

The Nebagamon Lake Association Newsletter

Spring 2017



President's Message

It is starting to sound like a broken record, but it was another sub-par winter for snow lovers in Lake Nebagamon. While that led to an earlier than normal ice-out, the weather in April and May was colder than normal, leading to some cold dock installations this spring! It is not common for the water temperature to not have reached 60 degrees by Memorial Day.

The NLA was hard at work during the off-season applying for and securing unprecedented grant money made available by the State of Wisconsin. We again have a \$4,000 grant (matched with an additional \$1,500 from the Village) to continue our boat launch monitoring, aimed at preventing invasive species in our lake. After a successful inaugural year of the "Healthy Lakes" program in which we completed 7 of 9 projects, we received a grant for 21 additional projects in the amount of \$19,900, for which we have two years to complete. We will continue to provide updates on these projects, and anticipate grant funding to continue to be available (although it could become more competitive state-wide). If you would consider improving your property with a rain garden, native plantings, diversion, rock infiltration pit, or fish sticks at little or no cost to you, please have us out for a no-obligation property tour to discuss possible options available to you.

The Village boat launch was also the recipient of a large-scale (\$24,200) grant under the Healthy Lakes program for a stormwater runoff treatment system.

In this newsletter, we have updates on a number of projects and issues that we are currently executing as an organization, including more detail on the above discussed projects. We welcome your input anytime. I

hope to see you at the Annual Meeting on June 24th, or feel free to contact me at lakenebagamonwisconsin@yahoo.com with any questions or concerns.

I would like to thank the board of directors for their outstanding commitment to the many large projects we are taking on, the state of Wisconsin for their financial support, and most importantly the members of the NLA for making this all possible. Thank you for your membership in the NLA and your continued stewardship of Lake Nebagamon.

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Reminder—Important Dates in 2017

June 17	Garage sales, 8:00 a.m. – 3 p.m.
June 24	Annual meeting, 9:30 a.m., Auditorium
July 4	Boat Parade, 7 p.m.
August 12	Summer Social, 6 p.m. at Norwood

Membership Report

For the year ending June 30, 2017, at this time we have 225 paid members, with many paying in advance. This is 17 more than we had in the previous year at this time. There are still 41 members who we haven't heard from. We will indicate along with this newsletter if you are one of these members. Please note that the majority of dues collection occurs at the beginning of the fiscal year (this Summer), so we apologize in advance if you catch up on last year's dues and are then asked about current year dues within a few months. Attached to the end of this newsletter is a dues form.

The total current and non-current members comprise over 75% of lakeshore property owners. If you have sold or transferred your property, please let us know who is currently enjoying Lake Nebagamon. We will be happy to contact them, and stop bugging you if you wish!

Finally, you can take advantage of our online payment option for dues with your credit card. Go to <http://nebagamonlakeassociation.com/pay-online/>

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Community Garage Sales June 17

The annual community garage sales will take place on Saturday, June 17. Contact George Lehman at 218-390-7346 or geolehman@juno.com to have your house included on the map. \$10 per house goes to the Nebagamon Lake Association for projects that will benefit the lake and community. Happy shopping!



Walleye and Healthy Lakes Initiatives

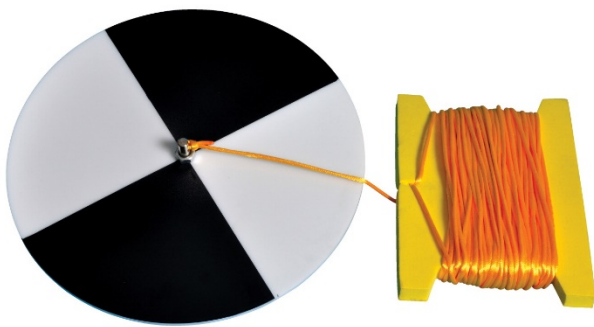
The Healthy Lakes initiative in the State of Wisconsin has a stated goal of controlling the detrimental effects of surface water runoff into lakes. There are several types of relatively easy and inexpensive projects that a lakeshore owner can implement such as a diversion that redirects and slows down runoff, rock infiltration pits that are strategically placed to capture runoff to be soaked into the ground, rain gardens designed to soak up rainwater often through native plantings, and "fish sticks" which are trees securely placed in shallow waters to create fish habitat. The NLA is one of the leaders in the state in terms of early implementation. In 2015, Phil Takkunen was invited to the DNR kickoff of the Healthy Lakes program and we were soon accepted to be a first round "test" lake. Will Kiefer and Alan Yoshimoto have since been invited to speak about our success story at a DNR conference in June! Our initial grant of \$9,500 last year covered 6 properties with a total of 9 project types on those properties. We then followed that up by applying for and receiving a grant for \$19,900 this April for another 9 properties and 21 projects on those properties.

Each "project" (which can be multiple per property) can be up to \$1,333 in total cost. For an example project costing \$1,000, the state will pay \$750, the Nebagamon Lake Association will pay \$150, and the homeowner will pay \$100. However, the state will compensate for contributed labor and materials. Through our first 9 projects, the NLA and homeowners have not had any net expense because of contributed labor. To simplify, this means that the NLA is then able to use these reserved funds towards additional future

projects, and that those future projects can very realistically be free to the property owner!

We are currently looking for property owners interested in having their properties considered for a future project. Those that have had projects completed will be happy to walk you through their yard. Call Phil Takkunen at 715-374-3047 if you would like a no-obligation consultation. The Healthy Lakes program is a great chance to beautify your property and increase the health of Lake Nebagamon.

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Water Quality Report

Lake Nebagamon's water clarity was down last year. The average secchi disk reading for Lake Nebagamon in 2016 was 5.75 feet. Note: A Secchi disk is a plain white, circular disk 12 in in diameter used to measure water transparency. The disc is mounted on a pole or line, and lowered slowly down in the water. The depth at which the disk is no longer visible is taken as a measure of the transparency of the water. In 2015 the average was 7 feet and in 2014 it was 5.97 feet. The first secchi disk reading for this year was on May 31 and that came in at 7 feet. By comparison Lake Minnesueing average came in at 5.2 last year. Water chemistry for Lake Nebagamon has shown a slight increase in both phosphorus and chlorophyll. Overall Lake Nebagamon has noticed a decrease in water clarity with slightly warmer water. The lake became ice bound on Dec. 10, 2016. The previous record was Dec. 21, 1998. Ice out was on April 4 which is about two weeks ahead of average.

AIS Boat Launch Monitoring

This year we have the same three boat launch monitors as last year. All of them have monitored for three years or more on Lake Nebagamon. They are Jeff Giansanti, Judy Dalbec and William Cain. They are all enthusiastic, experienced and know what items to focus on. We have monitored the lake from Fishing Opener on May 6th through Memorial weekend only on Saturdays and Sundays. From May 30th onward we will monitor 53 hours a week (5 hours per day Monday through Thursday and 11 hours a day on Fridays, Saturdays and Sundays). This schedule will continue until we stop monitoring after Labor Day, September 4. Through May 29 we have had 182 boats enter the lake for an average of 18 per monitored day. On Saturday May 27, a beautiful 75 degree day, we had 49 boats enter the lake. No violations were noted during this period.

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Joe Kott captures a great February day with his drone.

