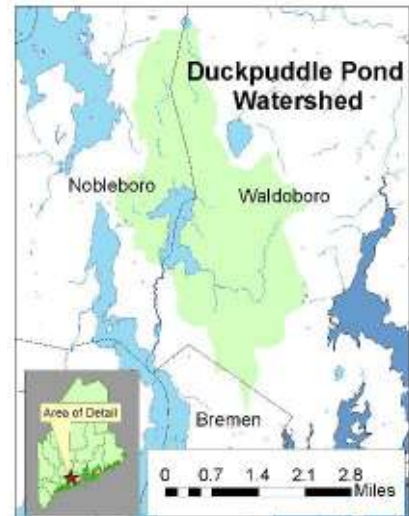


Duckpuddle Pond Watershed Restoration Project – Phase II

#2007WW24 - WIFAP

Waterbody Name: Duckpuddle Pond
Location: Nobleboro and Waldoboro – Lincoln County
Waterbody Status: Restored, NPS Priority Watershed
Project Sponsor: Knox-Lincoln County SWCD
Project Duration: April 2008 – September 2010
319 Grant Amount: \$26,644
Match: \$17,716 (local), \$20,000 (ME Dept. Ag.)



PROBLEM:

Duckpuddle Pond is a 242 acre pond, with a primarily forested watershed covering 8.2 square miles. Developed land area, including agriculture, rural residential and commercial areas, makes up about 14% of the watershed. The pond's shoreline is lightly developed and has several large undisturbed shorefront areas. In most years between 1989 and 1998, Duckpuddle Pond experienced nuisance algal blooms (8 of 11 years) due to excessive phosphorus export from its watershed. In 1996 Maine DEP added Duckpuddle to its list of impaired waters because of the recurring nuisance algal blooms and increasing trophic state (biological productivity).

Pemaquid Watershed Association and DEP completed a watershed survey in 1995 and identified 55 nonpoint source pollution sites. In 2005, DEP completed a Phosphorus Control Action Plan (TMDL) describing pollution sources and recommendations to reduce polluted runoff. From 2000 – 2004, a Phase I project (#2000R-37) installed erosion control BMPs on several roads and a manure storage facility on a dairy farm to help reduce sediment and phosphorus entering Duckpuddle Pond. An updated watershed survey was conducted by Knox-Lincoln SWCD, the Pemaquid Watershed Association and DEP in 2008, identifying 45 NPS sites.

PROJECT DESCRIPTION:

The Phase II project continued work to reduce phosphorus loading from the watershed in order to help restore the water quality of Duckpuddle Pond. The Knox-Lincoln SWCD and USDA-Natural Resources Conservation Service (NRCS) worked with the Spear Farm, a large agricultural dairy and vegetable producer in the watershed. Improved agricultural BMPs were planned, designed and installed at three sites, and the farm nutrient management plan was upgraded to meet recommended NRCS standards.



Algal Bloom on Duckpuddle Pond

PROJECT OUTCOMES:

- In 2009, a heavy use area (2200 sq. ft. concrete pad) was constructed for livestock to separate clean water, contaminated water and manure. Manure accumulation in the heavy use area is removed to the existing manure storage pit. Contaminated water runoff is directed by level lip spreader into a vegetated filter strip for treatment.
- In 2010, improvements constructed at the existing bunker silo area reduced the volume and provided treatment of silage runoff and leachate. Clean stormwater runoff was diverted from entering the silage bunker area. A concrete working surface and ditch directs silage runoff water and leachate through a picket dam to collect solids and then to a 100 foot long vegetated filter area into a small basin.
- Implementation of a revised Nutrient Management Plan will help manage nutrients to meet agronomic crop needs and control erosion and sediment to reduce polluted runoff.
- Pollutant loading to the pond was reduced by an estimated 7 tons of sediment and 120 lbs of phosphorus per year (Region 5 Method).
- Notably in 2010, DEP removed Duckpuddle Pond from Maine's impaired (TMDL) waters list. Water quality gradually improved over the 10 years ending in 2008, now the pond meets Class GPA water quality standards. Phosphorus and sediment reductions from work completed under Phase I and II contributed to improvement in Duckpuddle Pond.



Heavy Use Area, Concrete Pad



Vegetated Filter Strip Treats
Runoff from Heavy Use Area



Silage Bunker Vegetated Filter

PROJECT PARTNERS:

Spear Farm

USDA Natural Resources Conservation Service

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