



LIFE ON THE BAY

A STEWARDSHIP GUIDE FOR
EASTERN GEORGIAN BAY
AND INLAND LAKES



United Nations
Educational, Scientific and
Cultural Organization



GEORGIAN BAY
BIOSPHERE
MNIDOO GAMII

Worksheet #4a - Water Runoff

Use this worksheet to assess how well your property minimizes the potential for water runoff and property damage.

Why Should You Be Concerned?

- Surfaces such as roofs, paved areas, bare ground, and sloped lawns all contribute to the volume of water runoff because they obstruct or prevent water absorption into the ground.
- Runoff carries soil, pet waste, salt, pesticides, fertilizers, oil and grease, fuels, litter, and other pollutants into waterbodies.
- Without vegetation along shorelines acting as a natural barrier, contaminants are able to flow directly into waterbodies.
- Water that flows into storm drains or ditches is transported and eventually discharged into Georgian Bay, untreated.
- Polluted water runoff degrades lakes, rivers, and wetlands. Soil makes the water murky and damages fish habitat. Nutrients such as phosphorus encourage algae growth that can crowd out other aquatic life and change the chemistry of the water.
- Water runoff can also flood basements and cause extensive property damage including erosion and slope instability. Furthermore, it can lead to decreased property values and disruptions to recreation.
- More frequent and intense weather events are expected in the region due to climate change. Rapid snowmelt and heavy rainfall events will result in greater volumes of runoff at one time.

What Can You Do?

1. Minimize the amount of water runoff from your property by reducing “hard” surface areas such as paved paths or driveways. Consider using water permeable materials for driveways and pathways.
2. Do not locate any impermeable surface near the shoreline or next to any watercourse.
3. Drain tile exit points should not be in erosion-prone areas.
4. Reduce the amount of potential pollutants on your property that can be carried by water runoff by:
 - a. Minimizing hard surfaces;
 - b. Encouraging the absorption of storm water within your property boundaries; and
 - c. Storing potential pollutants in a safe place (e.g. bags of salt in buckets or bins) or removing them from close proximity to waterbodies (e.g. picking up after pets).
5. Maintain a buffer of natural vegetation along the shoreline so that runoff is at least partially intercepted before reaching the watercourse.

4a Water Runoff: How Do You Rate?

Topic	Best 4	Good 3	Fair 2	Poor 1	Your Rating
SURFACES					
1. Surface permeability	<p>All driving, parking, walking, and patio surfaces are water permeable.</p> <p>Gravel and woodchips are used to surface walkways. Minimal compaction.</p>	<p>Porous paving such as interlocking bricks are used to surface driveways and lanes. Additional parking spaces are not paved.</p>	<p>Paved surfaces are located far from any water course.</p>	<p>All paths, parking, driveways, and outdoor patios are paved, regardless of proximity to watercourse.</p> <p>Walking surfaces not restricted to paths. Foot-traffic compaction throughout.</p>	<input type="checkbox"/>
2. Extent of impervious surfaces and slope	<p>Driveway is minimal and follows natural contours of the landscape.</p> <p>There are no other impervious/compacted areas.</p>	<p>Driveway is minimal but does not follow natural contours.</p>	<p>Driveway extensive but follows natural contours.</p>	<p>Extensive driveway and hard surface areas that do not follow natural contours.</p> <p>Compacted and/or paved surfaces run straight down slope.</p>	<input type="checkbox"/>
3. Application and use of fertilizers, de-icers and salts, pool, and other outdoor chemicals	<p>Spills are cleaned up immediately.</p> <p>Applications are minimal and delayed until after rain.</p>		<p>Spills are cleaned up immediately on paved surfaces.</p> <p>Applications are not delayed to avoid rain.</p>	<p>Spills are not cleaned up.</p> <p>Applications are not delayed to avoid rain.</p>	<input type="checkbox"/>
4. Grass clippings, leaves, and other yard wastes	<p>Grass clippings, leaves, and other yard wastes are swept off paved surfaces and away from water flow routes.</p>	<p>Leaves and other yard wastes are left to compost on site.</p>	<p>Leaves and other yard wastes are collected in appropriate containers and left for municipal collection.</p>	<p>Grass clippings, leaves, and other yard wastes are left on driveways, streets, and other paved areas to be carried off by stormwater. Yard waste is burned on-site.</p>	<input type="checkbox"/>

