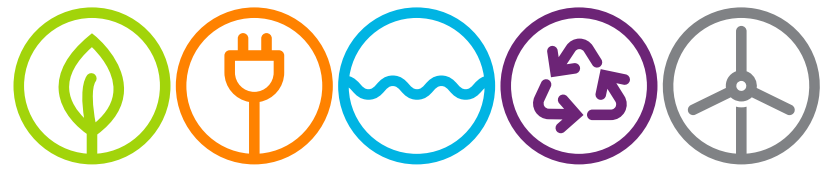


## APPENDIX E: PUBLIC EDUCATION RESOURCES

The documents in this section were compiled during the 2023 SWIPP update process or provided by local municipal stakeholders. This section includes valuable public education fliers and brochures from various sources. It is intended for use among municipal partners as a resource for voluntary public education. It is also intended for the public as a repository of useful information and was included in the SWIPP draft review.



# SUSTAINABLE MUSKEGON

TM

Household Hazardous Waste  
& Recycling Guide

**1. REDUCE**

**2. REUSE**

**3. RECYCLE**

**4. RE-ENERGIZE**

**5. DISPOSE**



PRINTED ON 100% RECYCLED PAPER

[sustainablemuskegon.org](http://sustainablemuskegon.org)

# RECYCLING OPTIONS FOR MUSKEGON COUNTY RESIDENTS

## THE THREE RS: REDUCE, REUSE, RECYCLE

We all have a stake and a responsibility to do more with less. Adhering to the principles of REDUCE, REUSE, RECYCLE (in that order!), can help curb energy and raw material consumption in the face of growing demand on our natural resources. You can REDUCE packaging waste by purchasing items in bulk and looking for items with minimal packaging, made with recycled content. REDUCE unwanted “junk” mail by customizing your direct mail preferences at [www.DMAchoice.org](http://www.DMAchoice.org).

Find ways to REUSE or re-purpose things! There are many websites and social media outlets that provide excellent tools for turning your trash into someone else’s treasure. Invest in a refillable water bottle—it will save you money while reducing packaging waste, transportation fuel use, and air pollution! Remember your reusable bags when you visit your local grocery store or farmer’s market and RECYCLE everything you can! You can even earn recycling rewards at [www.recyclebank.com](http://www.recyclebank.com).

Many private haulers (and a few municipalities) offer curbside recycling options to the majority of Muskegon County residents. Contact your waste hauler for details and be sure to follow their collection guidelines. When a household includes unacceptable items with recyclables, such as food waste refuse, broken glass, or pizza boxes, it can contaminate the entire load and your diligent efforts to recycle can end up in the trash.



This publication is brought to you by the Muskegon County Sustainability Office and funded by the Arconic Foundation. If you have additional disposal questions not covered in this guide, please do not hesitate to contact our office at (231) 724-8846.

The County of Muskegon is committed to fostering a sustainable ecology, economy, and community. Please visit the Muskegon Sustainability Office online at [www.sustainablemuskegon.org](http://www.sustainablemuskegon.org). There you will find more comprehensive resources and ways we can all contribute to making Muskegon County a premier place to live, work, and play!



## CURBSIDE RECYCLING SERVICES

**Ames Disposal, Inc.** (231) 744-3031

**City of Muskegon** (231) 724-4100

**Residents only.** Contact Republic Services to arrange recycling. [www.muskegon-mi.gov](http://www.muskegon-mi.gov) or (877) 698-7274

**City of Roosevelt Park** (231) 755-3721

**Residents only.** Recycling included in waste service. Contact RMS to arrange recycling. [www.rooseveltpark.org](http://www.rooseveltpark.org)

**Kuerth’s Disposal, Inc.** (231) 744-4967

[www.kuerthdisposal.com](http://www.kuerthdisposal.com)

**Lake Effect Disposal, LLC.** (616) 717-0166

**Muskegon Township** (231) 777-2555

**Residents only.** Recycling included in waste service. [www.muskegontwp.org](http://www.muskegontwp.org)

**Republic Services** (877) 698-7274

(a.k.a. Allied Waste and Sunset)  
[www.republicservices.com](http://www.republicservices.com)

**RMS Disposal, Inc.** (231) 788-5096

[www.rmsdisposalinc.com](http://www.rmsdisposalinc.com)

**Solid Waste Solutions** (231) 788-4524

**Village of Fruitport** (231) 865-3577

**Residents only.** Recycling included in waste service. Contact the village to arrange recycling. [www.villageoffruitport.com](http://www.villageoffruitport.com)

**Village of Ravenna** (231) 853-2360

**Residents only.** Recycling included with waste services. [www.ravennami.com/village](http://www.ravennami.com/village)

**Waste Management** (866) 797-9018

[www.wm.com](http://www.wm.com)

### RECYCLING SERVICES DESTINATION KEY

**Community Recycling Services**

[www.recyclemuskegon.com](http://www.recyclemuskegon.com)

**Kent County Recycling & Education Center**

[www.recyclekent.org](http://www.recyclekent.org)

**Westshore Transfer & Recycling Center**

[www.chefcontainer.com/recycling](http://www.chefcontainer.com/recycling)

*“There is no such thing as ‘away’. When we throw anything away it has to go somewhere.”*

*-Annie Leonard*

# RECYCLING FACILITIES

If you live in an area where curbside recycling is not offered, or you have unique recycling or disposal needs, below is a current list of facilities in Muskegon County that offer a wide range of recycling and disposal options. Please note that some of these facilities do charge a nominal fee.

## Cedar Creek Township Transfer Station

6871 Holton-Duck Lake Rd., Twin Lake

**Phone:** (231) 821-0014

**Hours:** Sat 8:30am - 3pm

**Residents only.** Household and yard waste, scrap metal.

## Community Recycling Services

(Owned & Operated by Republic Services.)

1970 Port City Blvd., Muskegon

**Phone:** (231) 773-8407

**Hours:** Mon - Fri 7am - 3:45pm

Plastics (#1-7), glass, paper, cardboard, metal.

**www.recyclemuskegon.com**

## Beacon Recycling, Inc.

1241 E. Keating Ave., Muskegon

**Phone:** (231) 727-0722

**Hours:** Mon - Fri 8am - 4:30pm

Scrap metal, appliances, vehicles, vehicle batteries, wires, electronics (NO TVs or monitors). All appliances and vehicles must be emptied of all fluids. **www.beaconrecycling.com**

## Dalton Township Transfer Station

291 Michilliinda Rd., Dalton

**Phone:** (231) 766-3043

**Hours:** Wed & Sat 8am - 4pm (Apr-Oct)

Sat 8am - 4pm (Nov-Mar)

**Residents only.** Tires, any metals, clear glass only, plastics (#1-7), cardboard, car batteries, office paper, junk mail, newspapers, phones, books, leaves, grass clippings, brush up to 4" in diameter, concrete, fill dirt and appliances.

**www.daltontownship.org/transferstation**

## Fruitland Township Sustainability Center

5281 Michilliinda Rd., Fruitland

**Phone:** (231) 766-3208

**Hours:** Wed 10am - 4pm (Mar-Nov)

Sat 8am - 4pm (year round)

**Residents only.** Yard waste, household garbage, paper, cardboard, plastic, clear glass, metals, tires and building materials (no cement or shingles).

**www.fruitlandtwp.org**

## Muskegon Habitat for Humanity ReStores

280 Ottawa St., Muskegon

**Phone:** (231) 727-6020

**Hours:** Mon - Fri 9am - 6pm, Sat 9am - 3pm

4345 Airline Rd., Norton Shores

**Phone:** (231) 737-4939

**Hours:** Mon - Fri 9am - 6pm, Sat 9am - 4pm

112 E. Colby Rd., Whitehall

**Phone:** (231) 894-0880

**Hours:** Mon - Fri 9am - 6pm, Sat 9am - 4pm  
Appliances, cabinets, doors, electrical parts, fans, flooring materials, hardware, lighting, lumber, trim, mirror, glass, latex paint, wall covering, pipe, PVC, metal/copper, plumbing, tubs, sinks, showers, roofing material, gutters, canales, tools, windows, screens, etc. **www.muskegonhabitat.org**

## Holton Township Recycling Station

(A service of Recycling for Newaygo County)

6511 Holton-Whitehall Rd., Holton

**Phone:** (231) 821-2168

**Hours:** Recycling Anytime!

Paper, plastic (#1-7 including plastic bags), cardboard, metals. No electronics or appliances.

**www.recyclingfornewaygocounty.org/locations**

## Holton Township Transfer Station

7675 Holton-Duck Lake Rd., Holton

**Phone:** (231) 821-2168

**Hours:** Sat 8:30am - 4:30pm

**Residents only.** Waste only, tires (w/fee).

## PADNOS Shoreline Recycling Services

259 Ottawa St., Muskegon

**Phone:** (231) 722-6081

**Hours:** Mon - Fri 8am - 4pm

Sat 8am - 11:30am

Metals, paper, cardboard, electronics including TVs and monitors, vehicles, vehicle batteries, appliances with or without fluids.

**www.shorelinerecycling.com**

## White Lake Area Solid Waste Authority (Transfer Station)

2100 W. Holton-Whitehall Rd., Whitehall

**Phone:** (231) 893-2405

**Hours:** Wed & Sat 8am - 4pm

**Residents only.** Paper, cardboard, plastic, glass, metal, tires, yard waste, building materials, appliances. No oil or liquid waste.

## West Michigan Recycling Center

40 Harvey St., Muskegon

**Phone:** (231) 773-7582

**Hours:** Mon - Fri 8am - 4:45pm

Scrap metal, appliances (empty of refrigerant), vehicle batteries, full vehicles, electronics. No TVs or monitors.

**www.westmichiganrecyclingcenter.com**

## White Lake Excavating, Inc.

2571 Holton-Whitehall Rd., Whitehall

**Phone:** (231) 894-6918

**Hours:** Mon - Fri 8am - 4:30pm (Apr-Nov)

Asphalt and concrete recycling (without rebar).

Brush, stump, leaf and grass composting.

**www.whitelakeexcavating.com**

## PLEASE NOTE

Muskegon County has made every effort to keep this information up to date; however, this list may not be all-inclusive and may be subject to change at the discretion of each facility operator.

**Contact facilities prior to visiting.**



# HOUSEHOLD HAZARDOUS WASTE & RECYCLING

## ELECTRONIC WASTE AND TV RECYCLING

Repairing electronics is the best way to keep electronics from being disposed or recycled. Locating repair businesses is a great start.

### Batteries Plus Bulbs

5839 Harvey St., Norton Shores

**Phone:** (231) 747-9168

**Web:** [www.batteriesplus.com/repair](http://www.batteriesplus.com/repair)

Repairs various devices and battery packs.

### Best Buy Recycle Program

5425 Harvey St., Muskegon

**Phone:** (231) 798-6407 Call ahead

Will recycle tube TVs and monitors for a fee.

Check their website for a complete list of products recycled for free.

### PADNOS Shoreline Recycling Services

259 Ottawa St., Muskegon

**Phone:** (231) 722-6081

**Web:** [www.shorelinerecycling.com](http://www.shorelinerecycling.com)

**Hours:** Mon - Fri 8am - 4pm

Sat 8am - 11:30am

See website for a list of recyclable items.

### Goodwill Industries of West Michigan, Inc.

271 E. Apple Ave., Muskegon

**Phone:** (231) 722-7871

**Web:** [www.goodwillwm.org](http://www.goodwillwm.org)

Goodwill accepts donations of most electronic devices. The devices are sorted into several categories and then forwarded to reputable recyclers who process the material to reclaim the base materials for reuse. This is a free service that diverts significant toxic, as well as valuable, materials from landfills. The program also provides jobs and wages to persons with disabilities or disadvantages. Go to [goodwillwm.org](http://goodwillwm.org) for a complete list of accepted donations.

### Television Recycling:

Goodwill only accepts flat screen TVs and monitors. The older CRT TVs, monitors and projection TVs are not accepted. Muskegon County accepts CRT TVs and computer monitors at the semi-annual recycling events.

## APPLIANCE RECYCLING

If you are replacing an old dishwasher, stove or refrigerator, check with the sales clerk or the manufacturer about whether they offer appliance recycling. If the appliance is in working order, you can also call 2-1-1 from any landline phone to find out if any charities are in need of working appliances. Cell phone users dial (231) 733-1155.

### PADNOS Shoreline Recycling Services

259 Ottawa St., Muskegon

**Phone:** (231) 722-6081

**Web:** [www.shorelinerecycling.com](http://www.shorelinerecycling.com)

**Hours:** Mon - Fri 8am - 4pm

Sat 8am - 11:30am

Paper, metals, appliances, vehicles, vehicle batteries, insulated wire.

### Beacon Recycling

1241 E. Keating Ave., Muskegon

**Phone:** (231) 727-0722 *Call ahead for questions.*

**Hours:** Mon - Fri 8am - 4:30pm

Metals, appliances, vehicles, vehicle batteries, etc. All appliances and vehicles must be emptied of all fluids.

### Best Buy Recycle Program

5425 Harvey St., Muskegon

**Phone:** (231) 798-6407 *Call ahead*

## CELL PHONES

Many organizations will accept old cell phones for emergency use by local people in need:

### Every Woman's Place

1221 W. Laketon Ave., Muskegon

**Phone:** (231) 759-7909

**Web:** [www.everywomansplace.org](http://www.everywomansplace.org)

**Hours:** Mon - Fri 9am - 5pm

Recycles gently used cell phones for client use.

Also accepts personal care products, sheets, towels, etc. Visit their website for a wish list.

### Senior Resources

Tanglewood Park

560 Seminole Rd., Muskegon

**Phone:** (231) 733-3585 or (800) 442-0054

**Web:** [www.tanglewoodpark.info](http://www.tanglewoodpark.info)

### PADNOS Shoreline Recycling Services

259 Ottawa St., Muskegon

**Phone:** (231) 722-6081

**Web:** [www.shorelinerecycling.com](http://www.shorelinerecycling.com)

**Hours:** Mon - Fri 8am - 4pm

Sat 8am - 11:30am

Paper, metals, appliances, vehicles, vehicle batteries, insulated wire.

