

Glen Lake-Crystal River Watershed

Stewardship Checklist

Preserving Our Watershed

Now and for Future Generations

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*Preserving Our Watershed
Now and For Future Generations*

By Sarah Litch

In collaboration with
members of the Glen Lake Association

Simple choices can make a difference both now and for future generations in the Glen Lake-Crystal River Watershed.

We are the stewards of this place, its land and water, its dunes and fauna, and its beauty. If the 1,800 landowners in our watershed chose and carried out a single action from the stewardship checklist, we could make a great deal of difference in the quality of our watershed now and for our children, and their children. If we each choose many actions the “ripple of stewardship” would extend throughout the watershed.

This stewardship checklist translates what we know to be good for our neighbors, our lake and river, and our watershed into action. Many of you have as part of your daily living routine some of these actions. Others you may have never heard of, and some you may never do or need to do.

Use them as a guide for the protection of this place that we all love and cherish. The best way to deal with the degradation of our watershed is to prevent it from happening. Accomplishment of this goal will depend on your ability in two areas. One, you need to know what threatens our watershed. Two, you need to know what techniques and resources are available to prevent this from happening. Belief and knowledge without action is another “book upon your bookshelf.” Take action. Check off “I do this” and then consider the things you need to do now and in the future.

(Checklists can be cut out of the book and posted in appropriate locations such as: inside kitchen, bathroom, laundry cupboards and inside shed, garage, and boathouse doors as reminders of your stewardship actions.)

Glen Lake-Crystal River Watershed Stewardship Checklist

Rationale.....	1
Your Watershed.....	3
▪ Getting to Know Your Watershed	
Garden Shed and Out in the Yard.....	4
▪ Viewscape Protection	
▪ Impervious Surfaces and Storm Drains	
▪ Landscaping, Lawncare, and Stormwater Run-off	
Well and Septic.....	7
▪ Well Water Safety	
▪ Hazardous Wastes	
▪ Septic System Maintenance	
Lake, River and Streamside.....	9
▪ Aquatic Plants, Cladophora, and other Algae Problems	
▪ Erosion Control, Shoreline Stabilization, and Naturalization	
▪ Wetlands	
Water Recreation.....	11
▪ Fecal Bacteria and Parasites	
▪ Swimmer's Itch	
▪ Fish Habitat and Fishing	
▪ Introduction of Invasive Species	
▪ Recreation and Watercraft Use	
▪ Safety	
Kitchen, Laundry, and Bathrooms	15
▪ Conserving Water	
▪ Protecting Your Septic System and Well	
Watershed Friendly Alternatives for Home and Yard	16
At The Market.....	17
▪ Reduce, Reuse and Recycle	
▪ Hazardous Household Chemicals Alternatives	
▪ Support of Local Agriculture	
Checklist Resources.....	18

***All actions have been reviewed by the Glen Lake Association Science Resource Panel**

Glen Lake-Crystal River Watershed Stewardship

Your Watershed

Action Checklist for Getting To Know Your Watershed <i>Handbook pp. 4-6, 12-13 &27-29</i>	I have done this	Things to do
Locate your house on the watershed map. (Handbook, page 28-29)		
Familiarize yourself with the watershed boundary nearest your home. Think about walking to the highest point of our watershed nearest you.		
Imagine that everyone else has walked to the highest point of our watershed nearest them. Now we all join hands. We have outlined our watershed!		
Imagine that someone is building a house in our watershed. Think about what is going to impact the watershed from this house.		
Imagine that you are raindrops or snow, traveling as run-off or ground water to Glen Lake or the Crystal River.		
Imagine you see erosion or contamination of the land or in water running down the hill that may be affecting the water quality of Glen Lake and/or the Crystal River.		
Walk to the top of the watershed somewhere along its boundary and instead of “imagining” actually take a walk down the hillside from a high point in our watershed.		
Look for impervious surfaces on your walk. Imagine what will happen to the water when it hits these surfaces.		
On your walk compare the number of areas that have trees, shrubs, and other vegetation to absorb water travelling down our watershed with those areas that have impervious surfaces.		

Glen Lake-Crystal River Watershed Stewardship

Garden Shed And Out in the Yard

Action Checklist for Viewscape Protection <i>Handbook p. 26</i>	I do this	Things to do
1. Keep as many trees and shrubs around buildings to screen visibility from the lake and river as possible.		
2. Cut as few trees as possible and protect root systems of existing trees and shrubs.		
3. When pruning trees for a view, trim a minimum of branches, testing the view as you go.		
4. Keep outdoor lighting low and to a minimum.		
5. Select paints and stains such as natural tones of brown, green, and gray in shades that are consistent with surroundings.		
6. Avoid reflective materials or surfaces.		
7. When building consider how the height, design and color of your house and other buildings will blend with the property size and other's view from the lake or river.		

