WISCONSIN'S HEALTHY LAKES & RIVERS ACTION PLAN

Healthy Lakes

Lake Ripley, Jefferson County - Pamela Toshner

2019

WISCONSIN DEPT. OF NATURAL RESOURCES

Wisconsin Lakes Partnership

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Wisconsin's Healthy Lakes & Rivers Action Plan builds off the success of the 2014-2017 Healthy Lakes pilot. Healthy Lakes & Rivers remains a collaborative team effort that depends on private and public waterfront property owners, businesses, and the Wisconsin Lakes Partnership to promote and install relatively simple and inexpensive best practices benefiting habitat and water quality. This goal-oriented plan also includes funding, promotion, and evaluation strategies.

Let's make Healthy Lakes & Rivers together!

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INTRODUCTION

Wisconsin's lakes and rivers define our state, local communities, and our own identities. Fond memories of splashing in the water, seeing moonlight reflect off the lake, and catching a lunker last a lifetime. With over 88,000 river and stream miles and 15,000 lakes dotting the landscape, it's no surprise that fishing alone generates a $2.3 billion economic impact each year[1], and most of the property tax base rests along shorelines in some counties. Unfortunately, we've learned through science[2] that while we love living by our abundant water resources, we often inadvertently contribute to declining habitat and water quality by how we care for our properties. In fact, nationally, the loss of lakeshore habitat is the number one stressor of lake health, and more than 2 out of 5 river and stream miles are polluted. Working together to implement *Wisconsin's Healthy Lakes & Rivers Action Plan* (*Plan*), we can protect and restore our lakes and rivers for future generations to enjoy, as well.

This *Plan* identifies relatively simple habitat and water quality best practices that may be implemented on most waterfront properties in Wisconsin, as well as "Did you know..." tips to keep our waters healthy. We encourage do-it-yourselfers to use these practices and have also created a WDNR Surface Water Grant "Healthy Lakes & Rivers" sub-category for funding assistance. Furthermore, local partners – like lake and river groups and counties – may choose to integrate the *Plan* into their lake and river management, comprehensive planning, and shoreland zoning ordinance efforts.

It's important to consider this *Plan* in the context of the lake or river and local community's management complexity. The best practices' effectiveness will increase cumulatively with additional property owner participation and depend on the nature and location of the lake or river. For example, if every property owner implemented appropriate Healthy Lakes & Rivers best practices on a small seepage lake, also known as a pothole or kettle lake, within a forested watershed, the impact will be greater than on a large impoundment in an agricultural region of Wisconsin. Nevertheless, all water resources will benefit from these best practices, which are a piece of the overall management puzzle that property owners can directly control. More property owners choosing to implement Healthy Lakes & Rivers best practices over time means positive incremental change and better success at protecting and restoring Wisconsin's waters for everyone to enjoy.

[1] Sportfishing in America, An Economic Force for Conservation. January 2013. American Sportfish Association. Alexandria, Va.

[2] For more information on shoreland science, please check out healthylakeswi.com.

DID YOU KNOW...

...82% of Wisconsin's lakes and rivers are healthy? We need your help to keep them that way.

ILLUSTRATION: KAREN ENGELBRETSON

PLAN OVERVIEW

Wisconsin's Healthy Lakes & Rivers Action Plan divides a typical waterfront parcel into the following three management zones: 1) in-lake, 2) transition, and 3) upland (see illustration below). Management activities in each of these property zones affect lake and river health. This *Plan* identifies best practices for each zone. Based on customer feedback, the Healthy Lakes & Rivers Team selected these practices because they are relatively simple and inexpensive to implement, appropriate for typical waterfront properties, and beneficial to habitat and/or water quality. The *Plan* also provides cost ranges and averages and technical, regulatory, and funding information for each practice. Fact sheets for each best practice support the *Plan* and provide more technical detail. Additional guidance is available for more detailed technical information.

DEFINITIONS

Best Practice: a working method, described in detail, which has consistently shown results.

Divert: redirect runoff water.

Grantee: an eligible organization that receives a WDNR Healthy Lakes & Rivers Grant on behalf of individual property owners. Eligible organizations include, but are not limited to, local and tribal governments, lake districts, qualified lake associations, and river management and nonprofit conservation organizations.

Habitat: where a plant or animal lives.

Infiltrate: absorb water.

