

#2006P-12

Square Pond Watershed Survey

Grantee: York County Soil and Water Conservation District (YCSWCD)

Watershed Information:

Square Pond is located in the Towns of Acton and Shapleigh in York County, Maine. The pond covers 910 acres and has a direct watershed of 4.3 square miles (Attachment B). Square Pond has an average depth of 20 feet, a maximum depth of 44 feet, and a very slow flushing rate of .27 times per year. Square Pond flows into Goose Pond which flows into Mousam Lake and is identified in the 2003 TMDL final report (Maine Department of Environmental Protection and Maine Association of Conservation Districts) as an indirect watershed contributor of phosphorus to Mousam Lake. More than 130kg per year of phosphorus likely flows from Square and Goose Ponds and enters the sensitive upper basin of Mousam Lake. Square Pond is on the “watch list” in the *2002 State of Maine Water Quality Assessment* due to concerns relating to dissolved oxygen depletion during the summer months. Square Pond is also listed on the Maine Nonpoint Source Priority Watersheds List.

The Square Pond watershed is highly developed with over 500 seasonal camps and year-round homes. A growing number of seasonal residences are being converted to year-round usage. The pond also has a public beach that is owned by the Town of Shapleigh, and a public boat launch that is owned by the Town of Acton.

The local Square Pond Improvement Association (SPIA) was formed by Square Pond shore-front property owners in 1958 to promote the welfare of the property owners surrounding Square Pond, and to safeguard and improve the lake water. The SPIA and the Maine Department of Environmental Protection (Maine DEP) have monitored the pond’s water quality since 1983. Spurred by the efforts on Mousam Lake, the SPIA formed a water-quality committee in fall 2003 to gather more information on Square Pond’s declining water quality, to create awareness of the water quality issues, and to recruit assistance in correcting pollution sources. The Towns of Acton and Shapleigh recognize the importance of protecting the water quality in the Square Pond Watershed individually and as part of the larger Mousam Lake Watershed, and are committed to supporting these efforts (Attachment A). In fact, the towns have provided financial support for a Youth Conservation Corps (YCC) that has been successfully implementing conservation projects and providing technical assistance to landowners over the past three years in the Mousam Lake region.

Problem/Need:

As with many of Maine's lakes, Square Pond’s water quality is threatened by nonpoint source pollution (NPS) from developed areas in the watershed. It is suspected that residential development (and accompanying septic systems sited on sandy soils) and private roads are the major sources of phosphorus to the pond. Residential developments potentially contribute phosphorus to the pond since there is a high density of homes, many homes have aging septic systems, and the lots are small and lack shorefront buffers. There is an abundance of private roads in the watershed, over 19 miles in length, most of which are located within 250 feet of the lake. In addition, there are no established road associations in the watershed and existing road maintenance efforts are insufficient.

Given these issues, the Square Pond Improvement Association and the Towns of Acton and Shapleigh are eager to partner with the YCSWCD in order to take this crucial step of identifying the specific needs of this watershed in order to begin a process of addressing the phosphorus impacts to Square Pond.

Purpose:

The specific purpose of this project is to identify, document and prioritize soil erosion and phosphorus pollution sites in the Square Pond Watershed and to recommend Best Management Practices (BMP) that can be installed to mitigate problems at each of these sites. It is anticipated that implementation efforts will follow the survey beginning in 2006 through the existing YCC program. The long-term goal is to reduce watershed pollutant loading to help improve and protect the water quality of Square Pond.

Project Duration: (12 months)

Expected Project Start Date: April, 2006 Expected Project Completion Date: April, 2007

General Project Plan:

The *Square Pond Watershed Survey* will be managed by the York County SWCD and guided by a steering committee. Key partners include the Square Pond Improvement Association (SPIA), the Towns of Acton and Shapleigh, and the Maine DEP.