Action Checklist for Impervious Surfaces and Storm Drains <i>Handbook pp.18-19 & 32-33</i>	I do this	Things to do
1. Construct driveways, patios and paths of pervious materials such as crushed stone, flagstone, pervious cement or wood chips.		
2. Divert runoff from driveways, roof gutters, roads and other impervious surfaces away from the lake and river and into grass and vegetation to soak into the ground. Splash blocks also help reduce erosion.		
3. Do not put anything down storm drains.		
4. Replace concrete or asphalt channels with vegetated lined ditches, and depending on the slope, add erosion control material.		

Action Checklist For Landscaping, Lawncare, and Stormwater Run-off <i>Handbook pp. 14-17, 19-21, 6-33, & 47 Checklist Resource pages 18 &21</i>	I do this	Things to do
1. Preserve a 20-35 foot natural green buffer of native shrubs, trees, natural grasses, and groundcover around wetlands, creeks, river and lake. Ideally it should cover 75% of your shoreline or river frontage. A shoreline vegetation strip will: help filter nutrients, toxic substances and other pollutants, hold the soil in place preventing shoreline erosion, and reduce nutrient pollution by drawing up the by-products of septic system wastes.		
2. Use a setback of at least 100 feet back from the shore or river for structures.		

3. Use native species grasses, plants, shrubs and trees with deep roots near water line.		
4. Preserve natural cover and forest stands.		
5. Choose grass species appropriate to northern Michigan, which do not need fertilizers and irrigation.		
6. Consider groundcover instead of lawn.		
7. Pump nutrient-rich lake or river water to irrigate. Nutrients in the lake or river can be utilized by grass, shrubs, trees and plants reducing nutrient concentrations in the lake or river. A good weekly watering can promote deeper root growth and healthier grass than daily, light watering.		
8. Use seeping hoses for watering lawns and flowerbeds.		
9. Avoid over watering by using a rainfall gauge with your sprinkler.		
10. Keep any compost piles of leaves, clippings and other organic waste 250 feet away from the water.		
11. Select a lawn care company that will customize its service to be lake/river friendly.		
12. Cut lawn with sharpened mower blades set to a height of 2 ½ to 3 ½ inches which will foster phosphate and nitrate uptake and water retention. The taller the grass shoots, the deeper the grass roots. A dull blade will tear the blades of grass, leaving wounds that provide sites for disease infection.		
13. Mulch grass clippings back into the lawn using a mulching lawnmower. Leave grass clippings on the ground to provide an excellent source of nutrients. Clippings, which contain mostly water degrade quickly and recycle their nutrients to the soil. When returning clippings to the lawn, overall nitrogen applied can be reduced by approximately 1 pound of Nitrogen per thousand square feet. Mulching can also be done by cutting the lawn twice.		
14. Compost leaves and other yard trimmings as the compost will gradually release nutrients to your lawn and plants. Leaves can be composted directly into the lawn by using a mulching lawnmower or making a couple of passes with the mower over the leaves so that they will be broken down into smaller pieces.		
15. If you feel you must use fertilizer to put in a new lawn, determine the exact amount of fertilizer your lawn and plants need. Do a soil test through the MSU Plant and Soil Nutrient Laboratory with a soil test kit from MSU Extension office for approximately \$10. (Checklist Resources, page 19)		

16. If you feel you must use fertilizer use lake/river friendly fertilizer: Clean Green 7-0-0 or lake safe, slow nitrogen release fertilizer. Follow the directions on the bag and don't over apply. Fertilizing your lawn based on soil test recommendations can help protect water quality by minimizing over-application. (Checklist Resources, page 19)		
17. Eliminate the use of fertilizer within 100 feet of the lake or river.		
18. Sweep or hose loose soil, and especially any loose fertilizer after an application, from driveways or sidewalks back onto the lawn so that it will become incorporated into the turf and not move toward the lake or river during rainfall.		
19. Limit watering where you have fertilized to 0.2" after application so the fertilizer will move into the thatch and root zone where it is intended instead of moving into the lake or river. This watering level is also recommended for subsequent frequent watering in the sandy soils of this area.		
20. Use alternatives to herbicides, pesticides, and pest controls. (Checklist Alternatives, page 16)		
21. Dispose of herbicides, insecticides, and fertilizer on Hazardous Waste Day. (Checklist Resources, page 18)		
22. Before building, contact the conservation district to learn how to protect trees from heavy equipment and soil compaction.		
23. Take treated wood to a disposal site. Do not dump or burn.		
24. If using a professional lawn and/or garden care professional use this checklist and discuss your priorities for water quality protection with them.		

Glen Lake-Crystal River Watershed Stewardship

Well and Septic

Action Checklist for Well Water Safety and Hazardous Wastes Handbook pp. 20 & 22-26	I do this	Things to do
1. Have the Health Department test drinking water each year for e.coli and nitrogen levels. If there are problems with the samples make plans to correct the cause.		
2. Work with only reputable, licensed well-drillers having permits.		
3. Check the seal around the well shaft top for breaks and have replaced if seal is broken.		
4. Check the distance between the well and the septic. It should be a minimum of 50 feet apart. (60 feet for commercial property)		
5. Dispose of hazardous waste materials on hazardous waste day in Leelanau County: all paints (oil base), varnish, stains, solvents, paint remover, thinners, glues/adhesives, photographic chemicals, antifreeze, batteries, brake fluid, motor oil, lubricants, car wax, gasoline, other fuel, rodent poison, medicines, etc. None of these should ever go down a drain.(Checklist Resource, page18)		
6. Let water or solvent from cleaning paint brushes and rags evaporate outside. Then dispose of residue in garbage.		
7. When washing the car, boats or other vehicles avoid running water continuously and wash on a porous surface away from the lake or river so water can soak into the ground.		
8. Use kitty litter or other absorbent material on oil or other leaks, and dispose of it in a waste container.		