In-lake: an area that is often below the Ordinary High Water Mark – a regulatory distinction between public and private land - where aquatic plants and animals live.

Installed: completed best practice costs, including the material, contract labor, and transportation cash costs but not including the volunteer labor and equipment contributions as part of a grantee cost-share.

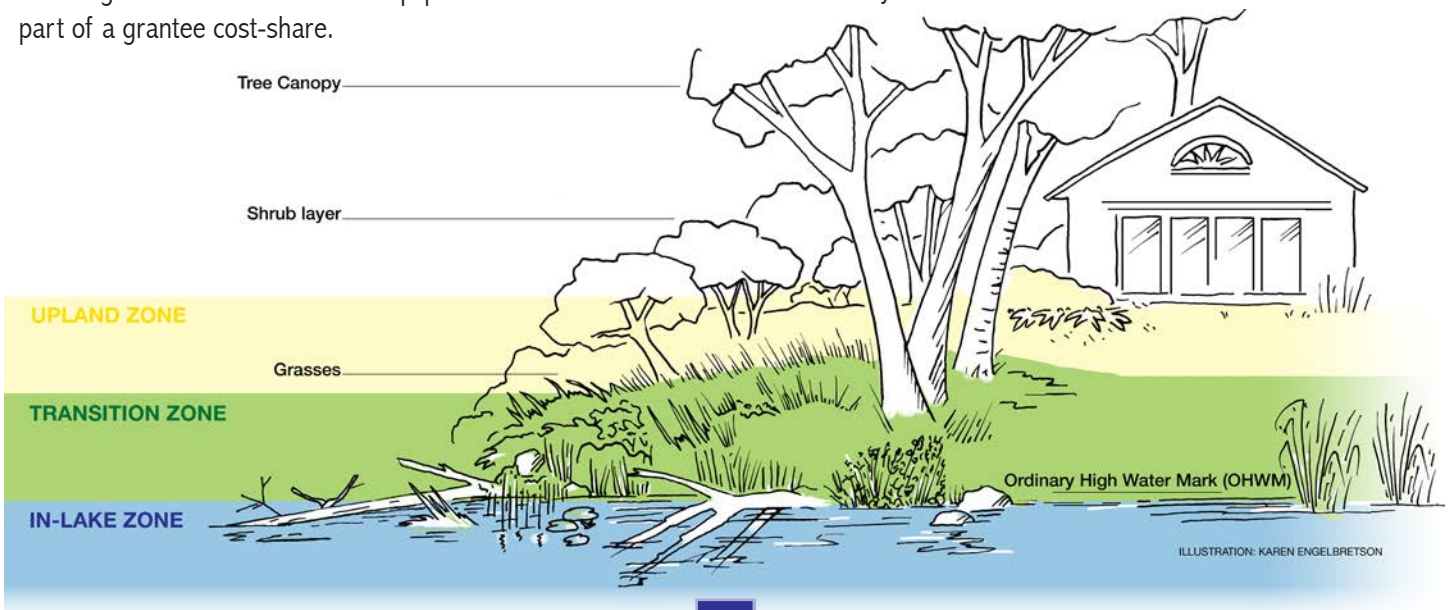
Ordinary High Water Mark: the point on the bank or shore up to which the presence and action of the water is so continuous as to leave a distinct mark either by erosion, destruction of terrestrial vegetation or other easily recognized characteristic.

Runoff: rain and snowmelt that doesn't soak into the ground and instead moves across the land surface and eventually into lakes, streams, and wetlands.

Shoreland: the land area within 300 feet of rivers and 1000 feet of lakes. A more detailed definition is provided in state statute 281.31 (2)(d).

Transition: also known as a shoreline buffer or vegetation protection zone, an area that is 35 feet landward from the Ordinary High Water Mark and bridges aquatic and terrestrial life.

Upland: the landward area beyond the transition zone but within the shoreland zone that often encompasses structures and driveways.



PURPOSE, GOALS, AND OBJECTIVES

The purpose of *Wisconsin's Healthy Lakes & Rivers Action Plan* is to protect and restore the health of our lakes and rivers by increasing property owner participation in habitat restoration and runoff and erosion control projects.

