Development of a Watershed Management Plan for Province Lake

R-12-S-08

December 31, 2014

Province Lake

AWWA

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

SC

UNIVERSITY OF NEW HAMPSHIRE STORMWATER CENTER

FB environmental

A Final Report to
The New Hampshire Department of Environmental Services

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Alden N Young Trust
Town of Effingham, New Hampshire
Town of Wakefield, New Hampshire
Province Lake Association
Local businesses
Generous individual donors

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Executive Summary

Development of a Watershed Plan for Province Lake

In July, 2014 the Province Lake Association, in cooperation with FB Environmental, the Acton Wakefield Watersheds Alliance and the New Hampshire Department of Environmental Services, presented the Province Lake Watershed Management Plan to more than 60 lake constituents. The plan evaluated available data to determine realistic long-term water quality goals; conducted watershed and septic surveys to identify sources of pollution; reviewed local land use regulations; mitigated identified erosion issues with its existing Youth Conservation Corps; installed demonstration road BMPs, and conducted an outreach campaign designed to raise stakeholder stewardship. The plan provides a road map to reach the desired outcome that Province Lake attains designated use status for Aquatic Life Use with phosphorus and chlorophyll-a concentrations that meet or surpass NH DES standards for mesotrophic water bodies.

The project began on November 14, 2012 and was completed on December 13, 2014. The total project cost was $160,929.60 which included the $74,440 grant award and $86,489.60 non-federal match. Match was provided by PLA, its volunteers and the following generous supporters:

Acton Wakefield Watersheds Alliance	$20,833.67 labor
Town of Wakefield, NH	in-kind labor & equipment
Province Lake Golf Club	in-kind function space
Alden N Young Trust	$10,000.00 cash
Maine Dept. of Environmental Protection	in-kind assistance with surveys

In addition to the excellent support from the NH Department of Environmental Services Watershed Assistance Section and particularly Project Manager Sally Soule, PLA's project partners included:

Acton Wakefield Watersheds Alliance	AWWA
FB Environmental Associates	FBE
Maine Department of Environmental Protection	MDEP
Maine Department of Transportation	MDOT
NH Department of Transportation	NHDOT
Province Lake Golf Club	PLGC
Towle Farm Association	TFA
Town of Wakefield Highway Department	ToWHD
UNH Center for Freshwater Biology	UNH CFB
UNH Lakes Lay Monitoring Program	UNH LLMP
UNH Stormwater Center	UNH SC

All 15 of the Project Objectives were met over the course of the project period:

- FBE Environmental Associates was chosen as the consultant to develop the watershed management plan with assistance from the UNH Stormwater Center. The project management team and steering committee were established to guide the project.
- Three Site Specific Project Plans were accepted by NHDES.
- FB Environmental Associates compiled all available water quality data and presented it to the Water Quality Goal team with representatives from PLA, AWWA, NHDES, MaineDEP and UNH.
- The Water Quality Goal team reviewed the data analysis and arrived at an agreed upon goal of a 25% phosphorus load reduction over a 10 year period resulting in a TP measurement of 10.8 ppb.
- Current and future non-point pollution source (NPS) loads were identified using land-use modeling, on-the-ground watershed and septic surveys, and the Lake Loading Response Model resulting in the documentation of specific sites needing restoration for pollutant load reductions.

Table 1. *Total phosphorus and water loading summary for Province Lake.*

Loads to Province Lake	**TP** ***(kg/year)***	**TP** ***(%)***	**Water** ***(m^3/year)***	**Water** ***(%)***
Atmospheric Deposition	78	16%	2,826,216	22%
Internal Loading	0	0%	NA	NA
Waterfowl	3.5	<1%	NA	NA
Septic Systems	81	17%	54,394	<1%
Watershed Runoff	315	66%	9,806,021	77%
Total Load To Province Lake	**478**	**100%**	**12,686,632**	**100%**