Action Checklist for Septic System Maintenance Handbook pp. 23-26 & 38	I do this	Things to do
1. If installing a septic system or upgrading a septic built more than 15-20 years ago, work only with reputable and conscientious contractors.		
2. Locate septic systems 50 from the surface water. (100 feet for commercial property)		
3. Remove sludge every 2 to 3 years (4-5 years for seasonal residents) before sludge level exceed 1/3 of the septic tank volume. This would be the standard for a three-bedroom house with a 1,000-gallon tank. Smaller tanks should be pumped more often. Keep a record of servicing.		
4. Locate septic tank and drain field so problems with either can be monitored.		

5. Avoid use of commercial products that claim to substitute for maintenance pumping. Many of these products liquefy the sludge and cause it to enter the drainfield. This can increase the potential for contamination of ground water and nearby surface water, as well as destroy the drainfield.		
6. Trees and large shrubs should not be planted on drainfields.		
7. Avoid covering drainfield with a hard surface such as concrete, asphalt, or in-ground decking.		
8. Keep cars and heavy equipment off of drainfield.		
9. Direct rainwater from gutters away from drainfield and into heavy vegetation.		
10. Direct runoff from paved areas away from drainfield and into thick vegetation		
11. Do not build or pave over septic or drainfield.		
12. Check for depressions around the drainfield.		
13. Check for lush green grass, wet, spongy or soggy areas and/or odor over the drainfield and/or septic which may indicate that effluent is surfacing and the system is not functioning properly.		
14. Check for Cladophora growth in lake or river near shoreline. Cladophora and/or other excessive aquatic plant growth in the lake or river can indicate excessive nutrient enrichment from a malfunctioning septic system.		
15. If toilet is sluggish and backs up frequently consider it a sign of a problem that may need to be corrected. The drainfield soils may become saturated.		
16. Secure professional help if any of the problems in 12-15 are noted.		

Glen Lake-Crystal River Watershed Stewardship

Lakeside

Action Checklist For Aquatic Plants, Cladophora and other Algae Problems <i>Handbook pp. 36-38</i>	I do this	Things to do
1. Use Landscaping and Lawncare Actions (See pages 4-6)		
2. Use Impervious Surfaces Actions (See page 4)		
3. Use Septic Actions (See pages 7-8)		
4. Provide a naturalized shore for the overwintering of the Eurasian watermilfoil-eating beetle.		
5. Save a sample of any water plant you might suspect of being Eurasian watermilfoil or Hydrilla and contact a member of the GL Water Quality Committee for identification. (Checklist Resources, p.16 for Glen Lake Association)		
6. Do not dredge without a permit. (Handbook, page 56)		
7. Only fertilize away from the water using phosphorus free products.		
8. With help of professionals in naturalization expertise, replace seawalls with a naturalized shore		
9. Do not treat aquatic plant beds, treatment is a community decision with specific requirements. Also a permit under 431 is required from the DEQ.		
10. Use of Barley straw pads, balls, or strips to control algae growth in ponds is sometimes successful.		
11. Contact the Glen Lake Water Quality Committee for a property assessment by a biologist if you have Cladophora in the water along your shoreline. (Checklist Resources, page 18)		

Action Checklist for Erosion Control, Shoreline Stabilization and Naturalization <i>Handbook pp. 33-35</i>	I do this	Things to do
1. Replace seawall with naturalized shoreline and/or plant supported embankment. Call the Glen Lake Association biologist for consultation. (Checklist Resources, page 18)		
2. Consider Coir, coconut fibers, which do not rot for 7-10 years, and provide nutrients and stability for shoreline plant growth to establish roots.		
3. Leave natural vegetation on shoreline with at least a 20-35-foot buffer.		
4. Contact the Glen Lake Association for consulting advice from our biologist for the design of a naturalized shoreline.		

5. Reframe from installing beach sand or drain rock as it does not filter nutrients as well as varied shoreline vegetation.		
6. Keep as many trees and shrubs around buildings to screen visibility from lake or river, improving the viewscape for other homeowners and those on the lake or river.		
7. Design walking paths so that they are curved and narrow.		
8. Construction within 500 feet of the shoreline requires a soil erosion permit from the Leelanau Conservation District. (Handbook, page 56)		
9. Use wood decking, concrete lattice pavers, brick and porous asphalt as alternatives to hard surface areas.		

