2015RR02: Great East Lake and Wilson Lake Watershed Protection Project (Phase 2 Maine)
Grantee: **Acton Wakefield Watersheds Alliance (AWWA)**

WATERSHED INFORMATION

Great East Lake is located in the towns of Wakefield, NH and Acton, ME whereas Wilson Lake lies entirely in Acton. The area of Great East Lake is 1707 acres (2.67 mi^2) and the area of the entire watershed in Wakefield and Acton is approximately 9990 acres (15.53 mi^2). The maximum water depth is 102 feet, with an average depth of 35 feet. The shoreline of Great East Lake is highly developed with over 700 properties with only about 7% of the shoreline undeveloped. Great East Lake is on Maine's *NPS Priority Watersheds* list.

The area of Wilson Lake is 208 acres (0.48 mi^2) while its watershed, entirely in Acton, covers 2,479 acres (3.9 mi^2). The maximum depth is 44 feet with an average depth of 17 feet. Wilson Lake is surrounded by over 200 houses on all shores.

Volunteers with the Great East Lake Improvement Association (GELIA) and Wilson Lake Association (WLA) have been testing the water quality for many years through the UNH Lakes Lay Monitoring Program (LLMP) and the Maine DEP Volunteer Lake Monitoring Program (VLMP). This data and the analysis conducted during the "*Salmon Falls Headwater Lakes Watershed Management Plan (WMP)*" *(2010),* indicates that GEL water quality has an "outstanding" classification in Maine and qualifies as a high quality waterbody in NH. Wilson has average quality but high dissolved oxygen depletion in deep areas increasing the potential for internal phosphorus loading.

The lakes flow into the Salmon Falls River, which is an important drinking water supply for over 28,000 people. Great East and Wilson lakes provide excellent recreational opportunities including coldwater and warmwater fisheries, swimming, pleasure boating and wildlife viewing. Both lakes have active public boat launches. The Maine Department of Conservation owns the primary public launch on Great East and the Town of Wakefield owns a secondary one. The Town of Acton owns the Wilson Lake public launch. On Great East Lake, GELIA inspects an average of 1500 visiting boats each summer season. The high shorefront property values translate to >70% of the local tax revenue in both communities.

With grant support from NHDES and DEP AWWA has an active Youth Conservation Corps, completed the WMP, delivered outreach and education programs and completed three phases of implementing recommendations from the plan. GELIA, the WLA, and the Towns of Acton and Wakefield have supported AWWA's activities to protect water quality through remediation and land use planning. Since the YCC's start in 2006, 158 BMPs have been installed on GEL properties and 52 on Wilson resulting in estimated sediment loss reductions of 57.2 and 19.2 tons/year, respectively.

In 2010 the Town of Acton fixed the high priority road site on Peacock Road reducing the sediment load to Wilson Lake by 2.06 tons/year and in 2011/12 repairs to Great East and Wilson roads reduced the sediment load by 7.74 and 4.17 tons/year, respectively. Lakeside Drive on Great East Lake is the final road in the watershed needing significant repair contributing over 36 tons of sediment per year directly into Great East Lake. In spring 2014 the Lakeside Drive Road Association was officially formed with majority support and the group is ready and eager to support the implementation efforts.

The Town of Acton adopted a Comprehensive Plan in 1991 and revised it in 2005. The plan was determined to be consistent with Maine's Comprehensive Planning and Land Use Regulation Act.

PROBLEM/NEED

In 2010, AWWA presented the *Salmon Falls Headwater Lakes Watershed Management Plan,* funded by a High Quality Waters grant from the NH Dept. of Environmental Services. The WMP indicates that construction and growth in the watersheds is likely to impact water quality and assimilative capacity calculations indicate that both lakes must limit phosphorus loading through remediation of NPS sites and careful land use planning to prevent water quality decline. The water quality analyses indicate that there is cause for concern as development pressures increase and lack of awareness of the connections between land use and water quality remains prevalent. Each of the lakes must maintain or reduce current phosphorus levels to maintain their current water quality status.