- Success means reducing the amount of phosphorus entering the lake by 25% over the next 10-15 years. Average total phosphorus concentrations will need to be reduced from the current average of 14.3 ppb to 10.8 ppb, by preventing 250 lbs (113 kg) of phosphorus from entering the lake annually.
- The Action Plan, developed by PLA, AWWA, FBE, NHDES and stakeholders offers Specific, Measureable, Achievable, Realistic and Timely actions within six major categories: septic systems, shoreline development, municipal ordinances, roads, recreation/boating, and water quality monitoring. Successful implementation of these actions will, collectively, result in the achievement and maintenance of the water quality goal.
- Septic system brochures were distributed throughout the Province Lake watershed, the septic survey report was published on the PLA website and at-risk system evaluations are included in the first phase of implementation of the plan. Subsequent surveys of the Province Lake residents indicated a high concern for septic systems effects on water quality and a high degree of willingness to perform regular maintenance.
- The “Clean Water and You” booklets were distributed to the Province Lake community and residents were surveyed at the annual meeting and through a web survey

demonstrating an increase in understanding of the connections between human activity and water quality.

- The Province Lake Association website was updated regularly with news of the planning project activities. The selectboards of Wakefield and Effingham were advised of the plan progress and asked for input.
- On August 23, 2014, 20 volunteers from PLA and AWWA collected over 2400 pieces of trash, weighing in at 273 lbs, from the beach along Route 153. Remnants of fireworks were surprisingly abundant.
- Components of the Province Lake Watershed Management Plan were presented to over 60 citizens on July 19, 2014. The two drafts were carefully reviewed by the project management team and FBE published the final draft in October 2014.
- The Towle Farm Community Association, the Town of Wakefield and the UNH Stormwater Center collaborated on the installation of two demonstration BMPs at the intersection of Towle Farm Road, a private road, and Bonnyman Road, a town road. The BMPs were installed in series to slow and treat runoff at the intersection and included a stabilized swale, and three leaching catch basins with an energy dissipation structure at the outlet.
- AWWA provided site specific designs to 15 property owners. 27 BMPs were installed by the AWWA YCC on seven properties and three landowners installed at least one of the recommended BMPs.
- All required reports were completed with the assistance of AWWA and NHDES and submitted in a timely manner.

The Province Lake Watershed Management Plan can be downloaded here:
http://provincelake.org/cms/wp-content/uploads/2014/12/E-version_ProvinceLakeWatershedPlan_14Oct14_FINALSmall.pdf