Action Checklist Wetlands <i>Handbook pp. 46-47</i>	I do this	Things to do
1. Preserve wetlands on your property.		
2. Consider planting native species wetland plants to enhance a wetland.		
3. Filling, draining, dredging, or building in wetlands should be avoided because of their filtering, habitat, and groundwater recharge functions. Changing wetlands require Federal and State permits. (Handbook, page 56)		
4. Use all landscaping and run-off action checklist steps to protect wetlands. (Pages 4-6)		

Glen Lake-Crystal River Watershed Stewardship

Water Recreation

Action Checklist for Fecal Bacteria and Parasites <i>Handbook pp. 38-40</i>	I do this	Things to do
1. Do not let pets eliminate near the waterfront.		
2. Pick up pet feces when walking pets and when they defecate near the shore.		
3. Locate animal-holding areas well back from water.		
4. Use makeshift toilets on boats.		
5. Don't defecate or urinate (animals or humans) within 200 feet of the lake or river.		
6. Do not eliminate into the lake or river.		
7. Maintain natural shoreline to discourage geese from lawn areas.		
8. Report Common Merganser sightings to the Glen Lake-Crystal River Watershed Biologist.		
9. Do not feed waterfowl.		

Action Checklist For Swimmer's Itch <i>Handbook pp. 38-40</i>	I do this	Things to do
1. Report Common Merganser sightings to the Glen Lake-Crystal River Watershed Biologist. (Checklist Resources, page 18 for the Glen Lake Association)		
2. Don't feed waterfowl.		
3. Towel off vigorously after swimming.		
4. Change to dry clothes after swimming or wading.		
5. Avoid swimming at midday.		
6. Go off the end of docks into deeper water.		
7. Apply baby oil or Bullfrog® before swimming.		
8. Apply topical antihistamine after swimming if necessary.		
9. Report all confirmed swimmer's itch cases to the Glen-Crystal River Watershed Biologist. (Checklist Resource, page 18 for the Glen Lake Association)		
10. When working in the shallows use waders.		
11. Don't let children play in wave washed area, especially when winds are on shore.		

Glen Lake-Crystal River Watershed Stewardship

Water Recreation (continued)

Action Checklist for Fish Habitat and Fishing <i>Handbook pp. 40-43</i>	I do this	Things to do
1. Take no more fish than you need.		
2. Maintain a natural or naturalized shoreline for nursery grounds.		
3. Carry out all the actions that limit phosphorus and nitrogen as well as toxic contaminates from entering the lake.		
4. Take fish advisory precautions on the consumption of your catch. (Checklist Resource page 18)		
5. Do not dump bait in the lake or river. This could introduce exotic species into the lake or river.		
6. Wash out bait box at least 200 feet inland away from shore.		
7. Properly dispose of fish guts (not in lake or river).		
8. Avoid using copper sulfate in the lake or river as it is toxic to marine life, especially macroinvertebrates which are the food of our fish, and is a heavy metal that remains in sediments accumulating over the years.		
9. Oligotrophic lakes have low fish productivity and can be easily overfished. "Limit your kill, don't kill your limit."		
10. Avoid catching fish off of their spawning beds. They may not return to guard the eggs and fry.		
11. Practice good catch and release techniques.		
12. Handle fish as little as possible. Handling removes their protective slime.		
13. When ice fishing, as well as boat fishing, pack up all trash including food, bait and fish entrails.		

Action Checklist for Introduction of Invasive Species <i>Handbook pp. 42-43</i>	I do this	Things to do
1. Before introducing them into Glen Lake or the Crystal River, wash all types of boats, paddles, jet skis, trailers, water skis, fishing equipment, etc. and flush the motor's cooling system, bilge areas and live wells thoroughly with very hot tap water. Avoid the use of chemicals. Allow drying for three days.		
2. Wash the same equipment as in #1 at the DNR boat launch from mid-May through Labor Day and use the self wash equipment through October..		
3. Ask guests and/or renters to go through the same procedures as in #1 and 2.		
4. Drain live wells, bilge water, and transom wells on land at least 200 feet from shoreline.		

5. Do not dump any bait into lake or river.		
6. Empty bait buckets on land 200 feet from shoreline.		
7. Do not dip bait or minnow bucket containing water from another lake into Glen Lake or the Crystal River.		
8. Dispose of plants, aquatic animals and fish from aquariums in the garbage, NEVER in the lake or river.		

Action Checklist for Recreation and Watercraft Use <i>Handbook pp. 43-45</i>	I do this	Things to do
1. Control loud outdoor music.		
2. Keep outdoor lighting to a minimum.		
3. Never paint anything over or near the water.		
4. Periodically take ashes from camp or beach fires to the compost pile to get them away from the water's edge, as they are high in phosphorus. Especially important before it rains.		
5. Avoid pressure treated or painted wood for docks and floats. Use cedar, redwood, cypress, recycled wood/plastic or aluminum for float and dock construction.		
6. Replace your older out-board motor with a new, cleaner-burning, four-stroke or direct-fuel-injected or electronic fuel-injected two-stroke motor, to reduce emissions into the air and water.		
7. Stay clear of large patches of water plants.		
8. Water ski, jet ski or tube as far from shore as possible to avoid stirring up sediments and disturbing wildlife and people on shore.		
9. Limit idle and/or full-throttle operation as much as possible to reduce hydrocarbon emissions and minimize wear and tear on the motor.		
10. Fill portable tanks on shore and do not top off fuel tanks as expansion will allow fuel to spill.		
11. Ensure that fuel tanks, hoses and all fuel connections are not leaking.		
12. Use petroleum-absorbing pads when performing engine repairs and maintenance and dispose of properly,		
13. Don't fog the motor in the lakes or river at the end of the season. Purchase a garden hose adapter from your local marina and fog away from shore.		
14. Use biodegradable hull cleaners that do not contain phosphoric acid.		
15. Wash boats outside of a 250-foot shoreline or river line protection zone and on a porous surface or at the Boatwash Facility at the DNR boat launch.		
16. Use an onboard toilet or makeshift toilet.		
17. Avoid bathing with soap in the lake or river.		