Calling all photographers – we need more pictures around Lake Nebagamon to be featured in this newsletter and on our Facebook page. Please share pictures on our Facebook page or send to lakenebagamonwisconsin@yahoo.com.



Photo Credit: Jarrid Houston

Lake Nebagamom Area Fishing – A Professional Fishing Guides Perspective

Living in an area that has a plethora of different and unique opportunities can often make me undecided on a target species. It happens often, and I'm sure I'm not the only one. Where should I go today? What should I chase? The Arrowhead region of Lake Superior is home to waters like: The St. Louis River, Lake Superior, and countless inland lakes, reservoirs and streams. We are also a short drive to waters like: the mighty Chippewa Flowage, Minong Flowage, Pike Chain, Eau Claire Chain, and several other waters. This, no doubt, adds frustration to my indecisive thought process on the "where should I go". I guess you could argue that it is a good problem to have. I mean, what if we lived somewhere else that doesn't present the golden opportunities we have right here in the confines of this Lake Nebagamom Community.

A positive and great factor about being in the Guide Business is we usually have our finger on the pulse of a good bite. Most often it's walleyes (our specialty), but there are times it's just fish! You see, most of our waters are like any other fisheries where the simple live bait trick can provide a wide range of species caught. When we go fishing with people that strictly want to catch walleyes, I assure them that is not the only action we will encounter during the course of our trip, and vice-versa. Any avid fishermen should understand what I am talking about. The live bait factor for us, equals multi-species days.

Some anglers take to the water with a small fortune worth of equipment. I would be a hypocrite to say that's not the case for us. But in all reality, one does not need a lot of equipment for a multi-species fish

outing. Most of our open water season consists of setting up our medium light JTX Custom rods with 5lb bionic monofilament and simple Northland Fishing Tackle jigs in smaller sizes (I like 1/16oz). Our "milk runs" usually involve pitching jigs tipped with a live minnow or 1/3 of a crawler toward steep breaks off of weed lines, shorelines or other structure. One tip I like to speak about in the boat is "when getting caught up in weeds, don't get discouraged and immediately retrieve your bait. Rather work that snag to your advantage and shake the vegetation". This often can trigger fish reactions. We use the term "shaking weeds" and it is a tactic that can be very successful.

In my opinion, fishing these area waters is not really like fishing the big waters of Northern Minnesota's famed walleye factories. Although there are a lot of similarities, these waters produce fishing areas that can and often will hold all the species in a single location. So when we set out and work our areas, we can expect to catch sunfish, crappies, perch, pike, small mouth, large mouth and of course walleyes too! Sometimes we even tangle with a bonus musky (not in Lake Nebagamom, but other area waters), although this can be quite challenging using gear catered for smaller fish, but rewarding, no doubt. We seldom get out on a control drift with lindy rigs and/or other presentations. During the course of my guide career, I have found a jig and live bait to be the best for successful days, not to mention the easiest. This seems like the obvious way to catch fish, but there is a lot that can go into the "jig fishing" concept. Different sizes with various colors, and sometimes added soft plastics, etc. There are a lot of variables that can be included in our jig style tactics.

We make sure the worms, leeches and minnows are plentiful on all our trips. We absolutely keep our local bait shops in business. But sometimes, the bite is good enough where we can switch to simple plastics, but for the most part, live bait is what we are confident in. Worms and leeches prove the most success on most outings. This is mostly because all fish that swim like worms and leeches. So it comes to no surprise for us to see our anglers catch lots of sun fish and crappies mixed in with other predatory fish. If an angler is only interested in walleyes, then the best bet is to usually rig him up with a simple jig and minnow combination. Another tactic for a great multi-species day (especially when the bite is on the slow side), is to use slow drop baits. Like a small jig and plastic tipped with live bait. I personally like the Lindy Watsit jig, but there are other similar mimicked options as well.

Another key ingredient to our successful trips is TIME. Any avid angler knows that timing can be everything when it comes to catching fish. So what do we do? We put in the time. I like mornings and nights (cliché I know; but the truth). Mostly the reason is on an inland water body you get a lot of summer boat traffic during the mid-day. This can sometimes be annoying when trying to fish. So we like to meet our clients usually early in the morning, or later in the afternoon. Fishing on average 150 days a year (a huge percentage of that on Lake Nebagamon), this is a routine that I have become accustomed to.

It is no secret, the waters of this region do have a nice reputation for having some of the nation's best multi-species opportunities. Lake Nebagamon, in particular, has a plethora of various year class fish. Especially the small mouth bass which are quickly becoming very abundant. These "bronze backs" aka small mouth have become a very popular catch and have made the lake a Class A small mouth fishery. Lake Nebagamon's (as well as other area waters) various other species are a delicacy and it is important we take care of that concept for future angling. Catch, photo, release is a great practice! Nothing wrong with a fish meal, time to time, but we all need to do our part and harvest selectively. Tight lines and see you on the water!

-Jarrod Houston, Houston's Guide Service & NLA Member

www.houstonsguideservice.com

(218)-393-4962 or houstonbsu@hotmail.com

is led by Jack Sellwood (look for the teal-colored Bennington). The parade usually lasts about 45 minutes. All types of boats are welcome to take part. My family will again be taking pictures of the festivities and determining which boats have the best combination of decorations, spirit, and creativity. The top two winners will receive a Dilly Bar for every person on board. Pictures will be shared on the NLA Facebook page as well as in the fall newsletter, as space allows.

Don't forget to stop by Jack's pontoon at the end of the parade (near the Boy's Camp) to get a free \$5 Dairy Queen gift certificate!

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Join Us at the Summer Social!

Please join us for the Lake Nebagamon Annual Summer Social on Saturday August 12, 2017 at 6pm! It will be held at Norwood Golf Course. On the menu will be hamburgers, hot dogs, potato salad, beans, and chips. We will be charging \$8.00 per adult, \$4.00 per child. Ice cream sundaes with an assortment of toppings will again be served for dessert at no charge to attendees. We will also have a drawing for free prizes. Come support our beautiful lake and meet your lake neighbors! Also, if you would like to pay your Association dues that day, you can as well.



Boat Parade July 4th

Join your neighbors for the annual July 4th boat parade again this year. The parade starts at 7 p.m., and



Photo taken of loon chick on Lake Nebagamon, 2016, Dan Takkunen

From the Nest of the “Loon Ranger,” Dan Takkunen

According to experts, loons have been around for about 50 million years. There is so much to learn about this spectacular bird. We already have some loon experts around Lake Nebagamon, as well as others who are learning more each year about the common loon that inhabits our lake. So where do you fall on the spectrum of loon knowledge? Here is a short quiz to test your loon IQ.