### Verizon Wireless Hopeline

**Web:** [www.verizonwireless.com/hopeline](http://www.verizonwireless.com/hopeline)

Collects cell phones and parts for victims of domestic violence. Visit a local Verizon Wireless store to make a donation.

## INK CARTRIDGES

Most ink cartridges can be refilled or recycled. Drop off ink cartridges at any of the locations listed below and in some cases you can even earn store credit!

### STAPLES

#### Westshore Plaza

1773 E. Sherman Blvd., Muskegon

**Phone:** (231) 739-7739

### Best Buy Recycle Program

5425 Harvey St., Muskegon

**Phone:** (231) 798-6407 *Call ahead*

## SMOKE DETECTORS

Some smoke detectors contain a very low-level radioactive material encapsulated in a metal chamber. Contact the manufacturer to find out if they offer a mail-back disposal program. Otherwise, the State of Michigan, Radiation Safety Section recommends wrapping spent ionization chamber smoke detectors securely in newspaper, bagging them and disposing of them with your household waste.

## EXPLOSIVES & AMMUNITION

The Muskegon County Household Hazardous Waste program **does not** generally accept bullets, shotgun shells, fireworks, flares, grenades, or other explosives. Contact your local law enforcement agency for disposal options.

## TIRE DISPOSAL

Proper tire disposal is very important, not only for the environment, but for human and animal health as well. Disease-carrying pests can inhabit tire piles. These retailers accept tires for a nominal fee:

### Discount Tire Company, Inc.

647 W. Norton Ave., Muskegon

**Phone:** (231) 739-3555

**Hours:** Mon - Fri 8am - 6pm  
Sat 8am - 5pm

### Randy's Auto Salvage

1641 S. Wolf Lake Rd., Muskegon

**Phone:** (231) 788-5075

**Hours:** Mon - Fri 8:30am - 5:30pm  
Sat 8:30am - 12:30pm

### Smith Tire Station

499 W. Broadway Ave., Muskegon Heights

**Phone:** (231) 733-9406

**Hours:** Mon - Fri 8am - 5pm  
Sat 8am - 12pm

## ANTIFREEZE

Antifreeze contains ethylene glycol and should never be dumped on the ground or down the drain. It is toxic to humans, animals and aquatic life. In addition to the Muskegon County Household Hazardous Waste Program, you can take unwanted or used antifreeze to:

### Speedy Lube Inc.

409 Center St., Muskegon

**Phone:** (231) 744-5203

May be a limit or a fee for disposal

### Firestone Complete Auto Care

700 W. Sherman Blvd., Muskegon

**Phone:** (231) 733-2591

May be a limit or a fee for disposal.

## FLAG DISPOSAL

### Muskegon County Department of Veterans Affairs, Veteran Services Center

165 E. Apple Ave., Suite 201, Muskegon

**Phone:** (231) 724-7143

The U.S. Flag Code specifies proper display etiquette as well as disposal guidelines.

You can drop off any flag at any local VFW post. They work with the Boy Scouts of America to see that your flag is properly disposed. For more information about flag etiquette and disposal, or to find a VFW post near you, visit [www.vfw.org](http://www.vfw.org) and select Community-> Flag Etiquette. You can also drop-off your old stars and stripes to the Muskegon County Department of Veterans Affairs, Veteran Services Center.

## YARD WASTE

Michigan law currently prohibits yard waste from disposal in municipal solid waste landfills. Yard waste is defined as: leaves, grass clippings, vegetable/garden debris and shrubbery, brush or tree trimmings less than 4 feet in length and 2 inches in diameter.

Contact your city or township office to ask whether they provide a yard waste drop-off location. Consider composting your yard waste as a free way to return nutrients to your soil or garden and make your own potting soil.

## MERCURY THERMOSTATS AND THERMOMETERS

Many old thermostats contain about 3 grams of mercury per device. According to the Michigan Department of Environmental Quality, the improper disposal of mercury thermostats results in about 8% of the mercury released annually in the U.S., equal to about 9.6 tons. Make sure you dispose of your old mercury-containing thermostat properly, **NOT** with regular household trash. Once in the environment, it can transform into methyl mercury, which can be extremely harmful to human health.

Please contact your thermostat manufacturer to determine whether they have a mail-back program, or bring them to the Muskegon County Household Hazardous Waste facility.

## FOAM RECYCLING (aka: Styrofoam or expanded polystyrene)

### NuPak Solutions Inc.

2850 Lincoln St., Norton Shores

**Phone:** (231) 755-1662

**Hours:** Mon - Fri 7am - 3pm

NuPak Solutions Inc. will recycle CLEAN Styrofoam used in packaging at no charge from residents and businesses. Foam that has come into contact with food or drink is NOT accepted. No egg cartons. Please call ahead for details and directions.

Packaging peanuts & bubble-wrap are accepted for reuse at **Muskegon UPS Stores:**

1934 E Apple Ave., Muskegon - (231) 767-2444

1887 Holton Rd., Suite D, Muskegon - (231) 744-4800

2743 Henry St., Muskegon - (231) 755-5551

*“The greatest threat to our planet is the belief that someone else will save it.”*

*- Robert Swan*

# HOUSEHOLD HAZARDOUS WASTE & RECYCLING

## BATTERIES

### Batteries Plus Bulb

5839 Harvey St., Norton Shores

**Phone:** (231) 747-9168

**Web:** [www.batteriesplus.com/t/recycling](http://www.batteriesplus.com/t/recycling)

Will accept everything from car and boat to laptop batteries. There is a fee for alkaline batteries.

### USA-1 Battery Auto Electric Service

1225 S. Getty St., Muskegon

**Phone:** (231) 722-0327

**Hours:** Mon - Fri 8:30am - 5:30pm, Sat 9am - 1pm  
Will PAY YOU for car batteries, or larger. Will also take household batteries.



## FLUORESCENT LAMPS & CFLs

Fluorescent lamps, including Compact Fluorescent Light bulbs, or "CFLs," contain trace amounts of mercury. While they use 75% less energy, and last about 10 times longer than traditional incandescent bulbs, you should take care that they do not break and dispose of them safely. CFL bulbs can be recycled at any Home Depot or Lowe's. Simply bring in your spent, unbroken CFLs to the store and ask an associate to point out the recycle container. **Note:** The Muskegon County Household Hazardous Waste Program also accepts CFLs and tubes.

### Batteries Plus Bulb

5839 Harvey St., Norton Shores

**Phone:** (231) 747-9168

**Web:** [www.batteriesplus.com/t/recycling](http://www.batteriesplus.com/t/recycling)

Will accept all types of CFL and fluorescent tubes for recycling for a fee.

### Home Depot, Roosevelt Park

2699 Henry St., Roosevelt Park

**Phone:** (231) 755-0440

CFLs only

### Lowe's

2035 E. Sherman Blvd., Muskegon

**Phone:** (231) 739-1100

### Mail-Back Programs

[www.thinkgreenfromhome.com](http://www.thinkgreenfromhome.com)

### Bulb Comparison



## MEDICATION & SHARPS DISPOSAL

The Muskegon Area Medication Disposal Program (MAMDP) is a collaboration of community organizations providing an outlet to safely dispose of unused, unwanted and expired medications. FDA and EPA no longer recommend flushing or landfilling medications due to environmental concerns about the effects on safe drinking water and the ecology of our watersheds. MAMDP partners offer collection events as well as an expanding network of daily disposal options. Visit [mamdp.com](http://mamdp.com) for more information.

### DAILY DISPOSAL OPTIONS FOR CONTROLLED SUBSTANCES

All law enforcement offices throughout Muskegon County have a drop box located just inside their front doors. Medications can be dropped off any time during their regular business hours, and without question. Please visit: [mamdp.com](http://mamdp.com) for additional information about this program.

### DAILY DISPOSAL OPTIONS FOR NON-CONTROLLED SUBSTANCES

#### Glenside Pharmacy

1663 W. Sherman Blvd., Muskegon

**Phone:** (231) 672-7820

#### Healthcare Equipment & Pharmacy

6401 Prairie St., Muskegon

**Phone:** (231) 727-7968

(in Lakes Campus near The Lakes Mall)

#### Benson Drug SavMor Pharmacy

961 Spring St., Muskegon

**Phone:** (231) 722-2861

Will also accept sharps in appropriate container.

#### Hackley Professional Pharmacy

1675 Leahy St., Suite 111, Muskegon

**Phone:** (231) 672-7822

Will also accept sharps in appropriate container.

#### Westshore Professional Pharmacy

1150 E. Sherman Blvd., Muskegon

**Phone:** (231) 672-2204

If you do not have access to sharps disposal options through your pharmacy, health center, or otherwise, MAMDP, in partnership with Muskegon County Department of Public Works, will accept used sharps at their one-day events ONLY in sealed, safe sharps container or empty laundry soap jug. Drop off events will be announced at [www.mamdp.com](http://www.mamdp.com). There are also a number of fee-based mail-back disposal services, such as:

#### BD Sharps Disposal Home

**Phone:** (800) 327-4277

**Toll Free:** (888) 232-2737

#### Stericycle Sharps Mail-Back Program

**Phone:** (866) 783-7422

#### Medwaste Tracker

**Phone:** (866) 699-6466

**Web:** [www.thinkgreenfromhome.com](http://www.thinkgreenfromhome.com)

## HOUSEHOLD HAZARDOUS WASTE DISPOSAL

Hazardous materials can be found in common household items such as cleaners, paint thinners, gasoline, motor oil, pesticides, fertilizers, and even Compact Fluorescent Light bulbs (CFLs). Once these items can no longer be used, they become Household Hazardous Waste (HHW), and it's important to make sure they are disposed of properly to safeguard families, pets, and the environment. The Muskegon County Department of Public Works offers a free HHW program to Muskegon County residents. **Please note that commercial and industrial waste is prohibited.** Should you possess any of the following materials, the HHW program will dispose of them in a safe and responsible manner.

- Mercury or mercury-containing devices (i.e. Compact Fluorescent Light Bulbs and other fluorescent lamps, mercury thermometers, or thermostats, etc.)
- Petroleum products
- Antifreeze and other automotive fluids
- Pesticides
- Insecticides
- Herbicides
- Aerosol cans (containing hazardous materials)
- Alkaline batteries (we do not accept lead acid/ car batteries)
- Acids (i.e. muriatic acid)
- Bases (i.e. drain cleaner)
- Fire extinguishers
- Other products with approval

Recycling used oil is preferred over disposal as HHW. Used oil can be recycled, free of charge, at any AutoZone location and most other quick oil change service locations. **Note:** Paint is not considered a hazardous waste. The best way to dispose of paint is to use it or recycle it.

### COLLECTION LOCATION

#### Household Hazardous Waste Program - Rear lot of Pound Buddies Rescue

1300 E. Keating Ave., Muskegon

**Phone:** (231) 724-6001 - option 4

**Hours:** Second and fourth Friday of each month, May - Oct, 1 - 3pm

Late fall and winter collection is by appointment only. Appointments are made only for those who are not able to wait for a normal collection day.

If you have any questions regarding materials that you'd like to dispose of, please contact the Household Hazardous Waste automated line listed above. To learn more about health and safety information on household products, help identify potential sources of HHW in your home and to find ways to seek out alternatives, visit [www.householdproducts.nlm.nih.gov](http://www.householdproducts.nlm.nih.gov). Also consider mail-back programs from [www.thinkgreenfromhome.com](http://www.thinkgreenfromhome.com) or Zero Waste Boxes from Home Depot.

## PAINT RECYCLING & DISPOSAL

If you find you have leftover latex/water-based paint that has never been frozen, contact one of these organizations for recycling:

#### Muskegon Habitat for Humanity ReStore

FREE latex(only) paint recycling

280 Ottawa St., Muskegon

**Phone:** (231) 727-6020

4345 Airline Rd., Norton Shores

**Phone:** (231) 737-4939

112 E. Colby St., Whitehall

**Phone:** (231) 894-0880

Paint must be in usable condition, never frozen, or dried.

#### Port City Paints

1250 9th St., Muskegon

**Phone:** (231) 726-5911

Charges \$2 per container, all sizes.

Latex paint only. Paint must be in usable condition, not frozen or soured.

#### AS A LAST RESORT

Latex based paints are not considered hazardous waste, therefore, paints that have been frozen or aged too long may be disposed of with your household trash, as long as it is dried or solidified. Try adding kitty litter or other drying media and leaving the can open to dry in a well-ventilated area, away from children and animals.

## USED OIL RECYCLING

### AutoZone

1236 E. Apple Ave., Muskegon

**Phone:** (231) 773-4479

**Hours:** Mon-Sat 7:30am - 10pm  
Sun 9am - 9pm

705 W. Sherman Blvd., Muskegon

**Phone:** (231) 737-2502

**Hours:** Mon-Sat 8am - 9pm  
Sun 9am - 9pm

1740 Holton Rd., Muskegon

**Phone:** (231) 744-4265

**Hours:** Mon-Sat 7:30am - 10pm  
Sun 9am - 9pm

AutoZone asks for clean motor oil only (not mixed with water, gas, leaves, etc.) and no more than five gallons per person, per day.

