Lake Champlain Sea Grant - Little Lake Lessons

Text Only Version
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Little Lake Lesson One – It's All About Poop

Did You Know?

- All warm-blooded animals – including us – have bacteria in their guts to help digest their food.

Why Do We Care?

- Beach managers look for these bacteria in lake water to see if there is poop in the water.
- Most of these bacteria are not harmful to us.
- Instead, they serve as indicators that disease-causing organisms that also live in our guts might be present.

What You Can Do

- Avoid swimming within 24 hours of a rainstorm since that is when poop is most likely in the water.
- Know how to recognize if a beach is closed.

Little Lake Lesson Two - Formation of Lake Champlain

Did You Know?

- Standing here (on the Causeway) 20,000 years ago during the last ice age, you would be under an ice sheet over one mile thick, and all of the region's highest mountains would be under the ice.

Why Do We Care?

- The forces exhibited on the land during the last ice age created the Champlain Valley we know today.
- The melting and retreating glaciers carved out the valley and created Lake Vermont, and later the Champlain Sea, two different bodies of water that predate Lake Champlain.

What You Can Do

- Understanding the history of the lake and the geologic forces still at play is critical to lake management.

Little Lake Lesson Three – Microplastics in Our Waterways

Did You Know?

- Washing an average-sized load of laundry can release over 700,000 microfibers into our waterways.

- Plastic debris can come in all shapes and sizes, but those that are less than five millimeters in length (or about the size of a sesame seed) are called "microplastics."

Why Do We Care?

- These tiny particles easily pass through wastewater treatment systems and enter surface waters, posing a potential threat to aquatic life.

What You Can Do

- Wash your synthetic clothes less often and make sure they are in a ¾ or full load.

Little Lake Lesson Four – Know Your Native Land

Did You Know?

- The earliest archeological evidence of Indigenous people living in the vicinity of Lake Champlain was 11,000 years ago.
- Abenaki people call Lake Champlain "Pitawbagw," meaning "the waters between."

Why Do We Care?

- While Indigenous people were the first humans to inhabit this region, European explorers are often recognized for discovering "new" lands and waters.
- Indigenous people are still members of our communities today and continue to share traditional ecological knowledge and to carry-on ancestral traditions.

What You Can Do

- Know the Indigenous groups from the land you are on – whether at home or traveling. Visit https://native-land.ca/ or text a ZIP code or city and state to 1-855-917-5263 for an automated reply.
- Learn a Lake Champlain creation story and how water, "nebi," plays a role in the lives of members of some of Vermont's Abenaki tribes.

Little Lake Lesson Five – Eastern Spiny Softshell Turtles

Did You Know?

- The eastern spiny softshell turtle species lives nowhere else on earth except in the northeastern part of Lake Champlain and in the Lamoille River!

Why Do We Care?

- This species' nesting and basking habitat is being reduced by shoreline development.

- Sometimes boats hit these turtles or anglers catch them, impacting their nesting success.
- As a result of these and other factors, this turtle population is threatened in both Vermont and Quebec.

What You Can Do

- Know how to recognize these turtles by their pointed snouts and flattened, leathery bodies.
- If you see these turtles, stay at least 300 feet (100 meters) away and keep pets away from them.
- Allow aquatic vegetation to grow near shore and maintain a natural shoreline to aid their nesting, foraging, and basking success.
- Consider contributing to promote conservation programs for these turtles.

Little Lake Lesson Six – Mercury in Fish

Did You Know?

- Fish in Lake Champlain may have mercury in them that can be harmful to your health if eaten too often.

Why Do We Care?

- Mercury enters the air through the burning of fossil fuels such as wood, oil, and coal, or other wastes.
- Once in the air, mercury can travel thousands of miles and ultimately settle on the land and in surface water bodies.
- Once mercury is in the water, it is transformed to a type of mercury (methylmercury) that accumulates in aquatic organisms, including fish.
- Bigger fish and fish with certain types of diets accumulate more mercury than others.
- When people eat too many fish that are high in mercury, they can suffer brain and nervous system damage, resulting in issues with learning, coordination, vision, and speech.
- Mercury poisoning is especially of concern for children and pregnant women.

What You Can Do

- Be aware of and follow guidelines for safe consumption (PDF).

Little Lake Lesson Seven – Birds on Lake Champlain: The Common Tern

Did You Know?

- More than 300 bird species breed, overwinter, or pass through the Lake Champlain basin as they migrate!
- The common tern population is a conservation success story in the basin! It recovered from 50 pairs in 1988 to about 250 pairs recently.
- However, the common tern remains endangered in Vermont and threatened in New York.
- Each summer, common tern nest on small islands in Lake Champlain about 15 miles from the Causeway bike ferry, traveling 5,500 miles from their wintering spot in Argentina and Chile!

Why Do We Care?

- Populations of many bird species are in decline, mostly due to habitat destruction and declining water quality, particularly from persistent toxic pollutants.
- Birds are important to food web ecology and nutrient cycling.
- They help maintain diversity of other organisms, control pests, and act as pollinators and seed dispersers depending on their diet.