1. According to DNR rules, boats are to stay at least _____ feet away from loons you see.
 - a. 200 ft.
 - b. 50 ft.
 - c. 400 ft.
 - d. 1000 ft.
2. In which of the following states would you find the common loon?
 - a. Wisconsin
 - b. Minnesota
 - c. Iowa
 - d. Indiana
 - e. Michigan
3. When spring-born loon chicks migrate south at the end of the summer, when do they usually return to their nesting lake?
 - a. The next summer
 - b. 2 years
 - c. 3-4 years

d. They stay south

4. Loons that do not have a mate are technically called _____.

- a. Loners
- b. Floaters
- c. Unsociable

5. The major predators of loon eggs and loon chicks on Lake Nebagamon are:

- a. Eagles
- b. Raccoons
- c. Opossums
- d. All of the above

6. What is the most important thing fishermen can do to help loons out?

7. Where do the Lake Nebagamon loons generally migrate to in the fall?

8. Loon chicks are less vulnerable when they learn how to dive. Approximately when do they learn this skill?

- a. 5-8 weeks
- b. 3-4 weeks
- c. About 3 months

9. Most birds have hollow bones for flight. The common loon has solid bones. Why the difference?

10. Loons have four basic calls for communication. Can you name two of them?

Answers:

1. a
2. WI, MN, MI
3. c
4. b
5. d
6. Use non-lead sinkers and jigs
7. Gulf of Mexico and Atlantic side of Florida
8. a
9. It helps them to dive for food, because they have neutral buoyancy
10. Yodel, wail, tremolo, hoot

Here is where you fall:

- 9-10 Loon Ranger
- 7-8 Assistant Loon Ranger
- 5-6 Loon Ranger Intern
- 3-4 Loon Ranger Wannabe
- 1-2 Time for a Google search on loons

New Member Spotlight

We are excited to welcome Patti's Dockside as a new member! Patti has purchased the former Waterfront Bar & Grill and has been working tirelessly since December to remodel the kitchen and overhaul the menu. She looks forward to improving outdoor hospitality and considering potential Healthy Lakes projects to manage run-off into the lake. Go check it out!



Did you know?

In addition to the significant Healthy Lakes grants we have received as an organization over the last two years, the NLA worked with the Village of Lake Nebagamon to address what is probably the single biggest source of runoff around the lake. Recently, the State of Wisconsin approved a grant to pay for 75% of a \$24,200 project at the public boat launch. The Village will cover the remaining \$6,050. The project will feature a diversion ditch at the top of the ramp designed to capture run-off from the hills directly in front of the boat launch and up towards the auditorium. The diversion will send the water to infiltration chambers (near where the portable toilets currently sit) and the water will settle into the ground. The system is designed to capture the first two inches of any rain event.

Also of note, the NLA worked with the DNR in the fall to discuss options for improving the boat launch ramp itself, especially to extend the concrete pad further into the lake. Unfortunately, DNR assistance does not seem promising. We will continue to seek other options and keep you informed.

Proposed NLA Fiscal Year 2017 Budget

THE NEBAGAMON LAKE ASSOCIATION, INC

BUDGET 7-1-2017 TO 6-30-2018

INCOME:

DUES	4,000
RUMMAGE SALE	400
SOCIAL	600
DONATIONS	2,000
HEALTHY LAKES PROJECT	21,000
BOAT MONITORING	5,500
INTEREST	<u>5</u>
TOTAL	<u>33,505</u>

DISBURSEMENTS:

PROJECTS:	
BOAT MONITORING	8,000
HEALTHY LAKES PROJECT	22,000
BOAT PARADE	100
FIREWORKS	400
L N SWIMMING CLASS	200
HAZARD MARKERS	300
SOCIAL	600
KIDS IN NEBAGAMON - CHRISTMAS	100
ANNUAL MEETING	75
EDUCATIONAL MATERIALS	100
NEW PROJECT	1,000
 RUMMAGE SALE EXP	 50
WEB SITE	200
NEWS LETTERS, POSTAGE, MTGS. OFFICE EXP.	<u>500</u>
TOTAL	<u>33,625</u>

NLA Board of Directors

Erik Takkunen, President	612-867-7951
Adam Riutta, Vice President	317-407-5395
Alan Yoshimoto, Secretary	715-374-2467
Jack Sellwood, Treasurer	715-374-3254
David Conley	715-375-2088
Willard Kiefer	715-374-3544
Mark Laskowski	715-374-3747
George Lehman	218-390-7346
Ed Noltner	715-374-3707
Tom Maas	715-374-2147
David Sprowls	239-676-4064
Phil Takkunen	949-412-8690

Board Member Project Committees:

- Healthy Lakes/Walleye Initiative – Phil Takkunen, Willard Kiefer, Alan Yoshimoto, Tom Maas
- Invasive Plants – David Conley, Ed Noltner
- Summer Social – Adam Riutta, Ed Noltner
- Membership/Outreach – Erik Takkunen
- Water quality – Mark Laskowski
- Boat Launch Monitoring – Dave Sprowls
- Garage Sales – George Lehman
- Finance/Treasury – Jack Sellwood

Lake Nebagamon Ice In & Ice Out Dates

<u>Year</u>	<u>Ice-Out Date</u>	<u>Ice-Free Days</u>	<u>Ice-In Date</u>
1943	No Data	-	11/13
1944	5/1	214	12/1
1945	3/31	233	11/19
1946	3/31	237	11/23
1947	5/2	205	11/27
1948	4/12	240	12/8
1949	4/18	251	11/25
1950	5/14	194	11/24
1951	4/18	215	11/19
1952	4/21	221	11/28
1953	4/22	207	11/15
1954	4/20	224	11/30
1955	4/16	217	11/19
1956	4/28	215	11/29
1957	4/24	215	11/25
1958	4/14	227	11/27
1959	4/19	209	11/14
1960	4/20	225	12/1
1961	4/22	221	11/28
1962	4/25	228	12/8
1963	4/14	231	12/1
1964	4/22	212	11/20
1965	4/30	216	12/2
1966	4/22	223	12/1
1967	4/14	221	11/21
1968	4/11	239	12/6
1969	4/20	228	12/4
1970	4/24	217	11/27
1971	4/20	226	12/2
1972	5/1	182	11/30
1973	4/14	231	12/1
1974	4/26	218	11/30
1975	5/1	207	11/24
1976	4/14	215	11/15
1977	4/13	226	11/25
1978	4/19	215	11/20
1979	4/27	221	12/4
1980	4/22	215	11/23
1981	4/13	242	12/11
1982	4/24	214	11/26

<u>Year</u>	<u>Ice-Out Date</u>	<u>Ice-Free Days</u>	<u>Ice-In Date</u>
1983	4/30	216	12/2
1984	4/20	243	12/19
1985	4/18	218	11/22
1986	4/12	219	11/17
1987	4/7	240	12/3
1988	4/19	226	12/1
1989	4/26	212	11/24
1990	4/21	224	12/1
1991	4/12	213	11/7
1992	4/26	218	11/30
1993	4/24	217	11/27
1994	4/18	232	12/6
1995	4/18	209	11/13
1996	5/5	198	11/19
1997	4/24	210	11/20
1998	4/7	258	12/21
1999	4/13	248	12/17
2000	4/26	224	12/6
2001	4/25	239	12/20
2002	4/18	222	11/26
2003	4/24	223	12/3
2004	4/18	240	12/14
2005	4/11	229	11/26
2006	4/11	234	12/1
2007	4/19	226	12/1
2008	3/29	241	11/25
2009	4/16	234	12/6
2010	3/31	248	12/4
2011	4/13	233	12/2
2012	3/21	261	12/7
2013	5/12	198	11/26
2014	5/6	199	11/21
2015	4/12	255	12/26
2016	4/14	241	12/10
2017	4/4		
Averages			
Last 5	4/18	230	12/4
Last 10	4/14	234	12/2
Last 20	4/15	233	12/4
Overall	4/19	224	11/28

Credits:

Jack Arthur, Gail DeBrunye, Willard Kiefer, Andy Mack, Mark Laskow ski, and Joe Snyder.