### Advance Auto Parts Locations

1333 E. Apple Ave., Muskegon

**Phone:** (231) 767-9459

2703 Henry St., Muskegon

**Phone:** (231) 755-1811

### Firestone Complete Auto Care

700 W. Sherman Blvd., Muskegon

**Phone:** (231) 733-2591

### Speedy Lube Inc.

409 Center St., Muskegon

**Phone:** (231) 744-5203

### Miller's Oil Lube Express

624 E. Colby St., Whitehall

**Phone:** (231) 894-9340

### Walmart Tire and Lube Express

1879 E. Sherman Blvd., Muskegon

**Phone:** (231) 739-6202

3267 Henry St., Muskegon

**Phone:** (231) 739-4710



# MUSKEGON COUNTY RECYCLING EVENT

4th Saturday in April & 3rd Saturday in October



## MUSKEGON COUNTY LANDFILL

9366 E. Apple Ave., Ravenna

**Phone:** (231) 724-6001

**Web:** [www.co.muskegon.mi.us/solidwaste](http://www.co.muskegon.mi.us/solidwaste)

The County operates a licensed Type II landfill to properly dispose of non-hazardous solid waste. If you have unwanted solid waste that cannot be reused or recycled, you can visit the landfill, which is located approximately 2.5 miles east of Maple Island Road on Apple Avenue.

Please call or visit the website for updates on future recycling efforts at the Muskegon County Landfill!

### HOURS

#### Commercial

Mon-Fri 7am - 4:30pm  
Sat 8am - 2pm

#### Non-Commercial

Mon-Fri 8am - 4:30pm  
Sat 8am - 2pm

### HOLIDAY CLOSURES

New Year's Day  
Memorial Day  
Independence Day  
Labor Day  
Thanksgiving Day  
Christmas Day

### RATES

#### Non-Contracted Haulers (Within Landfill):

\$34 per ton

#### Contaminated Soil:

\$48 per ton

#### Cars (Transfer Station Drop-Off):

2 ¼ cents per lbs.  
(\$8 minimum, up to 340 lbs.)

#### All Other Vehicle Types (Transfer Station Drop-Off):

2 ¼ cents per lb.  
(\$22 minimum, up to 960 lbs.)

No large appliances, liquid paint, yard waste, whole tires, propane tanks, or hazardous waste accepted.

## MUSKEGON COUNTY RECYCLING EVENT

1350 E. Keating Ave., Muskegon

**Phone:** (231) 724-6001

**Dates:** 4th Saturday in April & 3rd Saturday in October

**Time:** 9am - 1pm

**Website:** [www.co.muskegon.mi.us/HHW](http://www.co.muskegon.mi.us/HHW)



#### Department of Public Works

131 E. Apple Ave., 4th floor  
Muskegon, MI 49442

[www.sustainablemuskegon.org](http://www.sustainablemuskegon.org) • 231-724-8846



# How to Dispose of Medicines Properly

**DON'T:** Flush expired or unwanted prescription and over-the-counter drugs down the toilet or drain unless the label or accompanying patient information specifically instructs you to do so.

**DO:** Return unwanted or expired prescription and over-the-counter drugs to a drug take-back program or follow the steps for household disposal below.

## 1ST CHOICE: DRUG TAKE-BACK EVENTS

To dispose of prescription and over-the-counter drugs, call your city or county government's household trash and recycling service and ask if a drug take-back program is available in your community. Some counties hold household hazardous waste collection days, where prescription and over-the-counter drugs are accepted at a central location for proper disposal.



**Drug Take-Back Event**

Courtesy: Upper Watauga Riverkeeper  
and Appalachian Voices

## 2ND CHOICE: HOUSEHOLD DISPOSAL STEPS\*



1. Take your prescription drugs out of their original containers.



2. Mix drugs with an undesirable substance, such as cat litter or used coffee grounds.



3. Put the mixture into a disposable container with a lid, such as an empty margarine tub, or into a sealable bag.



4. Conceal or remove any personal information, including Rx number, on the empty containers by covering it with permanent marker or duct tape, or by scratching it off.



5. The sealed container with the drug mixture, and the empty drug containers, can now be placed in the trash.

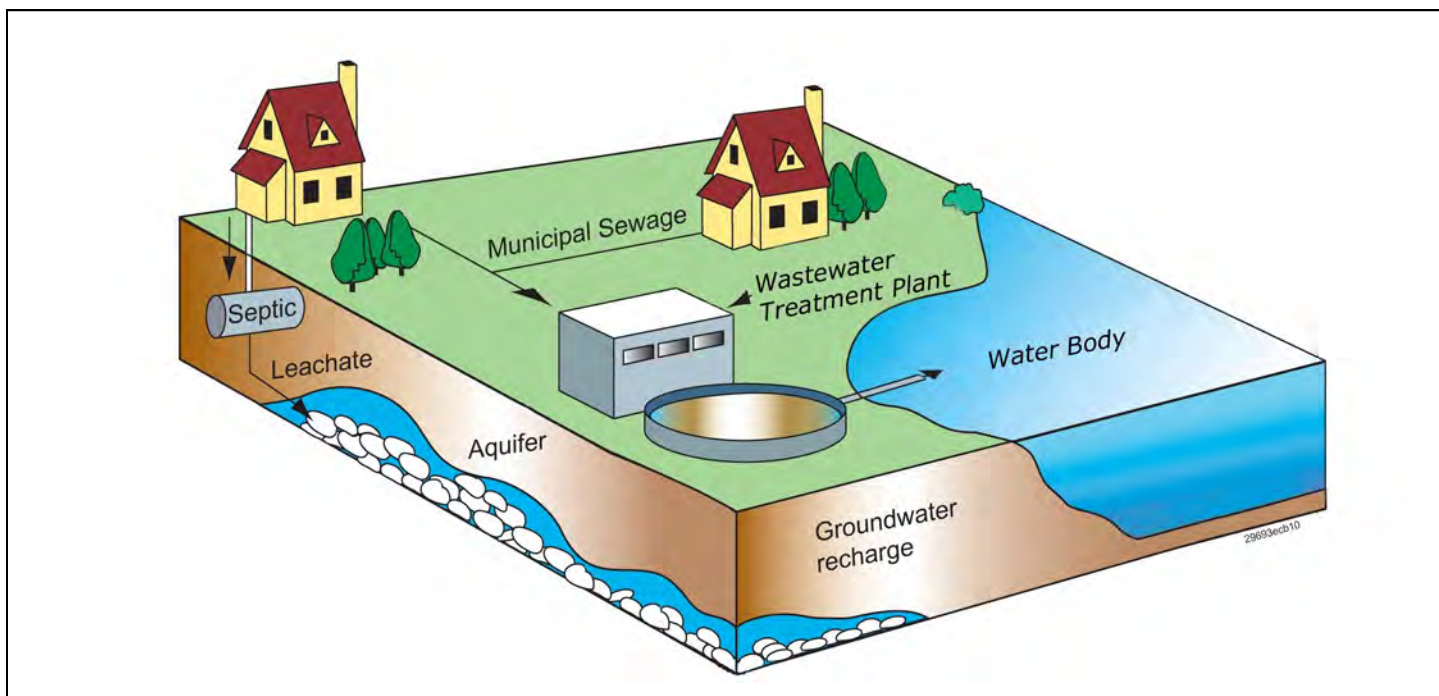
# How Proper Disposal of Medicines Protects You and the Earth:

- Prevents poisoning of children and pets
- Deters misuse by teenagers and adults
- Avoids health problems from accidentally taking the wrong medicine, too much of the same medicine, or a medicine that is too old to work well
- Keeps medicines from entering streams and rivers when poured down the drain or flushed down the toilet

# How Improper Disposal of Medicines May End Up in Our Drinking Water Sources

In homes that use septic tanks, prescription and over-the-counter drugs flushed down the toilet can leach into the ground and seep into ground water.

In cities and towns where residences are connected to wastewater treatment plants, prescription and over-the-counter drugs poured down the sink or flushed down the toilet can pass through the treatment system and enter rivers and lakes. They may flow downstream to serve as sources for community drinking water supplies. Water treatment plants are generally not equipped to routinely remove medicines.



For more information, go to [www.epa.gov/ppcp/](http://www.epa.gov/ppcp/)  
Or call the Safe Drinking Water Hotline at 800-426-4791



Muskegon Area  
**Medication  
Disposal Program**

# DISPOSE OF YOUR NON-CONTROLLED UNUSED MEDICATIONS

*Includes over-the-counter items, antibiotics and medications for high blood pressure, heart, diabetes, asthma and more*

## **Benson's Drug SavMor #17\***

961 Spring Street / Muskegon, MI 49442 / 231-722-2861

## **Muskegon Family Care**

2201 Getty Street / Muskegon Heights, MI 49444  
231-739-9315, ext. 1643

### **MERCY HEALTH PHARMACY LOCATIONS**

#### **Glenside Pharmacy**

1631 W. Sherman Boulevard / Muskegon, MI 49441 / 231-755-2443

#### **Hackley Professional Pharmacy\***

1675 Leahy Street, Suite 111 / Muskegon, MI 49442 / 231-728-5888

#### **Lakes Campus Pharmacy**

6401 Prairie Street, Suite 1100 / Muskegon, MI 49444 / 231-727-7968

#### **Westshore Professional Pharmacy**

1150 E. Sherman Boulevard, Suite 1400 / Muskegon, MI 49444  
231-6727823

#### **Wolf Lake Pharmacy**

5483 E. Apple Avenue / Muskegon, MI 49444 /  
231-788-4087

Certain restrictions apply. Ask your pharmacist for more information.

\*Sharps accepted in appropriate containers at these locations.



[www.mamdp.com](http://www.mamdp.com)



Muskegon Area  
**Medication  
Disposal Program**

# DISPOSE OF YOUR CONTROLLED UNUSED MEDICATIONS

*Includes medications for pain, ADHD, anxiety, sleeping and more*

Dispose of your unwanted or expired *controlled* medications at the following law enforcement agencies, where secure drop-boxes have been installed, during normal business hours:

#### **Fruitport Police Department**

5825 Airline Road / Fruitport, MI 49415 / 231-865-8477

#### **Montague Police Department**

8778 Ferry Street / Montague, MI 49437 / 231-893-0810

#### **Muskegon County Sheriff's Office Records**

25 W. Walton Avenue / Muskegon, MI 49440 / 231-724-6351

#### **Muskegon County Sheriff Road Patrol Offices**

1611 Oak Avenue / Muskegon, MI 49442 / 231-724-6259

#### **Muskegon Heights Police Department**

2715 Baker Street / Muskegon, MI 49444 / 231-733-8900

#### **Muskegon Police Department**

980 Jefferson Street / Muskegon, MI 49440 / 231-724-6750

#### **Muskegon Township Police Department**

1990 Apple Avenue / Muskegon, MI 49442 / 231-777-1666

#### **North Muskegon Police Department**

1114 Ruddiman Drive / North Muskegon, MI 49445 / 231-744-4313

#### **Norton Shores Police Department**

4814 Henry Street / Norton Shores, MI 49441 / 231-733-2691

#### **Roosevelt Park Police Department**

900 Oak Ridge Road / Muskegon, MI 49441 / 231-755-3721

#### **Whitehall Police Department**

405 E. Colby Street / Whitehall, MI 49461 / 231-894-2317



Made possible by the Environmental Endowment Fund of the Community Foundation for Muskegon County.



[www.mamdp.com](http://www.mamdp.com)

# You dump it, you drink it.

If you change your own motor oil, protect our environment by recycling this valuable resource. Take your used motor oil to your nearest collection center, such as a service station, lube center or automotive store. Oil dumped down storm drains contaminates our water.



Solid Waste and  
Emergency Response  
EPA530-H-02-003S  
Winter 2003  
[www.epa.gov](http://www.epa.gov)





# CAR WASH!

## WHAT ELSE ARE YOU WASHING BESIDES YOUR CAR?

During a car wash, dirty water containing soap and detergents, residues from exhaust fumes, gasoline and motor oils washes off the cars, flows off the pavement and into nearby storm drains (usually from openings in the curb/gutter). Unlike the water we use in our homes and businesses which is treated at wastewater treatment plants, the water that goes into storm drains flows directly into rivers, bays, oceans and lakes without any kind of treatment. Alone, one car wash fundraiser event will create little adverse environmental impact. But, collectively, car wash fundraiser events contribute significant amounts of water pollution. To help ensure your compliance with municipal regulations, we suggest that you follow the "Good Housekeeping Practices" listed below for an environmentally successful car wash fundraising event. Using these practices, you will meet our important goal of minimizing the amount of soapy wash water that enters any storm drain.

Good housekeeping tips:

1. Before beginning your car wash, remove all trash and debris from the car washing area.
2. Use only soaps, cleaners, or detergents labeled "non-toxic", "phosphate free", or "biodegradable". The safest products for the environment are vegetable-based or citrus-based soaps
3. Avoid the use of acid-based wheel cleaners.
4. Minimize the amount of water or soapy wash water running off the car washing area by implementing the following:
  - Always shut off or kink the hoses when not in use.
  - Whenever possible, select a site where the cars can be driven onto grass or gravel for washing. This will allow the soapy water to filter through vegetation and soil instead of flowing into a storm drain.
  - Use a bucket of soapy water to re-soap rags or sponges throughout the wash rather than adding more soap directly to the rag/sponge.
  - It is not recommended that you empty buckets of soapy or rinse water into the parking lot, street, gutter, or storm drains, but into a grassy area or lawn.

# Keep Lake Michigan Fresh!

## Snow and Ice Removal Tips to Keep Lake Michigan “Unsalted”

Snow has arrived in West Michigan, and the shovels are out for another winter season. Many of us try to make the job easier by using various products to help melt the ice and snow.

However, when the snow melts, those products have hidden impacts as snowmelt carries them into storm drains that lead directly into our waterways. Excess salt in the water is harmful to aquatic animals and plants. Salty water also damages soil and kills vegetation along sidewalks, driveways, and roadsides. Using too much sand for traction can also cause storm water pollution and clog storm drains. Here are some tips to reduce salt and sand use in water.

- **Shovel snow first** to remove it from driveways and sidewalks before using snow melt products.
- **Only use as much de-icer as you need.** A little product goes a long way. Thick ice will not refreeze on the pavement.
- **Pile shoveled snow downslope** of paved surfaces so that melting snow will not refreeze on the pavement.
- **Sweep up after snowmelt** to keep extra sand, salt, and grit from washing into drains and ditches.

