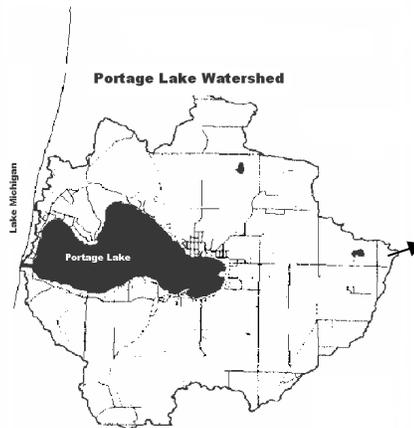


What is a Watershed?

A watershed is an area of land in which all water drains to the same place, generally a lake or a river. Watersheds come in all shapes and sizes. They cross county, state, and national boundaries. No matter where you are, you are in a watershed

The Portage Lake Watershed

The Portage Lake Watershed takes in 24.6 square miles and includes parts of Onekama, Manistee, Bear Lake and Brown Township as well as the Village of Onekama. Portage Lake covers nearly 3.2 miles of the total surface area of the watershed.



Is the Portage Lake Watershed “healthy”?

So far, so good. We have the benefit of being able to protect and maintain a healthy watershed instead of cleaning up problems that are more difficult — and costly — to fix. However, there are risks. For example:

- Public Health can be jeopardized if septic systems fail or if we don't control runoff.
- Phosphorus pollution from lawn fertilizers, storm water discharges, agricultural practices and land developments put plants and animals in danger.
- Illegal discharges, spills of contaminants, leaky underground storage tanks or improperly plugged domestic or industrial wells can make our groundwater unsafe.

Clearly these pose issues not only to the watershed but have serious economic and recreational consequences, too.

What is being done to protect our Watershed?

When we properly manage what we do in our watershed, we protect the watershed within. The ***Portage Lake Watershed Forever Plan***, developed

by over 150 people from the community, was approved by the Michigan Department of Environmental Quality on June 3, 2008. Local units of government and non-profit organizations are now eligible to apply for grants to implement the plan. In addition, the ***Portage Lake Watershed Forever Endowment Fund***, established through the Manistee County Community Foundation, will provide funds through charitable, tax deductible contributions to support, improve and protect the Portage Lake watershed.

The Plan

The 127 page Portage Lake Watershed Forever Plan is available online at www.onekama.info/watershed/watershed.html. It was produced with support from private donations and grants from the Michigan Department of Environmental Quality, Coastal Management Program and the U.S. Fish and Wildlife Service.

How can I help?

Your involvement is needed to make sure that this plan is a success. Join the Portage Lake Watershed Forever Committee and attend its meetings. Learn more about best practices for watershed landowners. Donate to the Portage Lake Watershed Forever Endowment Fund. Talk with friends and neighbors about the importance of protecting the watershed.

How can I learn more?

For additional information, contact:

Mike Acton, Chair

Portage Lake Watershed Forever Executive Committee

231-889-3708

mikeaction@charter.net

My family has been coming to Portage Lake for over 60 years. How can we be sure that the Lake will be as beautiful for our great grandchildren as it is today?"

"I've been fishing Portage Lake for years. It seems to me that there are more weeds than ever before. What is causing that and what can be done?"

"Our children attend Onekama Schools. We love it here and we want our kids to live here too if they choose. What can we do as parents or through the school to ensure that we never lose our quality of life?"

"I own property on Portage Lake. It's my retirement. It's also going to be my gift to my children. What can I do now to make sure that my retirement and the value of my estate are protected?"

"We love fishing on Lake Michigan and we also like the feel of the community and a less crowded port. How can we help ensure that the channel to Lake Michigan and the character of the community are preserved?"

"I've lived here all my life. We've seen a lot of change. Much of that change has been good. Still, I worry about Portage Lake becoming polluted or over-developed. What can I do to help see that our area is managed and protected in ways that make sense?"

The Fund

If you live, work or play in Manistee County's Portage Lake watershed, it's likely that you may see yourself in one or more of these questions.

The Portage Lake Watershed Forever Endowment Fund was created to fund programs to protect, preserve and improve the Portage Lake watershed forever, including programs identified in the Portage Lake Watershed Forever Plan, approved on June 3, 2008 by the Michigan Department of Environmental Quality. By making a charitable contribution to this fund through the Manistee County Community Foundation, you will support a fund that can provide the correct answers to these and other questions about the fate of this treasured resource.