July 1, 2017-June 30, 2018
MEMBERSHIP APPLICATION/RENEWAL
NEBAGAMON LAKE ASSOCIATION
<http://nebagamonlakeassociation.com>



***Save time and postage! You now have the option of paying online with a credit card at <http://nebagamonlakeassociation.com/payonline.html>. When paying online you can also provide the below information.**

Name: _____

Spouse's name: _____

Phone number _____

Lake Nebagamon address (fire number & road only) _____

Mailing address (where you wish newsletters to be mailed) _____

☐ Please send the spring and fall newsletters by email. I want to help save printing and postage expense.

Email address _____

Dues are \$20 per year—a small amount that has a big impact!

Payment for fiscal year 2017, if needed (July 2016 - June 2017)

Payment for fiscal year 2018 (July 2017 - June 2018)

If you wish to pay dues in advance (more than one year), indicate amount here:

We are involved in many projects and would gladly accept additional contributions, if you wish to contribute additionally, indicate amount here:

- Aquatic Invasive Species Prevention
- Walleye Enhancement Initiative
- General Fund (Projects Determined by Membership)

Total paid

Please make your check payable to NLA and send it along with this information sheet to:

**NLA
PO Box 216
Lake Nebagamon, WI 54849**

Appendices for Email Recipients

Healthy Lakes “Best Practices” Fact Sheets



MAINTENANCE

COSTS

- Range: \$510 – \$9688
(average = \$3800)
- Healthy Lakes grant funding available:
\$1000 per rock infiltration practice

MATERIALS

- Shovel or excavating equipment
- Clean crushed stone
- Landscaping fabric
- Catch basin (possible)
- Perforated drainage pipe (possible)

PERFORMANCE STANDARD

- Capture - one year 24-hour storm runoff



Deer Lake, Polk County - Cheryl Clemens

ROCK INFILTRATION

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

PURPOSE

This infiltration best practice captures, cleans, and infiltrates runoff that would otherwise move downhill into the lake. It is appropriate for sandy to loamy soils only (not clay!) and may require a catch basin or diversion practice to redirect runoff water to it.

HOW TO BUILD

It may be necessary to work with your local land and water conservation department or a landscaper to design and/or construct this practice, particularly in regards to size and placement. Check with your local zoning department to determine if any permits are necessary.

Detailed guidance is found here: <http://tinyurl.com/runoffguide>.

1. Find a location

Place the practice at least 10 feet away from your home to prevent flooding. It can be placed closer to structures without basements or foundations. It should also be 50 feet from drinking water wells, especially if the well is old, and should not be placed uphill from or over a septic field. If the rock infiltration pit is backfilled/buried, a spillway outlet will be necessary; be sure the outlet drains away from the lake. Dig a hole to be certain there is at least three feet of soil depth before groundwater is reached. You will also want to be sure the soil is sandy to loamy.

The rock infiltration practice may function better if you locate it where incoming runoff first moves and cleans itself across a grassy area. Alternatively, identify a catch basin location at the base of a downspout. The gutter should lie on top of the catch basin and not be a sealed connection in the event

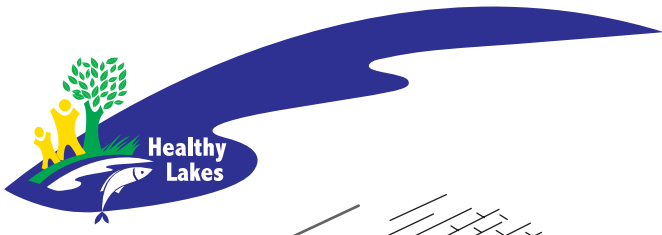
PROJECT TIMELINE

SITE PREP
1 DAY

INSTALLATION
1-2 DAYS

PROJECT END
< 1 YEAR
Same growing season

Ongoing
maintenance checks
subsequent years.



FACT SHEET SERIES: **ROCK INFILTRATION PRACTICE**

of backup. You may need to use a gutter extension to be sure the catch basin is several feet from the foundation.

2. Measure drainage area and size the practice

The size of the practice will depend on the soil type and its infiltration rate as well as the size of the surface area it drains. The fact sheet links provide some tools to measure drainage area and practice size.

3. Create a design

Sketch the design and dimensions to be sure you understand what area it will cover and how it may function or fit into your landscape. Consider the following:

- How will water flow from the practice if/when it overflows?
- Will you have adequate access to properly maintain it?
- Will it be placed in a location free of motor vehicle traffic or other activities that cause soil compaction?

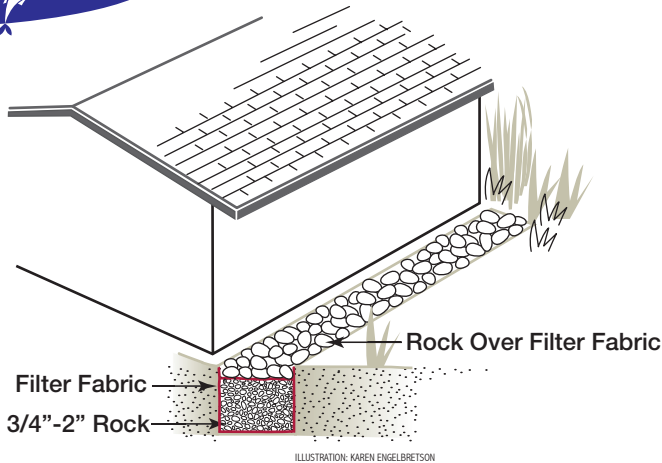


ILLUSTRATION: KAREN ENGELBRETON

4. Lay out the best practice

Lay out the shape and boundary of the project based on the design. Before you start digging, contact <http://www.diggershotline.com/>.

5. Construct the practice

Install silt fence downslope of where the practice will be constructed. Dig the pit or trench in a location downslope and deep enough to drain the area calculated in Step 2. It shouldn't be deeper than 5 feet because the soil below will compact and not drain effectively. Line the trench with landscape fabric and fill with ¾-2" rock to no more than within 6" of the top of the pit. Lay filter fabric over the top and cover the remaining space with 4-6" of clean rock. The top layer of larger rock and filter fabric can be removed and replaced for maintenance and cleaning purposes.

If using a catch basin with drain tile, install the catch basin at the base of a downspout, dig a trench in a location downslope and deep enough to allow for 6-12" of stone to be placed around the drain tile. A standard trench is about 1.5 feet deep and 10-12" wide, varying based on the size of the pipe chosen (usually 4-6") and the desired depth. Line the trench with landscape fabric and place 6-12" of stone in the bottom of the trench. Install a 4" or 6" perforated drain tile and surround the pipe with stone and then backfill with soil. The landscape fabric should be wrapped all of the way around the stone to prevent mixing of the surrounding soil into the stone. This will keep the porous spaces in the stone open for the water to flow through. The trench should be sloped enough to move water through the drain tile to the desired destination and have an outlet at the end for extreme storm events.