Action Checklist for Safety Handbook pp.43-45	I do this	Things to do
1. Maintain a 100-foot distance from shoreline, docks, swimmers, swimming areas, fishing boats, sailboats, or moored vessels.		
2. Maintain 200 feet distance from divers.		
3. Observe maximum speed limit of 55 mph but considerably less when conditions dictate.		
4. Observe 14 year age requirement to operate a jet ski or motorboat.		
5. Person born after 12/31/1978 must obtain a boating safety certificate.		
6. PWCs cannot be operated between one hour before sunset and 8 a.m.		
7. PWC must travel at slow no-wake speed in waters of less than two feet in depth.		
8. PWCs operators and passengers must wear a Coast Guard approved life jacket.		
9. Sailboats and other non-motorized watercraft always have the right of way over motorboats.		
10. Circular boat operation, such as water skiing, must be in a counter-clockwise fashion in so far as it is reasonably possible.		
11. Boats and PWCs towing water skiers must carry a second person or spotter in addition to the driver, and be equipped with a rear view mirror.		
12. Do not operate a watercraft while under the influence of alcohol.		
13. Give wildlife a wide berth and let them be.		

Glen Lake-Crystal River Watershed Stewardship

Kitchen, Laundry and Bathrooms

Action Checklist for Conserving Water and Protecting Your Septic System and Well <i>Handbook pp. 22-26</i>	I do this	Things to do
1. When washing dishes, your hands, or brushing teeth avoid running rinse water continuously.		
2. Run dishwasher only when full. Run at lowest effective water level.		
3. Compost garbage. Balance brown and green wastes alternating wet and dry layers. Brown wastes are dry leaves, wood chips, sawdust and plants. Green wastes are grass clippings and food scraps. Avoid adding meat, fat, grease or citrus fruit. Maintain a 50/50 ratio of green to brown.		
4. Use the kitchen garbage disposal sparingly as heavy use adds large amounts of solids to your septic, which shortens the time between septic tank pumpings.		
5. Use only Eco-friendly soaps and cleaners throughout the house.(Lake/River Friendly Alternatives for Home and Yard, page 16 of checklist)		
6. Dispose of hazardous wastes on hazardous waste day in Leelanau County: things such as ammonia based cleaners, bug sprays, floor cleaners and strippers, furniture/metal polish, nail polish/remover, bleach, moth balls, drain cleaners, shoe polish and oil base paints. (Checklist Resources, page 18)		
7. Run washing machine at lowest effective water level. Limit number of loads per day to 1-3 using warm water.		
8. Purchase water and energy and water efficient appliances when replacing old ones.		
9. Use non-chlorine bleach alternatives such as hydrogen peroxide and avoid using drain cleaners because they kill the bacteria, which break down solid wastes in the septic tank.		
10. Repair leaking toilets and dripping faucets.		
11. Use non-chlorine and non-chemical toilet cleaners, and white toilet paper.		
12. Refrain from putting grease, hair, cigarettes, facial tissues, paper towels, feminine hygiene supplies, bandages, paint, solvents, motor oil or any other hazardous waste down toilets.		
13. In older model toilets, place two half-gallon plastic bottles filled with water in toilet tank to cut down on water use with each flush.		
14. Use baking soda followed by vinegar as an alternative drain cleaner.		
15. Use a low flow showerhead.		