The following is intended to help you learn more about the Fund and encourage you to consider a charitable, tax-deductible contribution to support the Fund and its purposes.

Why was the Fund needed?

Federal and state funds to protect and manage Michigan's watersheds are drying up. Most of these funds are dedicated to watersheds that are polluted. The Portage Lake Watershed Forever Endowment Fund was created to ensure that our watershed is never polluted or degraded in any way.

So what is this Fund and How Might it be Used?

The Portage Lake Watershed Forever Endowment Fund, like all endowment funds, lasts forever. The principal amount that is charitably donated is never spent. The earnings of the fund are managed by the Manistee County Community Foundation and provide an annual source of funding to support programs to protect and manage the watershed. An advisory committee, made up of diverse interests in the watershed, reviews and approves expenditures from the fund.

Examples of how the Fund might be used include:

- Testing and monitoring water quality;
- Educating property owners, business owners and developers about how to protect water quality;
- Support developing master plans and ordinances that protect and wisely manage the watershed;
- Educating lake users about how to avoid spreading invasive species;
- Organizing watershed clean up programs;
- Implementing projects that improve recreational access or facilities;
- Supporting education programs at Onekama Consolidated Schools that help our community learn about our watershed
- Applying for state, federal and foundation grants that benefit the watershed
- Advocating for federal funding to support dredging and improvement of our harbor and channel

How do I contribute to the Fund and what about tax benefits?

Charitable donations to the endowment fund are eligible for Federal tax deductions as well as the State of Michigan Charitable Tax Credit. We advise you to consult with your financial planner to more fully understand the tax benefits. You can learn more, contribute by mail or on-line by contacting:

Manistee County Community Foundation,
77 Spruce Street, Manistee, MI 49660
231-723-7269
www.manisteefoundation.org.

How Septic Systems Work

Septic systems work in two stages. First, wastewater from the home enters the septic tank where solid waste (sludge) settles out. Bacteria consume most of these solids. Next, the liquid waste flows into a distribution system (usually a drainfield) where it is dispersed into the soil. Here the wastes are further treated by micro-organisms and chemical reactions in the soil.



Septic Systems Can Threaten Water Quality

Septic systems located near a lake or stream may pose a threat to surface water quality. Studies have shown that some pollutants often reach surface waters from septic systems located within 300 feet of the shoreline. They are carried to the lake by the groundwater beneath the septic systems. Systems closer than 100 feet to the shoreline, systems that have drywells or block trenches rather than a modern drainfield design, and systems older than 20 years are most likely to cause pollution.

The Importance of Septic Maintenance

Septic systems, like most other components of a home, need periodic maintenance and can help ensure that the system operates effectively throughout its expected lifetime of 20 to 30 years. There are several important things that you can do:

- Inspect the sludge level of the tank every 2 years
- Contract a licensed septic tank cleaning service to pump the tank when the sludge level exceeds 1/3 of the tank's volume.
- Don't use commercial products that claim to be a substitute for maintenance pumping. These products liquefy the sludge and cause it to enter the drainfield. This can increase the potential for contamination of groundwater as well as destroy the drainfield.
- Avoid using chemicals such as drain cleaner and large amounts of bleach because they kill the bacteria which break down solid wastes in the septic tank.
- Do not put the following items down the drain: grease, hair, cigarette butts, facial tissues, feminine hygiene supplies, band aids, paint., solvents, motor oil, or any household wastes containing hazardous, toxic or non-biodegradable materials.

Maintaining Your Drainfield

Paying attention to the state of your drainfield is also important:

- Direct rainwater from gutters and other surface runoff away from the drainfield. Too much moisture can saturate the soil and reduce the drainfield's filtering capacity.
- Never build or pave over a drainfield. Keep vehicles away from the drainfield and septic tank.
- Do not apply fertilizer around a drainfield: nutrients saturate the soil and cause it to stop removing nutrients from the wastewater.
- In shoreline areas, plant or retain a natural strip of vegetation along the water's edge to intercept and utilize septic nutrients in the groundwater moving toward the lake.

Watch for signs of septic problems

It is definitely time to have your septic system inspected if::

- Toilets or sinks back up. This may indicate that drainfield soils are becoming saturated.
- Wet areas, lush grass, or foul odors are present around the drain field.
- There is a distinctly colored path of bottom sediment or noticeable weed or algae growth in the general vicinity of the drainfield. These signs can indicate excessive nutrient enrichment from a malfunctioning system in shoreline areas.