The watershed surveys of Great East and Wilson lakes identified 177 NPS sites on Great East and 72 NPS sites on Wilson. Residential sites accounted for 62%, and 65% respectively with private and town roads at 17% and 18%. AWWA's grants supported work on 9 road sites and road associations addressed 2 additional sites. This project will address the remaining high priority private road sites on Lakeside Drive on Great East Lake.

NHDES 319 grants in 2010 and 2012 and a DEP NPS grant in 2012 supported implementation of road fixes, YCC projects and outreach efforts including wide distribution of the booklet "Clean Water & You." The ***Great East Lake and Wilson Lake Watershed Implementation (Phase 2 Maine)*** project will complement the efforts funded by the NH DES & DEP 319 grants by completing NPS abatement projects on Lakeside Drive in Maine, landowner technical assistance, YCC projects, septic surveys and furthering the outreach and education efforts necessary for long-term success. The project will treat erosion and runoff sources on at least two (2) road sites and ten (10) residential, driveway, beach and boat access sites by providing technical assistance, funds and labor for high priority BMP installations. These actions will reduce the sediment loading into Great East Lake and Wilson Lake as well as Horn Pond and the Salmon Falls River by at least forty (40) tons per year.

PURPOSE

The purpose of this project is to reduce erosion and polluted runoff sources to Great East Lake, Wilson Lake by: installing BMPs at two (2) private road NPS sites and ten (10) priority residential sites; providing additional technical assistance to at least another ten (10) landowners; and providing education and outreach. Ultimately, the goal is to protect or improve the water quality of Great East Lake, Wilson Lake and the downstream waterbodies.

PROJECT DURATION 24 months

Start Date: March, 2015 Project Completion Date: March, 2017

GENERAL PROJECT PLAN

The ***Great East Lake and Wilson Lake Watershed Implementation (Phase 2 Maine)*** is intended to build on the work funded by the NHDES Watershed Assistance and DEP NPS Control programs which have addressed the majority of the priority sites identified in the watershed surveys. The goal for this phase is to address the remaining priority road and residential sites on both lakes.

Residential Sites	High & Med Priority–Wilson (39)	High & Medium Priority – GEL (103)
Already addressed	26 Tech Assist (TA)	65 Technical Assist (TA)
Phase 2	3 YCC, 3 TA	7 YCC, 7 TA

Road Sites	High & Med Priority–Wilson (4)	High & Medium Priority – GEL (14)
Already addressed	4 private road sites	8 private and 1 town road site
Phase 2	None planned	2 private road sites

During this project, staff and volunteers will coordinate to install BMPs on two (2) private road NPS sites and ten (10) priority residential sites, and provide additional technical assistance to at least another ten (10) landowners. The project will continue the summer Youth Conservation Corps that will provide watershed residents and road associations the design and labor to install recommended BMPs at the 10 priority residential sites. It is estimated that the BMPs will result in a pollutant load reduction of at least 40 tons of sediment per year.

The project will be managed by AWWA and guided by a project steering committee. Local partners include the Town of Acton, the Great East Lake Improvement Association, the Wilson Lake Association, the Lakeside Drive Road Association and local landowners. The local partners will provide match through in-kind services, cash contributions and/or labor.

AWWA will partner with the lake associations to conduct septic surveys of each lake by mailing paper surveys and offering an online option to gather information about location, age, condition and practices of residential wastewater treatment systems. AWWA will produce two (2) Septic Survey reports using the analyzed data to determine where septic outreach and potential cost-share funds for improvements to malfunctioning systems are needed. Respondents will be entered into a drawing for a significant prize, which will not be covered by grant funds or used as non-federal match. This technique resulted in high rates of return on two septic survey projects in NH.

Four (4) newsletter articles will be distributed to the lake associations for publication, and all project events will be advertised and summarized in local media, the lake association newsletters, local cable access TV and personal outreach. A video tour of the YCC sites, led by the crew members, will be aired on local cable access channels and posted on the AWWA website www.AWwatersheds.org. The website will continue to be a dynamic resource for regional water quality protection.