	GOAL	OBJECTIVE
1	Increase property owner participation in Healthy Lakes & Rivers.	Participation, as measured at the individual property scale or number of best practices installed, will increase 100% every 3 years starting from 2018.
2	Maintain existing and engage new property owners as ambassadors of the Healthy Lakes & Rivers philosophy.	Annual grant application demand will be relatively balanced with repeat customers and new applicants.
3	Increase the number of grant applications submitted by project coordinators and/or grant applicants.	A statewide Healthy Lakes & Rivers network, including volunteer training and promotional materials, will be established by 2021.
4	Grow a business partner network to promote Healthy Lakes & Rivers and provide technical and installation assistance.	The statewide Healthy Lakes & Rivers network will engage and recognize at least 25 businesses by 2022.

Lake and river groups, businesses, and local governments are encouraged to develop their own habitat, water quality, and/or participation goal(s) through local planning and public participation processes thereby demonstrating a shared commitment to Healthy Lakes & Rivers by leading by example with personal actions on their properties and at their businesses.

AUDIENCE

The target audience for this *Plan*, and implementation of the associated practices, is property owners within the shoreland zone of Wisconsin's lakes and rivers, including permanent and seasonal homeowners, municipalities, and businesses.

Additional planning work will be necessary to implement *Wisconsin's Healthy Lakes & Rivers Plan*, and the level of effort will depend on the complexity of the natural resource and its local community. Planning could range from simple site-specific property visits and development of design plans, to the integration of this statewide *Plan* into a broader and more comprehensive effort. Your lake or river group, county land and water conservation department, non-profit conservation organization, UW-Extension lakes specialist or local educator, and/or WDNR lake or river biologist can provide planning guidance or alternative contacts.

Wisconsin's Healthy Lakes & Rivers Action Plan, and the diversion and rock infiltration practices, in particular, are not intended for heavily developed parcels, sites with large volumes of runoff, or sites with complex problems that may require engineering design. Technical assistance and funding are still available for more complex sites; contact your county land and water conservation department or local lake or river biologist for more information.