FUNDING NOTE

Healthy Lakes 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.

MAINTENANCE

- Mark the location of the practice above the ground, if it is backfilled, to avoid compaction, and do not drive across the area.
- Remove materials like leaves and pine needles that collect on top of the system and in/around the catch basin and/or overflow pipe.
- Inspect the practice and remove, wash and/or sift, and replace surface layer rock as necessary. If filter fabric is used to line the bottom of the practice, the smaller rock may also need to be removed and washed to clean out accumulated sediment.
- The rock infiltration practice must remain in place for 10 years if Healthy Lakes grant-funded.

LINKS

Healthy Lakes Website — <http://healthylakeswi.com>

Controlling Runoff and Erosion on Your Waterfront Property: A Guide for Landowners <http://tinyurl.com/runoffguide>

Vermont Lake Wise Program: http://www.watershedmanagement.vt.gov/lakes/html/lp_lakewise_standards_bmps.htm

DNR Lake Protection Grants — <http://dnr.wi.gov/aid/surfacewater.html>

For more information contact Pamela Toshner at 715-635-4073 or pamela.toshner@wi.gov.



**WISCONSIN
LAKES
PARTNERSHIP**

Design and layout by Amy Kowalski, UWEX Lakes

RAIN GARDEN



MAINTENANCE

COSTS

- Range: \$500 – \$9500
(average = \$2500)
- Healthy Lakes grant funding available:
\$1000 per rain garden

MATERIALS

- Black plastic or herbicide
- Shovel or excavating equipment
- Compost
- Native plants
- Bulb auger or hand trowel
- Mulch
- Watering equipment



Shell Lake, Washburn County - Brent Edlin

A RAIN GARDEN, an upland best practice, is a landscaped shallow depression with loose soil and native plants designed to collect roof, path, and driveway runoff while also creating wildlife habitat and natural beauty.

PURPOSE

Rain gardens capture and infiltrate runoff allowing about 30% more water to soak into the ground than conventional lawn and can be used with any soil type. Rain gardens collectively protect lakes by preventing polluted runoff from entering them. They also simultaneously provide habitat for birds, butterflies, and beneficial insects and promote natural beauty. Rain gardens are designed to drain within 1-2 days, which means they won't pond water long enough to grow more mosquitos who need 7-12 days for a successful hatch.

HOW TO BUILD

Rain gardens can vary in size from 5-50% of the drainage area, depending on soil type. Rain gardens for single-family homes will typically range from 150 to 600 square feet, but even a smaller one will help reduce water pollution. It may be necessary to work with your county land and water conservation department or a landscaper to design and/or construct this practice. Check with your local zoning department to determine if any permits are necessary.

Detailed guidance is found here: <http://dnr.wi.gov/topic/stormwater/raingarden/>.

1. Find a location

Place the garden at least 10 feet away from your home to prevent flooding. You should try to choose a naturally occurring low spot in your yard or position the garden where your downspouts or sump pump outlet can be used to direct rainwater into your garden. A grassy swale or diversion practice may be necessary to redirect runoff water into the rain garden. Do not locate the garden over a septic field or where water already ponds. Try to choose a location in full or partial sun.

2. Measure drainage area

If you are building the rain garden in a low spot in your yard you do not need to measure the drainage area. Just ensure the area receives water regularly during a rainstorm.

PROJECT TIMELINE

SITE PREP
1 DAY - 6 WEEKS

INSTALLATION
1-2 DAYS

MAINTENANCE
2 YEARS

PROJECT END
3 YEARS
Ongoing weeding may be necessary in subsequent years.



FACT SHEET SERIES: RAIN GARDEN

If you are capturing water from a roof or other hard surface you will need to measure the specific drainage area of that surface and multiply by the number associated with the type of soil you have. For sandy soil multiply by 10%, for loam use 20% and for clay use 45%. These numbers are somewhat inflated but they will ensure the garden holds as much water as possible.

3. Create a design

Whether your garden is large or small the same basic principles apply. By planning your garden on paper first, you will be able to create the best appearance possible for your rain garden.

4. Choose your plants

Native plants should be used because they are best adapted for our climate and provide ideal habitat for our wildlife. You will want to choose plants (flowers and grasses) that will grow well in both moist and dry areas because the rain garden will temporarily fill with rainwater from time to time.

5. Lay out the garden

Lay out the shape and boundary of the garden based on your design. Before you start digging, contact <http://www.diggershotline.com/>.

6. Dig the garden

Install silt fence downslope of where the garden will be constructed. Remove the turf grass and dig your garden approximately 6-18 inches deep for sandy soil; 6-12 inches deep for loamy soil; and 6-8 inches deep for clay soil. The bottom of the garden should be flat to evenly disperse water. Use the soil to build a berm around the garden edges if necessary. The berm must be totally level so it does not blow out.

7. Prepare the soil

Amend the soil with 2"-3" of compost. Mix in well.

8. Plant the flowers and grasses

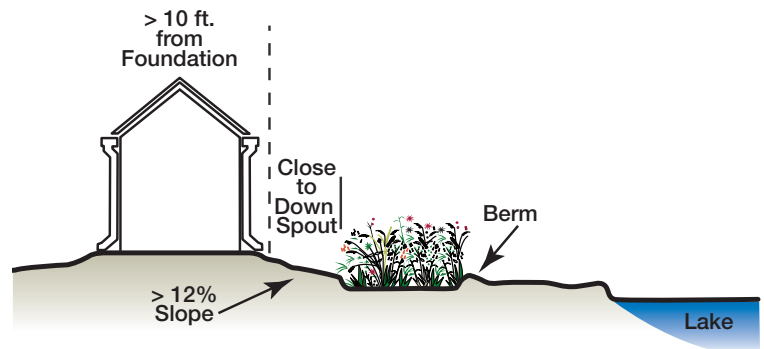
Follow the design and place your plants in the approximate positions. Step back and look at the garden and the design. Plants should be placed about 1 foot apart from each other. Once you are satisfied you can start planting the flowers and grasses using a hand trowel.

9. Mulch the garden or plant through a wood fiber blanket

Use coarse, fibrous, shredded woodchips, straw, or leaves. Apply the mulch about 2-3 inches deep. This will help to keep the moisture in and the weeds out.

10. Water and arrange downspouts

After you've planted the garden, water every other day for 2 weeks if it doesn't rain until the garden looks to be growing on its own. Good water techniques and maintenance are critical to a quality rain garden.



MAINTAINENCE

- Water the plants a minimum of 1 inch per week and more during dry periods for 1-2 years.
- Weeding is most important the first year and by the third year should no longer be necessary.
- The standing dead plants may be left in place through the winter for wildlife cover and food and then cut back when new spring growth emerges.
- The rain garden must remain in place for 10 years if Healthy Lakes grant-funded.

LINKS

Healthy Lakes Website – <http://healthylakeswi.com>

Rain Garden Guidance – <http://dnr.wi.gov/topic/stormwater/raingarden/>

Controlling Runoff and Erosion on Your Waterfront Property: A Guide for Landowners – <http://healthylakeswi.com>

DNR Lake Protection Grants – <http://dnr.wi.gov/aid/surfacewater.html>

For more information contact Pamela Toshner at 715-635-4073 or pamela.toshner@wi.gov.