Introduction

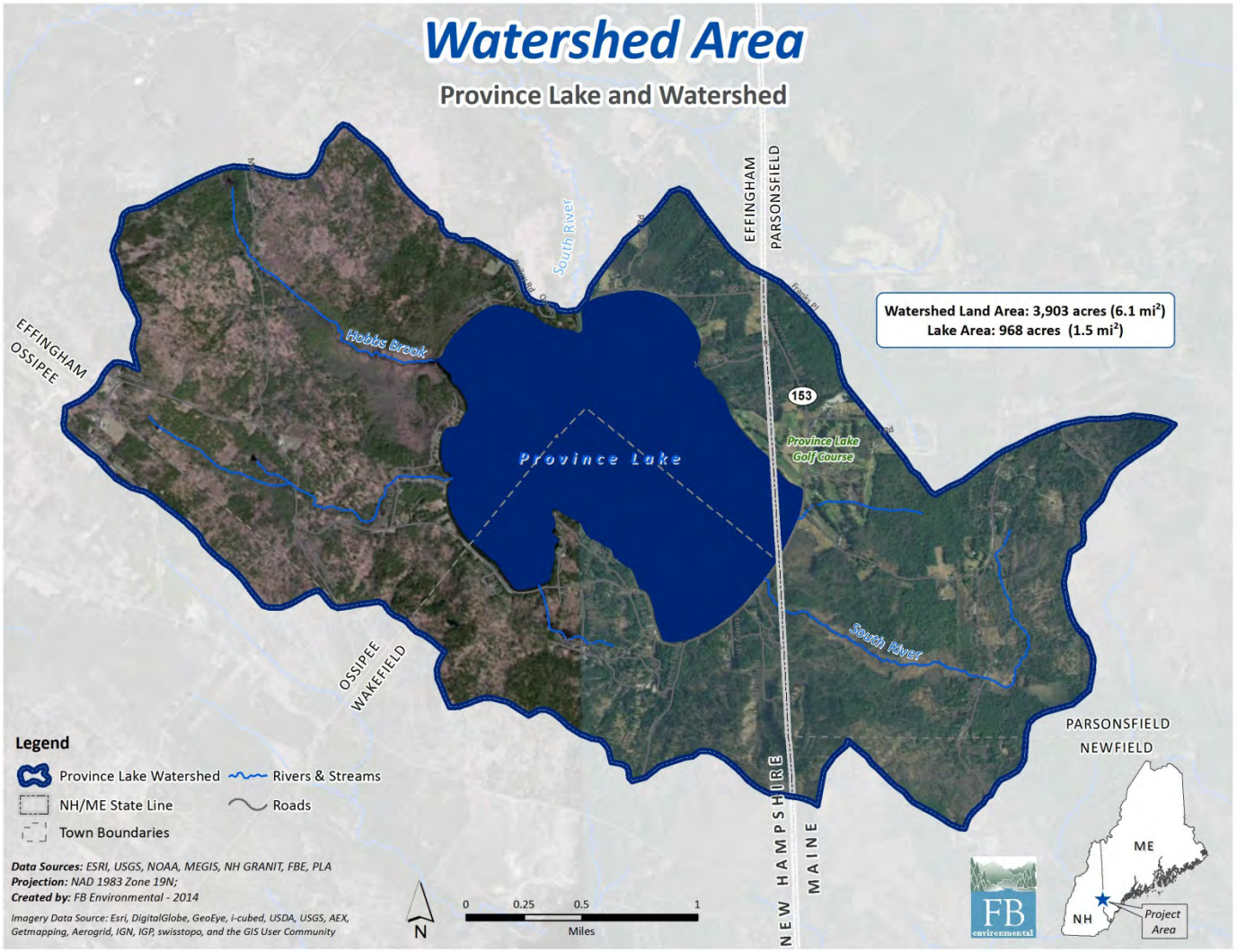
Within the White Mountain Region of north-central New Hampshire, and southwestern Maine, the Province Lake watershed is located in the towns of Effingham (45%), Wakefield (17%), and Ossipee (4%) in Carroll County, New Hampshire, and Parsonsfield (30%) and Newfield (4%) in York County, Maine. Province Lake flows north into the South River, which flows north to the Ossipee River, a tributary of the Saco River. The HUC# is 010600020902.

Province Lake's watershed (3,903 acres) is small relative to the size of the lake (968 acres). The watershed contains a large percentage of forestland (84%), as well as developed land (12%) (including shoreline development, a golf course, and several private campgrounds), wetlands (3%), and agriculture (1%). Province Lake is listed on the New Hampshire Department of Environmental Services (NH DES) 2010 and 2012 303(d) lists as impaired for Aquatic Life Use due to low pH, high levels of chlorophyll-a and total phosphorus, and is impaired for fish consumption due to mercury. It is also on the 2012 303(d) list as impaired for Primary Contact Recreation (swimming) due to reccurring cyanobacteria blooms.

Since the fall of 2010, there has been an increasing prevalence of documented cyanobacteria blooms in localized areas within Province Lake which motivated the Province Lake Association to request assistance in the development of a watershed management plan. PLA partnered with AWWA to develop the proposal and guide the project.