Information provided by the Muskegon Area Municipal Stormwater Committee



# Good Housekeeping Practices



One of the big contributors to urban runoff pollution is commercial and industrial businesses. Some of the pollutants are automotive fluids, paints, solvents, pesticides, herbicides, grease, litter, and yard waste that enter into our storm drains. Storm drains do not connect to our wastewater treatment plants. Instead, storm water enters directly into our creeks, streams, and lakes. In order to protect our local watersheds we must keep pollutants out of our storm drain system.

Your business can start by adding a few Best Management Practices (BMP's) to your everyday tasks. Many of these task you may already be doing! Flip the page for more information on what you can do.

For more information concerning stormwater pollution contact the Muskegon Conservation District

[muskegoncd@macd.org](mailto:muskegoncd@macd.org)  
(231) 828-5097

# Best Management Practices for Good Housekeeping

## What is an illicit discharge?

Any substance or material, including, but not limited to, pollutants or waters containing any pollutants that cause or contribute to a violation of applicable water quality standards, other than storm water or an authorized discharge (Sec. 26-305) .

To prevent illicit discharges from polluting our waterways, follow these BMPs below:

### Activities

#### Best Management Practices

#### Training

- Train employees regularly on good housekeeping practices.
- Assign an employee to implement and manage the BMP tasks.

#### Materials Storage

- Store chemical materials such as paints, detergents, grease, metals, and etc. in labeled containers and store containers in a covered area that is protected from the weather.

#### Waste Disposal

- Provide an adequate number of trash and recycling receptacles for your customers and employees.
- Pickup litter and waste outside of the building including stormwater drains inlets.
- Inspect dumpsters and other waste receptacles for leaks periodically. Repair or replace leaky waste receptacles.
- Recycle and dispose waste properly, never dispose waste in stormwater drains.
- Cover dumpsters and other waste containers
- Hazardous materials must be disposed of properly

#### Equipment/ Vehicle Cleaning

- Regularly check and maintain equipment and vehicles . Repair leaks.
- Wash equipment and vehicles at the car wash or on the lawn where water can be collected and filtered.
- Use drip pans to catch spills when performing maintenance and clean up any spills the pan did not catch.

#### Pavement Cleaning

- Sweep parking lots and other paved areas periodically to remove debris. Dispose of debris in the garbage.
- If detergent is being used for sweeping, collect wash water and disposed of properly.

# Your Septic System is your responsibility!

**Did you know** that as a homeowner you're responsible for maintaining your septic system? Did you know that maintaining your septic system protects your investment in your home? Did you know that you should periodically inspect your system and pump out your septic tank?

If properly designed, constructed and maintained, your septic system can provide long-term, effective treatment of household wastewater. If your septic system isn't maintained, you might need to replace it, costing you thousands of dollars. A malfunctioning system can contaminate groundwater that might be a source of drinking water. And if you sell your home, your septic system must be in good working order.

This guide will help you care for your septic system. It will help you understand how your system works and what steps you can take as a homeowner to ensure your system will work properly. To help you learn more, consult the resources listed at the back of this booklet. A helpful checklist is also included at the end of the booklet to help you keep track of your septic system maintenance.

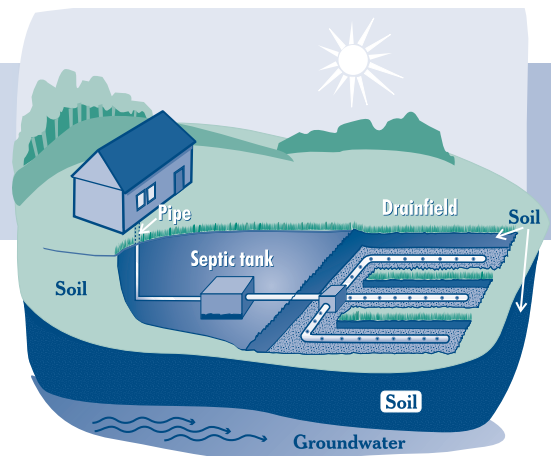
## Top Four Things You Can Do to Protect Your Septic System

1. Regularly inspect your system and pump your tank as necessary.
2. Use water efficiently.
3. Don't dispose of household hazardous wastes in sinks or toilets.
4. Care for your drainfield.

## How does it work?

### Components

A typical septic system has four main components: a pipe from the home, a septic tank, a drainfield, and the soil. Microbes in the soil digest or remove most contaminants from wastewater before it eventually reaches groundwater.



Typical septic system

## Septic system aliases:

- On-lot system
- Onsite system
- Individual sewage disposal system
- Onsite sewage disposal system
- Onsite wastewater treatment system

### *Pipe from the home*

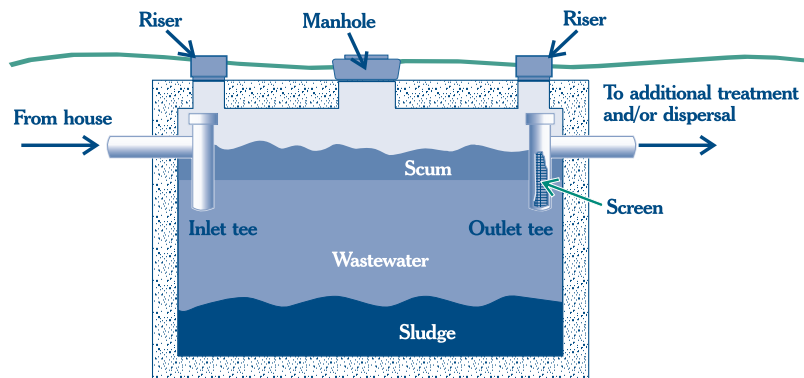
All of your household wastewater exits your home through a pipe to the septic tank.

### *Septic tank*

The septic tank is a buried, watertight container typically made of concrete, fiberglass, or polyethylene. It holds the wastewater long enough to allow solids to settle out (forming sludge) and oil and grease to float to the surface (as scum). It also allows partial decomposition of the solid materials. Compartments and a T-shaped outlet in the septic tank prevent the sludge and scum from leaving the tank and traveling into the drainfield area. Screens are also recommended to keep solids from entering the drainfield.

Newer tanks generally have risers with lids at the ground surface to allow easy location, inspection, and pumping of the tank.

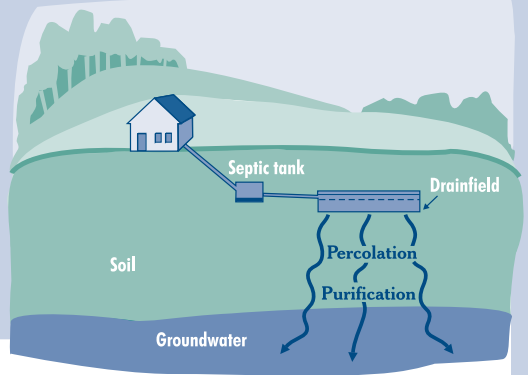
Typical single-compartment septic tank with ground-level inspection risers and screen



**Tip** To prevent buildup, sludge and floating scum need to be removed through periodic pumping of the septic tank. Regular inspections and pumping are the best and cheapest way to keep your septic system in good working order.

## Finding Your System

Your septic tank, drainfield, and reserve drainfield should be clearly designated on the “as-built” drawing for your home. (An “as-built” drawing is a line drawing that accurately portrays the buildings on your property and is usually filed in your local land records.) You might also see lids or manhole covers for your septic tank. Older tanks are often hard to find because there are no visible parts. An inspector/pumper can help you locate your septic system if your septic tank has no risers.



### *Drainfield*

The wastewater exits the septic tank and is discharged into the drainfield for further treatment by the soil. The partially treated wastewater is pushed along into the drainfield for further treatment every time new wastewater enters the tank.

If the drainfield is overloaded with too much liquid, it will flood, causing sewage to flow to the ground surface or create backups in plumbing fixtures and prevent treatment of all wastewater.

A reserve drainfield, required by many states, is an area on your property suitable for a new drainfield system if your current drainfield fails. Treat this area with the same care as your septic system.

### *Soil*

Septic tank wastewater flows to the drainfield, where it percolates into the soil, which provides final treatment by removing harmful bacteria, viruses, and nutrients. Suitable soil is necessary for successful wastewater treatment.

## Alternative systems

Because many areas don't have soils suitable for typical septic systems, you might have or need an alternative system. You might also have or need an alternative system if there are too many typical septic systems in one area or the systems are too close to groundwater or surface waters. Alternative septic

systems use new technology to improve treatment processes and might need special care and maintenance. Some alternative systems use sand, peat, or plastic media instead of soil to promote wastewater treatment. Other systems might use wetlands, lagoons, aerators, or disinfection devices. Float switches, pumps, and other electrical or mechanical components are often used in alternative systems. Alternative systems should be inspected annually. Check with your local health department or installer for more information on operation and maintenance needs if you have or need an alternative system.

## *Why* should I maintain my septic system?

When septic systems are properly designed, constructed, and maintained, they effectively reduce or eliminate most human health or environmental threats posed by pollutants in household wastewater. However, they require regular maintenance or they can fail. Septic systems need to be monitored to ensure that they work properly throughout their service lives.

### **Saving money**

A key reason to maintain your septic system is to save money! Failing septic systems are expensive to repair or replace, and poor maintenance is often the culprit. Having your septic system inspected regularly is a bargain when you consider the cost of replacing the entire system. Your system will need pumping depending on how many people live in the house and the size of the system. An unusable septic system or one in disrepair will lower your property value and could pose a legal liability.

### **Protecting health and the environment**

Other good reasons for safe treatment of sewage include preventing the spread of infection and disease and protecting water resources. Typical pollutants in household wastewater are nitrogen, phosphorus, and disease-

causing bacteria and viruses. If a septic system is working properly, it will effectively remove most of these pollutants.

With one-fourth of U.S. homes using septic systems, more than 4 billion gallons of wastewater per day is dispersed below the ground's surface. Inadequately treated sewage from septic systems can be a cause of groundwater contamination. It poses a significant threat to drinking water and human health because it can contaminate drinking water wells and cause diseases and infections in people and animals. Improperly treated sewage that contaminates nearby surface waters also increases the chance of swimmers contracting a variety of infectious diseases. These range from eye and ear infections to acute gastrointestinal illness and diseases like hepatitis.

## *How* do I maintain my septic system?

### **Inspect and pump frequently**

You should have a typical septic system inspected at least every 3 years by a professional and your tank pumped as recommended by the inspector (generally every 3 to 5 years). Alternative systems with electrical float switches, pumps, or mechanical components need to be inspected more often, generally once a year. Your service provider should inspect for leaks and look at the scum and sludge layers in your septic tank. If the bottom of the scum layer is within 6 inches of the bottom of the outlet tee or the top of the sludge layer is within 12 inches of the outlet tee, your tank needs to be pumped. Remember to note the sludge and scum levels determined by your service provider in your operation and maintenance records. This information will help you decide how often pumping is necessary. (See the checklist included at the end of the booklet.)

### **What Does an Inspection Include?**

- Locating the system.
- Uncovering access holes.
- Flushing the toilets.
- Checking for signs of back up.
- Measuring scum and sludge layers.
- Identifying any leaks.
- Inspecting mechanical components.
- Pumping the tank if necessary.

Four major factors influence the frequency of pumping: the number of people in your household, the amount of wastewater generated (based on the number of people in the household and the amount of water used), the volume of solids in the wastewater (for example, using a garbage disposal increases the amount of solids), and septic tank size.

Some makers of septic tank additives claim that their products break down the sludge in septic tanks so the tanks never need to be pumped. Not everyone agrees on the effectiveness of additives. In fact, septic tanks already contain the microbes they need for effective treatment. Periodic pumping is a much better way to ensure that septic systems work properly and provide many years of service. Regardless, every septic tank requires periodic pumping.

In the service report, the pumper should note any repairs completed and whether the tank is in good condition. If the pumper recommends additional repairs he or she can't perform, hire someone to make the repairs as soon as possible.

## Use water efficiently

Average indoor water use in the typical single-family home is almost 70 gallons per person per day. Leaky toilets can waste as much as 200 gallons each day. The more water a household conserves, the less water enters the septic system. Efficient water use can improve the operation of the septic system and reduce the risk of failure.

### *High-efficiency toilets*

Toilet use accounts for 25 to 30 percent of household water use. Do you know how many gallons of water your toilet uses to empty the bowl? Most older homes have toilets with 3.5- to 5-gallon reservoirs, while newer high-efficiency toilets use 1.6 gallons of water or less per flush. If you have problems with your septic system being flooded with household water, consider reducing the volume of water in the toilet tank if you don't have a high-efficiency model or replacing your existing toilets with high-efficiency models.



### ***Faucet aerators and high-efficiency showerheads***

Faucet aerators help reduce water use and the volume of water entering your septic system. High-efficiency showerheads or shower flow restrictors also reduce water use.

### ***Water fixtures***

Check to make sure your toilet's reservoir isn't leaking into the bowl. Add five drops of liquid food coloring to the reservoir before bed. If the dye is in the bowl the next morning, the reservoir is leaking and repairs are needed.

A small drip from a faucet adds many gallons of unnecessary water to your system every day. To see how much a leak adds to your water usage, place a cup under the drip for 10 minutes. Multiply the amount of water in the cup by 144 (the number of minutes in 24 hours, divided by 10). This is the total amount of clean water traveling to your septic system each day from that little leak.