The AWWA will not use 319 project funds to undertake, complete or maintain work required by existing permits, consent decrees or other orders. Grantee will ensure that permits required for construction are secured prior to construction and BMPs are constructed in an acceptable manner, before reimbursing landowners according to applicable Cost Sharing Agreements.

This project will be conducted in accordance with applicable quality assurance procedures in the DEP document "Maine Section 319 Management Program Quality Assurance Program Plan (http://www.maine.gov/dep/blwq/docgrant/319.htm).

AWWA will exercise best professional judgment in the selection, design and installation of BMPs for NPS sites and will design and install BMPs at NPS sites according to design guidance described in Maine BMP guidance manuals or use other BMPs acceptable to the DEP.

TASKS, SCHEDULES & ESTIMATED COSTS

Task 1 – Project Management

The AWWA and Maine DEP will sign a grant agreement outlining project roles, responsibilities and funding arrangements. The AWWA will track project costs and match, submit deliverables and write semi-annual Progress Reports (PRs) and one Final Project Report (FPR). Contracting for services (or goods) paid for with project funds will be arranged and carried out using procurement procedures as described under Section 4 of DEP's Nonpoint Source Grant Administrative Guidelines. A Pollutants Controlled Report will be submitted annually by December 31, for each year of the project. Staff will also document project activities and subsequent match. Prior to completion of the project staff will continue to consult with Maine DEP to review phosphorus and water clarity (secchi) data from the Maine Volunteer Lakes Monitoring Program and UNH Lakes Lay Monitoring Program and any other available sources to assess if there is any discernable (positive, negative or stable) trend in water quality in Great East Lake. The outcome will be summarized in the Final Project Report. AWWA will continue to track information about NPS sites observed during this project through its spreadsheet tracking system and to prompt ongoing maintenance of installed BMPs. (4/15 to 3/17)

1st Yr. Output Goals: 2 PRs, 1 PCR
Cost: Grant-$4,730 Match-$0 Total-$4,730

Task 2 - Steering Committee Meetings

A steering committee will guide project activities and meet at least four times during the grant period. This committee will include representatives from the GELIA, WLA, AWWA, MDEP, Lakeside Drive Road Association and interested landowners from the watershed. (4/15 to 3/17)

1st Yr. Output Goals: 2 SC meetings
Cost: 319 Grant - $1,430 Match - $1,649 Total - $3,079

Task 3 – General Landowner Technical Assistance, Without Cost Sharing

AWWA staff will provide technical assistance to landowners in the form of site-specific recommendations on low-cost conservation practices at a minimum of 20 residential, driveway, beach and boat access sites having erosion and runoff problems as identified in the watershed surveys or subsequent evaluation. TA outreach will be targeted at the high and medium priority sites. The availability of technical assistance will be advertised in the AWWA and GELIA websites, GELIA and WLA newsletters and local papers, and personal outreach to watershed landowners. General technical assistance typically involves contacting landowners, receiving requests for visits to landowner properties, site assessment, recommendations for BMPs needed, and follow-up contacts to prompt BMP installations.

Staff will meet with landowners on their property and document their recommendations in written reports and site maps. Landowners will pledge to implement at least one of the recommendations within a year. Staff will then follow up with the landowner in case additional help is needed with implementation. Technical assistance visits will be documented in a Summary Table to DEP, listing the outcomes of staff work to prompt landowners to use their own funds to install BMPs. Fields to be used in this table include NPS Site, landowner name, brief description of problem, BMPs recommended, and BMPs implemented if any. (4/15 to 3/17)

1st Yr. Output Goals: TA for 10 sites with associated reports/documentation
Cost: 319 Grant - $2,852 Match - $804 Total - $3,656