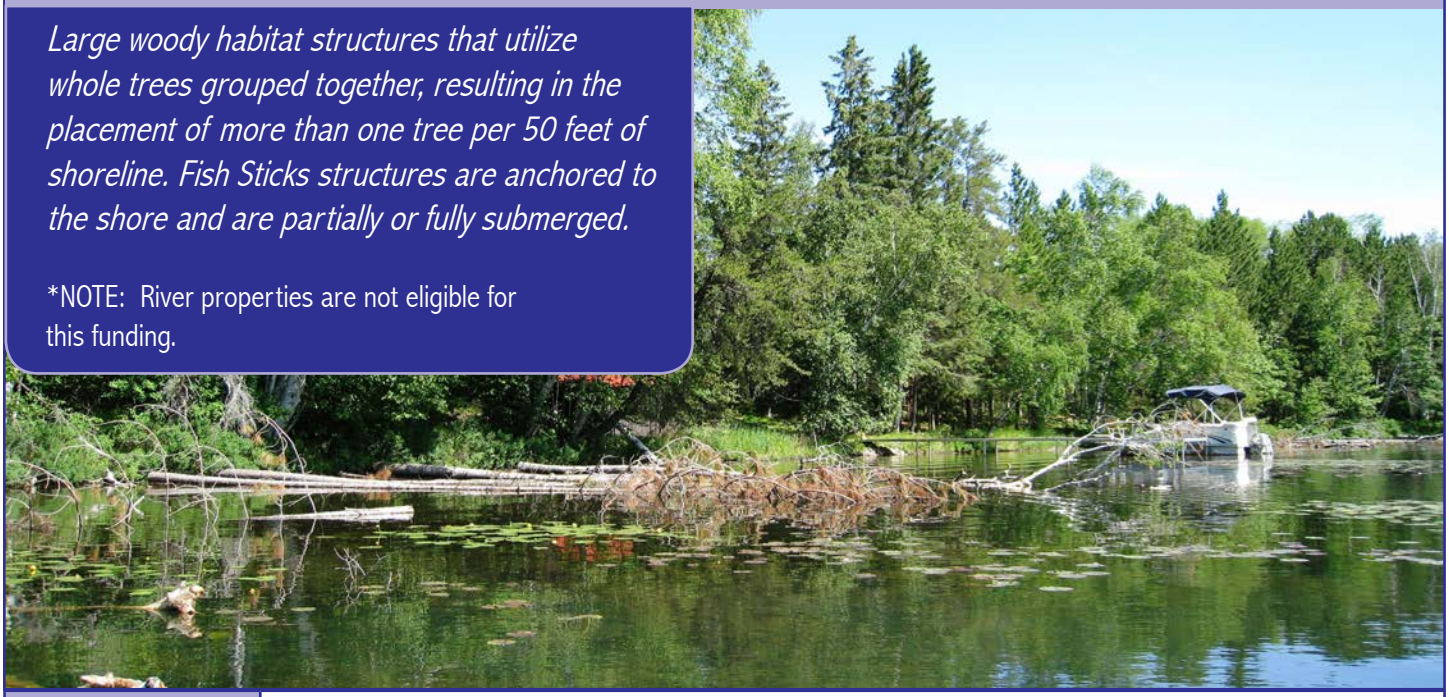
BEST PRACTICES

Best practice descriptions follow. Each description defines the practice, identifies benefits, provides cost ranges and averages, and identifies additional technical and regulatory information. The costs provided are installed costs, which include all materials, labor, and transportation, but do not include technical assistance, such as design and project management/administration work. Cost ranges are a result of geographic location, property conditions like soils and slopes, and contractor availability and proximity to the project site. Cost averages are based on real-life costs of installed best practices from throughout the state, as calculated in December 2018.

PRACTICE 1 | FISH STICKS*

Large woody habitat structures that utilize whole trees grouped together, resulting in the placement of more than one tree per 50 feet of shoreline. Fish Sticks structures are anchored to the shore and are partially or fully submerged.

*NOTE: River properties are not eligible for this funding.



Bony Lake, Bayfield County - Pamela Toshner

LAKE HEALTH BENEFITS	Improve fish and wildlife habitat Prevent shoreline erosion
COSTS	**Range:** $50-$1300 per cluster of 3-5 trees, installed **Average:** Average cost per unit of 3-5 trees: $890, installed
TECHNICAL REQUIREMENTS	Follow Fish Sticks Fact Sheet and Technical Guidance https://healthylakeswi.com/best-practices/#fish
REGULATORY INFORMATION	• WDNR: Habitat Structure - Fish Sticks General Permit https://dnr.wi.gov/topic/Waterways/habitat/fish_wildlife.html ($303 fee unless WDNR grant funded) • Fish Sticks must comply with the local shoreland zoning ordinance. Consult with your county or municipal zoning staff.
HEALTHY LAKES & RIVERS GRANT FUNDING	• Maximum of $1000/cluster of 3-5 trees • Fish Sticks may be a stand-alone grant activity only if the vegetation protection area (i.e. buffer) complies with local shoreland zoning. If not, the property owner must commit to leaving a 350 ft^2 area unmowed at the base of the cluster(s) or implement 350 ft^2 native plantings (Practice 2).

DID YOU KNOW...

...fallen trees can be left in the water? A single tree can survive for hundreds of years and provide habitat for life stages of most fish and protect your shoreline.

PRACTICE 2 | 350 FT² NATIVE PLANTINGS

Grasses and wildflowers with shrubs and trees sorted into six prescribed options based on property specifications and landowner interests. The minimum size is 350 ft² and must be planted adjacent to the lake or river and include a contiguous area, rather than be planted in patches. Native planting options include: shoreline edge, bird/butterfly habitat, woodland, low-growing, deer resistant, and bare soil area plantings.

Beaver Dam Lake, Dodge County - Bill Foley

LAKE & RIVER HEALTH BENEFITS	Improve wildlife habitat Slow runoff water Promote natural beauty
COSTS	**Range:** $480-$2400 for 350 ft² area, installed **Average:** Average cost per 350 ft²: $1140, installed
TECHNICAL REQUIREMENTS	Follow 350 ft² Native Plantings Fact Sheet and Technical Guidance https://healthylakeswi.com/best-practices/#350
REGULATORY INFORMATION	• WDNR: an aquatic plant chemical control permit may be necessary if using herbicides in or adjacent to the water (https://dnr.wi.gov/lakes/plants/). • Native plantings must comply with the local shoreland zoning ordinance. Consult with your county or municipal zoning staff. • Full shoreline restoration or protection would most likely require native plantings in a larger dimensional area.
HEALTHY LAKES & RIVERS GRANT FUNDING	• Maximum of $1000/350 ft² native plantings installed and implemented according to the technical requirements. • Site prep, including controlling invasive species, is eligible for funding. • The native planting dimension must be at least 350 ft² of contiguous area at least 10 feet wide either perpendicular or parallel to the water. Final shape and orientation to the shore are flexible.

