

# CWA Project Summary

Bill Ebeling

A five year, \$241K, Section 319 grant (EQ-118) was awarded to FOLKS in July 1999. It enabled formation of Oconee-Pickens Clean Water Action (OPCWA)...a partnership of conservation interests including: Clemson University, the SC Forestry Commission, USDA/Natural Resource Conservation Service, county governments, Duke Energy, Lake and Hills Garden Club, and the caring citizens of Oconee and Pickens Counties. FOLKS was the lead organization, providing project management, volunteer support, and partial funding.

The objective of the project was to improve impaired waterways in the Lake Keowee watershed by reducing NPS (Non-Point Sources) of fecal coliform and metals, and to prevent creation of added sources of these and other pollutants, including: sediment, excess nutrients, and toxins. Companion benefits of education and public awareness regarding the threats posed by, and remedies for, NPS were also targeted. At project start, the then defined impairments included fecal coliform at levels unsafe for human contact in Cane Creek, Little Cane, and Little Eastatoe; and metals at levels believed injurious to aquatic life in Big Eastatoe and parts of Lake Keowee. The impaired waters were thought to comprise 22 miles of streams and 10,000 acres of the 18,000-acre lake.

The strategy for improvement was to locate and prioritize pollution “hot spots” through rounds of water testing and survey of adjoining land uses and then to implement BMP (Best Management Practices) to remediate the pollution sources through a combination of education and cost sharing.

Preparatory work included establishing a project office, developing monitoring and survey capability, creating an array of outreach materials, and recruiting and training a student project coordinator and a team of more than 100 volunteers that contributed over 8000 hours of service to the project.

Pollution sources identified, targeted, and addressed included: mine and marine wastes, inadequately buffered timber and livestock operations, eroding roadways, waterside residential landscapes, and septic systems in waterside communities.

Achievements in NPS prevention and control included success in ALL elements of the project, validating the original concept and approach taken. While the scope of work was refined as better knowledge of the watershed was gained, and as client receptivity for BMP’s was determined, the aggregate of improvements originally targeted was achieved or exceeded. Results are displayed in the table on Page 4 and are highlighted here:

1) Approximately half of the waters designated as coliform-impaired in the Cane Creek basin were found to be healthy and were removed from the target list. This was based on more than 500 water assays at some 50 sites, and enabled resources to be focused on the remaining, troubled, stream reaches. However, as on-site knowledge grew, many additional perennial streams were discovered in the troubled areas than were recorded on maps. *The need for investigation and remediation was thus equal to or greater than envisioned in the original plan of work.* [See Pg 83]

2) Coliform “hot spots” were linked to land uses. These were primarily unbuffered livestock operations and older residential areas. Poorly located and poorly constructed roadways, especially dirt roadways, were implicated as the primary source of sediment. Findings were

determined by a combination of aerial and on-the-ground inspection, and by analysis of aerial photos and plat plans. [See Pg 62]

3) A TMDL (Total Maximum Daily Load) standard was written, and remediation implemented for the fecal coliform-impaired, 3-mile lower reach of the Little Eastatoe. The TMDL, written by SCDHEC, was validated by OPCWA water test data and land use surveys. BMP's were completed for the primary Non-Point Sources. These included improving a livestock operation by stream bank stabilization, fencing to increase buffers, alternate watering stations, and armored stream crossings. [See Pgs 30 & 31]

4) Ten additional pasture BMP projects, protecting over 40 more miles of streams in the Cane Basin, were completed. The first was actively promoted and received good press. The second was a break-through with the local cattle community. The client...long suspicious of, and resistant to, programs promoted by "outsiders"...headed the local cattleman's association. He now applauds and supports CWA. ALL those targeted, and able to participate, are now cooperating. [See Pg 4]

5) All 12 plus miles of the Big Eastatoe Creek (main reach only) and the 10,000 acres of Lake Keowee, thought to be impaired by heavy metals, were found to support intended uses and were removed from the impaired waters list. This action was prompted by CWA tests demonstrating that the polluting metals were concentrated and contained in bottom sediment, and that...at current levels...they posed no significant threat to aquatic life. [See Pg 28]

6) Three timberland BMP projects were completed, protecting about 16 miles of streams. Enlistment of other timberland owners was fostered by promotion of the first completed project through local media, and by use of the second as a demonstration and training site by the SC Forestry Commission (SCFC). Further need for timber harvest cost share programs abated while the project was in progress. This was due to increased participation of major timber buyers in the Sustainable Forest Industries (SFI) program that requires their sources to employ BMP's. [See Pg 4]