Task 4: NPS Abatement Projects, with Cost Sharing

The project will provide private road associations with up to 60% cost sharing to address erosion and runoff problems on at least 2 priority road or right-of-way sites in the Maine portion of the watershed. The two anticipated work sites will be located on Lakeside Drive and will consist primarily of repair involving BMP installations including ditch stabilization, road grading/crowning, addition of road surface material, ditching, road paving and road shoulder stabilization. Preliminary grant/match cost estimates for this site work are $21,000/$14,000 and $3,000/$2,000 respectively. Cost-share recipients will provide the remaining 40% match through cash or in-kind contributions and complete an AWWA cost-share agreement (CSA), executed by AWWA, prior to construction. MDEP guidelines "Using Project Funds for Construction of BMPs at Road-related Sites" will be used to evaluate road-related NPS sites and determine if NPS project funds can be used to help a landowner pay for construction of road-related BMPs. AWWA staff will coordinate development of site designs, assist with permit applications and oversee construction. Typical steps involved in cost-sharing include frequent landowner contacts, site assessment, design of BMPs, preparation and execution of the Cost Share Agreement, overseeing construction efforts, verifying that BMPs are constructed as designed, reimbursement payments to landowners, and post-construction maintenance inspections. The attached list provides a brief description of the two (2) candidate road sites. AWWA will prepare and submit NPS Site Reports for all Task 4 road sites where BMPs are installed. (4/15 to 3/17)

1st Yr. Output Goals: BMP implementation on 2 roadway sites with accompanying NPS Site Reports

Task 4 Total Cost: 319 Grant - $26,742 Match - $17,487 Total - $44,229

Task 5: Youth Conservation Corps (YCC)

This project will support the continuation of the summer YCC program, which will install at least 30 conservation practices on at least 10 sites on Wilson Lake and properties on Great East Lake in Maine to reduce erosion and runoff from residential properties around the watershed with identified issues that are contributing pollution to the lakes. Project staff will participate on the YCC Steering Committee, track and photo document YCC work, and assist with continuing the sustainability of the AWWA YCC program. Management of the YCC includes a steering committee that meets at least two times each year, provision of all necessary infrastructure and tracking and reporting. Typical YCC efforts include hiring and training the crew, permitting, selection/installation of appropriate site BMPs, and YCC team management and oversight. Project Hosts provide all materials. Staff will develop a Year-End YCC Season Report to reflect accomplishments made during each field season. (4/15-3/17)

1st Yr. Output Goals: Conservation practices installed on at least 5 sites w/ accompanying documentation, 2 meetings

Cost: 319 Grant – $12,681 Match - $23,266 Total - $35,947

Task 6 – Education and Outreach

Project staff will develop four newsletter articles to highlight land use practices that protect water quality, update watershed landowners on project milestones and to solicit participation in project activities. The newsletter articles will be included in the GELIA and WLA newsletters and mailed to 715 households on the GELIA mailing list and 210 on the WLA list.

Signs will be erected at each of the 10 BMP sites to identify the site as an erosion control measure with AWWA contact information and funding sources.

Project staff and volunteers will address the GELIA and WLA Annual meetings to share updates of the project milestones, solicit participation and share resources for water quality protection.

At the end of each YCC project season project staff will record a video of the YCC crew leading a tour of project sites. This video will be aired on local cable access channels and posted on the AWWA website. The result of this effort (including public feedback) will be included in the FPR.

Press releases will also be developed to advertise project milestones. Notices will be submitted to the AWWA, GELIA and WLA newsletters and websites, local newspapers and local cable access channels. All press releases, outreach materials and project signs will acknowledge that the project is funded in part by the United States Environmental Protection Agency under Section 319 of the Clean Water Act. EPA's logo will not be included on materials unless the Grantee receives prior instruction and approval from EPA. (Refer to the Grant Agreement, Rider A. Section III.F. Acknowledgement) EPA guidance on signs will also be followed. (4/15 to 3/17)

1st Yr. Output Goals: 2 articles; 2 annual meeting addresses; 1 YCC tour video; Press Releases
Cost: 319 Grant - $0 Match - $9,425 Total - $9,425

Task 7 – Septic Surveys

AWWA will partner with GELIA and WLA to conduct septic surveys, designed to gather wastewater treatment system information from residences within 250' of the lakes. Paper surveys will be mailed to each resident and an online option will be offered. The survey questions will be similar to those used on Lake Wentworth and Province Lake in NH. A strong incentive will be offered to increase the likelihood of a high response rate as found in the NH projects. Incentive will not be covered by grant funds or used as non-federal match.