DID YOU KNOW...

...shoreline plants will regrow on their own if you stop mowing? Over 90% of wildlife depend on this critical area. Bonus – you can use many of the native plants on the lists elsewhere on your property to benefit pollinators, birds, and other beneficial wildlife!

PRACTICE 3 | DIVERSION PRACTICE

Includes a water bar, diverter, and broad-based dip. These practices use a berm or shallow trench to intercept runoff from a path or road and divert it into a dispersion area. Depending on the site, multiple diversion practices may be necessary.

Lake Minnesuing, Douglas County - Jim Giffin

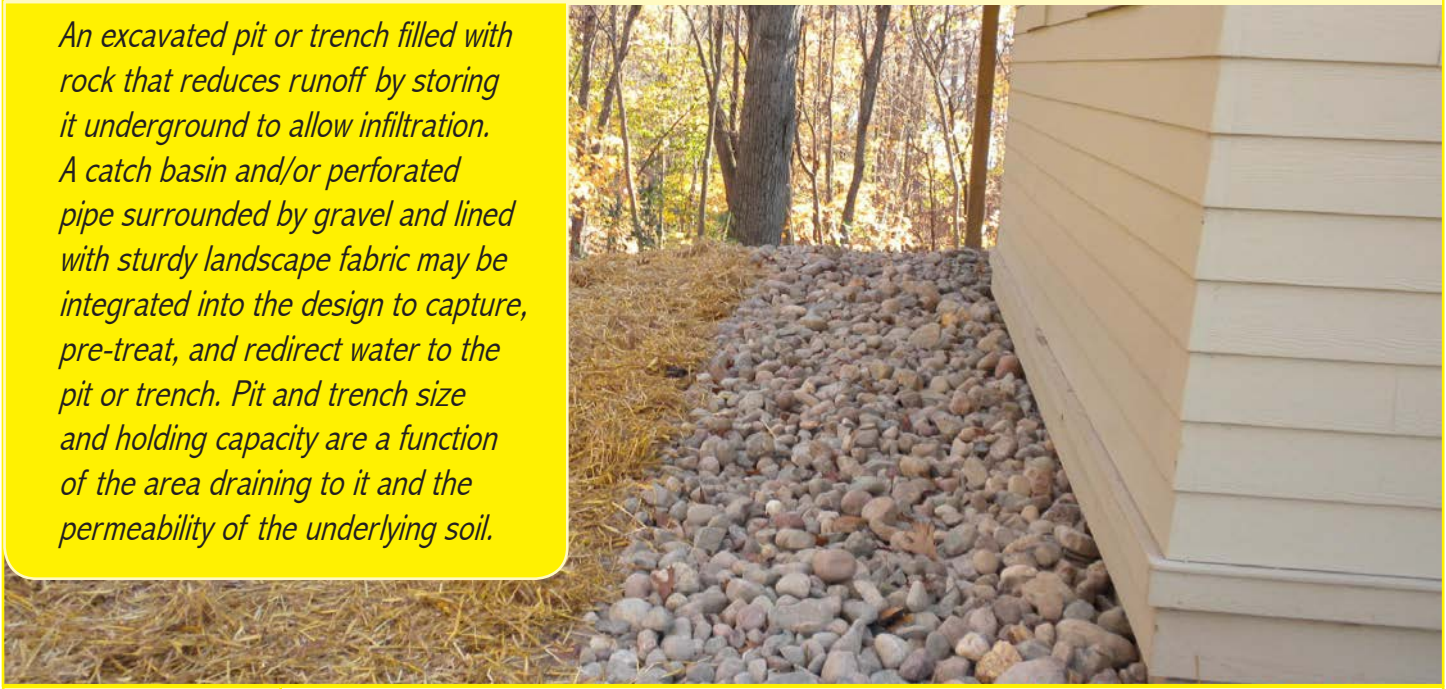
LAKE & RIVER HEALTH BENEFITS	Divert runoff water
COSTS	**Range:** $25-$3750, installed **Average:** $1205, installed
TECHNICAL REQUIREMENTS	Follow Diversion Practice Fact Sheet and Technical Guidance https://healthylakeswi.com/best-practices/#diversion
REGULATORY INFORMATION	• WDNR: none • Diversion practices must comply with the local shoreland zoning ordinance. Consult with your county or municipal zoning staff.
HEALTHY LAKES & RIVERS GRANT FUNDING	• Maximum of $1000/diversion practice installed and implemented according to the technical requirements. • Healthy Lakes & Rivers diversion practice grant funding is not intended for large, heavily developed parcels, sites with large volumes of runoff, or sites with complex problems that may require engineering design. • Funding is also available for diversions in the transition zone, provided they comply with local shoreland zoning.