The stated desired outcome for the project is that "Province Lake attains designated use status for Aquatic Life Use with phosphorus and chlorophyll a concentrations that meet or surpass NH DES standards for mesotrophic water bodies." While this has not yet been accomplished this phase of the project set the stage for that to be achieved. The Province Lake Watershed Management Plan was published with a Specific Measurable Attainable Relevant & Timebound Action Plan, BMPs were installed at 10 residential and 2 road sites, watershed and septic surveys identified specific locations for pollutant load reductions, and a comprehensive outreach program reached the majority of households within the watershed.

Watershed Map



Project Objectives & Verification

Preparation

The Province Lake Project Management Team circulated a Request For Qualifications and received seven proposals. FBE was the top ranked proposal. The team interviewed FB Environmental Associates (FBE) and determined it was the most qualified firm for the project. A contract between FBE and PLA was negotiated (final contract documents are on file at NHDES).

Three Site Specific Project Plans were developed to guide the following project activities:

- Modeling and data analysis SSPP (full SSPP)
- Modeling pollutant load reductions from BMPs installed by the Youth Conservation Corps (SSPP checklist)
- Modeling pollutant load reductions from demonstration BMPs installed by the Town of Wakefield (SSPP checklist)

The SSPPs were prepared, circulated to the watershed planning team for review, and then submitted to NHDES for review and approval. The final, approved SSPPs s are on file at NHDES.

Watershed Plan Approach

The Province Lake Watershed Management Plan includes nine key planning elements to restore waters impaired by nonpoint source pollution (NPS). These guidelines, set forth by the US EPA, highlight important steps for restoring and protecting water quality in waterbodies impacted by human activities, including specific recommendations for management activities to reduce NPS.

The nine planning elements incorporated in the plan include:
A. Identification of the causes and sources of pollution.
B. Estimate of the pollution reductions needed to improve water quality.
C. Description of the NPS management activities needed to reduce pollution.
D. Costs and authorities for plan implementation.
E. Outreach and education strategies for implementing the plan.
F. Implementation schedule.
G. Milestones for determining if NPS management activities are being implemented.
H. Criteria for determining if loading reductions are being met.
I. Monitoring plans to measure if success is being achieved over time.

To fulfill planning elements a – c, the watershed planning process included water quality data analysis, land use loading modeling, NPS surveys (watershed and septic), a build out analysis, and development of a water quality goal for the lake. Establishment of a water quality goal is a critical component of a watershed restoration plan. The water quality goal becomes the "yardstick" by which restoration success is quantified and measured. For Province Lake, data analyses and land use loading modeling were used to set the goal. Additionally, a Water Quality Steering Committee, comprised of representatives from the PLA, AWWA, NHDES, and Maine DEP, with technical support from FBE and the UNH Center for Freshwater Biology, was established to review the results of the various analyses and modeling.

Water Quality Data Analysis

Data acquisition and analysis for determining the water quality goal for Province Lake followed protocols set forth in the Site Specific Project Plan (SSPP) (FBE, 2013a). Water quality data was analyzed in order to: 1) determine trends in several key water quality parameters such as water clarity, chlorophyll-a, color, dissolved oxygen and temperature, 2) determine the median phosphorus concentration of the lake and the assimilative capacity, and 3) provide recommendations to guide the Province Lake Water Quality Steering Committee to set the water quality goal for the lake. The analysis includes a comparison of historical (2002 and earlier) and recent (2003-2012) total phosphorus monitoring results, and a seasonal analysis (samples collected between May 15 and October 15), as well as a summary of available data and sources of this data.