What You Can Do

- Visit vt.audubon.org and vtfishandwildlife.com/ to learn more.
- Learn how to identify common tern by their white body, black hood, and bright orange feet and bill and/or by their dances and dives in the air.
- Stay clear of buoys that mark nesting sites nearby the islands.
- Leash your dog in the vicinity of the Delta Park at the mouth of the Winooski River between mid-July and late September—the time period when these birds are active in that area.

Little Lake Lesson Eight – Sea Lamprey: "Living Fossils" in Lake Champlain

Did You Know?

- Sea lamprey are jawless fish that appeared on Earth before dinosaurs!
- Their appearance has not changed much since then.
- Sea lamprey suck the blood of other fish using their suction disk mouth filled with sharp teeth.

Why Do We Care?

- Sea lamprey are a nuisance species in Lake Champlain and the Great Lakes.
- They are parasites of recreational fish such as salmon and trout.
- A control program maintains sea lamprey numbers in Lake Champlain at an acceptable level.
- Without this control, the populations of fish that people like to catch would be reduced.

What You Can Do

- Know that three other lamprey species live in the Lake Champlain basin. They are not harmful.
- Recognize that sea lamprey are not a nuisance species everywhere.

Little Lake Lesson Nine – Lake Champlain Fun Facts

Did You Know?

- More than 14,700 miles (23,657 km) of streams and rivers empty into Lake Champlain.
- Lake Champlain drains northward into the Richelieu River in Quebec.
- The area of land that drains to Lake Champlain (called its basin or watershed) is 19 times as big as the lake itself.

Why Do We Care?

- Lake Champlain serves as a home to more than 90 species of fish and as a drinking water source for nearly 150,000 people.
- What happens on the land in the Lake Champlain basin impacts water quality and quantity in both the United States and Canada.
- Floodwaters and water pollution impact communities along Lake Champlain tributaries, the lake itself, and the Richelieu River.

What You Can Do

- Know the watershed in which you live.
- Support the protection of wetlands to help slow the flow of water entering streams and rivers in the basin.
- Take action on your own property to limit runoff to local waterways that drain to Lake Champlain. Find out how at go.uvm.edu/reducephosphorus.

Little Lake Lesson Ten – Lake Champlain's Seiche

Did You Know?

- Lake Champlain's narrow shape and position between mountain ranges result in winds commonly blowing from the south.
- These winds push water to the north and when they recede the lake sloshes back to the south.
- This creates an oscillation of the lake called a seiche (pronounced saysh).

Why Do We Care?

- Usually, the surface seiche changes the water level at the north and south ends of the lake by about 4 inches (10 cm).
- During high-water periods, the seiche can amplify flooding impacts at both ends of the lake.
- In addition, surface waves formed by winds can cause added erosion along the shore.

What You Can Do

- If you live or are recreating near the lakeshore during times of flooding, be aware of the influence of winds on lake water levels and wave action.

Little Lake Lesson Eleven – The State of the Lake

Did You Know?

- Lake Champlain receives a regular report card!
- The Lake Champlain Basin Program produces the State of the Lake and Ecosystem Indicators Report every three years to update the public on scientific data and trends.

Why Do We Care?

- The diverse ecosystems, working landscapes, and vibrant communities that inspire and sustain us depend on clean water.
- The report focuses on the Lake's condition, threats to its health, and progress being made to improve water quality and habitat.
- It highlights individual and community efforts to protect and restore the natural and cultural resources of the region.

What You Can Do

- Take action to reduce pollution and help Lake Champlain (e.g., mow your grass to 3 inches, limit pesticides, fertilizers, and salt).

- Get involved! Join a lake or river organization, volunteer, or participate in community-based scientific research.
- Get informed! Read the State of the Lake Report.

Little Lake Lesson Twelve – Vermont Lay Monitoring Program

Did You Know?

- Volunteers have sampled water quality near the causeway with the Vermont Lay Monitoring Program since 1979.
- Volunteers are supported by Vermont Department of Environmental Conservation and Lake Champlain Sea Grant.

Why Do We Care?

- Water clarity has decreased near the causeway since monitoring began.
- This means that what we are doing on the land is causing harm to the lake.
- Sediments and nutrients flowing into the lake cause the growth of cyanobacteria and algae that, together, reduce water clarity.
- Cyanobacteria blooms are fed by phosphorus from lake sediments and land uses in the watershed.

What You Can Do

- Take action to reduce phosphorus that enters the lake and improve water clarity. Find out how at go.uvm.edu/reducephosphorus.
- Become a volunteer monitor! Visit dec.vermont.gov/watershed/lakes-ponds/learn.

Little Lake Lesson Thirteen – Foam in Our Waterways

Did you know?

- 3 of the top 10 items found during Lake Champlain beach cleanups are foam products.
- Unencapsulated polystyrene dock floats and buoys are prohibited by VT's Flood Safety Act.

Why do we care?

- Foam can be harmful when ingested by wildlife.
- Foam can break into "micro foam, " which is very difficult to remove from the environment.

What can you do?