DID YOU KNOW...

...gutters and downspouts that are sloped to the upland side of garages and houses and directed away from the lake are an easy way to prevent runoff pollution?

PRACTICE 4 | ROCK INFILTRATION PRACTICE

An excavated pit or trench filled with rock that reduces runoff by storing it underground to allow infiltration. A catch basin and/or perforated pipe surrounded by gravel and lined with sturdy landscape fabric may be integrated into the design to capture, pre-treat, and redirect water to the pit or trench. Pit and trench size and holding capacity are a function of the area draining to it and the permeability of the underlying soil.



Deer Lake, Polk County - Cheryl Clemens

LAKE & RIVER HEALTH BENEFITS	Divert runoff water Clean runoff water Infiltrate runoff water
COSTS	Range: $510-$9688 per rock infiltration practice, installed Average: $1220 per rock infiltration practice, installed
TECHNICAL REQUIREMENTS	Follow Rock Infiltration Practice Fact Sheet and Technical Guidance https://healthylakeswi.com/best-practices/#rock
REGULATORY INFORMATION	• DNR: none • Rock infiltration practices must comply with the local shoreland zoning ordinance. Consult with your county or municipal zoning staff.
HEALTHY LAKES & RIVERS GRANT FUNDING	• Maximum of $1000/rock infiltration practice installed and implemented according to the technical requirements. • Healthy Lakes & Rivers rock infiltration practice grant funding is not intended for heavily developed parcels, sites with large volumes of runoff, or sites with complex problems that may require engineering design.

DID YOU KNOW...

...800 ft^2 of pavement, rooftop, or other hard surface generates nearly 500 gallons of water during a one-inch rain? Anytime you can refrain from adding hard surface to your property, you're helping our lakes and rivers.

PRACTICE 5 | RAIN GARDEN

A landscaped shallow depression with loose soil designed to collect roof and driveway runoff.

Rock Lake, Jefferson County - Pamela Toshner

LAKE & RIVER HEALTH BENEFITS	Improve wildlife habitat Divert runoff water Clean runoff water Infiltrate runoff water Promote natural beauty
COSTS	Range: $500-$9500 per rain garden, installed Average: $1245 per rain garden, installed
TECHNICAL REQUIREMENTS	Follow Rain Garden Fact Sheet and Technical Guidance https://healthylakeswi.com/best-practices/#rain
REGULATORY INFORMATION	• DNR: none • Rain gardens must comply with the local shoreland zoning ordinance. Consult with your county or municipal zoning staff.
HEALTHY LAKES & RIVERS GRANT FUNDING	• Maximum of $1000/rain garden installed and implemented according to the technical requirements. • Healthy Lakes & Rivers rain garden grant funding is not intended for heavily developed parcels, sites with large volumes of runoff, or sites with complex problems that may require engineering design.

DID YOU KNOW...

...many properties have existing natural areas where water can soak into the ground and provide habitat, too? Look for these areas, especially prior to construction, and use them if you can.

FUNDING AND ACCOUNTABILITY

Administrative details and the application process are described in detail in the WDNR's Surface Water Grant Application & Guidelines, Healthy Lakes Application Tutorial (https://dnr.wi.gov/aid/surfacewater.html), and Healthy Lakes & Rivers Funding FAQ and Financial Administration factsheets (https://healthylakeswi.com).