Water quality data from multiple sources were combined into a common spreadsheet, and sorted by date and station for Quality Assurance/Quality Control (QA/QC) in order to avoid duplicate data sets. All duplicates were removed, and multiple samples collected on the same day were averaged. The analysis for total phosphorus (TP) included an initial analysis to determine median total phosphorus (TP) based on all samples regardless of their location in the water column. Secondly, minimum, maximum, mean, and median TP concentrations were determined for the deepest spot on the lake, and were sorted by depth of sample (labeled as either epilimnetic/upper samples or hypolimnion/lower). Data were further refined using only samples collected in the epilimnion/upper to calculate the median epilimnetic TP concentration. The seasonal (May 15 - October 15), TP concentration represents the 'Existing Median Water Quality' applied to the NH DES Assimilative Capacity Analysis for determining if a waterbody is Impaired, Tier 1 or Tier 2. Similar methodology was used to calculate average Chlorophyll-a, Secchi disk transparency (SDT), and color. In addition, TP, turbidity and color were analyzed for two primary tributary locations including the Island Inlet (PROEFFI) and Rt. 153 Inlet (PROEFFR). A full description of results is presented in the Province Lake Water Quality Analysis (FBE, 2014a).

Land Use Modeling

FBE used an Excel-based model, known as the Lake Loading Response Model (LLRM) to develop a water and phosphorus loading budget for the lake. The loading model provides estimates for TP and chlorophyll-a concentrations. The modeling results were compared to existing measured water quality data to aid in determining load reductions needed to attain water quality standards.

Table 1. *Total phosphorus and water loading summary for Province Lake.*

Loads to Province Lake	**TP** ***(kg/year)***	**TP** ***(%)***	**Water** ***(m^3/year)***	**Water** ***(%)***
Atmospheric Deposition	78	16%	2,826,216	22%
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The full "Province Lake Nutrient Modeling: Estimating Phosphorus Loads using Lake Loading Response Modeling" report is on file at NHDES.

To estimate future sources of phosphorus loading to the lake, FBE ran a buildout analysis. The analysis combined projected population estimates, current zoning restrictions, and a host of additional development constraints. The analysis provides estimates about the potential for new development. Estimates of how phosphorus loads could increase as the watershed is developed were also provided. The buildout results are viewed as a useful planning tool that can be utilized to guide development, conservation, and other watershed management approaches.

Watershed Nonpoint Source Pollution Assessments

Figure 1: PLA volunteer identifies pollution source

In addition to modeling, the project team conducted on-the-ground watershed surveys to provide information about watershed pollutant loading and describe site-specific actions to reduce nonpoint source pollution. In May 2013, a team of 23 volunteers and technical leaders fanned out around the Province Lake watershed in seven teams to identify areas of erosion that contribute pollution to the lakes. Technical leaders for the survey teams were from AWWA, NHDES, and Maine DEP. The volunteers took careful notes when they identified a source of erosion using standardized data sheets. They also photographed the site for future reference. On each site where erosion was evident volunteers characterized the impact that the site was having on the lake, estimated the cost to remediate the problem and made BMP recommendations. Volunteers and technical staff identified 61 sites that are impacting or have the potential to impact water quality. The "Province Lake Watershed Survey Report" is on file at NHDES.

On August 24, 2013, 14 resident volunteers and seven technical leaders from PLA, AWWA, FBE and NH DES conducted door-to-door septic surveys for all properties located within 250 feet of Province Lake or a tributary draining to Province Lake that had not yet responded. Out of

the 320 surveys mailed out, 220 property owners responded by mail, online or by interview for a 68.75% response rate. Eighty-eight (88) responses were completed in person on the day of the survey, 49 responses were completed online, and 83 respondents sent their survey in via mail. The remaining residents were not home on the day of the survey, had no building on the property, or declined participating in the survey. The "Province Lake Septic Survey Report" is on file at NHDES.

Figure 2: PLA septic survey volunteers

Water Quality Goal and Pollutant Load Reductions

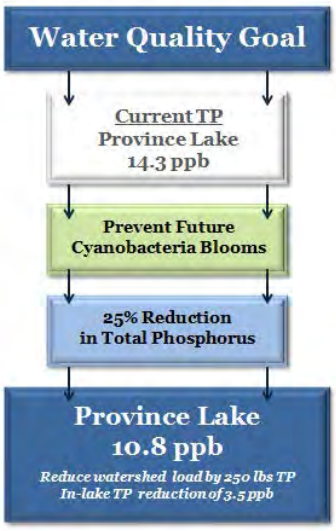

Figure 3.Water Quality Goal for Province Lake

The Water Quality Steering Committee met several times to review the technical information, and ultimately set a technically and scientifically sound goal which is also realistic and achievable. To establish the goal, the Water Quality Steering Committee reviewed the data analyses and modeling results and arrived at an agreed upon goal of a 25% phosphorus load reduction over a 10 year period resulting in a TP measurement of 10.8 ppb..

