
- Typical lake lifecycle (over time):

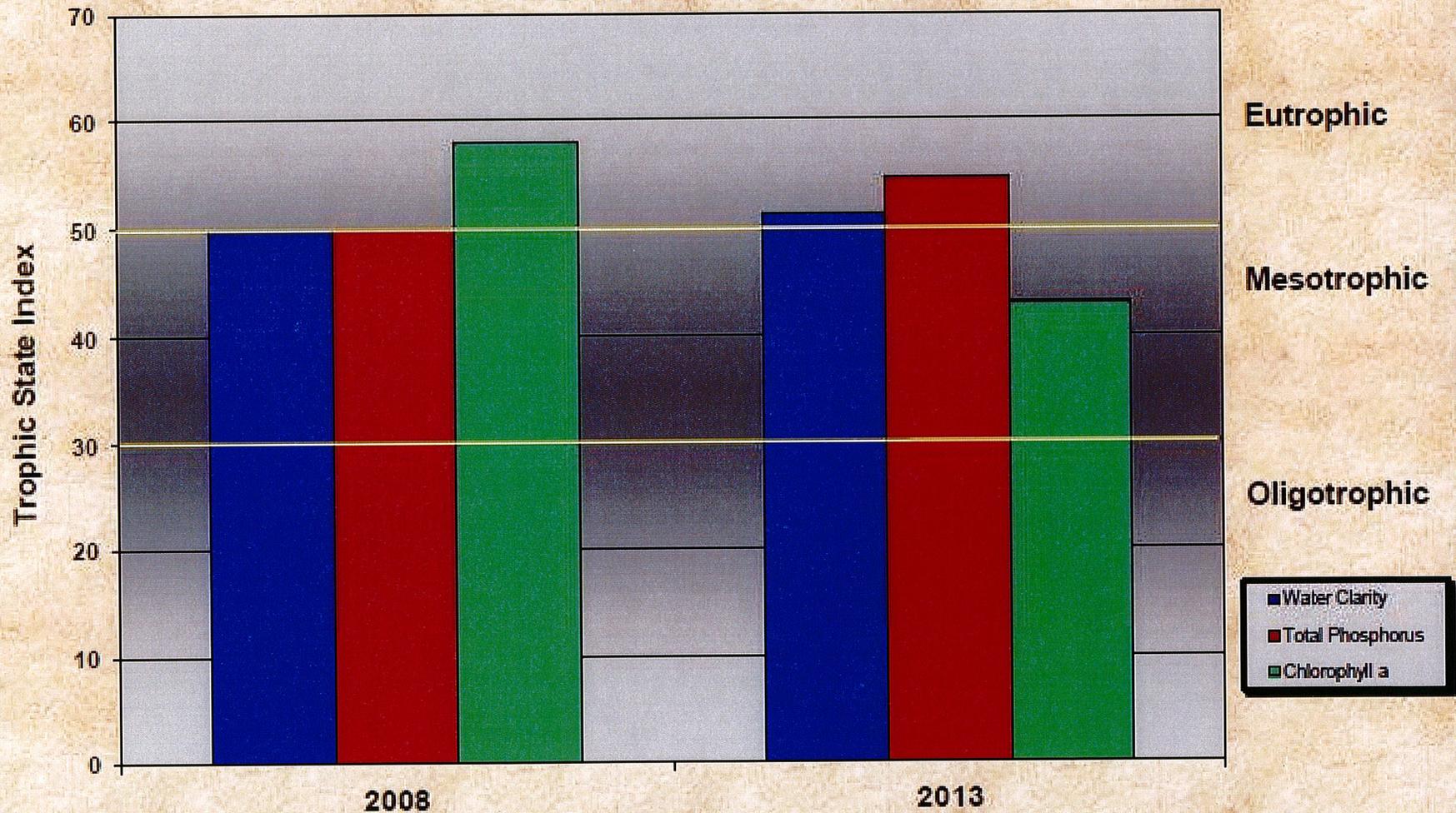
Oligotrophic → Mesotrophic → Eutrophic
- Influenced by human activities in the watershed
 - “Cultural Eutrophication”
- Useful to compare a lake over time