The entire Square Pond Watershed will be surveyed through this project. Survey methods will be based on those outlined in MDEP's publication, *A Citizen's Guide to Lake Watershed Surveys*. However, the volunteer training sessions will be modified to provide more hands-on training in the field. Volunteers will also be trained to rate the water quality impact of each site and develop recommendations for fixing these sites - in hopes that this additional training will build local expertise and spur the implementation of on-the-ground BMPs. In addition, staff and volunteers will conduct a shoreline survey utilizing the methodology developed in the TMDL Assessment process, in which they will identify soil erosion problems and assess the adequacy of vegetation in all lakefront buffers and look for potential septic issues using a simple field method.

Technical staff will conduct follow-up visits to all sites not assessed during the training. In addition, staff will calculate pollutant load reduction at all sites rated as medium or high impact upon the lake. Survey findings will be summarized in a final report, which will be distributed to town officials, SPIA Board members and residents with identified sites.

The community will be updated about project activities through an initial mailing to watershed residents, a presentation at the SPIA annual meeting and articles in the SPIA newsletter, Sanford News and Journal Tribune. Survey volunteers will distribute educational packets to each watershed household during the survey. In addition, LakeSmart and Mousam Lake YCC flyers will be left at all properties with identified issues. Volunteers and technical staff will also make an effort to speak with all residents that they encounter and invite them to walk the property together and discuss problems that may impact water quality. Survey findings will be summarized in a Power Point presentation, which will be presented to the SPIA membership and the Acton and Shapleigh Town Boards.

In managing this project YCSWCD will not use NPS Program grant funds to undertake, complete or maintain erosion or storm water control work otherwise required by existing permits or orders.

Tasks, Schedules and Estimated Costs:

Task 1 – Project Management

The York County SWCD and Maine DEP will sign a grant agreement outlining project roles, responsibilities and funding arrangements. The York County SWCD will track project expenses and local match and complete semi-annual reports and one final report. (3/06 to 3/07)

Cost: 319 Grant - \$1,422 Match - \$200 Total - \$1,622

Task 2 – Steering Committee

A steering committee will guide project activities and meet at least three times during the grant period. This committee will include representatives from MDEP, York County SWCD, SPIA, and the Towns of Acton and Shapleigh. (3/06 to 3/07)

Cost: 319 Grant - \$436 Match - \$1,080 Total - \$1,516

Task 3 – Community Education and Outreach

The SPIA will review town tax maps and compile a mailing list of all watershed landowners. Project staff will develop and send notification letters to all households on this list prior to the field survey. The letter will describe the project, enlist volunteers and give landowners the opportunity to exclude their properties from the survey.

The York County SWCD will provide brochures for survey volunteers and technical staff to distribute to each watershed property with identified nps issues. Surveyors will also make an effort to speak with all residents that are home during the survey. They will share information about the NPS threats to the lake and the purpose of the survey and then ask the landowner to accompany them on the assessment of their property. Surveyors will summarize their interactions with landowners on the watershed survey forms, and the project manager will report on these findings in the project's Final Report.

A notice about the project will be included in the SPIA newsletter, and press releases will be sent to the Journal Tribune and Sanford News. York County SWCD and SPIA representatives will present preliminary survey findings at the SPIA's annual meeting. A follow-up article summarizing the project and survey findings will be sent to the local newspapers and printed in the SPIA newsletter. (3/06 to 3/07)

Cost: 319 Grant - \$2,633 Match - \$4, 436 Total - \$7,069

Task 4 – Volunteer Training, Survey and Technical Follow-up

The SPIA will recruit at least 20 volunteers to conduct the watershed survey. The daylong volunteer training will include a morning classroom session where volunteers will learn about the lake's NPS problems, the survey goals and methods, site documentation and typical erosion problems and solutions. Volunteers will then be divided into teams and assigned specific areas to survey.

Resource personnel from MDEP and York County SWCD will then lead each survey team through hands-on field training in their assigned section. Technical staff will walk their teams through all aspects of the survey process and gradually turn these duties over to the volunteers, providing input and direction as needed.