More information

Check out the Portage Lake Watershed Forever Plan for more information.

It is available on line at www.pscinc.com/documents/PLWF or contact

Mike Acton, Chair

Portage Lake Watershed Forever Executive Committee

231-889-3708

mikeaction@charter.net

Other Things To Do

You can increase the life of your septic system by conserving water. The less water you use, the better your septic system will treat wastes and remove pollutants.

A permit from the County Health Department is required for repair, replacement or new construction of septic systems. Always be sure to follow the requirement of your county's sanitary code and hire only reputable septic system installation firms.

What's the Big Deal About Phosphorus?

THE LAWN FERTILIZER MYTH

Regular applications of lawn fertilizer are **NOT** needed to keep grass healthy, in most cases, and adding excess fertilizer can burn the grass. A simple soil test will indicate whether or not your lawn needs fertilizer. Healthy turf grass leaf tissue has a phosphorus concentration of about 0.3%. Lawn clippings contain about 0.13 pounds phosphorus per 1000 square feet during growing season which makes them excellent natural fertilizer.

NOTE: One pound of phosphorus can result in the growth 350-700 lbs. of green algae.

Phosphorus is an essential nutrient. Both plant and animal life need it to grow. However, aquatic plants require far less phosphorus than plants grown in soil.

This means that if aquatic plants, such as algae, have excess phosphorus to adsorb, they can grow out of control and cause dense populations of algae, or *blooms*.

These blooms become so thick that they cut the amount of sunlight available to aquatic vegetation. Without enough light, plants cannot produce the food they need to survive and they die.

Some algae will ultimately sink, decompose, and deplete bottom waters of oxygen. Like humans, most aquatic species require oxygen. When oxygen in deep water is used up, fish and other species die which, in turn, can lead to the biological death of a body of fresh water.

The impact of blooms of blue-green algae can also have dire consequences on humans as they produce neurotoxins (affecting the nervous system) and hepatoxins (affecting the liver), and can cause a serious public health problem.

On the economic side, algal growth due to phosphorus pollution increases water treatment costs, degrades fishing and boating activities, and impacts tourism and property values.

More information

Check out the Portage Lake Watershed Forever Plan for more information.

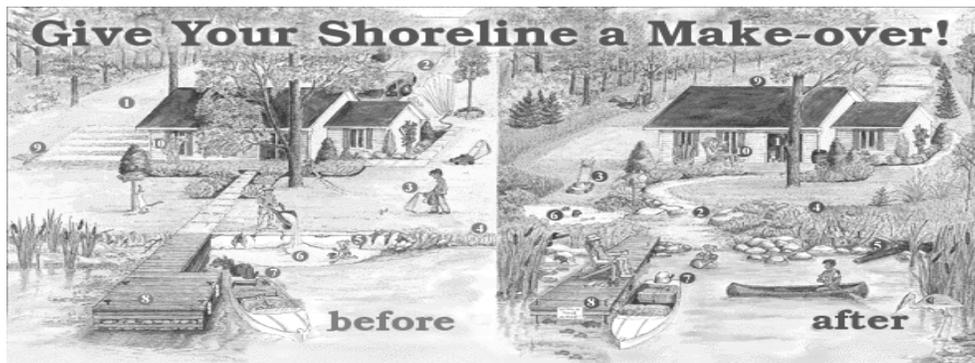
It is available on line at www.pscinc.com/documents/PLWF or contact

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1. Cleared, manicured lot - lacks shade and privacy; loss of native plants leads to more erosion, runoff...and work for you!

2. Runoff - flows over solid surfaces accelerating erosion; pollutants and excess silt degrade habitat for aquatic life.

3. Chemical fertilizers and pesticides - degrade water quality, are hazardous to your health, can be deadly for fish and other wildlife

4. Lawn to the water's edge - lacks deep roots required to stabilize bank.

5. Hardened shoreline - can deflect erosion downstream, eliminates "natural filtering" of pollutants and sediment, degrades habitat.

6. Artificial beach - requires ongoing sand replacement, reduces water quality, degrades aquatic habitat.

7. Old 2-stroke engine - dumps 25-40% of fuel, uncombusted into water and air.

8. Solid crib dock - destroys aquatic habitat, alters currents, can deflect erosion downstream

9. Malfunctioning septic system - allows phosphorous and bacteria to leach into adjacent waterways.

10. Harmful household chemicals and cleaners - damage septic system and degrade water quality.

1. Prune trees rather than removing them; plant low maintenance native trees and shrubs to reduce erosion and absorb runoff.