Topic	Best 4	Good 3	Fair 2	Poor 1	Your Rating
POTENTIAL POLLUTANTS					
5. Pet waste	Pet wastes are flushed down the toilet or picked up and disposed of according to municipal guidelines.	Pet waste is left to decompose on grass or soil well away from any waterbody. Waste is scattered over a wide area.	Pet waste is left to decompose on grass or soil. Some effort is made to avoid concentrating waste in one area.	Pet waste is left on paved surfaces, concentrated in pen or yard areas, or dumped down a storm drain or in a ditch.	<input type="checkbox"/>
DRAINAGE					
6. Downspouts, gutters, and drains	Roof gutters, downspouts, and basement drains installed and cleaned regularly. Downspouts drain onto gravel or grassed surfaces to a safe and adequate drain. Alternatively, downspouts drain into rain barrels for landscaping use.	Downspouts are not directed at or into nearby gullies.	Downspouts direct drainage onto impervious surfaces. Downspouts are not directed at or into nearby gullies.	Roof gutters, downspouts, and/or basement drains not checked/cleaned regularly. <i>*Downspouts and roof gutters are aimed at adjacent properties without an intercepting swale or ditch in between, onto septic tile beds, or into nearby gullies.</i>	<input type="checkbox"/>
7. Surface water drainage	All surfaces are sloped away from the house at a minimum of 2%.	Any paved surface is sloped away from the house at a minimum of 2%.		Paved or compacted surfaces do not slope away from the house by a minimum of 2%.	<input type="checkbox"/>

**These conditions may violate provincial legislation or municipal bylaws.*

Worksheet #4b & 4c – Drinking Water

Use this worksheet to assess how well you manage the quantity and quality of your drinking water supply.

Why Should You Be Concerned?

- Even though water in the Great Lakes appears abundant, reducing our water consumption and eliminating contamination are important. Residential sources of contamination can include coliform bacteria from failing septic systems, or runoff from chemicals applied to a lawn.
- Wells that pump water from aquifers below the ground can provide a clean and safe supply of water; however, if a well is not constructed or maintained properly, or if a contaminant is spilled within the capture zone of a well, the quality and safety of the water supply could be at risk.
- Contaminating your water source can harm you, your family, or nearby families.
- It is much easier and cheaper to prevent contamination than to try and clean it up. Treating contaminated water, constructing a new well, or getting water from another source is inconvenient and expensive.
- When water is at risk of contamination, it threatens not only your health, but the ecosystem's health as well. Whether you use a private well, surface water, or a municipal system, everyone plays a role in source water protection.

What Can You Do?

- Manage both your water source and water runoff carefully. This will help reduce pollution, protect your family's health, and help to ensure that we all have clean water available.
- Make sure the water you drink and the groundwater that supplies your well are protected from contamination. Test your water regularly in spring and fall.
- Know the location of your septic system and those of your closest neighbours.
- Properly maintain your septic system to ensure that it is working effectively (see Chapter 5). Encourage your neighbours to do the same.
- Question the need for using chemical fertilizers and pesticides on your property. Handle fertilizers and other potential contaminants carefully.
- Contact a licensed well professional or your Health Unit to assist with items that get a "2" or "1" rating in this worksheet.

4b Surface Water Supply: How Do You Rate?

Topic	Best 4	Good 3	Fair 2	Poor 1	Your Rating
LOCATION OF WATER INTAKE					
1. Position of water intake in relation to shore and bottom	Intake is in water at least 3 m deep, 0.5 m off bottom, and away from boat traffic areas and shore.			Intake is in ankle deep water near shore, and/or on the bottom, and/or close to shore and boat traffic areas.	<input type="checkbox"/>
2. Distance of water intake from potential source of contamination	Greater than 90 m (300 ft).	45-90 m (150-300 ft).	30-40 m (100-150 ft).	Less than 30 m (100 ft).	<input type="checkbox"/>
3. Water testing	Drinking water is tested for bacteria three times a year (including once in the spring) and at least once a year for other impurities. Bacteria and other tests (health-related) always meet Ontario Drinking Water Standards.	Drinking water tested three times a year for bacteria and once a year for other impurities. Bacteria and other tests (as needed) usually meet Ontario Drinking Water Standards on the first test and always on the second test (the follow-up check) if first test fails.	Drinking water tested less than three times a year for bacteria and not tested for other impurities.	Drinking water is not tested or does not meet Ontario Drinking Water Standards on first or second test (follow-up check).	<input type="checkbox"/>

4c Well Water Supply: How Do You Rate?

