

Spruce Creek Watershed Improvement Project Phase I
Project # 2008RR01

Final Report
October 2010



PROTECT KITTERY WATERS

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I. Project Overview

Project Purpose

The primary purpose of the Spruce Creek Watershed Improvement Project (SCWIP) Phase I was to address the cumulative impacts of increasing development and polluted runoff to surface waters in the Spruce Creek watershed (see Appendix A for watershed description). In particular, this project focused on reducing bacteria loading and the export of sediment and nutrients into Spruce Creek to improve water quality and help re-open shellfish harvest areas. This was accomplished through the installation of structural Best Management Practices (BMPs) at residential, commercial, and town properties. The project also aimed to raise awareness about watershed problems and foster long-term watershed stewardship. Some of the major project outcomes include:

- The installation of 22 BMPs to control polluted runoff (11 residential, 9 commercial, and two industrial).
- Direct education of over 1,000 watershed citizens and visitors through outreach.
- Three septic socials (total of 45 attendees) and six residential socials (total of 110 attendees) held.
- Over 3,000 volunteer hours logged.
- The establishment of a discounted rain barrel program with dispersal to over 100 local residents.
- The launch of the Save Kittery Waters website.
- The development of the Save Kittery Waters Pledge program which has received pledges from 34 local citizens to implement a total of 444 watershed-friendly practices on their properties.
- Presentations at over 10 events.

Project Highlights and Difficulties

Overall, Phase I of the SCWIP was a success. Major highlights of the project include the completion of many of the tasks outlined in the grant agreement as well as tasks originally beyond the scope of the plan. These “extras,” such as the establishment of the rain barrel program and residential socials, engaged many more local citizens than was originally anticipated. At the end of this project, more than 1,000 watershed citizens and visitors were exposed to the work being completed through this grant.

Despite the successes of this project, there were some difficulties that complicated and delayed the completion of some of the original tasks. For instance, many of the BMPs installed during this project were on commercial property. The “go-ahead” for work to be completed on these

properties often had to go through many levels of approval. The long-time frame associated with this type of work was not anticipated and prevented the installation of some of the BMPs originally planned on commercial properties. Another major difficulty of this project was the overlap of Phase I and Phase II of the SCWIP in 2010.

Key Personnel

Key personnel for SCWIP Phase I include the following (leaders identified in bold):

SCWIP Team	Key Personnel
Project Manager (Task 1)	Sue Cobler
Steering Team (Task 2)	Sue Cobler , Forrest Bell, Jonathan Carter, Phyllis Ford, Don Kale, Paula Ledgett
LID Team (Task 3)	Dave Gooch , Jeff Clifford, Megan Kline, Glenn Shwaery
Septic Team (Task 4)	Will Brewster, Richard Chiango, Dan Clapp, Ken Lemont, Emily Maxfield, John Robinson, Peter Walsh
Residential Conservation Team (Task 5)	Steve Hall, Maura Khan, Mara Lamstein, Dick Loehr, Elaine Manning, Kalle Matso, Lorna Perry, Martha Petersen, Shaye Robbins, Karen Young
Stream Crossing Erosion and Culvert Replacement (Task 6)	Elaine Manning, Bruce Haedrich, Dale Small, Steve Hall
Community Outreach Team (Task 7)	Phyllis Ford , Jude Battles, Janet Dunham, Marcia Griffith, Barney Hoop, Johanna Mangion, Marty Rea, Carolyn Hanson, Karen Young
Resources Team	Kent Allyn, Jude Battles, Joanne Charles, Chris Kelly, Clayton Smith

II. Task Summary

Task 1: Project Management

The Town of Kittery and MDEP finalized the contract for this project in May 2008. The Town of Kittery tracked project progress, expenses, and local match. Four semi-annual progress

reports were completed. Sue Cobler was hired as project manager of SCWIP Phase I in June 2008.

Task 2: Steering Committee

The Steering Committee met five times throughout the course of this project. Committee members included Sue Cobler, Forrest Bell, Jonathan Carter, Phyllis Ford, Don Kale, and Paula Ledgett. The Steering Committee organized this project into “teams” based on project tasks and met to discuss progress and next steps.