2. Replace solid surfaces with porous materials where possible; redirect runoff into settling areas, away from the water's edge

3. "Mow it high and let it lie" - leave grass 3" high to retain moisture, mulch clippings for fertilizer.

4. Start a buffer - leave some grass uncut along the water's edge; restore with deep rooting native plants.

5. "Soften" your shoreline - improve erosion protection with native trees, shrubs, grasses and aquatic plants.

6. Create a "dry land" beach above the high water mark; let imported sand erode away naturally and native plants grow back.

7. Use a well maintained electric motor, or a 4 or 2-stroke engine that meets or exceeds EPA 2006 guidelines.

8. Remove solid dock - try a pipe, cantilever or floating dock, avoid treated wood; use public access where possible.

9. Replace and properly maintain your septic system - consult an expert.

10. Use environment - friendly products, or alternatives like baking soda and vinegar.

NOTE: Please make sure that you check with the Michigan Department of Environmental Quality (DEQ) before you build docks, or do work in the water, on the beach or other water-related projects. All may require one or more of the following applications: Inland Lakes and Streams and/or Great Lakes Submerged Shorelands Permit. To determine what applications you may need, contact the Onekama Township Zoning Administrator or Township staff at 5435 Main Street, Onekama, MI 49675. Phone: 231-889-3308

This information has been adapted from "The Living By Water Project"
 C/O [Nature Canada](http://NatureCanada.ca) Email: lbw@naturecanada.ca
 Phone: 613-562-3447, ext. 235



What is Phragmites?

Phragmites (*frag •MY• tees*) is a common weed that grows along lake shores. The non-native species is an *extremely* invasive plant. It grows rapidly and so thickly that it won't support birds and animals and can even be a fire hazard. It can get up to 15 feet high, grows rhizomes 60 feet in a season and send roots down 6 feet.

Phragmites on Portage Lake

There are large stands of Phragmites along the east end of Portage Lake from the Farr Center to the marina. Smaller patches are growing in many places around the lake. It's been here, but low water levels have made it spread faster.

Why you should be concerned

Small stands of Phragmites spread rapidly, block views of lake, crowds out native plants and suppresses growth of other nearby plants. It reduces habitat for birds and animals and becomes so thick it blocks access to lake.

What you can do

First, learn what you can. Check out the websites listed on the reverse of this leaflet. Next, follow these guidelines:

- Identify - Round, hollow, erect stems that can grow to 12 feet tall. Sheath-like leaves that grow to about 2 feet long and taper to a point at the tip. Purplish-brown plumes that appear on the tops of the stems by late June.
- Contain the plants. Dig new plants with pitchfork. Be sure to get all of the plant!
- Cut old seed heads (which may contain as many as 2,000 seeds and remove them. The plant, however, will still spread by rhizomes.
- Cut runners and remove all segments. Do **not** rototill the beach!
- You may have to use chemicals and will need a permit for chemicals approved for spraying over water.

Survey

Phragmites sites on Portage Lake will be officially mapped by Portage Lake Watershed Forever trained volunteers July 21 – July 30. This is an important first step in control and management.

- Cut plants and apply chemicals mid August to end of September when the plants are taking nutrients down into rhizomes.
- Cut plants and clear debris 2 weeks after treatment so native plants may have a chance to reestablish.
- Remove dead thatch.
- You will probably need to treat and monitor for several years.
CONTROL EARLY

More information about *Phragmites*

State: Michigan Department of Environmental Quality (DEQ)
Environmental Center 1-800-662-9278

Federal: US Army Corps of Engineers
1-888-694-8313

WEB SITES: www.michigan.gov/deqinlandlakes
www.michigan.gov/deqwetlands
www.agreatlakesjewel
www.stewardfarm.org/phragmites/index.php
www.phragmites.info
www.theweeds.vcdavis.edu

VIDEOS ON LINE: www.insitevideo.com/phragmites

Thanks to . . .

This information was compiled by Portage Lake Garden Club member Mary Reed. She can be reached at mreed4573@yahoo.com

What else you can do

Join the Portage Lake Watershed Forever Committee and attend its meetings. Learn more about best practices for watershed landowners. Donate to the Portage Lake Watershed Forever Endowment Fund through the Manistee County Community Organization. Talk with friends and neighbors about the importance of protecting the watershed.

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