

#2007RR03 Hancock and Sand Ponds Conservation Project – Phase I

Grantee: Cumberland County Soil and Water Conservation District (SWCD)

Watershed Information:

Hancock and Sand Ponds are located in the Towns of Sebago and Denmark in Cumberland and Oxford Counties, Maine. The ponds have a combined surface area of 1,114 acres, and both flush roughly 0.79 times per year. The ponds' immediate watersheds cover 5.65 square miles, which are part of the larger Saco River Watershed.

The ponds' shore area is ringed with approximately 200 seasonal and year round homes. There is considerable development pressure within the watershed, as Sebago and Denmark have experienced high rates of growth over the past fifteen years (about 14% and 17% since 1990, respectively). Hancock Pond has two boat launches. Both receive heavy use by the public throughout the season, despite one launch being designated for private use. Hancock Pond is known for outstanding bass and trout fishing. The Maine Department of Inland Fisheries and Wildlife manages it for warm and cold-water fisheries. The Maine Department of Environmental Protection (MDEP) has placed Hancock and Sand Ponds on its *Nonpoint Source Priority Watersheds* list.

The Hancock and Sand Ponds Watershed community has demonstrated a strong commitment to addressing problems. The Hancock and Sand Ponds Association (HSPA), which was founded in 1971, represents over 100 dues-paying members from around the lake. Throughout the years HSPA has worked in conjunction with LEA to monitor the ponds' water quality, implement safety precautions in and around the ponds, and educate the public about water quality threats via their annual meeting and newsletter. In 2005, HSPA and LEA partnered with Cumberland County SWCD to complete a watershed survey of the entire Hancock and Sand Ponds Watershed, and the watershed community is now eager to take the next step in their lake protection efforts by installing conservation practices at many of the sites identified through the survey. Their contribution of money and in-kind support, in the form of time and resource sharing for this proposed project, are evidence of this enthusiasm.

Problem/Need:

MDEP staff, Lakes Environmental Association (LEA) and volunteer monitors have tested Hancock and Sand Ponds' water quality since 1975. Their data indicate that the ponds are showing signs of stress. In particular, the data show severe dissolved oxygen depletion in the summer months, with oxygen levels often at or near zero in the bottom waters of Sand Pond. These conditions correlate with elevated phosphorus levels below the thermocline, which may be indicative of phosphorus recycling. Dissolved oxygen depletion is also a problem on Hancock Pond, as consistently low oxygen levels in the summer months severely impact the pond's cold water fishery.

The signs of stress exhibited by Hancock and Sand Ponds have been attributed to nonpoint source (NPS) pollution that washes into the ponds from their surrounding watershed. Based on current uses, it appears that polluted runoff, including erosion from camp lots and roads in the shoreland zone, is the leading source of phosphorus. In addition, periodic large scale logging of hundreds of acres on tributary streams is also a source of additional phosphorus.

The Hancock and Sand Ponds Association (HSPA), the Cumberland County Soil and Water Conservation District (SWCD), LEA, and the MDEP documented many of the NPS pollution sources in the Hancock and Sand Ponds Watershed in the spring of 2005 through the Hancock and Sand Ponds Watershed Survey. Twenty volunteers from the watershed identified 79 erosion sites, which included residential areas (39%); private roads (20%); driveways (17%); town roads (12%); and boat access points, construction sites, beaches, trails, and right-of-ways (12%), that contribute polluted runoff to the

watershed. Thirty-eight of the 79 sites were ranked as having a low impact on water quality, 23 sites were medium impacts, and 18 were high impacts.

The watershed community has demonstrated a strong commitment to continuing the momentum initiated during the 2005 survey. The *Hancock and Sand Ponds Conservation Project – Phase I* will build on this momentum and provide watershed residents with the necessary technical skills and experience to install a variety of conservation practices that reduce the impact of soil erosion on their ponds.