Task 3: LID and Stormwater Best Management Practices

In the first year of the project, the LID Team inventoried the Spruce Creek watershed during wet and dry weather to identify potential commercial and industrial sites for the implementation of stormwater BMPs. From this inventory, approximately ten sites were selected as good candidates for remediation. Upon the completion of this project, a total of 11 stormwater BMPs were installed at three of these sites. The work completed at each site is thoroughly documented in the NPS reports in Appendix B. A brief summary of the work completed by the LID Team includes the following:

- **LID Site 1: Old Navy Outlet:** Improvements to this site include the installation of two under-drains, a rain garden, a no-mow zone, a curb-cut, and a stone apron.
- **LID Site 2: Bagel Caboose:** Improvements to this site include the installation of a vegetated under-drain, a mulched area, and a soil filter.
- **LID Site 3: Kittery Town Hall:** Improvements to this site include the installation of a rain garden and a treebox filter.

Task 4: Septic System Maintenance and Repair

The Septic System Maintenance and Repair Team held three septic socials, with a total of 45 attendees. Each social included a presentation by a guest speaker on the importance of septic system maintenance, and the dispersal of septic system and optical brightener fact sheets and pump-out coupons from a local septic company (Appendix D).

The Team also identified 44 potential properties with overboard discharges (OBDs) through town tax records. As a result, the town replaced two OBDs throughout the project period.

Task 5: Residential Conservation Practices

In the first year of SCWIP Phase I, the Residential Team identified potential properties for BMP installation. From this work, Technical Assistance Reports were generated for 13 residences (Appendix C). Throughout the project, 11 structural BMPs were installed at three residential properties with the help of 12 volunteers donating over 330 hours of their time. These BMPs included two rain gardens, two no-mow zones, four vegetated buffers, one drywell, one rain

barrel, and one set of infiltration steps. From the Technical Assistance Reports, approximately four other BMPs were completed by the residents.

The work completed at each site is thoroughly documented in the NPS reports in Appendix B. A brief summary of the work completed by the Residential Team includes the following:

- **Residential Site 1: 35 Mill Pond Road:** Improvements to this site include the installation of a rain garden, two vegetated buffers, infiltration steps, and a drywell.
- **Residential Site 2: 7 Mill Pond Road:** Improvements to this site include the installation of a vegetated buffer and a no-mow zone.
- **Residential Site 3: 7 Ox Point Road:** Improvements to this site include the installation of a vegetated buffer, a no-mow zone, a rain barrel and a rain garden.

The Residential Team organized and held six residential socials to encourage interest and participation in this task. Over 110 people attended these events.

The Residential Team also completed a number of projects beyond the original scope of the SCWIP Phase I. In collaboration with the rain barrel company SkyJuice, the Residential Team organized a discounted rain barrel program for residents both inside and outside of the Spruce Creek watershed. Over 100 rain barrels were sold at a discounted rate to residents throughout the Spruce Creek watershed. The rain barrels were distributed in a heavily publicized and attended event utilizing a gundalow and culminating in a residential social. More information about this event is available in Appendix D.

Task 6: Stream Crossing Erosion and Culvert Replacement

In the first year of the SCWIP Phase I, ten culverts were identified as potential sites for replacement or repair. Due to logistical issues, no culverts were replaced during the course of this project. Maine DEP gave permission to roll the funds originally allotted for Task 6 into Task 5 (Residential Conservation Practices). These funds would be used to hold six residential socials to introduce homeowners to the need for residential conservation practices and to identify potential properties on which to install BMPs.

Task 7: Public Outreach

A major goal of SCWIP Phase I was to raise community awareness about water quality in the Spruce Creek watershed through public outreach. The “Outreach Team” not only assisted the Residential and Septic Teams with the organization of socials and the creation of fact sheets, they also implemented a variety of other programs. Detailed information about these programs and more can be found in Appendix D:

- **Protect Kittery Waters Website (www.savekitterywaters.org):** Created in 2009, this website provides a central location for information about the SCWIP, an overview of

steps each resident or business owner can take to improve water quality in the watershed, a calendar of events for SCWIP projects, as well as links to other resources.

- **Intercept Surveys:** In order to gauge the type of public outreach and education needed in the Spruce Creek watershed, pre-project intercept surveys were completed in the Fall 2008. Volunteers gathered responses from approximately 212 local residents. 75 local residents were surveyed in October for a post-project intercept survey. Results from these surveys will guide outreach efforts in Phase II of this project. Copies of the surveys are available in Appendix D.
- **Watershed Pledge:** The Watershed Pledge (Appendix D) is a public outreach tool that encourages local residents to discuss what they can do to improve water quality in the Spruce Creek watershed with their families, and commit to implementing these actions. Residents can pledge to improve buffers around their homes, care for their lawns and gardens in a more watershed-friendly way, prevent erosion and reduce runoff from their property, or simply spread the word to other residents. For their pledge, homeowners received a yard sign indicating their participation (Appendix D). During Phase I, 34 people pledged to complete a total of 444 watershed-friendly practices on their properties.
- **Press Releases:** Press releases were released for every event held by the SCWIP Phase I. Many news articles covered the events (Appendix D).
- **Tour of SCWIP Phase I Sites:** A tour of the residential and LID BMPs installed during Phase I of the SCWIP is planned for October 2010.
- **Save Kittery Waters Tote Bags and Note cards:** These items were sold as fundraisers for the project.