**Carlson's Trophic State Index
2008/2013 Comparison
Tuxedo Lake**

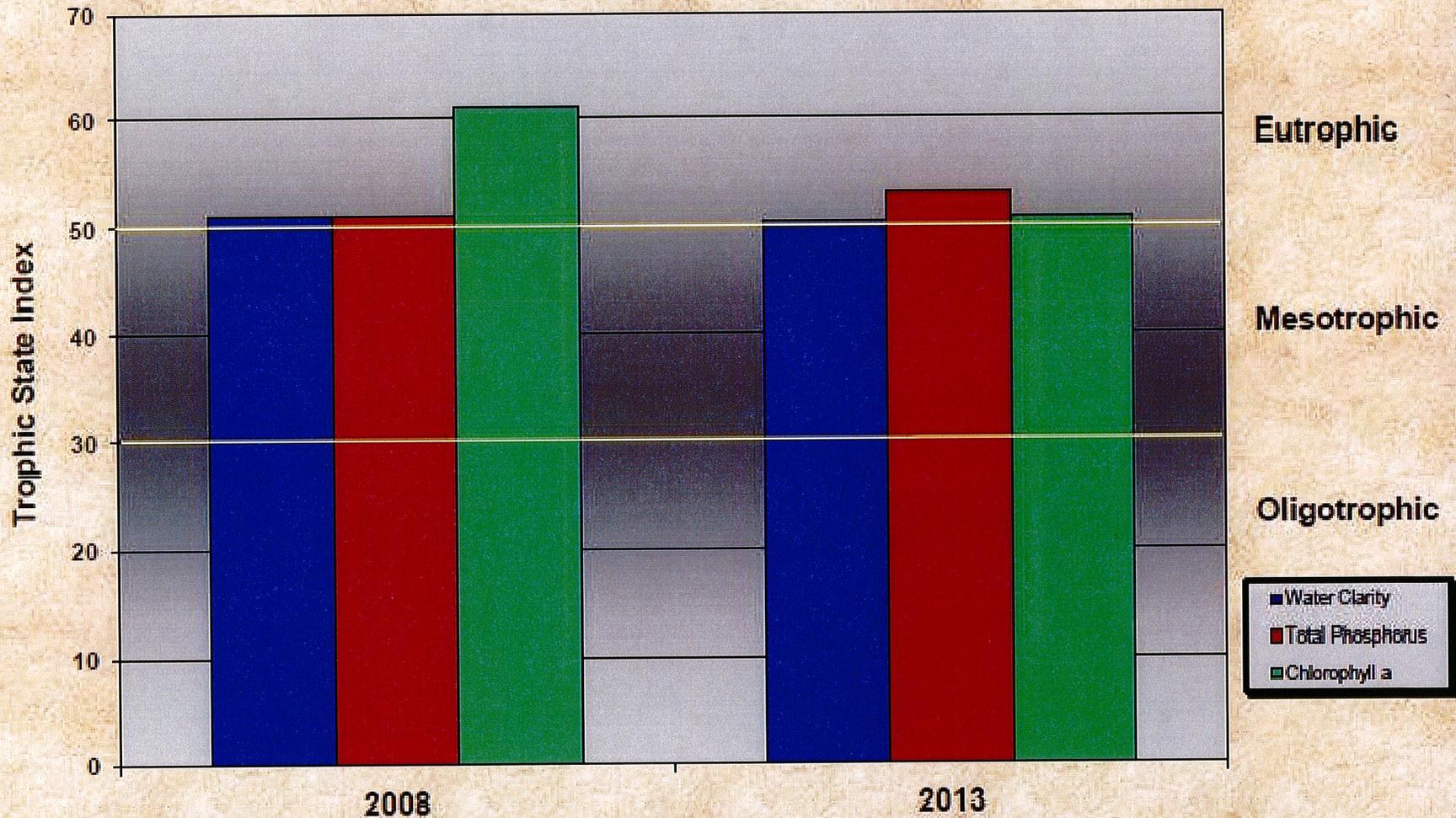


Note: Shift in phytoplankton community from 2008 to 2013 observed (shift from golden/dinoflagellates to blue-green algae)

**Carlson's Trophic State Index
2008/2013 Comparison
Wee Wah Lake**



Carlson's Trophic State Index
2008/2013 Comparison
Little Wee Wah Lake



Lake Stewardship in 2014 and Beyond

- **WQ Monitoring- CSLAP**
 - Possible addition of TSS/Turbidity Monitoring
 - 2008: TSS undetected on all sampling dates
- **EWM Hand Pulling Program**
 - Re-evaluate after three years
 - 2014 for Tuxedo Lake
 - 2015 for Wee Wah and Little Wee Wah Lakes
- **Stream Biological Monitoring**
 - Re-evaluate goals of program?
- **Use of Copper-based Products for Algae Control (TL)**
 - Continue phytoplankton monitoring

Biomanipulation Study?

- **Tuxedo Lake**
 - Van Zandt Letter, December 18, 2013
- **Determine if Biomanipulation is Needed**
 - **Phase 1: Intensive Phytoplankton and Zooplankton Survey**
 - Increased sampling dates and sampling stations
 - College Student Project (save \$\$)
 - **Phase 2: Fishery Survey**
 - Electro-fishing and gill netting
- **Development of a Comprehensive Biomanipulation Program**

Watershed Efforts

- **Ordinance Review Regarding Lake Protection**
 - Develop New Ordinances for Water Quality Improvements
- **Community Outreach and Education**
 - Educate residents about existing and new ordinances
 - Educate residents about water quality impacts
 - Educate residents about invasive aquatic plant species
 - Educate residents about vegetated buffers
 - Rain Garden at Little Wee Wah is a template
 - Use the Mass. Buffer Manual as a tool
 - Educate Residents about fertilizer use

Watershed Efforts

- **Storm Water Management Improvements**
 - Hire a watershed consultant
 - Not to repeat 2008/2009 study, but review and act on it!
 - Catch basins/Rain Gardens/MTD's
 - Natural Resource Inventory
 - Prioritize the areas for improvement
 - Ex. DPW Maintenance Yard
- **Goose Control**
 - Border collie patrols
 - Permits for adding eggs in the spring
 - Shoreline buffers or fences
 - Another opportunity for Education

The Legacy of Lake Stewardship at the Village of Tuxedo Park

- *Most of the described efforts since 2008 have been championed by a few devout volunteers*
- **Establish a Lakes Advisory Committee**
 - Dedicated volunteers; three year term
 - Meet once/month to discuss lake management projects
 - Report/Advise the Board of Trustees
 - Chairperson
 - DPW Representative
 - 3-5 Residents (at least one that lives on each lake?)
- **Or, Hire a Manager?**



This is what its all about!