

Christina Reservoir Watershed Improvement Project

2010RT18

Waterbody Name: Christina Reservoir
Location: Fort Fairfield – Aroostook County
Waterbody Status: Impaired – TMDL Completed
Project Grantee: Central Aroostook SWCD
Project Duration: September 2010 – September 2012
319 Grant Amount: \$43,335
Local Match: \$33,395



PROBLEM:

Because of the short growing season in northern Maine and the nature of row crop agriculture, fields may be bare seven months of the year. The short growing season and potato harvest in the late fall often preclude farmers from establishing a cover crop in time for winter. Crop rotations in this watershed are either a two-year rotation (potato – grain) or a three-year rotation (potato-grain-hay). The potato year of a rotation leaves fields susceptible to soil loss from November until a grain crop is well-established in late June or early July. The soil vulnerability coincides with winter thaws, spring run-off, and early summer thunderstorms. Row crop agriculture occupies 39% of the watershed, but contributed 87% of the NPS sites in the watershed and 78% of the medium to high impact NPS sites.

The TMDL for Christina recommends that sediment loads be decreased 50 percent or 0.8 tons per acre per year. The TMDL study estimates that cropland contributes 50 tons per year of sediment to Christina Reservoir.

CASWCD and USDA-NRCS staff have met with landowners in the watershed to review survey findings, offer suggestions for BMPs and review potential funding sources. Three landowners agreed to participate in improvement projects. Two of these landowners do not qualify for USDA funding because of income source restrictions. The function of BMPs in the northwest corner of the watershed is dependent on installing a system of waterways, diversion, and field headland grading. This system of BMPs crosses ownership boundary lines and isn't easily addressed by USDA-Farm Bill funds because those funds are allocated by individual land owner.



Grass-lined waterway in potato field

PROJECT DESCRIPTION:

The project focused on sites rated medium to high impact on water quality located on three farms. The BMPs chosen focused on common row crop conservation practices (grass or rock lined waterways, buffers, reshaping). CASWCD provided grant administration and coordination between growers and

USDA-NRCS. USDA-NRCS provided joint construction oversight with CASWCD to ensure that construction meets USDA construction standards for the planned BMPs.

PROJECT OUTCOMES:

- Seven medium to high priority NPS sites were addressed with grass and rock-lined waterways, elimination, and replacement of a steep access road, reshaping field edges to direct stormwater runoff into stable vegetated areas and vegetative buffer plantings.
- A two-acre riparian buffer was established between highly erodible crop land and Christina Reservoir to filter sediment from runoff and provide wildlife habitat.
- Pollutant loading to the reservoir was reduced by an estimated 137 tons of sediment, 98 pounds of phosphorus, and 273 pounds nitrogen per year. This exceeds the TMDL sediment reduction target by over 2 times. USDA-NRCS recognized Christina and the Prestile Stream watershed as a local priority and funded a special technical assistance project in the watershed to help growers develop nutrient management plans.

PROJECT PARTNERS:

Local landowners
USDA-Natural Resources Conservation Service

CONTACT INFORMATION:

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Rock-lined waterway discharging into a small pool with a level lip spreader that discharges into a riparian buffer.



Grass-lined waterway directing field runoff into a small pool with a level lip spreader that discharges into a wooded buffer.

Suggested Citation:

Maine Department of Environmental Protection (2013) "Nonpoint Source Management Program 2012 Annual Report," Document # DEPLW-1245. Augusta: MDEP.