- Use non-foam alternatives bait buckets and coolers.
- Replace your unencapsulated foam floats with air-filled or encapsulated floats.
- Share information about this law with others.
- Visit go.uvm.edu/lcbmarinedebris for more information.

Little Lake Lesson Fourteen – Impacts of Stormwater

Did you know?

- One acre of developed land sends 3x as much phosphorus to the lake as one acre of agricultural land.

Why do we care?

- Stormwater volume impacts Lake Champlain water quality
- Excess phosphorus leads to algal blooms and overgrowth of aquatic plants.

What can you do?

- Direct water away from paved surfaces, especially roads.
- Plant native perennial vegetation with deep roots.
- Participate in a local stormwater evaluation program: BLUE BTV, StormSmart, LakeWise, or StreamWise.

Little Lake Lesson Fifteen – Be Salt Savvy!

Did you know?

- The amount of salt used in the US each year would create a traffic jam of snowplows across the US almost three times!

Why do we care?

- Salt spread on roads and parking lots in winter harms fish and aquatic life, and contaminates drinking water wells.

What can you do?

- Always shovel before you salt.
- Use a 3" spread distance between salt grains.
- Sweep up excess salt and use in a future storm.

Little Lake Lesson Sixteen – Cyanobacteria in the Lake

Did you know?

- Cyanobacteria were the first life form on Earth to produce oxygen.
- When fueled by nutrients, calm conditions, and warm water temperatures they can form thick mats, called “blooms. ”

Why do we care?

- Cyanobacteria blooms can contain toxins that can be harmful to people and pets.
- Scientists cannot yet predict when toxins will be present, so beaches are closed when a bloom is present

What can you do?

- Always check to see if water is clear before swimming or recreating in water.
- When a bloom is present, stay out of the water and keep children and pets out too.
- Volunteer to monitor for and report cyanobacteria blooms to help keep others safe.

Little Lake Lesson Seventeen – Raise the Blade

Did you know?

- Longer grass has longer roots.
- Leaving grass clippings on the lawn after cutting helps build a healthy lawn.

Why do we care?

- Cutting grass no shorter than 3" (7 cm) allows roots to grow deeper, forming channels that rainwater can enter rather than running off the surface of the land.
- When we leave the clippings to decompose in place, the soil builds organic matter. This allows it to hold more water.

What can you do?

- Cut grass not shorter than 3" in height.
- Leave clippings to decompose in place.
- Cut no more than ⅓ of the length of grass blades in any one cutting.
- Learn more at: lawntolake.org

Little Lake Lesson Eighteen – Aquatic Plants in Lake Champlain

Did you know?

- Lake Champlain is home to over 100 underwater plant species, most of which are native.

Why do we care?

- Aquatic plants absorb pollutants, add oxygen to the water, & help prevent erosion.
- Species like eelgrass provide food and shelter for waterfowl, fish, turtles, and amphibians.
- Invasive species threaten these plants and the lake's health.

What can you do?

- Leave native plant communities undisturbed.
- Prevent the spread of invasive species by cleaning, draining, and drying boat equipment.

Little Lake Lesson Nineteen – Marine Debris

Did you know?

- Marine debris is human-made material that is deliberately or accidentally disposed of, abandoned, or transported into the ocean or lakes.
- The Rozalia Project has collected over 173,000 pounds of marine debris in Vermont since 2012.
- The top 5 items found are glass pieces, large foam pieces, food wrappers, cigarettes, and microplastics.

Why do we care?

- Marine debris poses a major threat to marine/aquatic habitats, wildlife, and the human food chain.
- Marine debris contaminates beaches and drives away tourists.

What can you do?

- Reduce use of single-use plastics, particularly bottles, foam containers, and food wrappers.
- Buy items with minimal or no plastic packaging.
- Dispose of all waste properly.
- Volunteer at a local clean up.

Little Lake Lesson Twenty – Non-indigenous Aquatic Species

Did you know?

- More than 50 aquatic nonindigenous species (those introduced outside of their native range) are now present in the Lake Champlain Basin.

Why do we care?

- These species can threaten habitats, native species, ecosystems, infrastructure, and/or human health if they become established.

What can you do?

- Always clean, drain, and dry your boat and boating gear before moving to another waterbody. This is true for those paddling canoes, kayaks, and paddleboards as well as those trailering boats and jet skis.

Little Lake Lesson Twenty-One – Drought and Lake Champlain

Did you know?

- Lake Champlain's lowest level ever recorded was on December 4, 1908 at 92.09 ft (28.07 m).
- Most recently, Lake Champlain reached a low level of 92.81 ft (28.29 m) on October 19, 2025

Why do we care?

- The Lake Champlain Basin is expected to face more extreme weather – both wet and dry – over time.
- Drought can impact people, places, wildlife, and communities.

What can you do?

- During droughts, conserve water inside and outside of your home.
- Report how drought is affecting you by completing a Condition Monitoring Observer Report at: go.uvm.edu/cmor
- Please share specific impacts (e.g., a well has gone dry, trees have lost leaves, a garden cannot be watered).