



**MEMPHREMAGOG
WATERSHED
ASSOCIATION**



**NONPOINT SOURCE
POLLUTION SUCCESS STORY**

**LOCAL FARMERS PLAY A PART IN MAKING
PROGRESS FOR IMPROVED WATER QUALITY**

PROBLEM: Lake Memphremagog has been classified as impaired due to elevated levels of phosphorus, a nutrient delivered to the lake through rivers and tributaries. Recent efforts by state and local partners have been focused on improving water quality by implementing best land use practices throughout the watershed.

The unnamed tributary called Strawberry Acres flows into the southwest corner of Lake Memphremagog in Newport Town and Coventry, and is one of the many streams shown to be a source of phosphorus. Its watershed encompasses 818 acres of agricultural and residential areas along with extensive forests and wetlands, especially at the headwaters.

Elevated levels of phosphorus in Strawberry acres were discovered through the Orleans County Conservation District water quality monitoring program with assistance from by the Memphremagog Watershed Association volunteers. Samples were collected 8-10 times annually from 2008 to 2016 in two locations along the tributary.

PROJECT HIGHLIGHTS: Since 2012 Chad and Amanda McCormick have operated a 55 cow small organic dairy in Newport, VT, located within the Strawberry Acres watershed. Both grew up in Orleans County around dairy; Amanda raised on a farm in Troy and Chad worked on farms during his youth in Barton and they have been a couple since high school.



Amanda has a degree in business and was a stay at home mom before taking on managing the dairy operation. Chad holds a full-time job and they both enjoy coaching a variety of youth sports teams. When starting to farm, the outdated facility made the day-to-day farm operation challenging with inadequate systems like manure pit required shoveling manure twice daily and a broken pipe causing the barn to flood. The herd went out to pasture that was accessed by a muddy lane with a stream crossing that the cows were reluctant to travel and their udders were dirty. Consequently, it was difficult to move the cows out of the barnyard and improve milk quality.

Another local farmer told Chad and Amanda about Natural Resource Conservation Service (NRCS) funding opportunities to assist with farmstead improvement projects that can help make their operation more efficient. In 2013 - 2014 they worked with NRCS to develop and implement a conservation plan to install a new manure pit along with a concrete barnyard and pasture infrastructure including laneways and fencing around the stream.

Since these projects, the McCormicks have seen management improve

dramatically. They are conserving water, recycling the milk house waste to clean the gutters, capturing all waste in the manure pit, cows travel lanes are easier, reduced expenses, improved herd health and increase milk quality all while minimizes runoff into the tributary.

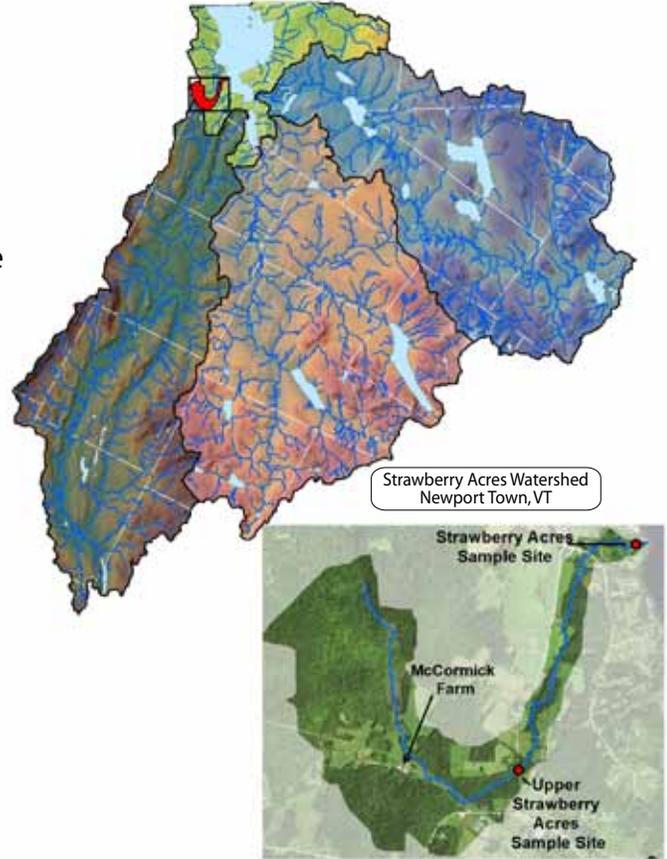


For additional information contact:
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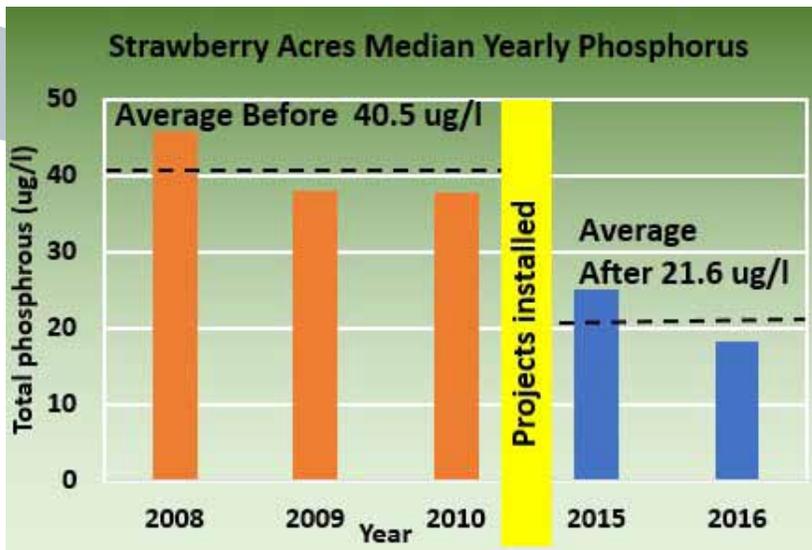
RESULTS: In 2015 and 2016 water quality sampling was repeated at the two sites along the Strawberry Acres tributary to gauge if these projects had measurably improved water quality in this tributary. Total phosphorus concentrations at both sites were substantially lower after these practices had been installed. The graph below shows the reductions in annual median values at the sample site where at the stream outlet. An analysis of the phosphorus loading in this tributary suggest a reduction of over 175 pounds of phosphorus per year which was a reduction of more than 50% of the estimated loading from this tributary before the projects were installed. Before this project, the McCormicks said they had so many issues that they couldn't focus on the learning about their cows and how to improve herd health. They have more paddocks and a rational plan, a new laneway, a new barn yard and pasture watering system which has increased herd health and resulted in herd happiness. "Since the project, we have learned so much about animal husbandry."

Chad said "We are getting more milk and better quality since we completed all this work"; this is their third year of getting a quality milk award. Over all the project "has brought us closer together as a family."

Map of Watershed



WQ Sampling Results



REQUEST FOR ACTION: Like Amanda said, "I don't think people realize the effect that these projects can have on the environment." Knowing that she had a positive impact on the lake felt really rewarding. Since this project, they are more aware of the water quality impairments and hope that their story can inspire other farmers to plan their part.



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