## **Use Water Efficiently!**

- **Install high-efficiency showerheads**
- **Fill the bathtub with only as much water as you need**
- **Turn off faucets while shaving or brushing your teeth**
- **Run the dishwasher and clothes washer only when they're full**
- **Use toilets to flush sanitary waste only (not kitty litter, diapers, or other trash)**
- **Make sure all faucets are completely turned off when not in use**
- **Maintain your plumbing to eliminate leaks**
- **Install aerators in the faucets in your kitchen and bathroom**
- **Replace old dishwashers, toilets, and clothes washers with new, high-efficiency models.**

**For more information on water conservation, please visit [www.epa.gov/owm/water-efficiency/index.htm](http://www.epa.gov/owm/water-efficiency/index.htm)**

## Watch your drains

What goes down the drain can have a major impact on how well your septic system works.

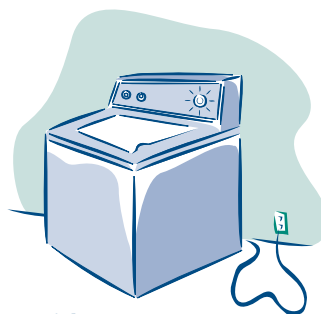
### ***Waste disposal***

What shouldn't you flush down your toilet? Dental floss, feminine hygiene products, condoms, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels, and other kitchen and bathroom items that can clog and potentially damage septic system components if they become trapped. Flushing household chemicals, gasoline, oil, pesticides, antifreeze, and paint can stress or destroy the biological treatment taking place in the system or might contaminate surface waters and groundwater. If your septic tank pumper is concerned about quickly accumulating scum layers, reduce the flow of floatable materials like fats, oils, and grease into your tank or be prepared to pay for more frequent inspections and pumping.

### ***Washing machines***

By selecting the proper load size, you'll reduce water waste. Washing small loads of laundry on the large-load cycle wastes precious water and energy. If you can't select load size, run only full loads of laundry.

Doing all the household laundry in one day might seem like a time-saver, but it could be harmful to your septic system. Doing load after load does not allow your septic tank time to adequately treat wastes. You could be flooding your drainfield without allowing sufficient recovery time. Try to spread water usage throughout the week. A new Energy Star clothes washer uses 35 percent less energy and 50 percent less water than a standard model.



## Care for your drainfield

Your drainfield is an important part of your septic system. Here are a few things you should do to maintain it:

- Plant only grass over and near your septic system. Roots from nearby trees or shrubs might clog and damage the drainfield.
- Don't drive or park vehicles on any part of your septic system. Doing so can compact the soil in your drainfield or damage the pipes, tank, or other septic system components.
- Keep roof drains, basement sump pump drains, and other rainwater or surface water drainage systems away from the drainfield. Flooding the drainfield with excessive water slows down or stops treatment processes and can cause plumbing fixtures to back up.

## What can make my system fail?

If the amount of wastewater entering the system is more than the system can handle, the wastewater backs up into the house or yard and creates a health hazard.

You can suspect a system failure not only when a foul odor is emitted but also when partially treated wastewater flows up to the ground surface. By the time you can smell or see a problem, however, the damage might already be done.

By limiting your water use, you can reduce the amount of wastewater your system must treat. When you have your system inspected and pumped as needed, you reduce the chance of system failure.

A system installed in unsuitable soils can also fail. Other failure risks include tanks that are inaccessible for maintenance, drainfields that are paved or parked on, and tree roots or defective components that interfere with the treatment process.

## Failure symptoms

The most obvious septic system failures are easy to spot. Check for pooling water or muddy soil around your septic system or in your basement. Notice whether your toilet or sink backs up when you flush or do laundry. You might also notice strips of bright green grass over the drainfield. Septic systems also fail when partially treated wastewater comes into contact with groundwater. This type of failure is not easy to detect, but it can result in the pollution of wells, nearby streams, or other bodies of water. Check with a septic system professional and the local health department if you suspect such a failure.

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*Stop, look, and smell!*

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## Failure causes

### *Household toxics*

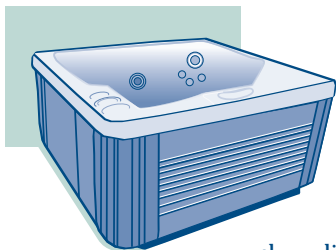
Does someone in your house use the utility sink to clean out paint rollers or flush toxic cleaners? Oil-based paints, solvents, and large volumes of toxic cleaners should not enter your septic system. Even latex paint cleanup waste should be minimized. Squeeze all excess paint and stain from brushes and rollers on several layers of newspaper before rinsing. Leftover paints and wood stains should be taken to your local household hazardous waste collection center. Remember that your septic system contains a living collection of organisms that digest and treat waste.

### *Household cleaners*

For the most part, your septic system's bacteria should recover quickly after small amounts of household cleaning products have entered the system. Of course, some cleaning products are less toxic to your system than others. Labels can help key you into the potential toxicity of various products. The word "Danger" or "Poison" on a label indicates that the product is highly hazardous. "Warning" tells you the product is moderately hazardous. "Caution" means the product is slightly hazardous. ("Nontoxic" and "Septic Safe"



are terms created by advertisers to sell products.) Regardless of the type of product, use it only in the amounts shown on the label instructions and minimize the amount discharged into your septic system.



### ***Hot tubs***

Hot tubs are a great way to relax. Unfortunately, your septic system was not designed to handle large quantities of water from your hot tub. Emptying hot tub water into your septic system stirs the solids in the tank and pushes them out into the drainfield, causing it to clog and fail. Draining your hot tub into a septic system or over the drainfield can overload the system. Instead, drain cooled hot tub water onto turf or landscaped areas well away from the septic tank and drainfield, and in accordance with local regulations. Use the same caution when draining your swimming pool.

### ***Water Purification Systems***

Some freshwater purification systems, including water softeners, unnecessarily pump water into the septic system. This can contribute hundreds of gallons of water to the septic tank, causing agitation of solids and excess flow to the drainfield. Check with your licensed plumbing professional about alternative routing for such freshwater treatment systems.

### ***Garbage disposals***

Eliminating the use of a garbage disposal can reduce the amount of grease and solids entering the septic tank and possibly clogging the drainfield. A garbage disposal grinds up kitchen scraps, suspends them in water, and sends the mixture to the septic tank. Once in the septic tank, some of the materials are broken down by bacterial action, but most of the grindings have to be pumped out of the tank. Using a garbage disposal frequently can significantly increase the accumulation of sludge and scum in your septic tank, resulting in the need for more frequent pumping.



### ***Improper design or installation***

Some soils provide excellent wastewater treatment; others don't. For this reason, the design of the drainfield of a septic system is based on the results of soil analysis. Homeowners and system designers sometimes underestimate the significance of good soils or believe soils can handle any volume of wastewater applied to them. Many failures can be attributed to having an undersized drainfield or high seasonal groundwater table. Undersized septic tanks—another design failure—allow solids to clog the drainfield and result in system failure.

If a septic tank isn't watertight, water can leak into and out of the system. Usually, water from the environment leaking into the system causes hydraulic overloading, taxing the system beyond its capabilities and causing inadequate treatment and sometimes sewage to flow up to the ground surface. Water leaking out of the septic tank is a significant health hazard because the leaking wastewater has not yet been treated.

Even when systems are properly designed, failures due to poor installation practices can occur. If the drainfield is not properly leveled, wastewater can overload the system. Heavy equipment can damage the drainfield during installation which can lead to soil compaction and reduce the wastewater infiltration rate. And if surface drainage isn't diverted away from the field, it can flow into and saturate the drainfield.

# For more information

## Local Health Department

### EPA Onsite/Decentralized Management Homepage

[www.epa.gov/owm/septic](http://www.epa.gov/owm/septic)

EPA developed this Web site to provide tools for communities investigating and implementing onsite/decentralized management programs. The Web site contains fact sheets, program summaries, case studies, links to design and other manuals, and a list of state health department contacts that can put you in touch with your local health department.

### National Small Flows Clearinghouse

[www.nesc.wvu.edu](http://www.nesc.wvu.edu)

Funded by grants from EPA, the NSFC helps America's small communities and individuals solve their wastewater problems. Its activities include a Web site, online discussion groups, a toll-free assistance line (800-624-8301), informative publications, and a free quarterly newsletter and magazine.

### Rural Community Assistance Program

[www.rcap.org](http://www.rcap.org)

RCAP is a resource for community leaders and others looking for technical assistance services and training related to rural drinking water supply and wastewater treatment needs, rural solid waste programs, housing, economic development, comprehensive community assessment and planning, and environmental regulations.

### National Onsite Wastewater Recycling Association, Inc.

[www.nowra.org](http://www.nowra.org)

NOWRA is a national professional organization to advance and promote the onsite wastewater industry. The association promotes the need for regular service and educates the public on the need for properly designed and maintained septic systems.

## Septic Yellow Pages

[www.septicyellowpages.com](http://www.septicyellowpages.com)

The Septic Yellow Pages provides listings by state for professional septic pumpers, installers, inspectors, and tank manufacturers throughout the United States. This Web site is designed to answer simple septic system questions and put homeowners in contact with local septic system professionals.

## National Association of Wastewater Transporters

[www.nawt.org](http://www.nawt.org)

NAWT offers a forum for the wastewater industry to exchange ideas and concerns. The NAWT Web site lists state associations and local inspectors and pumpers.



EPA-832-B-02-005  
December 2002  
Revised March 2005

Additional copies can be obtained from:  
U.S. EPA Publications Clearinghouse  
P.O. Box 42419  
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Fax: 513-489-8695

Office of Water  
U.S. Environmental Protection Agency

### Notice

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# Septic System Dos and Don'ts

(adapted from National Small Flows Clearinghouse)

## Dos

- Check with the local regulatory agency or inspector/pumper if you have a garbage disposal unit to make sure that your septic system can handle this additional waste.
- Check with your local health department before using additives. Commercial septic tank additives do not eliminate the need for periodic pumping and can be harmful to the system.
- Use water efficiently to avoid overloading the septic system. Be sure to repair leaky faucets or toilets. Use high-efficiency fixtures.
- Use commercial bathroom cleaners and laundry detergents in moderation. Many people prefer to clean their toilets, sinks, showers, and tubs with a mild detergent or baking soda.
- Check with your local regulatory agency or inspector/pumper before allowing water softener backwash to enter your septic tank.
- Keep records of repairs, pumpings, inspections, permits issued, and other system maintenance activities.
- Learn the location of your septic system. Keep a sketch of it with your maintenance record for service visits.
- Have your septic system inspected and pumped as necessary by a licensed inspector/contractor.
- Plant only grass over and near your septic system. Roots from nearby trees or shrubs might clog and damage the drainfield.

## Don'ts

- Your septic system is not a trash can. Don't put dental floss, feminine hygiene products, condoms, diapers, cotton swabs, cigarette butts, coffee grounds, cat litter, paper towels, latex paint, pesticides, or other hazardous chemicals into your system.
- Don't use caustic drain openers for a clogged drain. Instead, use boiling water or a drain snake to open clogs.
- Don't drive or park vehicles on any part of your septic system. Doing so can compact the soil in your drainfield or damage the pipes, tank, or other septic system components.



# A Citizen's Guide to Understanding Stormwater



United States Environmental Protection Agency  
**EPA**

EPA 833-B-03-002

January 2003

Internet Address (URL): <http://www.epa.gov>  
Oil Based Inks on 100% Postconsumer Recycled Paper • Printed with Vegetable Process Chlorine Free Recycled Paper



## After the Storm

For more information contact:  
[www.epa.gov/nps/stormwater](http://www.epa.gov/nps/stormwater)  
or visit  
[www.epa.gov/nps](http://www.epa.gov/nps)



## What is stormwater runoff?



Stormwater runoff occurs when precipitation from rain or snowmelt flows over the ground. Impervious surfaces like driveways, sidewalks, and streets prevent stormwater from naturally soaking into the ground.

## Why is stormwater runoff a problem?



Stormwater can pick up debris, chemicals, dirt, and other pollutants and flow into a storm sewer system or directly to a lake, stream, river, wetland, or coastal water. Anything that enters a storm sewer system is discharged untreated into the waterbodies we use for swimming, fishing, and providing drinking water.

## The effects of pollution

Polluted stormwater runoff can have many adverse effects on plants, fish, animals, and people.

- ◆ Sediment can cloud the water and make it difficult or impossible for aquatic plants to grow. Sediment also can destroy aquatic habitats.
- ◆ Excess nutrients can cause algae blooms. When algae die, they sink to the bottom and decompose in a process that removes oxygen from the water. Fish and other aquatic organisms can't exist in water with low dissolved oxygen levels.
- ◆ Bacteria and other pathogens can wash into swimming areas and create health hazards, often making beach closures necessary.
- ◆ Debris—plastic bags, six-pack rings, bottles, and cigarette butts—washed into waterbodies can choke, suffocate, or disable aquatic life like ducks, fish, turtles, and birds.
- ◆ Household hazardous wastes like insecticides, pesticides, paint, solvents, used motor oil, and other auto fluids can poison aquatic life. Land animals and people can become sick or die from eating diseased fish and shellfish or ingesting polluted water.



- ◆ Polluted stormwater often affects drinking water sources. This, in turn, can affect human health and increase drinking water treatment costs.

# Stormwater Pollution Solutions

## Residential

Recycle or properly dispose of household products that contain chemicals, such as insecticides, pesticides, paint, solvents, and used motor oil and other auto fluids. Don't pour them onto the ground or into storm drains.

### Lawn care

Excess fertilizers and pesticides applied to lawns and gardens wash off and pollute streams. In addition, yard clippings and leaves can wash into storm drains and contribute nutrients and organic matter to streams.



- ◆ Don't overwater your lawn. Consider using a soaker hose instead of a sprinkler.
- ◆ Use pesticides and fertilizers sparingly. When use is necessary, use these chemicals in the recommended amounts. Use organic mulch or safer pest control methods whenever possible.
- ◆ Compost or mulch yard waste. Don't leave it in the street or sweep it into storm drains or streams.
- ◆ Cover piles of dirt or mulch being used in landscaping projects.

### Septic systems

Leaking and poorly maintained septic systems release nutrients and pathogens (bacteria and viruses) that can be picked up by stormwater and discharged into nearby waterbodies. Pathogens can cause public health problems and environmental concerns.