Task 8: Pollutant Load Reduction Estimates

Pollution reduction estimates were calculated for all sites where applicable. The EPA Region 5 Model was used to estimate load reduction. As the “Urban Runoff” tab was used, total sediment controlled was not calculated. It is estimated that a total of 2,781 pounds/year of Total Suspended Solids, 1 pound/year of Total Phosphorus, and 28 pounds/year of Total Nitrogen were reduced through the implementation of BMPs.

Pollutant reductions calculated with the Region 5 Model are reported in a Pollutant Load Report for the Maine DEP, as well as a memo generated by FB Environmental for the Town of Kittery. Both reports are available in Appendix E.

As of October 2010, water quality in the Spruce Creek watershed is still considered impaired based on recent water quality data. Shellfish harvesting areas still remain closed.

III. Deliverables Summary

Task 1: Project Management

- Contract between the Town of Kittery and MDEP was signed in May 2008.
- Semi-annual progress reports were submitted four times throughout the project.
- This final report was submitted in October 2010.

Tasks 3 (LID and Stormwater Best Management Practices) and 5 (Residential Conservation Practices):

- Non-point source (NPS) site reports for each NPS site can be found in Appendix B.

Task 7: Public Outreach

- Copies of newspaper articles, brochures, presentations, outreach materials, citizen surveys, and a summary of the septic and residential socials can be found in Appendix D.

Task 8: Pollutant Load Reduction Estimates

- Pollutants Controlled Reports were submitted throughout the grant period. A summary of the 2010 pollutant load estimates can be found in Appendix E.

IV. Summary of Total Expenditures

	<u>Federal NPS Grant</u>	<u>Non-Federal Match</u>	<u>Total</u>
Funds Originally Allocated	\$69,670.00	\$106,326.00	\$175,996.00
Funds Expensed	\$69,670.00	\$113,865.00	\$183,535.00
Funds Remaining	\$0	- \$7,539.00	- \$7,539.00

SCWIP Phase I Grant Expense and Non-Federal Match Summary							
Watershed Project Activity or Workplan Element	Grant Funds Expended	Non-Federal Match					Grant + Match
		Volunteer Match	In - Kind Services	Kittery Match	Cost Share	Total Match	
Task 1: Project Management and Administration	\$ 1,936.60		\$1,200	\$ 176		\$ 1,376	\$ 3,330
Task 2: Steering Committee	\$ 4,220.62	\$ 1,458	\$ 1,845	\$ 264		\$ 3,567	\$7,788
Task 3: Stormwater Retrofit / (LID) Implementation	\$ 21,484.63	\$ 24,110	\$ 10,545	\$ 1,328	\$ 200	\$36,183	\$ 57,668
Task 4: Septic System Maintenance and Repair	\$ 3,536.95	\$ 2,461		\$ 521		\$ 2,982	\$6,519
Task 5: Residential & Business Conservation Practices	\$ 25,467.44	\$27,194	\$ 5,797	\$ 841	\$ 992	\$34,824	\$ 60,292
Task 6: Stream Crossing Erosion Control and Culvert Replacement	\$ 245.00	\$ 2,751		\$ 120		\$ 2,871	\$3,116
Task 7: Public Outreach	\$ 9,982.76	\$ 17,847	\$13,963	\$ 208		\$32,018	\$ 42,001
Task 8: Pollutant Load Reduction Assessment and Monitoring	\$ 2,796.00			\$ 44		\$ 44	\$2,840
TOTAL	\$ 69,670.00	\$ 75,821	\$ 33,350	\$ 3,502	\$ 1,192	\$113,865	\$183,553

V. Non-Federal Match Documentation and Certification

See Appendix F for Match Certification Form and table of match sources.

VI. Appendices

Appendix A: Watershed Description

Appendix B: NPS Site Reports

Appendix C: Technical Assistance Reports

Appendix D: Public Outreach Deliverables

Appendix E: Pollutants Controlled Report Summary

Appendix F: Non-Federal Match Documentation and Certification