AWWA will analyze the results and develop Septic Survey reports for each lake. The information will be used by the towns, AWWA and lake associations to determine where targeted septic outreach should occur and where cost-share funds could be used to encourage upgrades of poorly functioning systems. (4/15 to 3/17)

1st Yr. Output Goals: 1 septic survey & report
Cost: 319 Grant - $6,370 Match - $1,778 Total - $8,148

Task 8 – Pollutant Reduction Estimates

AWWA will estimate NPS pollutant load reductions and resources protected under this project. Pollutant load reduction estimates will be developed and reported as follows: During design or installation of BMPs at NPS sites, appropriate field measurements will be recorded to prepare written estimates of pollutant load reductions. Estimates will be prepared for all NPS sites, unless there is not an applicable estimation method for a given site. Methods to be used are the EPA Region 5 Load Estimation Model (see website http://it.tetratech-ffx.com/stepl/) and/or the U.S. Forest Service WEPP Road Model (http://forest.moscowfsl.wsu.edu/fswepp/). Estimates will be checked for proper application of the method(s) and the results will be summarized on a standard form provided by DEP titled "Pollutants Controlled Report" (PCR). The PCR will be submitted to the DEP Agreement Administrator, by December 31 of each year, until project completion. Documentation of the estimation procedures used for each NPS site will be kept in the Grantee project file and will be available for DEP/EPA review. (4/15 to 3/17)

1st Yr. Output Goals: 1 PCR
Cost: Grant - $1,270 Match - $0 Total - $1,270

DELIVERABLES

Three (3) copies of each Deliverable will be provided to the DEP Agreement Administrator. Each deliverable will be labeled according to procedures described in the DEP document "Nonpoint Source Grant Administrative Guidelines" (http://www.maine.gov/dep/water/grants/319-documents/2010/guidelines.pdf)

1. Progress Reports (semi-annual), NPS Site Tracker Summary for Great East and Wilson Lake, & Final Project Report. (Task 1)
2. Landowner TA Summary Table, listing NPS Site, landowner name, brief description of problem, BMPs recommended, and BMPs implemented if any. (Task 3)
3. NPS Site Report for each NPS Site. (Tasks 4)
4. Year End YCC Season Reports. (Task 5)
5. Copies of all news articles, project newsletters and key outreach materials. (Task 6)
6. Great East Lake and Wilson Lake Septic Survey reports. (Task 7)
7. Pollutants Controlled Report each year until project completion. (Task 8)

INTERAGENCY COORDINATION, ROLES & RESPONSIBILITIES

- The **Acton Wakefield Watersheds Alliance** will serve as the project Grantee and will be responsible for the coordination and implementation of all project activities. AWWA will provide match through volunteer labor, in-kind staff services for the YCC and key staff.
- The **Town of Acton** will provide cash match to support the YCC program.
- The **Great East Lake Improvement Association and Wilson Lake Association** will participate on the steering committee, recruit volunteers, assist with outreach to high priority residential site property owners, advertise project activities in their newsletter and provide cash match.
- The **Lakeside Drive Road Association** will provide cash match and volunteer labor to support the road BMP projects within their jurisdiction and assist with recruitment of YCC project hosts.
- The **Maine Department of Environmental Protection** will administer project funding, participate on the steering committee, serve as the project advisor and provide project and technical support.
- The **US Environmental Protection Agency** will provide project funding and work plan guidance.

ENVIRONMENTAL OUTCOME

This project will help Great East Lake and Wilson Lake maintain Class GPA Standards. Towards this goal, preliminary estimates indicate that this project will reduce pollutant loading by an estimated 40 tons of sediment and 32 lbs of phosphorus per year.