Topic	Best 4	Good 3	Fair 2	Poor 1	Your Rating
LOCATION					
1. Position of well in relation to potential sources of contamination	Upslope from all sources of contamination. All surface water moves away from well.	Upslope from, or level with, any source of contamination. Surface water runoff does not reach well.	Level with most sources of contamination. Some surface water runoff may reach well.	Downslope from any source of contamination so that surface water reaches well. Water ponds at and around well.	<input type="checkbox"/>
2. Distance from well to potential sources of contamination	Greater than 90 m (300 ft).	24-90 m (76-300 ft) for a drilled well. 47-90 m (151-300 ft) for a bored/dug well.	15-23 m (50-75 ft) for a drilled well. 30-46 m (100-150 ft) for a bored/dug well.	<i>*Less than 15 m (50 ft) for a drilled well.</i> <i>*Less than 30 m (100 ft) for a bored/dug well.</i>	<input type="checkbox"/>
CONDITION					
3. Inspection	Checked annually by certified inspector.	Checked every one to two years by certified inspector.	Checked every three years or more by certified inspector.	Never inspected.	<input type="checkbox"/>
4. Condition of casing	Good condition, no defects visible.	Decent condition, no defects visible.	No holes or cracks visible.	Holes or cracks visible or can hear water running into well.	<input type="checkbox"/>
5. Condition of well cap	Excellent condition, commercially manufactured, vermin proof, and tightly secured.	Fair condition, commercially manufactured, vermin proof, and tightly secured.	Commercially manufactured, vermin proof cap is loose or needs repair.	No commercially manufactured vermin proof cap.	<input type="checkbox"/>
6. Condition of well venting	Screened vent in excellent repair.	Screened vent in good repair.	Well vented but not screened.	No well vent.	<input type="checkbox"/>

**These conditions may violate provincial legislation or municipal bylaws.*

Topic	Best 4	Good 3	Fair 2	Poor 1	Your Rating
CONDITION					
7. Condition of surface material around well casing	Surface material raised above normal ground level beside well casing. No space between well casing and surrounding surface material.	No settling of the surface material around well casing. No space between well casing and surrounding surface material.	Can see settling of surface material around well casing. No space between well casing and surrounding surface material.	Can see settling of surface material around well casing. Visible space between well casing and surrounding surface material.	<input type="checkbox"/>
8. Casing depth	More than 45 m (150 ft) below ground level.	31-45 m (101-150 ft) below ground level.	15-30 m (50-100 ft) below ground level.	Less than 15 m (50 ft), below ground level or no casing.	<input type="checkbox"/>
9. Casing height above ground level	40 cm (16 in) or more above normal ground level.	<i>*Less than 40 cm (16 in) above normal ground level, in pit or in basement.</i>			<input type="checkbox"/>
10. Age of well	Less than 20 years old.	Less than 40 years old.	40-60 years old.	More than 60 years old or unknown age.	<input type="checkbox"/>
MANAGEMENT					
11. Type of well	Drilled, casing terminates above ground, approved well cap.	Drilled, casing terminates in a well pit.	Sand point.	Bored or dug.	<input type="checkbox"/>