Purpose:

The primary purpose of this project is to significantly reduce erosion and export of sediment and phosphorus into Hancock and Sand Ponds. Conservation practices that reduce erosion and polluted runoff will be installed at 35 sites throughout the watershed to include 14 road sites, one trail site, and 20 residential sites. These improvements will reduce pollutant load to the ponds by about 83 tons/year of sediment. In addition, the project will raise awareness about watershed problems and work to foster long-term watershed stewardship.

Project Duration: 24 months

Planned start: April, 2007

Planned completion: March, 2009

General Project Plan:

The *Hancock and Sand Ponds Conservation Project – Phase I* will be managed by the Cumberland County SWCD and guided by a steering committee. Local partners include the Hancock and Sand Ponds Association (HSPA), Lakes Environmental Association (LEA), and the Towns of Sebago and Denmark.

Through this project, Cumberland County SWCD and LEA staff, the Towns of Sebago and Denmark, and volunteers will coordinate and install conservation practices at nine private road sites, five town road sites, and one trail site. Project staff will provide technical assistance to a minimum of 30 landowners and road associations. In addition, matching grants will be available to carry out 20 residential improvements. In total, conservation practices that reduce erosion and polluted runoff will be installed at 35 sites throughout the watershed; one “cruise the buffers” workshop will be held to highlight (from the water) the value of vegetated buffers; one hands-on workshop will be held to instruct landowners on the proper maintenance of driveways; and one hands-on conservation landscaping workshop will be held to install a vegetated buffer or rain garden.

Project activities will be showcased in presentations at the HSPA annual meeting, which will include before and after photos of the road and residential sites. LEA will also present tips for lake-friendly living at their annual meeting. HSPA will highlight project activities in its newsletters, and LEA will include project information in its newsletter and on its website. Cumberland County SWCD staff will develop an initial project fact sheet to introduce the project. Flyers and press releases will advertise workshops and the availability of matching grants and technical assistance. Cumberland County SWCD staff will also utilize the NEMO model in working with and presenting information to the Towns of Sebago and Denmark. A final project brochure will be produced that will include before and after pictures of the conservation practices. The brochure will be distributed to watershed residents and municipal officials. The purpose of the brochure will be to educate watershed residents and local leaders about how to protect Hancock and Sand Ponds’ water quality and encourage application of demonstrated measures.

The goal of Phase I is provide the Hancock and Sand Ponds Watershed residents with funding and technical support to start to address the existing erosion issues and to develop an action plan for implementing conservation practices on any remaining sites. It is anticipated that an additional phase will be needed to address remaining erosion sites in the watershed and to continue to foster long-term watershed stewardship. The goal of Phase II will be to complete repairs to the highest impact remaining erosion sites in the watershed and to continue education and technical support for watershed residents.

In managing this project NPS Program grant funds will not be used 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 Cumberland County SWCD and MDEP will sign a contract outlining project roles, responsibilities and funding arrangements. The Cumberland County SWCD will track project progress, expenses and local match and complete four progress reports and one final report. In addition, the Cumberland County SWCD will provide locations and estimates of pollutant reductions to MDEP by December 31st each year for all BMP sites completed that year. (4/07 to 3/09)

Cost: 319 Funds - \$5,432 Local Match - \$0 Total - \$5,432

Task 2 – Steering Committee

A steering committee will guide project activities and meet at least six times during the grant period. This committee will include representatives from Cumberland County SWCD, LEA, MDEP, HSPA and the Towns of Sebago and Denmark. (4/07 to 3/09)

Cost: 319 Grant - \$2,800 Local Match - \$3,459 Total - \$6,259

Task 3 – NPS Abatement Projects

The CCSWCD Project Manager and District Engineer will provide private road associations and town road crews with technical assistance and up to 50% cost sharing to address erosion and runoff problems for at least 12 high or medium priority sites identified in the Hancock and Sand Ponds Watershed Survey. Cost share recipients must provide a 50% match through cash, material or labor contributions and agree to maintain the projects as directed. The sponsor and the cost share recipient will complete a CCSWCD cost share agreement prior to construction. In addition, the Town of Denmark has committed to address its three identified town-owned sites in the watershed as in-kind match. In total, 15 sites will be addressed under this task. The DEP NPS Site Report form will be prepared for each completed NPS site.