PROJECT COORDINATOR:

Linda Schier, Executive Director; Acton Wakefield Watersheds Alliance
PO Box 235, Union, NH 03887, info@AWwatersheds.org (603) 473-2500
DUNS #: 807337279

ESTIMATED TOTAL COST, FEDERAL & NON-FEDERAL SOURCES & AMOUNTS

A.

Federal EPA Section 319 Grant	$55,356
Non-federal Match	$54,409
Total Project Cost:	$109,765

B.

Match Sources	**Dollar Value Planned**	
Town of Acton	$10,000	
Lake Associations	$2,400	
Citizen volunteers	$7,907	
Landowners	$19,000	($14,000 road ass'n, $5,000 YCC)
Private foundations/donors	$15,102	
Total Local Match	**$54,409**	

Part 1, Estimated Personnel Expenses (Grantee staff only):

Position Name & Title	Hourly Rate	Number of Project Hours	Salary & Fringe	Total Grantee Personnel Expenses
Linda Schier, Executive Director	45	330	$12,510	$12,510
Sam Wilson, Program Manager	25	935	$16,663	$16,663
Crew Leader – TBD	15	572	$3,456	$3,456
YCC Crew (6 members) TBD	10	1580	$10,320	$10,320
Totals			42,948	42,949

Part 2, Budget Estimates by Cost Category:

Cost Category	*Federal 319 Grant*	*Non-Federal Match*	*Total Cost*
Salary & Fringe (from Part 1)	$26,133	$16,816	$42,949
Supplies[1]	$1,220	$5,408	$6,628
Construction	$24,000	$16,000	$40,000
Donated Services - Labor[2]	$0	$7,907	$7,907
Travel[3]	$2,385	$370	$2,755
Other[4]	$1,618	$7,709	$9,327
Totals	$55,356	$54,210	$109,566

[1] Includes grant funds of $720 for YCC signs and tools plus $500 for printing and matching funds of $5,408 for YCC materials and t-shirts.

[2] 14 hrs @ $30 for town officials and 372.5 hrs @ $20.10

[3] Includes 5,420 miles @ $0.44/mile for YCC and technical assistance from grant funds and 840 miles for outreach and steering committee meetings as match.

[4] Includes grant funds for postage & printing of surveys ($1018) and truck maintenance ($600) & matching funds for newsletter printings ($4350), YCC mailings ($259) and truck maintenance and insurance ($3100)

Attachment A: Candidate Site List for Road BMPs

Road sites – The road sites below have been identified as high impact based on the degree of erosion documented in the 2010 Great East Lake Watershed Survey Report and recent site visits and measurements. **The Lakeside Drive Road Association is governed by an incorporated road association.** Costs listed are preliminary estimates. Detailed estimates will be provided for Grant Administrator approval prior to project initiation. Sites will be subject to change pending satisfactory completion of cost-share and land owner agreements (LOA) and permitting. Pollutant load calculations follow EPA Region 5 Load Estimation Model or WEPP Federal Road Model.

1. Lakeside Drive from end of town maintained section to intersection with Foley Way, Private Road, Great East Lake. Road site includes severe surface, ditch and road shoulder erosion. Significant runoff flows over and across the road and overflows over graveled road and driveways (3) directly into Great East Lake. Recommendations include rip-rap ditch, remove old asphalt, grade and pave 900' of road to divert runoff into additional ditches at the base of the road. Additional engineering may be required. Total Construction Cost: $35,000 ($21,000 grant, $14,000 match)
   Pollutant Load Calculation (per year) 20.0 tons sediment, 16.9 lbs of phosphorus.

2. Intersection of Foley Way to 840 Lakeside Drive; Private Road, Great East Lake. Road site has severe road shoulder erosion, undersized ditch with severe erosion depositing runoff across private properties into Great East Lake. Recommendations include ditching and resurfacing approximately 700' of road and crown to divert runoff into ditches. Total Construction Cost: $5,000 ($3,000 grant, $2,000 match)

   Pollutant Load Calculation (per year) 16.6 tons sediment, 14.0 lbs of phosphorus.