**Glen Lake-Crystal River Watershed
Friendly Alternatives for Home and Yard**

Commonly Used	Alternative
Chlorine bleach	Hydrogen peroxide
Drain cleaner	2 cups boiling water and/or Baking soda (1/2 c.) followed by vinegar
Bathroom cleaners	Baking soda, borax
Toilet cleaner	3 tbls. baking soda in 1 qt. warm water Mild detergent
Bathroom cleaner	Vinegar, salt & water Baking soda & water
Disinfectant	1/2 c. borax in 1 gal. water
Lime Away	Vinegar
Scouring powders	Baking soda
Rug cleaners	Club soda & sprinkle with cornstarch, then vacuum
Floor cleaner	Mop with 1 c. vinegar in 2 gal. water
Furniture polish	1 part lemon juice with 2 parts vegetable oil
Copper cleaner	Dip side of lemon in salt, rub
Oven cleaner	Salt and scrub Wipe with ammonia & let stand overnight, scrub with baking soda
Porcelain cleaner	Make paste of baking soda and water, apply & let stand, rub clean & rinse
Silver polish	Soak in 1 qt. warm water & 1 tsp. baking soda & 1 tsp. salt, and piece of aluminum foil or in aluminum pan
Stainless steel cleaner	1 qt. water & 1 tbls. baking soda, rinse in hot water
Floor cleaner	1 c. vinegar in 2 gal. water
Window cleaner	1/2 c. vinegar & 1 gal. warm water, use newspapers to dry glass
Ant traps or pesticide for inside ants	Sprinkle thick line of borax around foundation
Flea repellent	Rosemary on pet bed
Moth balls	Lavender or cedar chips in small bags
Wood preservative	Water based wood preservative
Fungicide	Avoid watering in the evening and over watering
House plant insecticide	A few drops of soap & water, spray on leaves, rinse
Pesticides	Insecticidal soap
Herbicides	Weeding and hoeing, corn herbicide
Snail and slug killer	Shallow pan with stale beer

Glen Lake-Crystal River Watershed Stewardship

At the Market

Action Checklist for Refuse, Reuse and Recycle/Hazardous Household Chemicals/Support of Local Agriculture <i>Handbook pp. 26, 35-36 & Checklist Friendly Alternatives p. 16</i>	I do this	Things to do
1.Recycle all material accepted by recycling sites in Empire and at the Leelanau School. (Checklist Resources, page 19)		
2. Use gallon jugs of shampoo, rinse, laundry soap, hand soap, and dish soap to refill small reusable containers.		
3. Shop where you can use reusable gallon containers, small reusable containers, and cloth bags in place of plastic bags.		
4. Take your own cloth reusable bags to the store.		
5. Support local agriculture by buying local produce and products to preserve rural landscapes.		
6. Buy suggested alternatives to household chemicals.		
7. Compost garbage and use it on the garden.		
8. Compost yard waste.		

Checklist Resources Updated 1/2015

Activity	Agency/Company or Group	Address	Phone
Drain Commissioner Soil Erosion Permits	Leelanau County Conservation District	121 N. St. Joseph St. Lake Leelanau, MI 49653	256-9783
Native Plants, Trees, Shrubs, Free Consultation for Plantings on Your Land	Leelanau Conservation District	121 N. St. Joseph St. Lake Leelanau, MI 49653	256-9783
Environmental Protection	Department of Environmental Quality (DEQ) Air, Land, Water, Hazardous Materials	DEQ Cadillac District Office 120 W. Chapin Street Cadillac, MI 49601 Press 5	231-775-3960 After hour emergencies 800-292-4706
Fish Advisories	Michigan Government	www.michigan.gov Then type in fish advisory.	800-648-6942
Lake Association	Glen Lake Association	P.O. Box 245 Glen Arbor, MI 49636	334-7645
Gifts of Land Conservation Easements	Leelanau Conservancy	P.O. Box 1007 105 N. First Street Leland, MI 49654	231-256-9665
Hazardous Wastes Air monitoring for pollutants, toxins, and radiation	Michigan Hazardous Waste Hotline Environmental Protection Agency Region 5	US EPA Region 5 77 W. Jackson Blvd/ Chicago, IL 60604	800-621-8431
Household Hazardous Waste Collection (Announced throughout the year)	Leelanau County County Planning and Development Office (To make appointment to bring items to site)	Leelanau County Government Solid Waste Council	231-256-9812
Lake and Stream Association, Volunteer Monitoring of Michigan's Lakes and Streams, Technical Assistance	Michigan Lake and Stream Associations	306 E. Main Street Stanton, MI 48888	989-631-5100
Natural Resources: Conservation, protection, management, use: waterways, land, wetlands, forests, fisheries, law enforcement, wildlife, hunting/fishing licenses	Michigan Department of Natural Resources (DNR)	Cadillac Operations Service Center 8015 Mackinaw Trail Cadillac, MI 49601 Traverse City Field Office	231-775-9727 922-5280
Northwest Michigan Council of Governments	Regional Planning for Technical Assistance Data Repository (Census, Economic, Schools, GIS Mapping)	600 E. Front St Suite 103 Traverse City, MI 49686	929-5000
Planning and Community Development	Address Admin. Brownfield Development Electronic Recycling GIS Data and Mapping Hazardous Waste Collection Housing Programs (loans) Low Interest Loans Master Plans Planning and Zoning Community Development	8527 Government Center Dr. Suite 108 Suttons Bay, MI 49682	256-9812