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Topic	Best 4	Good 3	Fair 2	Poor 1	Your Rating
MANAGEMENT					
12. Backflow prevention	<p>Anti-backflow devices (such as check valves and vacuum breakers) installed on all faucets with hose connections.</p> <p>Air gap of at least 15 cm (6 in) maintained.</p>	<p>Anti-backflow devices installed on some faucets with hose connections.</p> <p>Air gap of at least 15 cm (6 in) maintained.</p>	<p>No anti-backflow devices.</p> <p>Air gap of at least 15 cm (6 in) maintained.</p>	<p>No anti-backflow devices.</p> <p>Air gap not maintained.</p>	<input type="checkbox"/>
13. Unused or abandoned wells	<p>No unused or abandoned wells.</p>	<p>Unused wells capped, properly protected, and maintained.</p> <p>Abandoned wells properly plugged and sealed.</p>		<p><i>*Unused wells not capped or protected.</i></p> <p><i>Abandoned wells not properly plugged and sealed.</i></p>	<input type="checkbox"/>
14. Water testing	<p>Drinking water is tested for bacteria three times a year (including once in the spring) and at least once a year for other impurities.</p> <p>Bacteria and other tests (health-related) always meet Ontario Drinking Water Standards.</p>	<p>Drinking water tested three times a year for bacteria and once a year for other impurities.</p> <p>Bacteria and other tests (as needed) usually meet Ontario Drinking Water Standards on the first test and always on the second test (the follow-up check) if first test fails.</p>	<p>Drinking water tested less than three times a year for bacteria and not tested for other impurities.</p>	<p>Drinking water is not tested or does not meet Ontario Drinking Water Standards on first or second test (follow-up check).</p>	<input type="checkbox"/>

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Helpful Hints

Areas of Bare Soil

- Cover newly seeded lawns lightly with straw or leaf mulch to a cover of 50% to prevent erosion.

Potential Pollutants

- Ensure that your winter snow pile is not close to any shoreline or water course. Melt water may cause erosion and contamination.
- To avoid sending dirty, soapy water into a watercourse or lake, wash your car on the lawn, or better yet, take it to a commercial car wash or spray booth where the dirty water goes to the wastewater treatment plant.

Runoff & Drainage

- Use rain barrels to catch rainwater that can later be used to water gardens during dry periods. Cover the rain barrel with a screen to prevent mosquito breeding.
- Clogged gutters on a single house can produce over one million mosquitoes a season, be sure to keep gutters clean!

Well Condition

- Always maintain as great a distance as you can between a potential contaminant source and wells or surface water.
- Drilled wells must have at least 6 m (20 ft) of watertight casing below ground level. If less than 6 m (20 ft), treat the well as a bored/dug well.

Drinking Water Testing

- Your local Health Unit is a valuable resource in helping you manage the quality of your drinking water. The Health Unit provides you with sample bottles and conducts free testing for bacteria. Simply drop bottles off at the closest Health Unit for testing. Consider asking your neighbours what their tests reveal.

Get Involved!

Learn more about how you can help monitor water quality in the region by volunteering with the Lake Partner Program!

www.desc.ca

Resource List

Government

- Private Drinking Water Testing - North Bay / Parry Sound Health Unit
www.myhealthunit.ca/en/public-health-services/private-drinking-water-testing.asp
- Information and Rules for Residential Well Owners
www.ontario.ca/page/wells-your-property
- Water Supply Wells: Requirements and Best Practices
www.ontario.ca/document/water-supply-wells-requirements-and-best-practices
- Source Water Protection
www.ontario.ca/page/source-protection
- Ontario Drinking Water Quality Standards
www.ontario.ca/laws/regulation/030169
- Flood Ready
www.canada.ca/en/campaign/flood-ready.html
- Ontario's Flooding Strategy
www.ontario.ca/page/protecting-people-property-ontarios-flooding-strategy

Stewardship & Conservation

- Muskoka Watershed Council
www.muskokawatershed.org
- Ontario Ground Water Association Well Water Testing
www.ogwa.ca/well_water_testing.php
- Watersheds Canada
www.watersheds.ca



Action Plan Worksheet #4

Your Drinking Water

Any ratings of 1 or 2 indicate where your property management needs to be changed to reduce the potential for environmental damage and water contamination. Use the information from the worksheets and the resource lists to help analyze your potential problems and decide what you can do to solve or control them. Remember, this is YOUR action plan. It must suit you and your property.

Topic Number	Workshop Theme	My Rating	Short-term Action	Long-term Action
4c-3	Private well - condition of casing	2	Arrange for a certified inspector to examine well casing.	Schedule regular (annual or bi-annual) inspections.

Thank You Miigwech

The Georgian Bay Mnidoo Gamii Biosphere (GBB) is a community-based organization that builds capacity for regional sustainability in eastern Georgian Bay.

The GBB is a non-profit registered Canadian charity governed by a Board of Directors.

For more information, please visit:

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