7) Fifteen abandoned gold mines were "rediscovered" and inspected. Excavations and tailings appeared stable. None were found to pose a significant NPS threat. [See Pg 29]

8) Legislation to ban dumping of all marine waste into Lake Keowee was encouraged and meaningful regulations were enacted. CWA outreach then helped inform the boating public. That was coupled with efforts to increase the availability of marine toilet pump stations on Lake Keowee. A second marina pump station and a mobile pump boat were put in service by the Cliffs Communities. [See Pg 52]

9) A hillside/stream bank, badly scarred by illegal ATV (All Terrain Vehicle) traffic, was discovered and restored. This protected a half-mile of stream. The owner, Blue Ridge Electric, did the restoration. In a parallel action, Duke Power shut down an illegal ATV trail discovered at lakeside. [See Pg 49]

10) Twelve QA/QC procedures, check lists, and data collection forms were developed for the project. Several have been adopted for use across the state by Clemson University Extension Service and by forestry consultants and agencies. [See Pgs 64 to 74]

11) Innovative, low cost, mechanical aids for water sampling and for in-the-field measurement of TSS (Total Suspended Solids) were developed and shared with other groups. [See Pgs 56 & 57]

12) A project database was created. It includes more than 1100 geographically referenced coliform, metals, and TSS assays; watershed maps; list of tracts and landowners; proximity of test sites to critical waterways; land use (and abuse); and buffers. It enabled identification and prioritization of targets for outreach, client recruiting, and remediation. A low cost, more user-

friendly, alternative to ArcView (GIS software) was used to advantage in capturing and displaying the relevant data. [See Pgs 82 to 115]

13) Model timber harvest contract clauses and check lists for BMP implementation were developed. These have been used and shared by the SC Forestry Commission (SCFC) with parallel groups in Georgia and Alabama. [See Pg 53 and sample packet]

14) More than 20 user-friendly publications, including flyers, pamphlets, video, and a 16 page "Living at Lakeside" guide for Keowee homeowners, were produced and widely distributed. A number continue in circulation through FOLKS. They have served as models for other conservation groups. They provide water friendly advice and promote BMP's for landscaping, septic system maintenance, boating, and pet and wildlife management. [See Pg 53 and sample packet]

15) Outreach materials were distributed through more than 40 cooperating merchants and agencies. These were supplemented by direct mail to consulting foresters, loggers, cattlemen, and owners of large land tracts, community leaders, and several thousand-area residents. Press releases and resulting news items added to public awareness. [See Pgs 116 to 137] In addition to informing readers, the publicity produced several hundred requests for additional information and assistance. All received prompt, personalized follow-up and strengthened links to waterside communities.

16) A preventative maintenance program for septic systems was developed and promoted via live "Shows on the Go" presentations, CDs, and video. Presentations were given to 24 community groups, each generating uniformly positive response. This program was featured in the SCDHEC "Turning the Tide" newsletter, presented at the 2002 NALMS/SELMC conference, and shared with other lake associations. [See video in packet]

17) A low cost septic tank riser and local production capability was developed to facilitate septic system inspection and servicing. Heretofore, installers and builders rarely offered risers, even as an option. Availability of the units and promotion of benefits prompted hundreds of installations. The area's leading tank installer now includes risers in his basic package. Parallel education of public officials resulted in a legislative proposal to make risers mandatory for new installations in SC. [See Pg 58]

18) Educational materials and presentations for county officials were developed to assist NEMO (Non-point source Education for Municipal Officials), and to foster legislation for septic system inspection and maintenance, increased setbacks along waterways and native plant vegetated shoreline buffers. Pickens County has since adopted a 25 ft buffer requirement...the first in the SC Upstate...and, Oconee County, is considering additional protections. [See Pg 54]

19) Poorly constructed and unpaved streamside roadways were implicated as the primary NPS of sediment in the Little River basin (and likely throughout the Keowee watershed). TSS data gathered at 15 monitoring sites, coupled with in-stream expeditions, identified the most problematic feeder streams and the roads connection. Outreach and education was directed at the associated landowners. A program to upgrade roads in the surrounding Sumter National Forest is also being pursued with the US Forest Service. [See Pgs 47 to 49]

20) 24 volunteers were recruited and trained to provide ongoing assistance and encouragement to homeowners in use of BMP's for waterside landscapes, septic systems, boating, and pet and wildlife management. FOLKS is providing post-project promotion and administration of the program in partnership with the Lake and Hills Garden Club. [See Pg 160]

Complete copies of the final report may be checked out from the FOLKS' Library.