- ◆ Inspect your system every 3 years and pump your tank as necessary (every 3 to 5 years).
- ◆ Don't dispose of household hazardous waste in sinks or toilets.

### Auto care

Washing your car and degreasing auto parts at home can send detergents and other contaminants through the storm sewer system. Dumping automotive fluids into storm drains has the same result as dumping the materials directly into a waterbody.



- ◆ Use a commercial car wash that treats or recycles its wastewater, or wash your car on your yard so the water infiltrates into the ground.
- ◆ Repair leaks and dispose of used auto fluids and batteries at designated drop-off or recycling locations.

### Pet waste

Pet waste can be a major source of bacteria and excess nutrients in local waters.



- ◆ When walking your pet, remember to pick up the waste and dispose of it properly. Flushing pet waste is the best disposal method. Leaving pet waste on the ground increases public health risks by allowing harmful bacteria and nutrients to wash into the storm drain and eventually into local waterbodies.



Education is essential to changing people's behavior. Signs and markers near storm drains warn residents that pollutants entering the drains will be carried untreated into a local waterbody.

## Residential landscaping

**Permeable Pavement**—Traditional concrete and asphalt don't allow water to soak into the ground. Instead these surfaces rely on storm drains to divert unwanted water. Permeable pavement systems allow rain and snowmelt to soak through, decreasing stormwater runoff.

**Rain Barrels**—You can collect rainwater from rooftops in mosquito-proof containers. The water can be used later on lawn or garden areas.



**Rain Gardens and Grassy Swales**—Specially designed areas planted with native plants can provide natural places for



rainwater to collect and soak into the ground. Rain from rooftop areas or paved areas can be diverted into these areas rather than into storm drains.

**Vegetated Filter Strips**—Filter strips are areas of native grass or plants created along roadways or streams. They trap the pollutants stormwater picks up as it flows across driveways and streets.

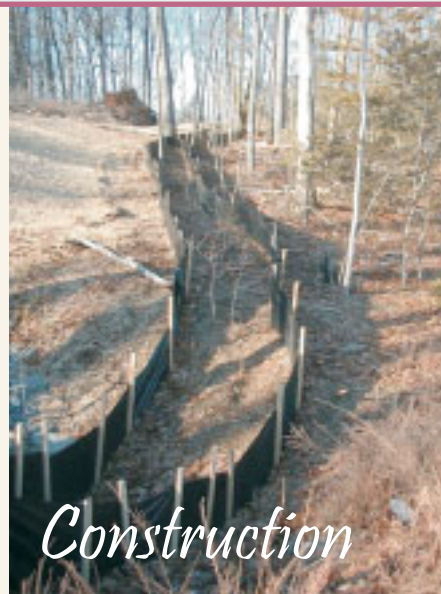
## Commercial

Dirt, oil, and debris that collect in parking lots and paved areas can be washed into the storm sewer system and eventually enter local waterbodies.

- ◆ Sweep up litter and debris from sidewalks, driveways and parking lots, especially around storm drains.
- ◆ Cover grease storage and dumpsters and keep them clean to avoid leaks.
- ◆ Report any chemical spill to the local hazardous waste cleanup team. They'll know the best way to keep spills from harming the environment.

Erosion controls that aren't maintained can cause excessive amounts of sediment and debris to be carried into the stormwater system. Construction vehicles can leak fuel, oil, and other harmful fluids that can be picked up by stormwater and deposited into local waterbodies.

- ◆ Divert stormwater away from disturbed or exposed areas of the construction site.
- ◆ Install silt fences, vehicle mud removal areas, vegetative cover, and other sediment and erosion controls and properly maintain them, especially after rainstorms.
- ◆ Prevent soil erosion by minimizing disturbed areas during construction projects, and seed and mulch bare areas as soon as possible.



## Construction

## Agriculture

Lack of vegetation on streambanks can lead to erosion. Overgrazed pastures can also contribute excessive amounts of sediment to local waterbodies. Excess fertilizers and pesticides can poison aquatic animals and lead to destructive algae blooms. Livestock in streams can contaminate waterways with bacteria, making them unsafe for human contact.

- ◆ Keep livestock away from streambanks and provide them a water source away from waterbodies.
- ◆ Store and apply manure away from waterbodies and in accordance with a nutrient management plan.
- ◆ Vegetate riparian areas along waterways.
- ◆ Rotate animal grazing to prevent soil erosion in fields.
- ◆ Apply fertilizers and pesticides according to label instructions to save money and minimize pollution.

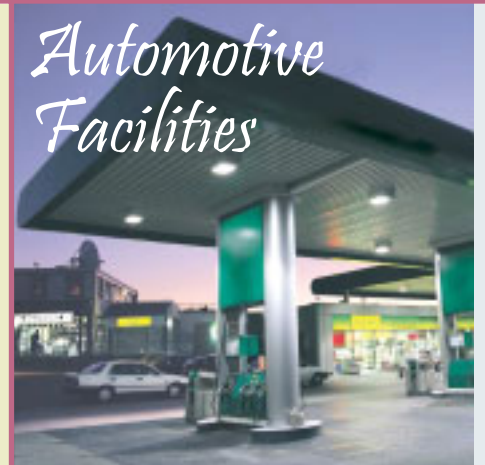


## Forestry

Improperly managed logging operations can result in erosion and sedimentation.

- ◆ Conduct preharvest planning to prevent erosion and lower costs.
- ◆ Use logging methods and equipment that minimize soil disturbance.
- ◆ Plan and design skid trails, yard areas, and truck access roads to minimize stream crossings and avoid disturbing the forest floor.
- ◆ Construct stream crossings so that they minimize erosion and physical changes to streams.
- ◆ Expedite revegetation of cleared areas.

## Automotive Facilities



Uncovered fueling stations allow spills to be washed into storm drains. Cars waiting to be repaired can leak fuel, oil, and other harmful fluids that can be picked up by stormwater.

- ◆ Clean up spills immediately and properly dispose of cleanup materials.
- ◆ Provide cover over fueling stations and design or retrofit facilities for spill containment.
- ◆ Properly maintain fleet vehicles to prevent oil, gas, and other discharges from being washed into local waterbodies.
- ◆ Install and maintain oil/water separators.

## Use your Purchasing Power to Reduce Water Pollution

Although natural cleaning alternatives are preferred, if you choose to purchase boat cleaning products, please take time to read product labels. Labels convey information about the degree of hazard associated with a particular product.

### When it comes to warning labels, be an informed consumer.

<b>DANGER/POISON</b>	Extremely flammable, corrosive, or toxic.
<b>WARNING</b>	Indicates a material is moderately hazardous.
<b>CAUTION</b>	A less hazardous product. Between the warning labels choose this one.

### Choose products that are: **Phosphate Free**

Products containing phosphates spur algae growth, depleting oxygen and killing fish.

### **Chlorine Free**

Products that contain chlorine are toxic to lake ecosystems.

### **Biodegradable**

The product will breakdown over time into harmless materials.

### **Non-toxic**

Non-toxic products will only cause damage in very large amounts.

Please remember, all detergents ruin the protective external mucus layers of fish leaving them susceptible to bacteria and parasites. Cleaners also cause damage to the gills hindering respiration, and can kill both eggs and the fish themselves depending upon the concentrations.

Additionally, the use of cleaners with phosphates can cause excessive algae growth in our waterways. Phosphates fertilize the algae to the point where it grows out of control resulting in a resurgence of algae blooms. Excessive algae blooms are a nuisance to boaters and swimmers who must navigate and recreate in large green blobs of goop.



The Boater Bundle Series a publication of:

Tip of the Mitt Watershed Council  
426 Bay Street, Petoskey, MI 49770  
Phone: (231) 347-1181  
[www.watershedcouncil.org](http://www.watershedcouncil.org)



# Keep It Clean

Alternative cleaning products and practices for boaters.



BOATER BUNDLE SERIES



Be part of  
the solution.

Be a Clean  
Boater.

Use natural alternatives  
for cleaning your boat.

IF YOU TRAILER, avoid cleaning at  
slip or dockside. Clean your boat  
on grass or gravel when possible.

### Ways YOU can Keep It Clean:

- If you have to clean your boat while it's still in the water, **DO NOT** dispose of cleaning products by dumping them overboard or discharging overboard with a bilge pump.
- Wash your boat frequently with plain water.
- If you use detergents, use phosphate-free and biodegradable cleaners sparingly to minimize discharge into water.
- If appropriate, wax your boat. A good coat of wax prevents surface dirt from becoming ingrained.

## Natural Cleaning Alternatives for Boaters

When you clean your boat, cleaning products may end up in the water. You can minimize environmental impacts by using the following simple household alternatives. ALWAYS be sure to use any cleaning product sparingly to minimize the amount that discharges into the water.

### SURFACE

### ALTERNATIVE CLEANER

General

Baking soda and vinegar or lemon juice with borax paste

Fiberglass

Baking soda and salt

Aluminum

1 Tbsp cream of tartar in half liter of hot water

Brass

Worcestershire sauce or vinegar, salt, and water solution

Chrome

Vinegar and salt solution

Copper

Lemon juice and water or lemon juice, salt and flour

Clear Plastic

1 part vinegar to 2 parts water

Mildew

White vinegar and salt solution or scrub with borax/water

Shower

Wet the area, apply baking soda and wipe

Toilet

Baking Soda or vinegar

Windows

1 part vinegar to 2 parts water

Wood Trim

Polish with olive, walnut or almond oil

Chrome/  
Metal

Apply cider vinegar to clean, baby oil to polish

Stainless  
Steel

Baking soda or mineral oil to polish, vinegar to remove spots

Bleaching

Borax

Scouring

Baking soda

Rug/  
Upholstery

Sprinkle with dry corn starch and vacuum

These tips can be used in  
your home or cottage too.

Follow these tips to help keep our waters clean and inviting.



Eurasian Watermilfoil

## STOP THE INVASION

### Help prevent the spread of Aquatic Invasive Species

These nonnative species often have no natural predators to limit their spread, enabling them to outcompete native species and, in the process, disrupt entire ecosystems.

Over 185 nonnative species are already established in the Great Lakes and connecting waterways.



Zebra Mussels

Asian Carp



- Remove visible mud, plants, fish, or animals from your boat, trailer, and other equipment (anchor, centerboards, props, etc.) before leaving the water body.
- Drain all water from live wells, bilges, motor, transom, and other containers before leaving launch area.
- Wash your boat, trailer, and equipment thoroughly with hot water (120 - 140°F) to remove plants and organisms that were not visible at the boat launch.
- Allow your boat to dry for a minimum of five days in a sunny location before transferring into a new body of water.
- Do not release live bait into any waters. Discard fish waste in the trash.

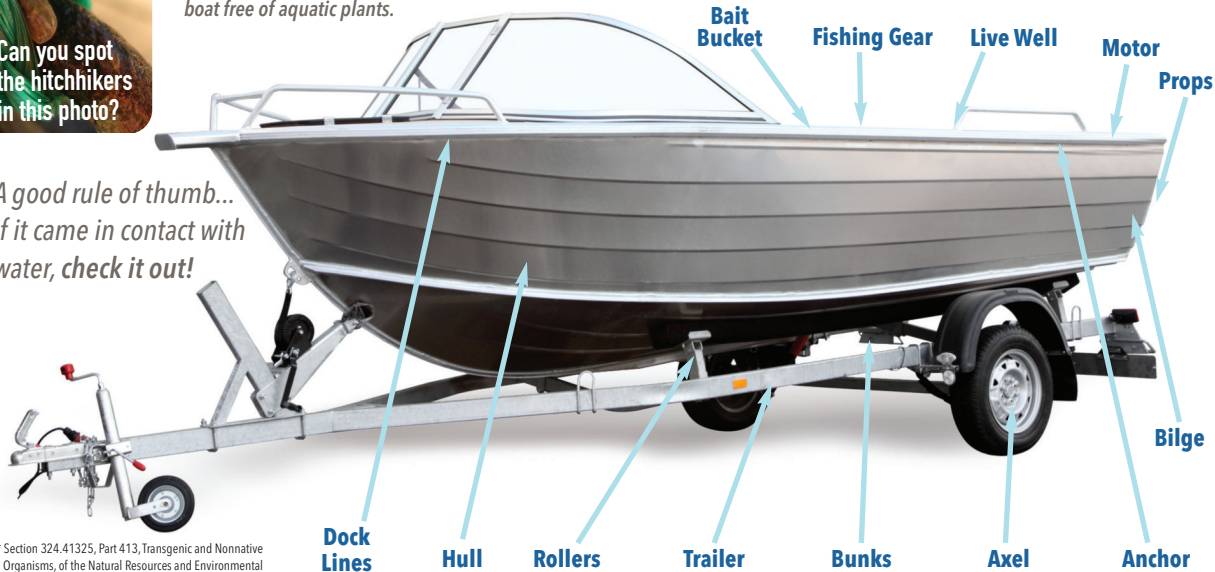
## Inspect everything before entering the water and before leaving the boat launch.

Michigan State Law\* requires you to keep your boat free of aquatic plants.

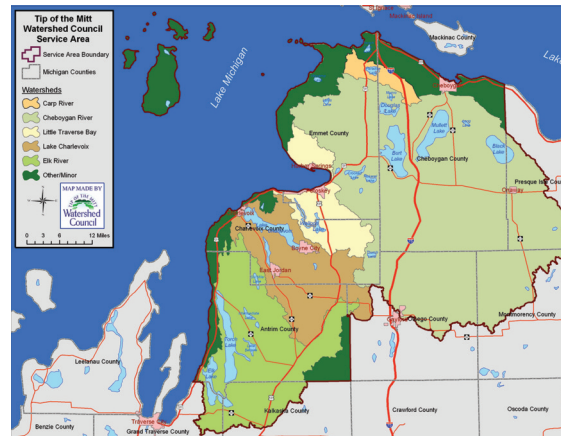


Can you spot the hitchhikers in this photo?