The steering committee selected sites based on the following criteria: priority ranking in the watershed survey report, public visibility and the probability of landowner/town cooperation. Final site selection is subject to change, pending satisfactory completion of landowner agreements, engineering design and permit approval. The candidate sites are outlined in detail in Attachment A. The estimated sediment from the candidate sites accounts for nearly 62% of the total sediment load estimated from the NPS sites assessed in the watershed. (4/07 to 3/09)

Cost: Grant - \$38,776 Local Match - \$33,526 Total - \$72,302

Task 4 – Residential Matching Grants

Of the 79 identified sites, 62% (49 sites) were associated with residential areas (structures, driveways, beaches, right-of-ways, etc.). Of these, five were identified as high and 15 as medium impact sites. Therefore, a matching grants program will be established to assist watershed residents in installing conservation practices on their properties. A total of 20 grants will be awarded up to \$300 for the purchase of materials. Participants will be expected to match the award 1:1 through cash, labor, materials or a combination thereof.

Preference for all 20 matching grants will be based first, on priority ranking, and second, on landowner interest and overall site need. A written plan will be developed for all grant recipients. In addition, each grant recipient will sign a formal cost sharing agreement, which will specify how materials will be purchased (either CCSWCD provides or landowner purchases and CCSWCD reimburses), and that verification of proper installation will occur to complete the agreement. One report will list descriptive information for all sites receiving the Residential Matching Grants.

Technical assistance will be provided to all landowners eligible to receive matching funds. Project staff will also provide technical assistance to those landowners who do not qualify for matching funds or who are not interested in the grants. A minimum of 30 technical assistance visits and subsequent landowner reports will be completed through this project.

In addition, CCSWCD will coordinate and facilitate one hands-on conservation landscaping workshop to install a vegetated buffer or rain garden. One "Cruise the Buffers" workshop will be held to highlight (from the water) the benefits of buffers. Both workshops will cover using soil surveys to identify soil type and uses, balancing lake views and water quality protection through plant selection, the value of native plants, use of winding paths for protecting buffers, privacy provided by buffers, DEP Permit by Rule process, and shoreland zoning and clearing restrictions. In addition, the "Cruise the Buffers" workshop will showcase natural, no-mow and landscaped buffers. A local resident will donate the use of a pontoon boat for the cruise.

LEA will coordinate and facilitate a hands-on driveway maintenance workshop to demonstrate proper grading and crowning techniques, surface material recommendations, and the use of runoff diverters. Since many of the techniques used on driveways are applicable to gravel roads, residents living on private roads will be encouraged to attend. (4/07 to 9/09)

Cost: Grant - \$15,790 Local Match - \$9,862 Total - \$25,652

Task 5 – Education and Outreach
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Project staff will develop a fact sheet to introduce grant activities and provide tips for lake-friendly living. Press releases and informational flyers will also be developed to advertise buffer cruises, workshops and highlight project work parties. In addition, a final project brochure will be produced that will include before and after pictures of the road and buffer sites. Town boards and watershed residents will receive this brochure to continue to educate watershed residents and local leaders about how to protect Hancock and Sand Ponds' water quality and encourage application of demonstrated measures.

Updates will be submitted to the HSPA newsletter, local newspapers and local cable access channels. LEA will include project highlights in its newsletter and on its website. Signs marking the location of demonstration sites will be posted to identify the sites where improvements were made.

Cumberland County SWCD staff will utilize the NEMO (Nonpoint Education for Municipal Officials) model in working with and presenting information to the Towns of Sebago and Denmark. The presentations will emphasize the need to enforce shoreland zoning and the impact of logging on water quality. LEA will give presentations about lake-friendly living at their annual meetings. Lastly, District staff will give a presentation at the Annual Meeting (2007 and 2008) of the Hancock and Sand Ponds Association that will highlight the impact of declining water quality on property values, benefits of buffers and erosion control measures, and the availability of technical assistance. (4/07 to 3/09)