IMPORTANT! *Please note Healthy Lakes & Rivers grant funding is not available for regulatory compliance purposes, including shoreland mitigation projects.*

Healthy Lakes & River grant funding highlights:

- Competitive grant funding is available for eligible grantees that apply on behalf of property owners with the possibility to include multiple lakes and rivers. State funding for each best practice is capped at $1000, and the total grant award is capped at $25,000. The grant application includes an option for applicants to add 10% of the state share of the best practice costs for technical assistance, project management, and/or education and communication costs.
- Grantees must match 25% of the total grant award amount. This 25% match can be in the form of volunteer labor, equipment, and cash from participating property owners or other partners. The grantee may determine individual property owner cost share rates, provided the state's share of the individual best practice caps ($1000) and state's contribution to the project (75% of total costs) are not exceeded.
- Grantees are allowed the standard two-year grant timeline to complete projects; this encourages shovel-ready projects. Grantees can use small-scale lake planning or river planning grants to develop projects, including recruiting property owners and completing initial site visits.
- Property owners may sign a participation pledge to document strong interest in completing the project.
- Application and reporting forms and process are standardized.
- Grantees will use a standard deliverable checklist, including a signed landowner contract with operation and maintenance information and 10-year requirement to leave practices in place. Also:
  - Native plantings must remain in place according to local shoreland zoning standards.
  - Fish Sticks projects require a 350 ft^2 native planting at the lakeshore edge or commitment not to mow, if the property does not comply with the shoreland vegetation protection area (i.e., buffer) standard described in the local shoreland zoning ordinance.
- The Healthy Lakes & Rivers Team and/or local DNR staff will complete site visits on at least 10% of funded projects annually, and there may also be a future self-reporting process to verify projects, collect program feedback, and celebrate success.

PROMOTION

Wisconsin's Healthy Lakes & Rivers Action Plan will be supported and promoted as a statewide program. Lake and river groups, businesses, local governments, and other partners may choose to implement the *Plan* as is or to integrate it into their own planning processes. A communication plan will drive statewide promotion and engage our partners with the following:

- A logo/brand.
- A promotional toolkit, including outreach publications and signs.
- An ambassador program to recruit and champion program participants.
- A website (https://healthylakeswi.com/) with plan, practice, and funding information housed on the University of Wisconsin server in partnership with the UW-Extension Environmental Resources Center.

EVALUATION OF RESULTS

Wisconsin's Healthy Lakes & Rivers Action Plan will be evaluated annually and updated as needed but at least once every 3-5 years. Depending on the results, best practices may be modified, removed, or added, and application and reporting requirements may be changed. The following information will be collected to support an objective evaluation:

- Number and geographic distribution of Healthy Lakes & Rivers grant applications, lakes, properties, and best practices.
- Property owner participation, including numbers and locations of best practices implemented.
- Standardized Healthy Lakes & Rivers grant project deliverable report including:
  - Numbers of Fish Sticks clusters and trees
  - Type of native planting, surface area, and length of lake or river shoreline restored.
  - Impervious/drainage area captured by or diverted by infiltration, diversion, and rain garden practices.
- Customer feedback, including project testimonials and opportunities for improvement.

Results matter! Take a look at what we've accomplished so far:

- *21 counties,*
- *56 lakes,*
- *269 properties, and*
- *398 best practices*

received Healthy Lakes grant funding from 2014-2017.

ACKNOWLEDGMENTS

Beaver Dam Lake - Cherie Hagen

The Healthy Lakes team received the 2015 Wisconsin Department of Natural Resources Secretary's Service Excellence Award on the shore of Beaver Dam Lake, Dodge County. L to R: Bill Foley, Karen Huber, Kurt Thiede, Carroll Schaal, Tom Onofrey, Amy Kowalski, Patrick Goggin, Pamela Toshner, Yvonne and Bill Boettge

We would like to thank the private and public lakeshore property owners whose participation made the 2014-2017 Healthy Lakes pilot successful enough to expand its scope and permanency in Wisconsin. We are grateful for communications support from UW-Extension's Environmental Resources Center and the WDNR Office of Communications, as well as the tremendous behind-the-scenes administrative assistance WDNR grant project managers have provided. We also appreciate the following reviewers who took the time to read the draft and provide comments: Chris Arnold, Robert Bergmann, Karen Blodgett, Bill Boettge, Sharon Gayan, Colin Geisenhoffer, Jim Giffin, Richard Kania, Chrissy Kozik, Ann Lane, Kristi Minahan, Amanda Smith, Mary Rose Teves, Anna Turk, and Marcia Willhite.