**WISCONSIN
LAKES
PARTNERSHIP**

Design and layout by Amy Kowalski, UWEX Lakes

DIVERSION



MAINTENANCE

COSTS

- Range: \$25 – \$3750
(average = \$200)
- Healthy Lakes grant funding available:
\$1000 per
diversion practice

MATERIALS

- Shovel or excavating equipment
- Clean gravel or crushed stone
- Treated lumber and rebar
- Landscaping fabric
- Seed



<http://awatersheds.org>

A DIVERSION PRACTICE, a transition zone and upland best practice, includes a diverter, water bar, and broad-based dip. These practices use treated lumber, a shallow trench, and/or a berm to intercept runoff from a path or driveway and redirect it into a well-vegetated dispersion area or infiltration practice. Depending on the site, multiple diversion practices may be necessary.

PURPOSE

A diversion best practice redirects runoff that would otherwise move downhill into the lake to a dispersion area where it can soak into the ground. It may be used in connection with a rock infiltration or rain garden practice. By increasing the frequency of diversion practices, runoff volume can be kept low, decreasing erosion.

HOW TO BUILD

It may be necessary to work with your local land and water conservation department or a landscaper to design and/or construct this practice, particularly in regards to placement. Check with your local zoning department to determine if any permits, such as floodplain permits, are necessary.

Detailed guidance is found here: <http://tinyurl.com/runoffguide>

1. Find a location

Install diverters and water bars on moderately steep paths with concentrated flows and broad-based dips across driveways not exceeding a 10% grade. Select a location where the practice outlet can drain to a stable, well-vegetated area. Install multiple diversion practices as needed and space closer together on steeper slopes as directed in the guidance.

2. Size and orient the practice

The steeper the slope, the more diversion practices will be necessary. In general, diversion practices are angled 30-60° downhill across the path or driveway. Keep in mind that broad based dips, in particular, often integrate an upgradient berm and armored approach and outlet into the design so plan for these features accordingly.

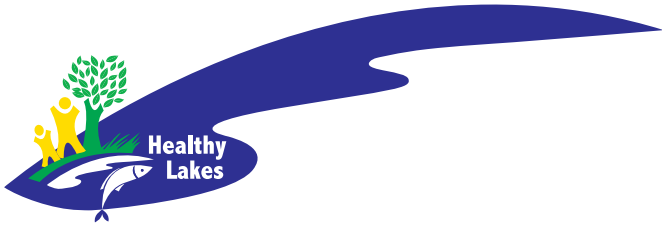
PROJECT TIMELINE

SITE PREP
< 1 DAY

INSTALLATION
1-2 DAYS

PROJECT END
< 1 YEAR

Ongoing
maintenance checks
subsequent years.



3. Create a design

Sketch the design and dimensions to be sure you understand what area it will cover and how it may function or fit into your landscape. Consider the following:

- How will water flow from the practice?
- Is there adequate vegetation to capture the diverted water, or is a rain garden or rock infiltration practice necessary?
- Will the diverter or water bar be placed in an area free of motor vehicle traffic, and will the broad-based dip be able to accommodate not only motor vehicle traffic but activities such as snowplowing?

4. Lay out the best practice

Lay out the shape and boundary of the project based on the design. Before you start digging, contact <http://www.diggershotline.com/>.

5. Construct the practice

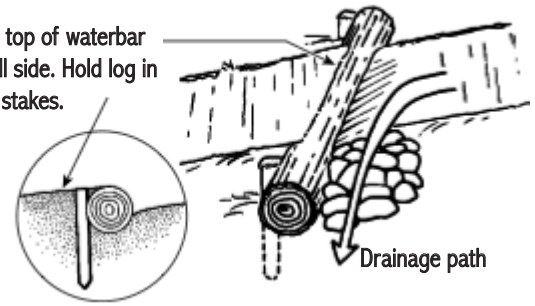
Install silt fence downslope of the practice location. Dig a trench that extends off both sides of the path or driveway. The trench should be deep enough that the top of the log or berm will be almost flush with the trail or driveway on its downhill side once in place. Soil and rock excavated from the trench can be heaped on the trail or driveway to be used later as backfill or a berm.

If constructing a water bar or diverter, place the log or timber in the trench. Any rot-resistant type of wood, such as cedar, spruce, fir or hemlock logs can be used for a water bar or diverter. For logs, the diameter should be at least 8" at the small end. The length should extend past the edge of the path on both sides. The log should fit snugly in the trench with no high point or voids under the log. Secure the it with large stones, rebar pins or wooden stakes. If using stones, partially bury on downhill side. If using re-bar, drill 1/2" holes 6" in from each edge and pound in 18" pieces of rebar so that the rebar is flush or slightly recessed with the top. Dig a 12" wide and 6" deep trench along the uphill side of the bar. Fill the trench with crushed stone, leaving a few inches of the timber exposed. Place a flared apron of stones to armor the practice outlet. Pack soil and gravel up against the downhill side of the practice so that the top of it is flush with the trail. Cover all disturbed soil with seed and mulch or leaf litter.

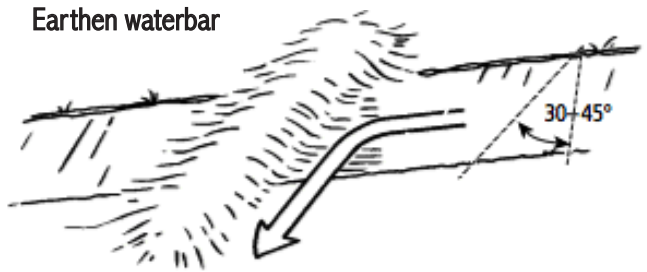
Broad-based dips should be rock armored on the bottom and on the berm and constructed with excavating equipment.

Log waterbar

Pile soil to top of waterbar on downhill side. Hold log in place with stakes.



Earthen waterbar



\$ FUNDING NOTE

Healthy Lakes diversion 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.

MAINTENANCE

- Check the practice periodically and after storm events to ensure that material is not eroding behind the structure or at the outlet.
- Any needed repairs should be made as soon as possible.
- Periodically remove accumulated leaves and debris from behind the diversion practice.
- The diversion practice(s) must remain in place for 10 years if Healthy Lakes grant-funded.

LINKS

Healthy Lakes Website – <http://healthylakeswi.com>

Controlling Runoff and Erosion on Your Waterfront Property: A Guide for Landowners <http://healthylakeswi.com>

Vermont Lake Wise Program: http://www.watershedmanagement.vt.gov/lakes/html/lp_lakewise_standards_bmps.htm

DNR Lake Protection Grants – <http://dnr.wi.gov/aid/surfacewater.html>

NATIVE PLANTINGS



MAINTENANCE

COSTS

- Range: \$480 – \$2400
(average = \$1000)
- Healthy Lakes grant funding available:
\$1000 per 350 ft² area

MATERIALS

- Black plastic or herbicide
- Native plants
- Bulb auger or hand trowel
- Mulch
- Watering equipment



POSSIBLY REQUIRED

(if using herbicides in or adjacent to lakeshore)



Green Lake, Green Lake County - Lisa Reas

NATIVE PLANTINGS, a transition zone best practice, are template planting plans designed for a contiguous area of at least 350 ft². Each template has a corresponding list of native plants suited to the given soil conditions and function of the plan, including lakeshore, bird/butterfly habitat, woodland, low-growing, deer resistant, and bare soil area plantings.