Cost: Grant - \$4,705 Local Match - \$6,375 Total - \$11,080

Task 6 – Pollutant Reduction Estimates

CCSWCD 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.tetrattech-ffx.com/step1/>) and/or the federal 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. (4/07 to 4/09)

Cost: Grant - \$1,591 Local Match - \$540 Total - \$2,131

Deliverables:

A properly labeled copy of each of the following deliverables will be provided directly to the EPA. Two copies will also be sent to the assigned MDEP Agreement Administrator (AA), one to be retained by the AA and the other to be forwarded to the NPS Program Office in Augusta. All deliverables will conform to the procedures for deliverables as contained in the MDEP document "Nonpoint Source Grant Administrative Guidelines" (GAG).

1. Grant Agreement (Task 1).
2. Pollutants Controlled Report (annually) (Task 7).
3. NPS Site Report for each NPS abatement project (Task 3/4)
4. One report listing descriptive information on the Residential Matching Grants (Task 4)
5. Copies of key education/outreach materials (initial fact sheet, final brochure) (Task 5)
6. Semi-annual progress reports, a Final project Report (Task 1)

Interagency Coordination, Roles and Responsibilities:

The **Maine Department of Environmental Protection** will administer project funding, serve as the project advisor and participate on the steering committee.

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

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

The **Hancock and Sand Ponds Association** will participate on the steering committee, coordinate volunteer contacts for demonstration sites, advertise project activities through their newsletter, assist with town outreach and the organization of the buffer, road, and residential conservation practices workshops, and provide \$1,000 in cash match.

The **Lakes Environmental Association** will participate on the steering committee, coordinate volunteer contacts for demonstration sites, advertise project activities through their newsletter, perform water quality monitoring and data analysis, assist with town outreach, organize the gravel roads maintenance workshop, and provide the water quality analyses for lake conditions.

Representatives from the **Towns of Sebago and Denmark** will serve on the steering committee; provide project updates at Town Council, Select Board and Planning Board meetings; and facilitate presentations with each town. The Town of Denmark will address its three identified town-owned sites in the watershed as in-kind match.

Project Outcome:

35 NPS sites treated with BMPs.

Environmental Results:

1. *Pollutants Controlled:* Estimated 62% reduction in annual pollutant load (sediment – 83 tons/yr.). Sediment (tons/yr.) and phosphorus reduction (lbs/year) will be included in the project summary reports.
2. *Water Quality Improvement:* Improvement in water quality is a long-term measure of environmental results of NPS abatement in the watershed. The final project report will include a summary of the current status of water quality (water clarity and/or phosphorus; positive, negative or stable trend) in Hancock and Sand Ponds.

Project Coordinator:

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ESTIMATED TOTAL COST, FEDERAL & NON-FEDERAL SOURCES:

NPS Grant (319) - \$75,000; Nonfederal match - \$53,761; Total - \$128,761

Match Sources

	Dollar Value Planned	
Town of Sebago	\$1,260	\$1,260 - in kind services
Town of Denmark	\$5,540	in kind services
HSPA	\$5,734	\$1,000 - cash match; \$4,734 - in kind services
LEA	\$7,563	in kind services
Watershed Landowners	\$33,665	in kind services/cash match
	\$53,761	

Budget Information

Part 1

Name/Title	Hourly Rate (salary + fringe)	Total Hours	Salary Costs
Project Manager	\$37	575	\$21,284
District Engineer	\$65	123	\$7,995
Total:			\$29,279

Part 2

Category	Federal	Match	Total Cost
Salary & Fringe	\$29,279		\$29,279
Contracted Labor ¹	\$5,130		\$5,130
Donated Services – Labor ²		\$13,733	\$13,733
Indirect Costs ³	\$5,906		\$5,906
Supplies/Materials ⁴	\$845	\$1,000	\$1,845
Travel ⁵	\$1,540		\$1,540
Other ⁶	\$800	\$2,528	\$3,328
Construction	\$31,500	\$36,500	\$68,000
Totals	\$75,000	\$53,761	\$128,761

¹ LEA: 171 hrs. @ \$30/hr.