A good rule of thumb... if it came in contact with water, check it out!



\* Section 324.41325, Part 413, Transgenic and Nonnative Organisms, of the Natural Resources and Environmental Protection Act, Act 451 of 1994 as amended.



### Our Service Area

Our service area includes the watersheds of the lakes in Antrim, Charlevoix, Cheboygan, and Emmet Counties. We are dedicated to preserving the heritage of Northern Michigan - a tradition built around our magnificent waters.

# Clean Boating

Boating practices to protect Northern Michigan's waters.



www.watershedcouncil.org

- facebook.com/watershedcouncil
- instagram.com/tipofthemittwatershed
- watershedcouncil.org/news--resources
- 231-347-1181

Tip of the Mitt Watershed Council  
426 Bay Street  
Petoskey, MI 49770



Protecting Northern Michigan's water resources since 1979

www.watershedcouncil.org

Learn more about invasive species at [www.watershedcouncil.org/aquatic-invasive-species](http://www.watershedcouncil.org/aquatic-invasive-species)



*Even detergents labeled "environmentally friendly" and "nontoxic" may contain ingredients harmful to aquatic organisms.*

## Keeping it Clean

The use of cleaners with phosphates can cause excessive algae growth in our waterways. Algal blooms lower oxygen levels causing harm to aquatic plants and marine life.

- Wash your boat frequently with fresh water. Rinsing after each use will reduce the need for cleansers and will extend the life of the protective coating.
- Use phosphate-free, biodegradable, and nontoxic cleaners sparingly to minimize the amount discharged into the water.
- Wash your boat on land in an area that allows for infiltration of wash water back into the ground, such as gravel or grass.



**A list of alternative cleaning products for boaters is available on our website.**

[watershedcouncil.org/clean-boating](http://watershedcouncil.org/clean-boating)



*A single quart of oil can cover a water surface area equivalent to nearly three football fields!*

## Be Astute – Don't Pollute!

The discharge of oil from the bilge, motors, careless fueling habits, and improper disposal of used oil may significantly contribute to the pollution of our waters.

### When Fueling

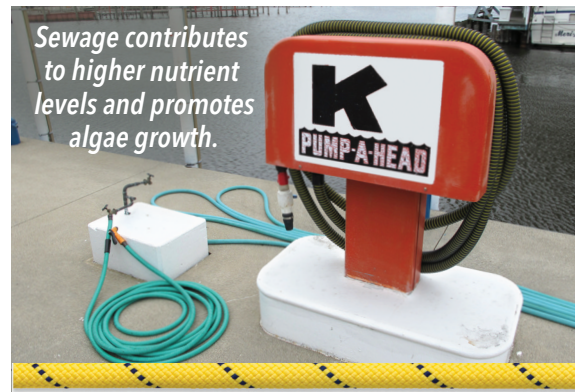
- Fill tanks no more than 90% – gas that is drawn from cool storage tanks expands as it warms up.
- Use an oil absorbent pad to catch drips from the fuel intake and the vent overflow.
- If a spill of fuel or oil does occur, wipe up the spill with a rag. Do not use detergent or soap to clean up a spill! It causes the oil to break up and sink to the lake floor where it becomes more toxic and difficult to clean up.

### Controlling the Bilge

- Keep your engine well tuned to minimize the amount of oil that is released.
- Place oil absorbent material or bio-remediating bilge boom in the bilge.
- Put an oil absorbent pad under the engine.
- Replace oil absorbent materials regularly.
- Consider installing a bilge oil filter or oil/water separator in your bilge discharge line.



**By law, any oil or fuel spill that leaves a sheen on the water must be reported. If a spill occurs, notify your marina for assistance and call the U.S. Coast Guard National Response Center at 1-800-424-8802.**



*Sewage contributes to higher nutrient levels and promotes algae growth.*

## Use Your Head

Anyone who spends a day on the water knows the call of nature is a regular part of any boating experience. Raw or poorly treated boat sewage is harmful to human health, aquatic life, and water quality.

- Never discharge raw sewage into the waterways.
- Pump out and rinse holding tanks regularly.
- Avoid holding tank additives that contain formaldehyde, formalin, phenol derivatives, ammonia compounds, alcohol bases, or chlorine bleach. Use safer enzyme-based products.
- Use restrooms on shore if possible.

## Boat Maintenance

When doing repairs or maintenance on your boat, avoid having a negative impact on our waters.

- Always sand and scrape your boat on shore and away from the water.
- Collect all paint chips, dust, and residue and properly dispose of them in the trash.
- Use caution with anti-fouling paints for the hull. Most contain toxic chemicals such as copper, mercury, and arsenic.



*Trash can entrap wildlife and cause serious harm or death if ingested.*

## Remove and Recycle

Trash tossed or blown overboard, left on the beach or dockside is not only ugly, but also poses a hazard to humans and wildlife. Floating debris and solid objects may result in structural damage to boats or mechanical failures. Trash can entrap aquatic wildlife or be ingested causing harm or death to the animals that may eat it.

- Whatever you take aboard, bring back.
- Contain trash. Do not let trash get thrown or blown overboard and if it does, retrieve it and dispose of it properly ashore.
- Do not toss cigarette butts overboard.
- Purchase refreshments in recyclable containers and recycle them.
- Recycle used oil, oil filters, antifreeze, and batteries.
- Recycle used monofilament fishing line at your marina or tackle shop.



*According to the U.S. Coast Guard, recreational boaters dispose of approximately 422,000 tons of garbage into U.S. waters annually.*

## Zebra Mussels



Photo Courtesy of Michigan Sea Grant



# A Boater's Guide to Good Environmental Stewardship

## Stop the Invasion

### What YOU can do to stop the spread of aquatic invasive species:

- Remove visible mud, plants, fish, or animals from your boat, trailer, or other equipment before leaving the water body.
- Drain all water from live wells, bilges, motor, transom, and other containers before leaving launch area.
- Wash your boat, trailer, and equipment thoroughly with hot tap water, if possible, to remove plants and organisms that were not visible at the boat launch.
- Allow your boat to dry for minimum of five days in a sunny location before transferring into a new body of water.
- Do not release live bait or aquarium pets into any waters.
- Discard fish waste in the trash.

For more information about invasive species, please contact Tip of the Mitt Watershed Council.

While boaters individually may only contribute a small portion of the overall pollution entering our waters, **the cumulative impacts of the 4.3 million registered boaters in the Great Lakes Basin can be considerable.** It is important to recognize the potential negative impacts boaters can have on upon our Great Lakes ecosystem.

By making the simple changes to your boating routine outlined in this brochure, you can contribute to clean water and a healthy, vibrant fish and wildlife community that will enhance the boating experience for years to come.

**Be part of the solution.**

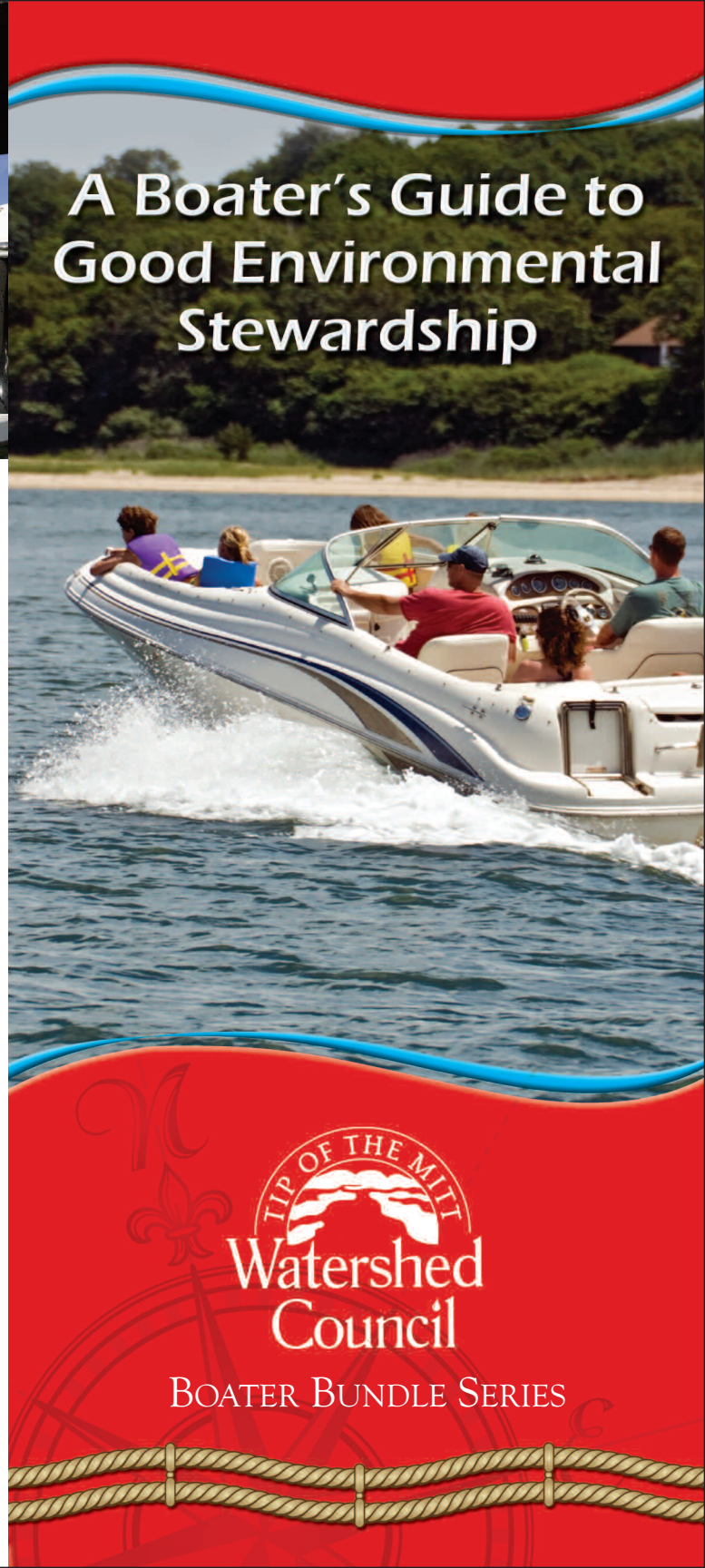
**Be a Clean Boater.**



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## Eurasian Watermilfoil

Photo Courtesy of Michigan Sea Grant



## VHS

Photo Courtesy of Mohamed Faisal, Michigan State University



TIP OF THE MITT  
Watershed  
Council

BOATER BUNDLE SERIES

Boaters can do many things to lessen their impact on the environment and serve as good stewards for our precious recreational resources. Be a responsible boater and follow the steps outlined below to protect our waters. The small, extra effort required to practice clean boating makes sense for your family's health and safety, for the environment, and for the future of recreational boating.



## Keep It Clean

### What YOU can do:

- Wash your boat frequently. Rinse frequently to reduce the need for cleansers, help stop marine growth, and extend the life of the protective coating.
- Use alternative cleaning products. Use baking soda, vinegar, lemon juice, and borax. Although these are far less harmful than bleaches, scouring products, and detergents, they may still be harmful to marine life. Use all cleaning products sparingly to minimize the amount discharged into the water.
- Use phosphate-free, biodegradable cleaners. If you use detergents, use them sparingly.
- Avoid cleaning your boat in the slip or dockside. Wash your boat on land in an area that allows for infiltration of wash water, such as gravel or grass.
- Dispose of all cleaning products on shore. Never dispose of cleaning products by dumping overboard or discharging overboard with a bilge pump. Take ashore and dispose of properly.

## Be Astute - Don't Pollute!

### What YOU can do:

#### FUELING

- Fill your tank just before leaving on a trip.
- Fuel on land whenever possible.
- Fill tanks no more than 90%. Gas drawn from cool storage tanks expands as it warms up. Listen to the filler pipe to anticipate when the tank is almost full.
- Use an oil absorbent pad to catch drips from the fuel intake and the vent overflow.
- Do not use detergent or soap to clean up a spill! It causes the oil to break up and sink to the lake floor where it becomes more toxic and more difficult to clean up. If a spill of fuel does occur, wipe the spill with an oil absorbent material and dispose of properly.

#### CONTROLLING THE BILGE

- Keep your engine well tuned to minimize the amount of oil that is released.
- Place oil absorbent material or bio-remediation bilge boom in the bilge.
- Place an oil absorbent pad under the engine.
- Replace oil absorbent materials regularly.
- Consider installing a bilge oil filter or oil/water separator in your bilge discharge line.



**By law, any oil or fuel spill that leaves a sheen on the water must be reported.**

If a spill occurs, notify your marina for assistance and call the U.S. Coast Guard National Response Center at 1-800-424-8802.

## Use Your "Head"

### What YOU can do:

- Never discharge raw sewage into waterways.
- Pump out and rinse holding tanks regularly.
- Avoid holding tank additives that contain formaldehyde, formalin, phenol derivatives, ammonia compounds, alcohol bases, or chlorine bleach - use safer enzyme-based products.
- Use restrooms on shore if possible.

## Boat Maintenance Over "hulling"

### What YOU can do:

- Always sand and scrape your boat on shore and away from the water.
- Collect all paint chips, dust, and residue and properly dispose of them in the trash.
- Use caution with anti-fouling paints for the hull - most contain toxic chemicals such as copper, mercury, and arsenic.

## Remove and Recycle

### What YOU can do:

- Whatever you take aboard, bring back.
- Contain trash - do not let trash get thrown or blown overboard and if it does, retrieve it and dispose of it properly ashore.
- Do not toss cigarette butts overboard.
- Purchase refreshments in recyclable containers and recycle them.
- Recycle used oil, oil filters, antifreeze, and batteries.
- Recycle used monofilament fishing line at your marina or tackle shop.