Volunteers will document each site by completing survey forms and site sketches, taking photographs and marking the site numbers on tax maps. Survey forms will include information on the nature and extent of each site's erosion and runoff problems, recommended fixes, impacts to the lake and the cost and technical level of the fixes. Each survey team will complete the remainder of their assigned section within one month of the training. A SPIA volunteer will collect and organize survey data, process the photographs and deliver all documentation to the York County SWCD. (3/06 to 6/06)

York County SWCD and MDEP staff will visit all watershed areas that were not completed during the trainings to check the accuracy and completeness of site documentation and record any erosion problems that were overlooked by the volunteers. York County SWCD will calculate soil loss associated with all high and medium impact sites using the methods described in the publication, *Pollutants Controlled Calculation and Documentation for Section 319 Watershed Training Manual*. (6/06 to 9/06)

York County SWCD staff will enter site data into Excel spreadsheets and create an educational report that includes a summary of survey findings, a GIS map showing site locations, photos of representative problem sites and a discussion about next steps for the watershed community. A draft report will be distributed to steering committee members and MDEP for review, and input will be incorporated into a final report. (9/06 to 12/06)

The final watershed survey report will be printed and distributed to the steering committee, Acton and Shapleigh Select Boards, Acton and Shapleigh Conservation Commission, SPIA Board of Directors, road associations and other interested watershed residents. (12/06 to 2/07)

Cost: 319 Grant - \$7,076 Match - \$4,136 Total - \$11,212

Deliverables:

A properly labeled copy of each of the following deliverables will be provided directly to the EPA; to the assigned DEP Agreement Administrator; and to the NPS Program office in Augusta. All deliverables will conform to the procedures for deliverables as contained in the DEP document “Nonpoint Source Grant Administrative Guidelines.”

1. Signed Grant Agreement (Task 1)
2. Final Project Report and semi-annual progress reports (Task 1)
3. Copies of articles printed in newsletters & newspapers; educational brochure (Task 3)
4. Summary of soil loss estimates and calculations for high and medium impact sites (Task 4)
5. Final Watershed Survey Report (Task 4)

Interagency Coordination, Roles and Responsibilities:

The **Maine Department of Environmental Protection** will administer project funding, serve as the project advisor, participate on the steering committee and assist with the volunteer training and technical follow-up of identified sites.

The **US Environmental Protection Agency** will provide project funding and guidance.

The **York County SWCD** will serve as the project sponsor and be responsible for the coordination and implementation of all project activities.

The **Square Pond Improvement Association** will serve on the steering committee, develop a mailing list of all watershed households, advertise project activities in their newsletter, recruit volunteers for the survey, and present information about the survey at the SPIA annual meeting. The association will also contribute at least \$1,000 in cash match to the project.

Representatives from the **Towns of Acton and Shapleigh** will serve on the steering committee and provide project updates to Towns’ Select Boards, Planning Boards and Conservation Commissions. The Town of Shapleigh also plans to contribute \$1,000 in cash match.

Project Outcome

1. Watershed survey for Square Pond
2. Soil loss estimates for all high and medium priority sites

Project Coordinator:

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Estimated Total Cost, Federal & Non-Federal Sources:

319 Grant:	\$12,445
Non-Federal Match:	<u>\$11,372</u>
Total:	\$23,817

Sources of Match:

SPIA & citizen volunteers
Town of Acton
Town of Shapleigh

Dollar Value Planned

\$ 9,832 (SPIA cash \$1,000; citizen in-kind services \$8,832)
\$ 270 (in-kind services)
\$ 1,270 (cash \$1,000; in-kind services \$270)

Budget Information:

Part 1, Estimated Personnel Expenses (Grantee staff only)

Position Name and Title	Hourly Rate	Number of Project Hours	Salary & Fringe	Total Grantee Personnel Expenses
Deborah Kendall, Project Coordinator	\$27.00	420	\$11,327	\$11,327
Deb Mayo, Office Administrator	\$20.00	36	\$720	\$720
Totals:			\$12,047	\$12,047

Part 2, Budget Estimates by Cost Category

Cost Category	NPS grant	Non-Federal Match	Total Cost
Salary & Fringe	\$11,447	\$600	\$12,047
Supplies	\$568	\$1,600	\$2,168
Donated Services – Labor		\$9,172	\$9,172
Travel (1,265 miles @ \$.34/mile)	\$430		\$430
Totals:	\$12,445	\$11,372	\$23,817