Meeting this goal will require a load reduction of 250 lbs (138 kg) of phosphorus per year. Attaining the goal will likely reduce phosphorus concentrations to a level that will diminish favorable conditions for cyanobacteria growth. If the frequency of cyanobacteria blooms is reduced, it is possible the lake could attain Aquatic Life Use and Primary Contact designated uses. If attainment is achieved, the lake could be removed from the state's 303(d) list of impaired waters.

Action Plan

Figure 4: Stakeholders weigh in on the Province Lake Action Plan on a snowy Jan 18th 2013

A detailed Action Plan is included in the Province Lake Watershed Management Plan. It identifies specific BMPs, their associated load reductions, responsible parties, potential funding sources, schedule and associated costs. The Action Plan was developed through the combined efforts of the PLA and the Province Lake Project Management Team, as well as the public, by way of feedback provided during the community forum held at the Greater Wakefield Resource Center in Union, NH on January

18, 2014. A list of attendees is included in Appendix B.

Water Quality Monitoring

During the development of the watershed plan, water quality monitoring was conducted by Steve Craig of the PLA in conjunction with the University of NH Lakes Lay Monitoring Program (LLMP) and following the protocols of the UNH LLMP EPA approved QAPP. Steve sampled four sites from June 2013 through October 2104. UNH LLMP supplied an intern to assist with sampling in the 2014 season. Samples were taken at least monthly. In addition, Sally Soule, NHDES, coordinated tributary sampling during 2013 to establish baseline data.

A water quality monitoring plan was developed for the plan. Water Quality monitoring recommendations are included to ensure successful long-term assessment to determine whether the desired phosphorus loading is being achieved over time and if substantial progress is being made towards attaining water quality standards, and, if not, provide criteria for determining whether the watershed plan should be revised.

Septic Follow-up.

Province Lake specific septic brochures (on file at NHDES) were distributed during the Septic Survey and at the PLA annual meeting. PLA will continue to distribute the brochures at subsequent PLA events. All attendees of the PLA annual meeting/ Province Lake Management Plan presentation were surveyed to determine what they had learned through the various planning phases. Respondents rated septic systems as the most important issue facing the lake's water quality.

The PLA reached out to the local septic hauler to arrange group discounts for neighborhood pumping and AWWA included septic evaluations in the first implementation watershed assistance grant.

Outreach

AWWA's "Clean Water and You" booklets and the Province Lake brochure, detailing how human activity affects water quality and offering suggestions for lake-friendly living, were distributed to ~100 families at the PLA Annual Meeting and through personal contact. Regular posts to www.provincelake.org updated the PLA membership to the progress with the plan and guided them to resources for lake protection. The brochures are available from the PLA or AWWA.

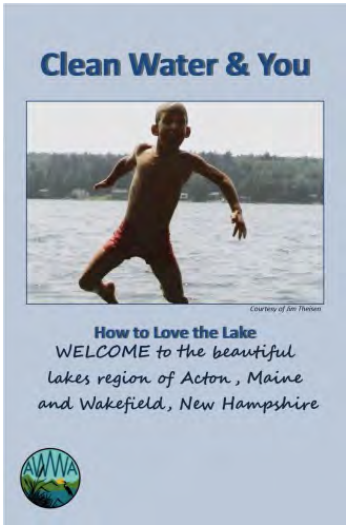

Figure 5: PLA Breakfast hosted by Carl and Donna Davis

Over 300 people attended the Province Lake breakfasts during the project period. These were opportunities for sharing the project's progress and information about lake-friendly practices.