PURPOSE

Native plantings improve wildlife habitat, slow runoff water, and promote natural beauty. Each template described above serves all of these functions to some degree, but one may be better than another given your property's unique site characteristics and areas of concern. For example, the bird/butterfly template includes flowers that attract these types of wildlife.

HOW TO BUILD

It may be necessary to work with your local land and water conservation department or a landscaper to design and/or install these plantings. Check with your local zoning department to determine if any permits are necessary. Planting specifications and densities follow Wisconsin Biology Technical Note 1: Shoreland Habitat.

Detailed guidance is found here: <http://healthylakeswi.com>.

1. Find a location

350 ft² native plantings should begin, if possible, at the typical lakeshore edge (i.e. Ordinary High Water Mark), be at least 10 feet wide — parallel or perpendicular to the shore, and contiguous rather than planted in patches. The final shape and orientation to the lakeshore are up to you. Choose an area of turf grass you wish to revert back to a more natural state or an already vegetated area you would like to augment. Try to choose a location in full or partial sun.

2. Determine soil type

It's important to understand what type of soil is in the planting location because that will determine which native plants can survive and thrive. The fact sheet links provide tools and guidance to help determine your soil type. Most of the template plans have two plant lists — one for moister soils and one for drier soils.

PROJECT TIMELINE

SITE PREP
6 WEEKS - 6 MONTHS

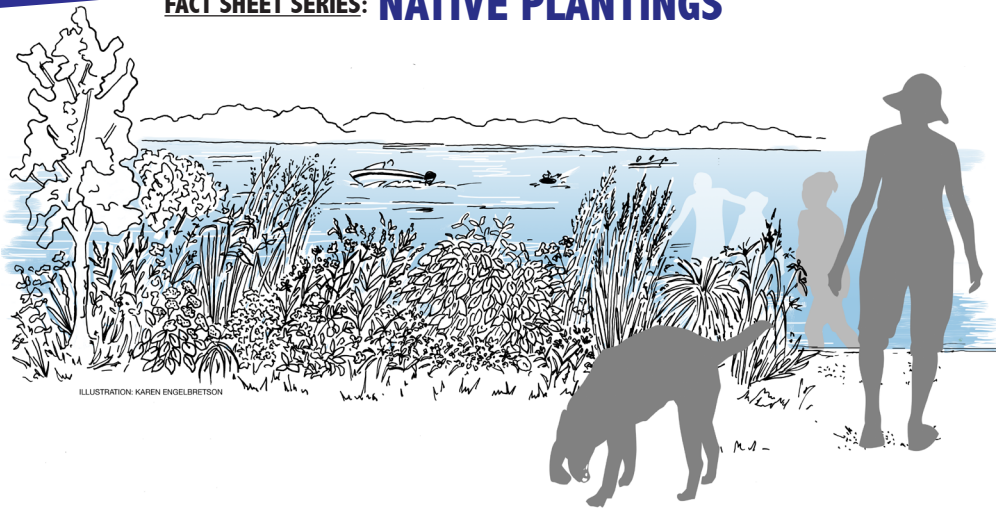
INSTALLATION
1-2 DAYS

MAINTENANCE
2 YEARS

PROJECT END
3 YEARS
Ongoing weeding may be necessary in subsequent years.

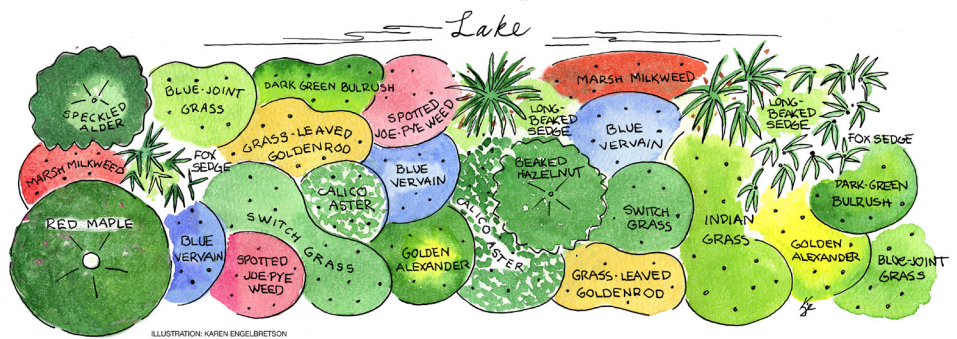


By planning your 350 ft² native planting on paper first, you will be able to create the best appearance possible and you will understand how the practice will function and fit into your landscape.



Native plants are used because they are best adapted for our climate and provide ideal habitat for our wildlife. The 350 ft² native planting templates include a mixture of grasses, sedges, wildflowers, ferns, shrubs, and trees, depending on the desired function and site's soil type (i.e. dry, medium, moist, or wet).

Lay out the shape and boundary of the 350 ft² native plantings based on your design. Before you start digging, contact <http://www.diggershotline.com/>.



Removing lawn grass is critical to native planting success. The 2 most common ways to do so are with herbicide and black plastic. Black plastic may be preferential to herbicides, especially if you are near the water, which may require a chemical control permit for herbicide use. If you already have some native plants growing, you might consider removing weeds and planting among what is already growing. The designs provided in the fact sheet links assume you are removing lawn grasses and starting from scratch.

Lay mulch or wood fiber blanket down prior to planting. This will conserve moisture and reduce weed growth within the planting area. Wood chips (2 inches deep), straw, or fallen leaves (each 3-4 inches deep) may be used as mulch.

Follow the design specifications by placing your plants in the approximate positions described in the template plan. Step back and look at the 350 ft² native planting area. Plants should be placed about 1.5 feet apart from each other. When ready use a hand trowel, bulb planter, or bulb auger drill bit attached to an electric drill to plant them. If grant funded, the 350 ft² native planting must be in a contiguous area. In other words, the plants cannot be put into the ground in patches.

\$ FUNDING NOTE Only one 350 ft² native planting per property per year is eligible for funding.

Good water techniques and maintenance are the keys to native planting success. Be ready to water them as soon as they are in the ground and to continue to water them daily for the first few weeks or until the plants are well established. Once plants are established, water only if prolonged dry periods occur. If grant funded, watering is required.

A temporary fence or animal deterrent sprays may be necessary in areas prone to deer browse, rabbits, and other critters. Fencing specifications are found in the 350 ft² Native Planting Best Practices Manual. If grant funded, fencing may be required depending on geographic location.

- Water the plants a minimum of 1 inch per week and more during dry periods for 1-2 years.
- Become familiar with weeds and invasive species, in particular, and remove them frequently.
- The standing dead plants may be left in place through the winter for wildlife cover and food and then cut back when new spring growth emerges.
- Native plantings must remain in place according to local zoning specifications if within the vegetation protection area (i.e. buffer).
- The 350 ft² native planting must remain in place for 10 years if Healthy Lakes grant-funded.