Every time you are on the water, remember to

# CLEAN. DRAIN. DRY.

[www.watershedcouncil.org/clean-boating](http://www.watershedcouncil.org/clean-boating)

## ASIAN CARP ALERT!

### Do you know what's in your bait bucket?

Bait can be transported across state lines, including from areas with breeding populations of Asian carp. Unfortunately, this means that it is possible for juvenile carp to get into the bait supply.

Juvenile Asian carp look remarkably similar to common bait fish. An accidental release could have dire consequences for our aquatic ecosystem and boater safety. Asian carp can reproduce at staggering rates and grow quickly, rapidly consuming food sources valuable to other species. Here's what to watch for in your bait bucket!

### COMMON BAIT



Golden Shiner



Spottail Shiner



Emerald Shiner



Gizzard Shad

### ASIAN CARP Juveniles



Very small scales

Eyes set at mid-line or below

Silver Carp



Down-turned mouths

Bighead Carp

### Key identifying features for juvenile Asian carp:

- Very small scales
- Eyes set at mid-line or below the middle of the body
- Down-turned mouth (frowning)

**NEVER throw live bait back into the water.**

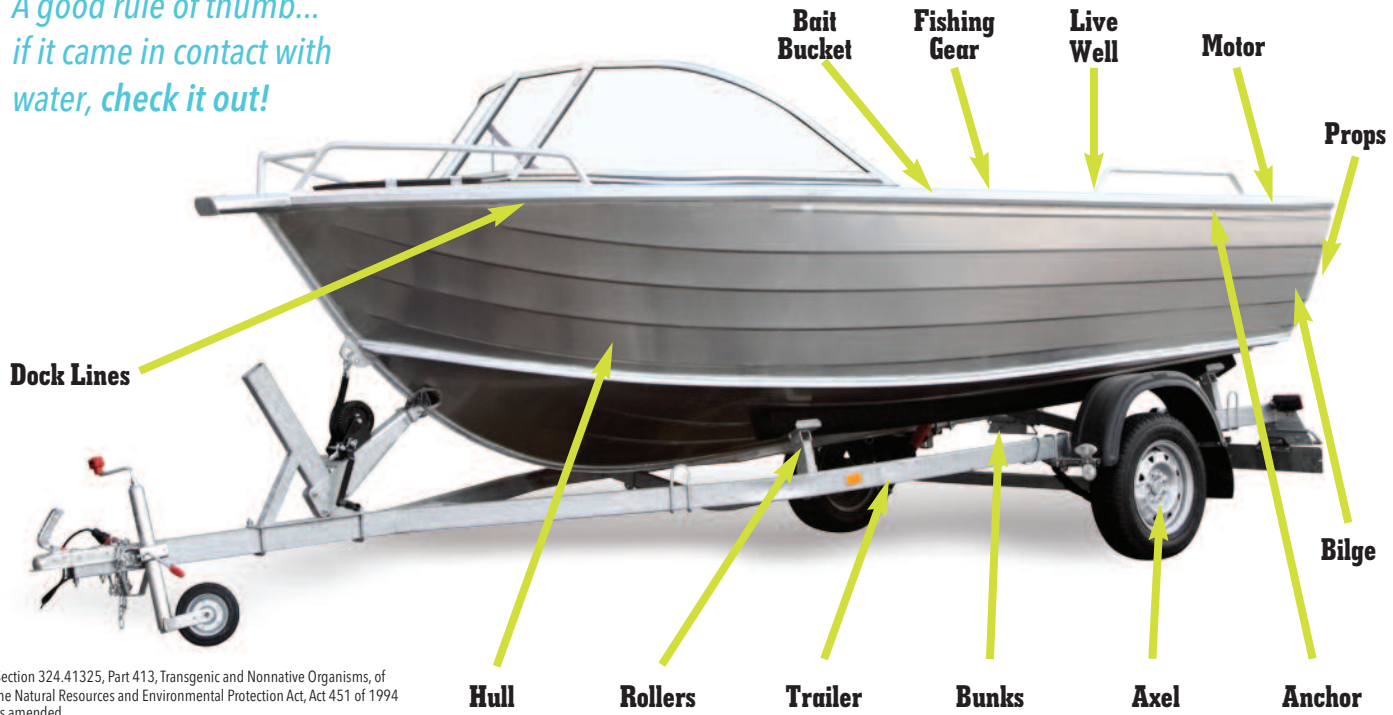


# Inspect Everything!

**Michigan State Law\*** requires you to keep your boat free of aquatic plants.

Be sure to check the following areas **before launching** and **before leaving** the launch site.

*A good rule of thumb...  
if it came in contact with  
water, check it out!*



\* Section 324.41325, Part 413, Transgenic and Nonnative Organisms, of the Natural Resources and Environmental Protection Act, Act 451 of 1994 as amended.

## CLEAN.

Remove visible mud, plants, fish or animals from your boat, trailer, or other equipment before leaving the water body. If possible, wash your boat, trailer, and equipment thoroughly with hot water.

## DRAIN.

Drain all water from live wells, bilges, motors, transoms, and other containers before leaving launch area.

## DRY.

Allow your boat to dry for a minimum of five days in a sunny location before transferring into a new body of water.

### Need more information?

Tip of the Mitt Watershed Council offers a wide variety of materials, many available for immediate download at: [www.watershedcouncil.org](http://www.watershedcouncil.org)



# STOP THE INVASION

Tips for Preventing the Spread of Aquatic Invasive Species



[www.watershedcouncil.org](http://www.watershedcouncil.org)

### The Threat is Real. Prevention is Easy!

Boats, trailers, waders and other fishing and boating equipment can spread aquatic invasive species from waterbody to waterbody unless properly cleaned, drained and dried after use. Although some invasive species such as Eurasian Water-milfoil are visible to the human eye, many others are too small to be noticed.

To help you avoid spreading invasive species we've put together this handy pocket card. By following the tips outlined here you will help protect our waters and enhance your boating experience for years to come.



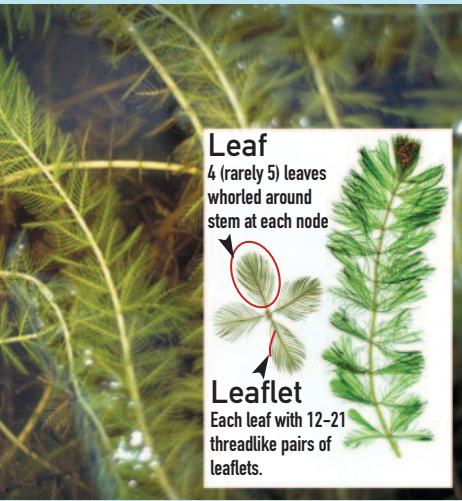
For more information, visit [www.watershedcouncil.org](http://www.watershedcouncil.org)

A boating trip may last a day, but invasive species may last in your lake forever.



This message brought to you in partnership by Tip of the Mitt Watershed Council and the Little Traverse Bay Bands of Odawa Indians Natural Resources Department. Working together to prevent the introduction and spread of aquatic invasive species throughout Northern Michigan.

[www.ltbodawa-nsn.gov/NRD/NRD.html](http://www.ltbodawa-nsn.gov/NRD/NRD.html)



## EURASIAN WATERMILFOIL

*Myriophyllum spicatum*

This submergent aquatic perennial reaches 3-10 ft. or more in length and forms dense mats that can interfere with water recreation such as boating, fishing, and swimming. The plant's floating canopy can also crowd out important native water plants.

A key factor in the plant's success is its ability to reproduce through stem fragmentation and runners. A single segment of stem and leaves can take root and form a new colony. Fragments clinging to boats and trailers can spread the plant from lake to lake.

### Key Identifying Features:

- 4 (rarely 5) leaves whorled around stem at each node
- Each leaf has 12-21 threadlike pairs of leaflets
- Leaves have a "fish bone" appearance with a clipped tip.

## ROUND GOBY

*Neogobius melanostomus*

Round gobies are native to Europe, specifically the Black and Caspian Seas. They were introduced to the Great Lakes region in the St. Clair River through ballast tanks of ships.

Round gobies have rapid reproduction rates and can spawn several times in a season, allowing them to establish large populations and outcompete native species.

Round gobies are typically 3-6 inches long and have robust tapered bodies. They have frog-like eyes near the top of their head, spineless dorsal fins, and the front dorsal fin has a dark spot at the posterior base. Round gobies have a fused pelvic fin that is scallop shaped.

### Key Identifying Features:

- Fused pelvic fin
- Frog-like eyes near top of head
- Dark spot on front dorsal fin



Round Gobies have a fused, scallop-shaped pelvic fin. Sculpin, a close look-alike to the round goby, have two separate pelvic fins.



## CURLY LEAF PONDWEED

*Potamogeton crispus*

Curly Leaf Pondweed is a submergent aquatic perennial that ranges from 1-2.5 ft. in length. Leaves may be green or reddish brown. It can thrive in still and flowing water and tolerates slightly brackish water. It grows rapidly in spring, forming dense mats that shade our native vegetation.

The leaves are somewhat stiff and crinkled, approximately 1/2-inch wide and 2 to 3 inches long. The leaves are arranged alternately around the stem and become more dense toward the end of branches.

### Key Identifying Features:

- Small "teeth" visible along edge of leaf
- Leaves are relatively stiff for aquatic plants
- Leaves have ruffled edges resembling a lasagna noodle



## Be on the look-out for these AQUATIC INVADERS

The Great Lakes ecosystem has been severely damaged by more than 180 invasive and non-native species. Aquatic invaders can have profound and lasting impacts on our ecosystem. The damage caused by invasive species also has the potential to go beyond the ecological. They can threaten human health and our economy by damaging critical industries such as fisheries and tourism.

Free from natural predators, invasive species reproduce rapidly in their new homes and compete with native species for food and habitat. They disrupt the aquatic food web by reducing food for native species or by preying directly upon native species. Once established, it is difficult to control the spread of invasive species.

Prevention is the most cost-effective approach to dealing with invasive species that have not yet entered or become established in Northern Michigan's water resources. You can help by following the simple guidelines on the back of this brochure every time you enjoy our lakes, rivers, and streams.



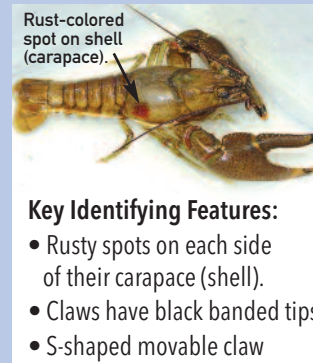
Learn more about these and other invasive species at [www.watershedcouncil.org/clean-boating](http://www.watershedcouncil.org/clean-boating)

## RUSTY CRAYFISH

*Orconectes rusticus*

Rusty crayfish can be identified by their robust claws, and by dark, rusty spots on each side of their carapace. The spots are located on each side of their shell as though you picked up the crayfish with paint on your forefinger and thumb. Adults are generally 3-5 inches long. They have large claws with black bands near the tips. The moveable claw has an S-shape.

Being an aggressive species, the rusty crayfish often displaces native or existing crayfish species. Rusty crayfish also reduce aquatic plant abundance and species diversity.



### Key Identifying Features:

- Rusty spots on each side of their carapace (shell).
- Claws have black banded tips
- S-shaped movable claw



Star-shaped bulbils are 3-6 mm wide.

### Key Identifying Features:

- Star-shaped bulbils in late fall and early spring
- Passes the "Squeeze Test"
- Lacks a musky or garlic odor like native Chara (Muskgrass)

## QUAGGA MUSSELS

*Dreissena bugensis*

Quagga mussels are a freshwater mollusk reaching up to 1.5" in length. Similar in appearance and size to the zebra mussel (*Dreissena polymorpha*), the quagga mussel, when placed on a surface, fall over as they lack a flat underside (hinged side), while zebra mussels are stable on their flattened hinge side. Quagga mussel shells are also rounder, lack ridges, and usually have dark concentric rings, yet are paler in color near the hinge than zebra mussels. Quagga mussels are commonly found in waters more than 90 ft. deep and can live directly on a muddy or sandy bottom.

Both quagga and zebra mussels are filter feeders that can remove substantial amounts of phytoplankton from the water. They create competition for native species and can also change the chemical composition of the water increasing the risk of eutrophication.

### Quagga Mussel

Asymmetrical shape



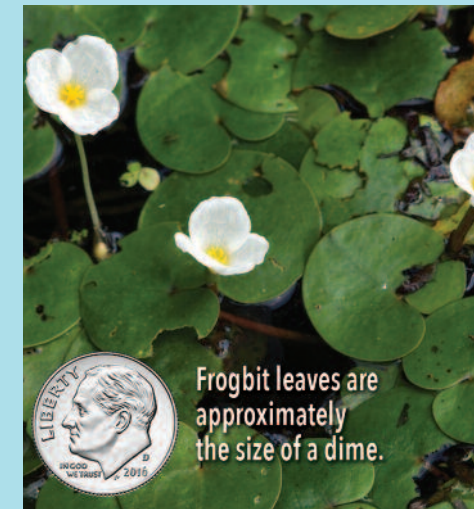
Lacks ridges

### Zebra Mussel

Triangular shape



Can stand on flattened hinge side.



Frogbit leaves are approximately the size of a dime.

## EUROPEAN FROGBIT

*Hydrocharis morsus-ranae*

European frogbit is a free-floating aquatic plant that can quickly choke ponds, marshes, ditches, and edges of lakes. Dense layers of interlocking plants and dangling roots can interfere with swimming, boating, fishing, and waterfowl hunting. It can spread by clinging to watercraft, trailers, and equipment. Eradicating established populations is nearly impossible.

### Key Identifying Features:

- Resembles a small water lily, but much smaller in size
- The 1/2 inch leaves are smooth, leathery, and have heart-shaped bases
- Flower has 3 symmetrical white petals with yellow center
- Leaves all originate from the base of the plant