Recycling Paper, Cardboard, Plastic, Metal, Clear glass	Waste Management	LaCore Street Empire, MI 49630 Leelanau School 1 st right after entrance	Hotline Below
Leelanau Recycling	Leelanau Recycling Hotline		256-8444
Recycling Appliances	Integrity Iron and Metal	762 Cass Street Traverse City, MI 49684	946-3499
Recycling flashlight type batteries	Fire Station	500 West Front Street Traverse City, MI 49684	922-4930 Ring doorbell for collection
Recycling books (Book Donations)	Glen Lake Community Library	10115 W. Front Street Empire, MI 49630	326-5361
	Cottage Book Shop	5989 S. Lake Street Glen Arbor, MI 49636	334-4223
Recycling Clothing	Father Fred Foundation	826 Hastings Street Traverse City, MI 49684	947-2055
	Salvation Army	1225 W. South Airport Rd. Traverse City, MI	946-5194
	Goodwill Industries	2279 South Airport Rd. West Traverse City, MI 49684	922-4805
	Women's Resource Center	720 S. Elmwood Ste 2 Traverse City, MI 49684	941-1210
Recycling Motor Oil	Gary's Service Center	County Road 651 Cedar, MI 49621	228-6320
	Van's Garage	112 S Main Street Leeland, MI 49654	256-9545
	Goodyear Service Center	436 W. Front St. Traverse City, MI 49684	922-2600
Recycle Reusable Building Materials	Odom's Reuse	5555 Brentwood Ave Grawn, MI 49637	1-231-276-6330
Recycling Packaging Materials	UPS Stores	526 W 14 th (49684) or 801 S Garfield Traverse City, MI 49686	947-0999 933-3334
Septic Approvals and Inspection	Leelanau County Health Department, Environmental Health	7401 E. Duck Lake Rd. Suite 100 Lake Leelanau, MI 49653	Bill Crawford 231-256-0214 Clay McNitt 231-256-0215
Septic Pumping	Decker's Pumping Service	10044 Niagra St. Empire, MI 49630	326-6800 633-6800 Cell
	Houdek Pumping Service	7531 E. Duck Lake Road Lake Leelanau, MI 49653	256-9241
	Williams Pumping Service	P.O. Box 247 Cedar, MI 49621	228-7499 or 947-3535
National Park Service	Sleeping Bear Dunes National Lakeshore	9922 Front St. Empire, MI 49630	231-326-5134
Soil Testing	Michigan State University Extension Service	8527 E. Government Center Drive Suttons Bay, MI 49682	256-9888
Solid Waste Management, GIS, Affordable Housing, Demographics, Planning, Address Assignment	Leelanau County Planning and Community Development	P.O. 546 113 S. Grand Ave. Leeland, MI 49654	231-256-9812

Township Zoning Administration and Planning Boards (Consult township web site for the township if contact has changed as Kasson and Cleveland are home numbers)	1. Glen Arbor Township 2. Empire Township 3. Kasson Township 4. Cleveland Township	(1) 6394 Western Ave, Glen Arbor, MI 49636 (2) 10098 Front Street Empire, MI 49630 (3) 10988 N Newman Rd. Maple City, MI 49664 (4) 955 W Harbor Hwy Maple City, MI 49664	(1) 334-3539 (2) 326-5182 (3) 228-5736 (4) 228-6488
Underground utility identification	Miss Dig		800-482-7171
Water-Safe Drinking	EPA	Press #1	800-426-4791
Water Testing (pick up bottle then mail to lab)	Leelanau County Health Department	7401 E Duke Lake Rd. Lake Leelanau, MI 49653	256-0201
(pick up bottle then mail to lab)	Great Lakes Water Quality Laboratory, Inc.	6461 Sunset Drive Lake Ann, MI 49650 Mailing Address PO Box 131	231-275-7382
Water Testing for Pesticides, Herbicides, and Fungicides	DEQ Samples collected by SOS and sent in and results received by SOS	SOS Analytical 4125 Cedar Run Road Traverse City, MI 49684	946-6767
Water Well Drillers	B & Z Well Drilling	233 E. Kasson Road Maple City, MI 49664	228-5678
Wildlife, Injured Raptors	Wings of Wonder	13035 S. Greenway Empire, MI 49630	326-4663

