Charlevoix Marina Protects Water Quality with Stormwater Treatment Wetland



How much did it cost?



\$20,000 Engineering and design

\$67,540 Construction, oversight and erosion control







Note: Construction costs can vary greatly depending on availability of materials and local market conditions.



Introduction

At the Charlevoix Municipal Boat Launch, two bioretention cells (BRCs) – a type of shallow stormwater basin that uses soil and vegetation to capture and treat runoff – were installed in the downhill islands of the parking lot. This lot receives daily use by boaters using the public access boat launch in Charlevoix. This parking lot is also used to store snow during winter months, which means there's a lot of accumulated sediment and the associated heavy metals from snow plows scraping roads in the winter in addition to deicing salts and sands.

Project Description

This project was part of a larger effort to help provide on-site stormwater management, a decision support tool, and outreach to demonstrate the benefits of green infrastructure at coastal sites via on-the-ground installation projects. The two BRCs built at the Charlevoix Municipal Boat Launch (aka Ferry Beach Boat Launch) capture a large amount of the stormwater flowing off the parking lot when it rains. Previously, there was accumulated trash and sediment and puddles when it rained in the uphill notches of the islands. Now water can freely flow into the BRCs, be filtered, and reenter the lake or groundwater.

Benefits of Green Infrastructure

Great Lakes marinas and the boating industry depend on clean waters and a healthy coastal environment for the success of their business and for continued use by recreational boaters.



Green infrastructure is an approach to stormwater management that can help communities become more resilient, improve water quality, and enhance aesthetics at their location. Treatment approaches such as BRCs and wetlands use natural hydrologic processes and vegetation to slow down stormwater and capture pollutants. Suitable locations include low areas, natural drainage areas or areas adjacent to water bodies, such as those at the marina.

Results: What Pollutants Are Being Captured at this Site?

Preliminary results show good removal of sediment and heavy metals.

Project Sponsors

Funding to support this project was provided by the Great Lakes Protection Fund to advance stormwater management at Great Lakes marinas. The Charlevoix Municipal Boat Launch is one of four marinas in the states of Wisconsin, Michigan and Ohio chosen for installation of green infrastructure. Michigan Sea Grant would like to thank its many partners who made this project possible, including the Village of Elk Rapids, Michigan Sea Grant, Ohio Sea Grant, The Ohio State University Stormwater Management Program and the Great Lakes Clean Marina Network. In addition, the City of Charlevoix and the Michigan Department of Natural Resources - Charlevoix Fisheries Research Station helped with monitoring.

Learn more about integrating green infrastructure at your marina by visiting the Clean Marina Storm water Toolkit at michiganseagrant.org/cmst.

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