



Understanding the Impact of Road Salt on Local Lakes

Organizational Info:

Title: Understanding the Impact of Road Salt on Local Lakes

Summary: Students learn about the impact of salt on local lakes by testing for key indicator species like zooplankton.

Inquiry Question: Inquiry Question 4: How do Contaminants Threaten Water?

Duration: 1-2 class periods

Learning Environment: Classroom, outdoor

Season: Summer, Spring, Fall,

Materials:

- Dr. Shelley Arnott's video for teachers:
<https://www.youtube.com/watch?v=6zax8mJyuDI>
- Segment in the ten-minute video accompanying the Water Bundle of Dr. Shelley Arnott discussing her road salt research
- Field trip to Elbow Lake Environmental Education Centre

Meta Data:

Content Type: Activity

Bundle: Water

Theme: Contaminants in the Environment

Subject Area: Biology, Chemistry, Environmental Education, Geography, Health, Outdoor Education, Science

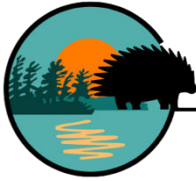
Curriculum Focus: 8

Curriculum Links:

Science and Technology: A1.1, A1.2, A1.4, B2.5, C1.1, E1.1, E1.3, E2.3, E2.6, E2.7

Dr. Shelley Arnott's research Queen's University shows the impact that salt can have on the health of local ecosystems. Teachers are encouraged to watch Dr. Arnott's 32-minute video if they want more background information <https://www.youtube.com/watch?v=6zax8mJyuDI> .
Link to lab: https://rise.articulate.com/share/8_MISIMMwXXJT4_UCa2c4KOJKU-n-Lbh

1. Teachers show students segment in the ten-minute video accompanying the Water Bundle embedded on QUILLS website of Dr. Shelley Arnott discussing her road salt research. As Dr. Arnott explains, high amounts of road salt in our freshwater lakes can lead to the loss of sensitive species, like some zooplankton (microscopic animals). These zooplankton feed on algae (microscopic plants). When the zooplankton disappear, algae blooms can occur which impacts the rest of the ecosystem but can also impact drinking water (like in Constance Lake).



2. At Elbow Lake Environmental Education Centre (ELEEC) students will do a water sampling experiment from a nearby body of water (Elbow Lake). They will sample for zooplankton to see what species can live in the water. The species found can indicate the health of the ecosystem, as some are more sensitive to contaminants and water hardness. If these sensitive species are found, we have an indication that the water and ecosystem is relatively healthy.

3. Using water test strips, water meters, and the soap test explored in lesson 14 students will also test the water for salinity, pH and water hardness. This will indicate if there is contamination from road salt in that body of water.

4. If the zooplankton (the bottom of the aquatic food web) are affected, what does that mean for the rest of the food web? What does that mean for our food and water? Students brainstorm food sources that comes from waterbodies (rice, fish, water chestnuts, cranberries, watercress, cattail) and how they are impacted.