

NONPOINT SOURCE SUCCESS STORY



Water Quality Restored in West Branch Sheepscot River

Waterbody Improved

Once prized as a Class AA water and home to the endangered native Atlantic salmon, the West Branch Sheepscot River began

showing significant declines in salmon spawning and signs of degraded stream habitat/water quality in the 1990s. Runoff from eroding roads and stream crossings, agricultural lands and inadequate stream buffers contributed sediment, bacteria, excess nutrients and elevated water temperatures that led to the river's impairments. Funding from local, state and federal partners, including Clean Water Act (CWA) section 319 grants, supported 11 years of restoration (e.g., riparian buffers, easements, stabilized roads/stream crossings, livestock fencing). After monitoring showed the river supported viable populations of juvenile salmon and attained Maine's Class AA standards for dissolved oxygen (DO), Maine Department of Environmental Protection (DEP) removed the West Branch Sheepscot River from the section 303(d) list of impaired waters for DO in 2010.

Problem

The West Branch Sheepscot River is a Class AA river (Maine's highest designation) that originates at the mouth of Branch Pond in Palermo and empties into the mainstem Sheepscot River. The Sheepscot River, including the West Branch, is one of eight Maine rivers providing essential spawning grounds for the endangered native Atlantic salmon. The West Branch's 50-square-mile watershed (Figure 1) includes forest (66 percent), agriculture (21 percent), wetlands (11 percent), and residential areas/roads (2 percent).

The West Branch (segment ME0105000305_528R02) was listed as impaired for DO/aquatic life use in 1998 and bacteria/recreational use in 2002. At the seven stations monitored on the West Branch from 1994 to 2004, DO levels fell below the DO standard for 6 to 53 percent of the readings. For bacteria, two of the three stations monitored in 2007–2012 consistently exceeded the geometric mean standard.

The 2004 Integrated Report listed agricultural nonpoint source (NPS) pollution as a potential source associated with the impairments. Other threats included sediment and nutrients from roads, failing stream crossings and a lack of streamside vegetation. Several watershed surveys were conducted from 1994 to 1998 to identify specific sources of NPS pollution to the river. In 1994 the U.S. Fish and Wildlife Service (USFWS) identified four sites on the banks of the West Branch that had serious erosion problems. In 1996 the Kennebec County Soil and Water Conservation District





(SWCD) surveyed agricultural areas in the watershed and identified more than 1,050 acres of pasture, cropland and hay fields without riparian buffers. In 1996– 2000, Sheepscot Valley Conservation Alliance (SVCA), Sheepscot River Watershed Council (SRWC), Maine



Figure 2. Marden Hill Road, before (top) and after (bottom) completion of an erosion control project.

State Planning Office (SPO) and Maine DEP conducted NPS surveys and identified 93 soil erosion sites.

Story Highlights

From 1996 to 2007, partners implemented projects to restore the West Branch. Several state and federal grants, including seven CWA section 319-funded projects, helped fix 84 NPS pollution sites on town and state roads, trails, and private lands. Projects included replacing and stabilizing failing culverts (Figure 2); installing and stabilizing road ditches; installing sediment basins; and improving and grading roads. In addition, more than 200 volunteers planted vegetation to establish over 2,500 feet of riparian buffer, and another 4,000 feet of riparian buffer were protected through conservation easements held by the SVCA. The Kennebec County U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) staff worked with farmers to install four livestock exclusion projects, two stream crossings, 5.25 acres of riparian buffers, and 80 acres of integrated pest management.

Extensive public outreach was conducted through school visits and workshops focused on logging BMPs, proper stream culverts installation, salmon habitat restoration and road BMPs. Project staff provided landowners and towns with technical assistance and project updates through newsletters and public meetings.

Results

Maine DEP monitoring in 2004–2006 showed readings generally remained at or above the DO standard. Continuous monitoring using datasondes (automated instrumentation) showed that drops below the standard were small and without a wide diurnal swing (which would indicate algae uptake and respiration). The improved DO findings were further supported by the low values measured in a Maine DEP biological oxygen demand study in 2004 and a U.S. Environmental Protection Agency (USEPA) sediment oxygen demand study in 2006. These data showed the river supported viable populations of juvenile salmon and attained Maine's Class AA standards for DO. As a result. Maine DEP removed the West Branch Sheepscot River from the state's list of impaired waters for DO in 2010. The river remains listed as impaired for bacteria.

Partners and Funding

Numerous federal, state and local partners collaborated on the West Branch restoration effort. Kennebec County SWCD and SVCA served as the local project coordinators. Key project partners included Sheepscot River Watershed Council, Time and Tide Resource Conservation and Development Area, Knox–Lincoln SWCD. Atlantic Salmon Commission. Maine DEP. USDA NRCS, USFWS, USEPA, Maine Department of Transportation (DOT), Maine State Planning Office, and the towns of China. Whitefield, Windsor, and Palermo. USEPA provided \$501,313 in CWA section 319 funds for three projects focused solely on the West Branch and another \$278,944 in CWA section 319 funds for another four projects for the larger Sheepscot River watershed. The Kennebec County NRCS provided farmers with technical assistance and funding through Farm Bill programs. The Maine State Planning Office provided three grants for road, riparian and watershed assessments in the West Branch. Maine DOT. watershed towns, landowners and partners contributed \$813,150 in local match towards CWA section 319 projects (\$508,343 West Branch project match; \$304,807 Sheepscot project match).



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