² LEA: 181 hrs. @ \$30/hr.; Citizen Volunteers: 36

³ Indirect costs are not reflected in the task cost est

⁴ Supplies/Materials = 319 grant: \$845 photos and demonstration sites.

⁵ Travel = 4,280 miles @ \$0.36/mile

⁶ Other = 319 grant: \$800 printing and postage; Non-federal match: \$3,028 printing and postage

ur.; Municipal Officials: 60 hrs. @ \$30/hr.

ate calculated per 40cfr guidelines. Rate?

federal match: \$1,000 for educational signage at

Attachment A: Candidate NPS Abatement Projects

- a. Wabanaki Road, Private Road – Denmark:** (2 high priority sites, 2 medium priority sites) These sites are characterized by eroding ditches, unstable culverts, and direct flows of sediment to the lake or feeder streams. Recommendations include installing ditches with turnouts, stabilizing and cleaning out culverts, and installing plunge pools. Engineered designs will be developed for this site. Construction cost: \$16,000 (\$8,000 grant; \$8,000 non-federal match).
- b. Sand Pond Way, Private Road – Denmark:** (3 high priority sites) These sites have clogged or undersized culverts, plow berms, direct flow of sediment to feeder streams, and eroding or absent ditches (the road is the ditch). Recommendations include replacing or cleaning out culverts, stabilizing culvert inlets and outlets, removing roadside berms, adding new road surface material, and installing ditches with turnouts. Engineered designs will be developed for this site. Construction cost: \$12,000 (\$6,000 grant; \$6,000 non-federal match).
- c. Hancock Pond Road, Town Road – Sebago:** (2 high priority sites) Both of these sites involve unstable and undersized (too short) culverts and road shoulder and ditch erosion. Recommendations include cleaning out and lengthening the culverts, vegetating the ditches and stabilizing the road shoulders. Engineered designs will be developed for these sites. Construction cost: \$9,000 (\$4,500 grant; \$4,500 non-federal match).
- d. Shore Road, Private Road – Denmark:** (1 high priority site) This site is characterized by severe road surface and shoulder erosion, unstable culvert, and direct flow of sediment to a feeder stream. Recommendations include armoring the culvert inlet and outlet, installing stone lined ditches with turnouts, adding new surface material, and establishing a crown. Engineered designs will be developed for this site. Construction cost: \$5,000 (\$2,500 grant; \$2,500 non-federal match).
- e. Blazing Trail Drive, Private Road – Denmark:** (1 high priority site) This is a large site with severe shoulder erosion and direct flow of sediment to the lake. Recommendations include installing ditches a detention basin, and runoff diverters and crowning the road. Engineered designs will be developed for this site. Construction cost: \$6,000 (\$3,000 grant; \$3,000 non-federal match).
- f. Merle Douglass Memorial Trail – Sebago:** (1 high priority site) This trail runs adjacent to Hancock Pond. It is characterized by poor surface material, severe surface erosion, bare soil, and direct flow of sediment to the lake. Recommendations include installing runoff diverters, adding new surface material, and possibly closing off the trail to ATVs. Engineered designs will be developed for this site. Construction cost: \$3,000 (\$1,500 grant; \$1,500 non-federal match).
- g. Hancock Pond Road, Town Road – Denmark:** (1 low priority site) This site involves road shoulder erosion and an unstable culvert inlet and outlet. Recommendations include removing winter sand, stabilizing the road shoulder with vegetation, and stabilizing the culvert inlet and outlet with stone. Construction cost: \$1,500 (\$0 grant; \$1,500 non-federal match).
- h. Berry Road, Town Road – Denmark:** (1 low priority site) This site is characterized by an unstable culvert inlet and outlet and an eroding ditch. Recommendations include stabilizing the culvert inlet and outlet with stone and stone-lining the ditch. Construction cost: \$2,500 (\$0 grant; \$2,500 non-federal match).
- i. Fuller Lane and Wabanaki Road – Denmark:** (1 low priority site) This site has winter sand build up and plow berms. Recommendations include removing winter sand and berms and installing turnouts. Construction cost: \$1,000 (\$0 grant; \$1,000 non-federal match).