

CASE STUDY

Conservation Practice Standard: Animal Trails and Walkways Code 575 Boat Ramp Stream Crossing in Unity, Waldo County.

It has long been Bob Elwell's dream to restore the segment of Mussey Brook running through his farm to what he remembers as a young man. Back then, it was a stream surrounded by a wooded riparian area. Over the years, the trees have been cut and the cows were allowed to graze right to the stream with direct access to the stream. Numerous bare soil areas and cattle paths leading into and out of the stream became established along the stream banks. Mussey Brook is a tributary to Unity Pond, a waterbody on DEP's list of lakes most at risk. Bob worked with NRCS to obtain Continuous Conservation Reserve Program (CCRP) funding and technical know how to develop a stream crossing and restore the riparian area along a 900 foot section of the stream.

A stream crossing was needed to allow cows access to pasture on the other side of the stream. Because of the steepness of the sides and amount of traffic, traditional gravel with geotextile fabric might not work. The State of Maine has long used bolt together, sectional, precast concrete boat ramps for accessing water by vehicles and boat trailers. Boat ramps have been successfully installed on a farm in Monroe and most recently installed on a farm in Prospect to allow cattle and/or equipment to cross a stream without causing significant stream bank and water quality degradation.

Boat ramp sections are available in 10 or 12 foot lengths. The 10 foot lengths were used for this farm. Each section or panel is made of precast reinforced concrete and is 15 inches wide by 6 inches thick. All concrete has a minimum 4000 PSI compressive strength at 28 days and is reinforced with three #4 rebar attached to cross tie bars 1 ½ inches wide. The cross tie bars extend several inches outside the concrete and are used to bolt or hinge the panels together. Each panel has an effective width of 18 inches. The panels can easily be transported individually to sites which concrete trucks can not access.

Before installation of the boat ramp panels, the land surface is first graded and smoothed. Geotextile fabric is laid on the surface and over topped with a minimum of 2 inches of sand. The panels are put in place and bolted together such that the panels are hinged which provides a lot of flexibility. This flexibility allows the assembled panels to follow a rolling terrain and survive freeze-thaw situations. For this site, 50 panels were used covering a linear distance of 75 feet. The boat ramp system extends from level ground on one side of the stream, down the bank, across the



stream, and up the bank to level ground on the other side. The steepest approach is 6 (H) to 1(V). The boat ramps were installed slightly below the original stream bottom. A thin layer of stream bed material has covered the boat ramps giving the stream bed a natural appearance. Small fish were seen swimming across the boat ramps during a site visit in July.



A two strand electric fence has been installed on each side of the crossing to confine cows to the crossing. The stream banks on both sides have been fenced off. The stream bank has become re-vegetated. About 600 spruce and red pine were planted along the stream banks to re-establish the riparian buffer along with natural re-vegetation. Each boat ramp panel costs about \$100 installed. Total cost of this project is around \$7000.

No longer do cows have free access to the stream and stream banks. No longer do the cows contaminate the stream with manure and sediment. The fenced-in boat ramp crossing allows cows to cross the stream without causing stream bank and water quality degradation. In just one year's time, this project has resulted in the stream banks becoming re-vegetated with grass and herbaceous plants. Small trees are now growing to recreate the riparian forest buffer present many years ago. The water in Mussey Brook is now cleaner.