Figure 6: PLA Golf Tournament participants

The PLA organized and conducted a golf tournament to raise matching funds for the project and for the opportunity to educate the players about the Plan project and Province Lake's water quality issues. 27 golfers participated and 8 volunteers assisted with the event.

Of the 54 people who completed the opinion survey at the Province Lake Watershed Management Plan presentation, 74% indicated that their knowledge about the importance of land use in relation to water quality greatly increased as a result of the planning project with 19% claiming a slight increase. The survey analysis is included in Appendix C.

The PLA and AWWA attended meetings of the Boards of Selectmen in Effingham and Wakefield to keep them apprised of project activities. They were met with strong support resulting in letters of commitment from both Towns for road BMP projects in Phase 1 of implementation.

Beach Clean-up

Figure 7:PLA volunteers gathering 273 pounds of trash from the Route 153 beach

On August 23, 2014, 20 volunteers from PLA and AWWA scoured the mile-long beach along Route 153 in Wakefield, NH and Parsonsfield, ME. They picked up over 2,400 pieces of trash weighing 273 pounds. Of note were 19 dirty diapers, countless fireworks fragments and hundreds of cigarette butts. All the volunteers present were eager to repeat the event in subsequent years. An article about the Beach Clean-up can be found at http://provincelake.org/2014/09/02/who-were-those-blue-shirts-on-aug-23rd/ and the spreadsheet detailing the trash retrieved is in Appendix E.

Plan Presentation

Two drafts of the "Province Lake Watershed Management Plan" were painstakingly reviewed by the project committee and the first draft was presented at the July 19, 2014 Province Lake Association Annual Meeting (attendance list included in Appendix B. FBE submitted the final draft of the plan on October 3, 2014. It was published on www.ProvinceLake.org on December 13, 2014. The full plan is on file at NHDES and can be downloaded here: Province Lake Watershed Management Plan.

Demonstration BMPs –

Figure 8: Jamie Houle, UNHSC and the Wakefield Highway Dept installing BMPs on Bonnyman Road.

The PLA partnered with the Town of Wakefield and the UNH Stormwater Center to design and install BMPs at the intersection of Bonnyman and Towle Farm roads in Wakefield. Bonnyman Road runs along the south edge of the lake. Towle Farm Road runs perpendicular to Bonnyman, sloping towards the lake. Stormwater runoff flowed unchecked down Towle Farm Road, across Bonnyman and eroded the adjacent boat ramp. The UNHSC designed swales to divert the flow to the side of the road and into a detention basin which then flowed under Towle Farm Rd via a culvert to a large deep sump catch basin. The overflow from the catch basin was directed into a culvert under Bonnyman Road to an armored outfall at the shoreline. The BMPs included two culverted road crossings, two precast concrete sedimentation basins and stabilized inlet and outlets.

After the initial installation very heavy storms illuminated the need for additional BMPs further up the watershed. The PLA, Towle Farm Association and the UNHSC are partnering again to implement those BMPs in 2015.

The site design is on file at NHDES. Load reductions for the Towle Farm BMPs were estimated at 0.84 tons of sediment per year, 10.3 lbs/yr TP, and 7.7 lbs/yr of nitrogen. (A Pollutants Controlled Report is on file at NHDES for the BMPs.)

Additional effort went towards finding solutions for the stormwater runoff issues along Route 153. A meeting of the minds of PLA, AWWA, NHDES, MDEP, NHDOT, and MaineDOT resulted in a commitment to find a collaborative solution to the problems.

Figure 10: Meeting of the minds on Rt 153

Technical Assistance & Youth Conservation Corps

AWWA's program managers delivered site specific erosion control designs to 15 Province Lake residents. The AWWA YCC installed 26 BMPs on 7 of those properties resulting in pollutant load reductions of 18.9 tons/yr of sediment and 15.0 lbs/yr of phosphorus. Three technical assistance clients installed recommended BMPs. Details can be found in Appendix A.