Local Michigan Certified Natural Shoreline Landscape Professionals

County	Last Name	First Name	Firm Name	Address	City, State, Zip	Phone	Cell Phone
Benzie	Heyboer	Nick	Heyboer Landscape Maintenance	4735 8th St. SE	Caledonia, MI 49316	616-877-4077	616-813-0370
Benzie	Kelderhouse	Wayne	Zimmerman Landscaping Inc.	P.O. Box 163	Traverse City, MI 49685	231-497-1170	231-620-1106
Benzie	Macdonell	Brian	Traverse Outdoor, Inc.	2700 Townline Road	Traverse City, MI 49686	231-947-4496	
Benzie	Matthews	Jan	Mamabear Restorations	318 N. Cedar St.	Traverse City, MI 49684	231-929-4681	
Benzie	Polinko	Mark	TruNorth Landscaping	9355 Bingham Rd.	Traverse City, MI 49684	231-357-3396	231-492-3777
Benzie	Ross	Jim	Zimmerman Landscaping Inc.	9910 E. Traverse Hwy./P.O. Box 163	Traverse City, MI 49685	231-947-1170	231-645-5070
Benzie	Rudolph	Dawn		P.O. Box 884	Elk Rapids, MI 49629	231-342-7546	231-342-7546
Benzie	Thayer	Carolyn	Designs in Bloom	831 James St.	Frankfort, MI 49635	231-352-6961	
Benzie	Ulrich	Michael	Inner-Coastal Ecological Services	P.O. Box 374	Glen Arbor, MI 49636	231-342-6551	231-342-6551
Grand Traverse	Belanger	Jeff	Belco Outdoor Services, LLC	334 Center Rd.	Kingsley, MI 49649	231-263-5236	231-313-8129
Grand Traverse	Clous	Richard	Clous Construction	8049 Crestview Dr.	Cadillac MI 49601	231-775-0788	231-920-7409
Grand Traverse	Dompierre	Bob	Old Mission Associates	16330 Peninsula Dr.	Traverse City, MI 49686	231-223-9222	
Grand Traverse	Drier	Dale	Drost Landscape Inc.	2010 Cedar Valley	Petoskey, MI 49770	231-348-2624	231-838-2196
Grand Traverse	Kelderhouse	Wayne	Zimmerman Landscaping Inc.	P.O. Box 163	Traverse City, MI 49685	231-947-1170	231-620-1106
Grand Traverse	Largent	Steve	Grand Traverse Conservation District	1450 Cass Rd.	Traverse City, MI 49684		231-883-9960
Grand Traverse	Macdonell	Brian	Traverse Outdoor, Inc.	2700 Townline Road	Traverse City, MI 49686	231-947-4496	
Grand Traverse	Matthews	Jan	Mamabear Restorations	318 N. Cedar St.	Traverse City, MI 49684	23-929-4681	
Grand Traverse	Polinko	Mark	TruNorth Landscaping	9355 Bingham Rd.	Traverse City, MI 49684	231-357-3396	231-492-3777
Grand Traverse	Ross	Jim	Zimmerman Landscaping Inc.	9910 E. Traverse Hwy./P.O. Box 163	Traverse City, MI 49685	231-947-1170	231-645-5070
Grand Traverse	Rudolph	Dawn		P.O. Box 884	Elk Rapids, MI 49629	231-342-7546	231-342-7546
Grand Traverse	Short	Matt	Lakeshore Marine Construction	5123 Cairn Hwy.	Kewadin, MI 49648	231-264-8449	231-645-6075
Grand Traverse	Thayer	Carolyn	Designs in Bloom	731 Leelanau Ave.	Frankfort, MI 49635	231-352-6962	
Grand Traverse	Ulrich	Michael	Inner-Coastal Ecological Services	P.O. Box 374	Glen Arbor, MI 49636	231-342-6551	231-342-6551
Grand Traverse	Valdmaniss	Jordan	Old Mission Associates	16330 Peninsula Dr.	Traverse City, MI 49686	231-223-9222	
Grand Traverse	Wood, RLA	Traver	Site Planning Development, Inc.	12608 Taylor Rd. P.O. Box 528	Charlevoix, MI 49720	231-547-4429	
Leelanau	Aylsworth	Edie	Village of Suttons Bay	P.O. Box 395	Suttons Bay, MI 49682	231-271-6703	
Leelanau	Dompierre	Bob	Old Mission Associates	16330 Peninsula Dr.	Traverse City, MI 49686	231-223-9222	
Leelanau	Drier	Dale	Drost Landscape Inc.	2010 Cedar Valley	Petoskey, MI 49770	231-348-2624	231-838-2196
Leelanau	Kelderhouse	Wayne	Zimmerman Landscaping Inc.	P.O. Box 163	Traverse City, MI 49685	231-497-1170	231-620-1106
Leelanau	Macdonell	Brian	Traverse Outdoor, Inc.	2700 Townline Road	Traverse City, MI 49686	231-947-4496	
Leelanau	Polinko	Mark	TruNorth Landscaping	9355 Bingham Rd.	Traverse City, MI 49684	231-357-3396	231-492-3777
Leelanau	Ross	Jim	Zimmerman Landscaping Inc.	9910 E. Traverse Hwy./P.O. Box 163	Traverse City, MI 49685	231-947-1170	231-645-5070
Leelanau	Rudolph	Dawn		P.O. Box 884	Elk Rapids, MI 49629	231-342-7546	231-342-7546
Leelanau	Thayer	Carolyn	Designs in Bloom	731 Leelanau Ave.	Frankfort, MI 49635	231-352-6962	
Leelanau	Ulrich	Michael	Inner-Coastal Ecological Services	P.O. Box 374	Glen Arbor, MI 49636	231-342-6551	231-342-6551
Leelanau	Valdmaniss	Jordan	Old Mission Associates	16330 Peninsula Dr.	Traverse City, MI 49686	231-223-9222	
Leelanau	Voran	Laurel	Laurel Voran LLC	PO Box 33	Empire, MI 49630	231-632-3211	231-632-3211
Leelanau	Wood, RLA	Traver	Site Planning Development, Inc.	12608 Taylor Rd. P.O. Box 528	Charlevoix, MI 49720	231-547-4429	



**Glen Lake Association
P.O. Box 245
Glen Arbor, MI 49636**

**231-334-7645
GlenLakeAssociation.com**

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The Oleson Foundation**