

## Stay in touch

The NERRS Science Collaborative is committed to sharing information about the projects we fund in the most effective way we can. Updates about this project will be communicated through [nerrs.noaa.gov](http://nerrs.noaa.gov), webinars, conferences, and meetings. If you would like to stay in touch with this project, contact our program coordinator Cindy Tufts: [cindy.tufts@unh.edu](mailto:cindy.tufts@unh.edu).

For questions about the applied science aspect of this project, contact Amy Brennan, principal investigator and director, Chagrin River Watershed Partners, Inc.: [abrennan@crwp.org](mailto:abrennan@crwp.org), 440-975-3870.

For questions about the collaborative process being used to generate data and stormwater design tools that are relevant to intended users, contact Heather Elmer, collaboration lead and coastal training program coordinator, Old Woman Creek NERR: [heather.elmer@dnr.state.oh.us](mailto:heather.elmer@dnr.state.oh.us), 419-433-4601.

## What's happening?

A project led by the Old Woman Creek National Estuarine Research Reserve (NERR) and the Chagrin River Watershed Partners, Inc., will develop science-based tools to help minimize the impact of stormwater on Ohio's coastal communities and Lake Erie. The project team will use the Collaborative Learning method to work with municipal and consulting engineers, stormwater utilities, developers, regulators, and watershed organizations to generate credible and locally verified performance information about innovative stormwater systems. Based on these results, the team will develop credits and incentives to encourage the use of the most effective systems.

## Why this project?

Stormwater runoff from impervious surfaces severely impacts Ohio's coastal communities and environments. It erodes streams, overloads drainage systems and water treatment facilities, and increases flooding which damages property and infrastructure. Increased runoff also impairs water quality and degrades habitats, and heightens the risk of waterborne diseases. The severity of these impacts has increased with the number of heavy storms in Ohio, which are up 31 percent over the past 50 years, according to the U.S. Global Change Research Program. This has been reflected in widespread and frequent flooding in Lake Erie counties over the last five years.



Rain gardens are examples of Low Impact Development (LID) that integrates natural landscape functions into site design.

State stormwater regulations now require new development to treat the first ¼-inch of rain, also known as the "water quality volume," and many communities have peak discharge requirements targeted at flood control. Yet, most new developments meet these requirements with traditional "end-of-pipe" ponds that do not adequately reduce the volume or improve the quality of stormwater runoff, and Ohio's streams continue to degrade.

Low impact development (LID) attempts to address these problems by integrating the functions inherent to natural landscapes into site design and stormwater systems. Ohio communities and design engineers have asked for design criteria and incentives if they are to shift to using new approaches. This project aims to provide clear guidance and tools to help engineers, reviewers, and permitting agencies determine whether LID stormwater systems are appropriate for site conditions and meet state and local requirements. It will also demonstrate the design, construction, performance, and maintenance of these stormwater practices in local soils and climate.

[Learn more on back page...](#)

## About the funder

The NERRS Science Collaborative puts Reserve-based science to work for coastal communities coping with the impacts of land use change, stormwater, non-point source pollution, and habitat degradation in the context of a changing climate. Our threefold approach to connecting science to decision making includes:

- **Funding:** We award an average of \$4 million annually to projects that incorporate collaboration and applied science to address a coastal management problem.
- **Transfer of knowledge:** We are committed to sharing the knowledge generated by the local, place-based research we fund. If you're interested in following this project, contact [cindy.tufts 'at' unh.edu](mailto:cindy.tufts@unh.edu).
- **Graduate education:** We sponsor two fellowships in TIDES, a Master's of Science program at UNH that provides the skills needed to effectively link science to coastal decision making.

The program operates by a cooperative agreement between the University of New Hampshire (UNH) and the National Oceanic and Atmospheric Administration.

### Learn more at....

[nerrs.noaa.gov/  
ScienceCollaborative.aspx](http://nerrs.noaa.gov/ScienceCollaborative.aspx)



Chagrin River, Waite Hill, northern Ohio



Ohio engineers, developers, program managers, and regulators are working together to develop science-based incentives for effective stormwater management.

## How will this project work?

This project team seeks to locally validate regional and national research by demonstrating how stormwater systems function in northern Ohio's soil and climate characteristics. They plan to:

- Identify a minimum of two LID stormwater systems for design assistance and monitoring;
- Conduct on-site monitoring of stormwater hydrology and site characteristics to address questions about the runoff reduction performance of stormwater systems in the Lake Erie watershed;
- Collect information about system design, costs, and maintenance to lay the groundwork for a life cycle (full cost) analysis;
- Combine monitoring data with stormwater modeling to assess the performance of systems under current climate conditions and future precipitation scenarios.

This project's success depends on the engagement of stormwater professionals who can provide expertise, practical experience, access to local data, input on crucial decisions, and who ultimately, will benefit from the project's results.

The team plans to translate their research results into tools and resources that stormwater managers can use to calculate the water quality treatment and flood control benefits of systems such as pervious pavement, bioretention, or enhanced swales. With input from a group of key engineers and other stormwater professionals, the team will develop technical guidance, model local regulations, recommendations for state policy and stormwater utility credit programs, and training opportunities.

Project coordinators will help investigators and stormwater professionals work together to:

- Develop a shared vision of effective stormwater management and identify obstacles to achieving this goal;
- Plan research to evaluate how stormwater systems reduce runoff today and under future climatic conditions;
- Create design and policy tools that meet local needs and reduce barriers to sustainable stormwater management.