Figure 11: Before YCC project on Rt 153 beach

Figure 12: Rt 153 beach after buffer & erosion control mulch YCC installation

Reporting

The Province Lake Watershed Management Plan, in draft form, was presented to over 60 interested citizens at the Province Lake Golf Club on July 19, 2014.

With the assistance of Sally Soule of NHDES and Linda Schier of AWWA, all NHDES reports were submitted in a timely manner.

Project Outcomes & Measurable Results

Project Outcomes:

- The Province Lake Watershed Survey was completed in May 2013 by 23 volunteers and technical leaders.
- The Province Lake Watershed Management Plan was published on December 13, 2014.
- 15 Province Lake landowner received site specific Technical Assistance designs from AWWA's Program Manager.
- The AWWA YCC installed 26 BMPs on 7 properties in the Province Lake watershed.
- The Town of Wakefield installed 2 culverted road crossings, 2 precast concrete sedimentation basins and stabilized inlet and outlets at the intersection of Bonnyman Road and Towle Farm Road.
- 23 volunteers, representing all shores of Province Lake, participated in the PLA Beach Clean-up on August 23, 2014.

Measureable Results:

- The Province Lake Watershed Survey identified, quantified and prioritized 61 sites contributing pollution to Province Lake.
- Phosphorus Load Reductions needed to attain the water quality goal were quantified using the Lake Loading Response Model as 250 pounds per year.
- The AWWA YCC projects reduced pollutant loading to Province Lake by an estimated 18.9 tons of sediment and 15.9 pounds of phosphorus per year using the Region 5 Model.
- BMPs installed on Bonnyman Road reduced the sediment loading to Province Lake by 0.84 tons/yr and the phosphorus loading by 10.2 lbs/yr using the Modified SIMPLE method.
- The PLA Beach Clean-up yielded over 2,400 pieces of trash weighing 273 pounds.

Conclusions and Recommendations

The stated desired outcome for the project is that "Province Lake attains designated use status for Aquatic Life Use with phosphorus and chlorophyll-a concentrations that meet or surpass NH DES standards for mesotrophic water bodies." While this has not yet been accomplished this phase of the project set the stage for that to be achieved. The Province Lake Watershed Management Plan was published with a Specific Measurable Attainable Relevant & Timebound Action Plan, BMPs were installed at 10 residential and 2 road sites, watershed and septic surveys identified specific locations for pollutant load reductions, and a comprehensive outreach program reached the majority of households within the watershed.

Recommendations for future actions encompass six key action categories: septic systems, shoreline BMPs, roads, municipal ordinances and land conservation, recreation and boating, and monitoring and lake assessment.

Phase 1 of implementation will include the following:

- Additional site specific designs and YCC projects for shoreline landowners
- Road management plans for Bonnyman Road and Route 153 and at least two road BMP installations
- Evaluations of high risk septic systems and cost-share incentives for septic maintenance
- A forest management workshop for large landowners within the Province Lake watershed
- Increased water quality monitoring to include additional tributaries and lake parameters
- Comprehensive outreach activities including a shoreline landscape self-assessment tool, lake-friendly boating brochure, beach clean-ups, and a BMP tracking tool.

It will require the continued commitment of all the project partners to see that Province Lake meets its water quality goal and attains designated use status for Aquatic Life Use with phosphorus and chlorophyll-a concentrations that meet or surpass NH DES standards for mesotrophic water bodies, thus ridding itself of the description as a "lake on fire."

List of Tables and List of Figures

Photographic Documentation – Bonnyman Road BMP installation

Pre-existing condition

Pre-existing structure

Pre-existing structure – note highly compacted sediment

Installation of the new structures

The completed installation prior to repaving Bonnyman Road

Appendices

A. YCC & TA report
B. Attendance sheets from public meetings
C. Annual Meeting survey analysis
D. Septic brochure
E. Beach clean-up report