Healthy Lakes Website — <http://healthylakeswi.com>

Controlling Runoff and Erosion on Your Waterfront Property: A Guide for Landowners – <http://healthylakeswi.com>

350 ft² Native Planting Best Practices Manual – <http://healthylakeswi.com>

DNR Lake Protection Grants – <http://dnr.wi.gov/aid/surfacewater.html>

For more information contact Patrick Goggin at 715-365-8943 or pgoggin@uwsp.edu.



FISH STICKS



MAINTENANCE

COSTS

- Range: \$100 – \$1000
(average = \$500)
- Healthy Lakes grant funding available:
\$1000 per
Fish Sticks Cluster

MATERIALS

- Whole, live trees from outside shoreland vegetation protection area
- Cables/cabing gear
- Heavy equipment including snowplow and chainsaw
- Safety gear



REQUIRED



Bony Lake, Bayfield County - Pamela Toshner

FISH STICKS, an in-lake best practice, are large woody habitat structures that utilize whole trees grouped together, resulting in the placement of more than 1 tree per 50 feet of shoreline. Fish Sticks are anchored to the shore and are partially or fully submerged. Fish sticks are not tree drops since the trees utilized for the projects come from further than 35 feet from shore, thus they don't "rob from the bank" of trees that may otherwise grow and fall in naturally.

PURPOSE

This fish and wildlife habitat best practice creates food, shelter, and breeding areas for all sorts of creatures from small aquatic insects, to fish, to turtles, ducks, and songbirds. Fish Sticks can also help prevent bank erosion — protecting lakeshore properties and your lake.

HOW TO BUILD

It may be necessary to work with your local DNR fisheries biologist, county land and water conservation department, or landscaper to design and/or construct this practice. Logging companies may assist with tree supply, cutting, and transportation. Check with your local zoning department to determine if any permits are necessary.

Detailed guidance is found here: <http://dnr.wi.gov/topic/fishing/outreach/fishsticks.html>.

1. Find a location

Ideal Fish Sticks sites have low ice energy — places like protected bays and shorelines leading to and from bays. High ice energy areas on lakes greater than 250 acres require alternate methods that ensure they remain in place.

Typically a single Fish Sticks cluster occupies 50 linear feet of shoreline, so it should be placed on an area of your lakeshore that is not used for pier(s) or swimming. If you have a lot of frontage, you may choose to add more than a single Fish Sticks cluster.

PROJECT TIMELINE

SITE PREP
2 MONTHS
winter ice road

INSTALLATION
< 1 DAY

MAINTENANCE
Spring safety
check

PROJECT END
3 YEARS
cable removal



2. Create a design

Fish Sticks structures are commonly made up of three to five whole trees. The butt ends of the trees, at the water's edge, are cabled to live trees on shore.

Sketch the design and dimensions to be sure you understand what area it will cover and how it may function or fit into your landscape. Consider the following:

- Is the water deep or shallow?
Trees sink and settle with branches breaking off soon after installation, but more trees can be placed in a deepwater cluster.
- Is your lakeshore mowed adjacent to the proposed Fish Sticks site? If so, and if you would like DNR Healthy Lakes grant funding, you must commit to not mowing a 350 ft² area at the base of the cluster or installing a 350 ft² native planting.

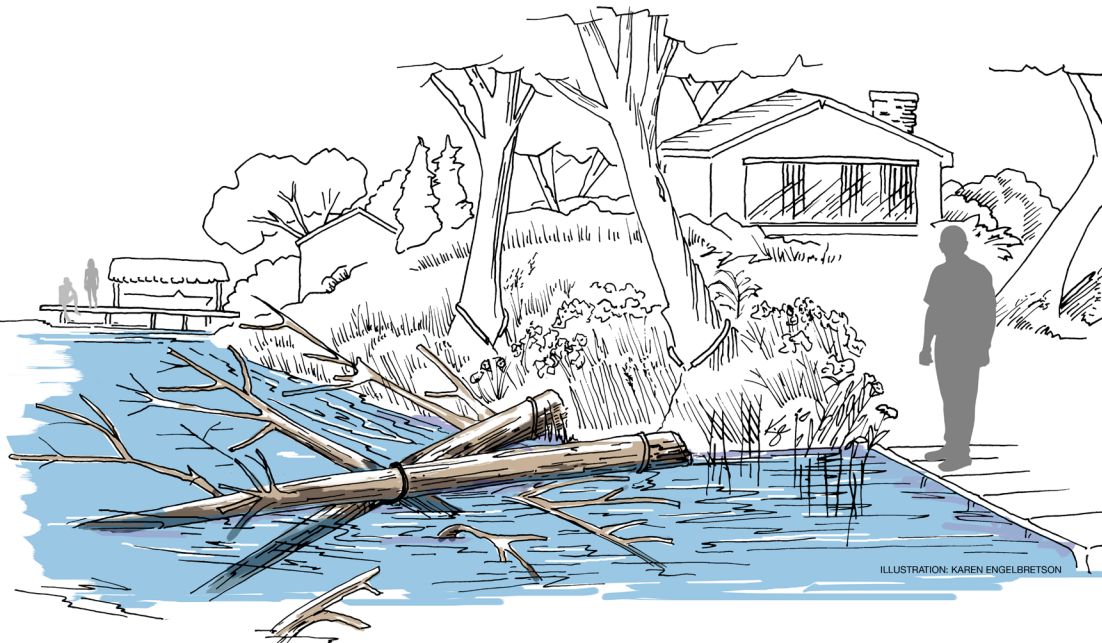


ILLUSTRATION: KAREN ENGELBRETON

3. Apply for a permit

The DNR recently streamlined the water regulation permits to make it easier for you to install Fish Sticks. Eligibility standards and application materials are on the DNR website <http://dnr.wi.gov/Permits/Water/>.

\$ FUNDING NOTE

In order to be eligible for Healthy Lakes grant funding, properties must comply with local shoreland zoning vegetation protection area (i.e. buffer) standards. If not, the property owner must commit to a 350 ft² no-mow zone at the base of the Fish Sticks cluster(s) or to installing a 350 ft² native planting.

4. Lay out the best practice

Flag the area(s) along your waterfront property where Fish Sticks will be installed. This is important because most projects take place in the winter, making it more difficult to identify landscape features and location preferences.

5. Construct the practice

Installing Fish Sticks on ice is the most practical and inexpensive method. Identify an ice road and maintain with snow plowing until ice is adequate thickness for installation (18 inches). Cut live trees from outside the shoreline vegetation protection area, which is usually at least 35 feet from the water's edge. Transport and place the trees in criss-cross clusters or stacks and then cable and anchor them to a live tree on shore.



Scott Toshner

MAINTENANCE

- Check on the site soon after spring ice out to be certain all the trees remain in place.
- The cables should be removed approximately three years after installation so they don't damage the live trees or litter the shore.
- Trees should remain in place for ten years if funded through a DNR Healthy Lakes grant.

LINKS

Healthy Lakes Website – <http://healthylakeswi.com>

Fish Sticks Guidance – <http://dnr.wi.gov/topic/fishing/outreach/fishsticks.html>

DNR Lake Protection Grants – <http://dnr.wi.gov/aid/surfacewater.html>

For more information contact Pamela Toshner at 715-635-4073 or pamela.toshner@wi.gov.

