

ROAD SALT MONITORING

WHY

Organisms that live in freshwater environments, such as the water bodies of the Ottawa River watershed, generally have very low chloride tolerances. When humans use road salt (sodium chloride) on roadways, it inevitably ends up carried in runoff into local streams, creeks, or rivers. We monitor conductivity and chloride levels in these waterways to **assess whether this influx of salt is enough to have an impact on the aquatic organisms** that might live there.

WHEN

Our salt monitoring volunteers are active during the winter, when road salt is generally being applied. More specifically, our road salt monitors head out **within 48 hours of any weather event that would lead to salt use** (eg. snowfall or freezing rain) **or after significant melting has occurred** (eg. rainfall and/or above-freezing temperatures).



WHERE

Because of their proximity to road salt usage and lower flow rate (relative to the main stem), urban streams are of particular importance when it comes to the effects of road salt on the watershed. Therefore **monitoring efforts are generally focused on streams that are next to high-road-salt-usage areas**, like residential neighbourhoods, busy roads, transit stops, and large parking lots, though some more rural streams have been added.



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HOW: Equipment

Road salt monitoring volunteers are equipped with either a telescopic pole or bucket-and-rope sampling system, depending on their sampling site, as well as a conductivity meter, sample bottles, and data sheet.



HOW: Procedure



Step 1: Assess whether it is safe to access your monitoring site

- Sampling locations have been chosen because they are generally safe to access, however it is important to look for unstable shorelines, thin ice, or anything else that may make accessing your site unsafe **before attempting to collect a sample**.
- If you cannot approach your stream safely, DO NOT proceed with sampling procedure, and notify Ottawa Riverkeeper (see page 3 for contact information).

Step 2: Collect a sample

- Submerge the container of your sampling system (jar/bottle or bucket) to collect water from the stream.
- If the creek is frozen:
 - if safe to do so, you can attempt to break the ice with your sampling pole.
 - if it is unsafe, or you cannot break the ice, make note of ice conditions and notify Ottawa Riverkeeper that no sample was collected.

Step 3: Measure conductivity

- Remove the cap from your conductivity meter and ensure that it is set to measure conductivity.
 - press "Set/Hold" repeatedly until " μS " appears in the top-right corner.
- Place the meter into the water sample and swirl slowly.
- Wait for the reading to stabilize (fluctuates by +/- 5 or less).
- Record conductivity and temperature on your data sheet (last page).
 - if conductivity exceeds the meter's capacity (flashing 3999), please record >3999 $\mu S/cm$ on your data sheet.
- Replace the cap on your conductivity meter.
 - upon returning home, please add some tap water to the cap to keep the meter probe wet.



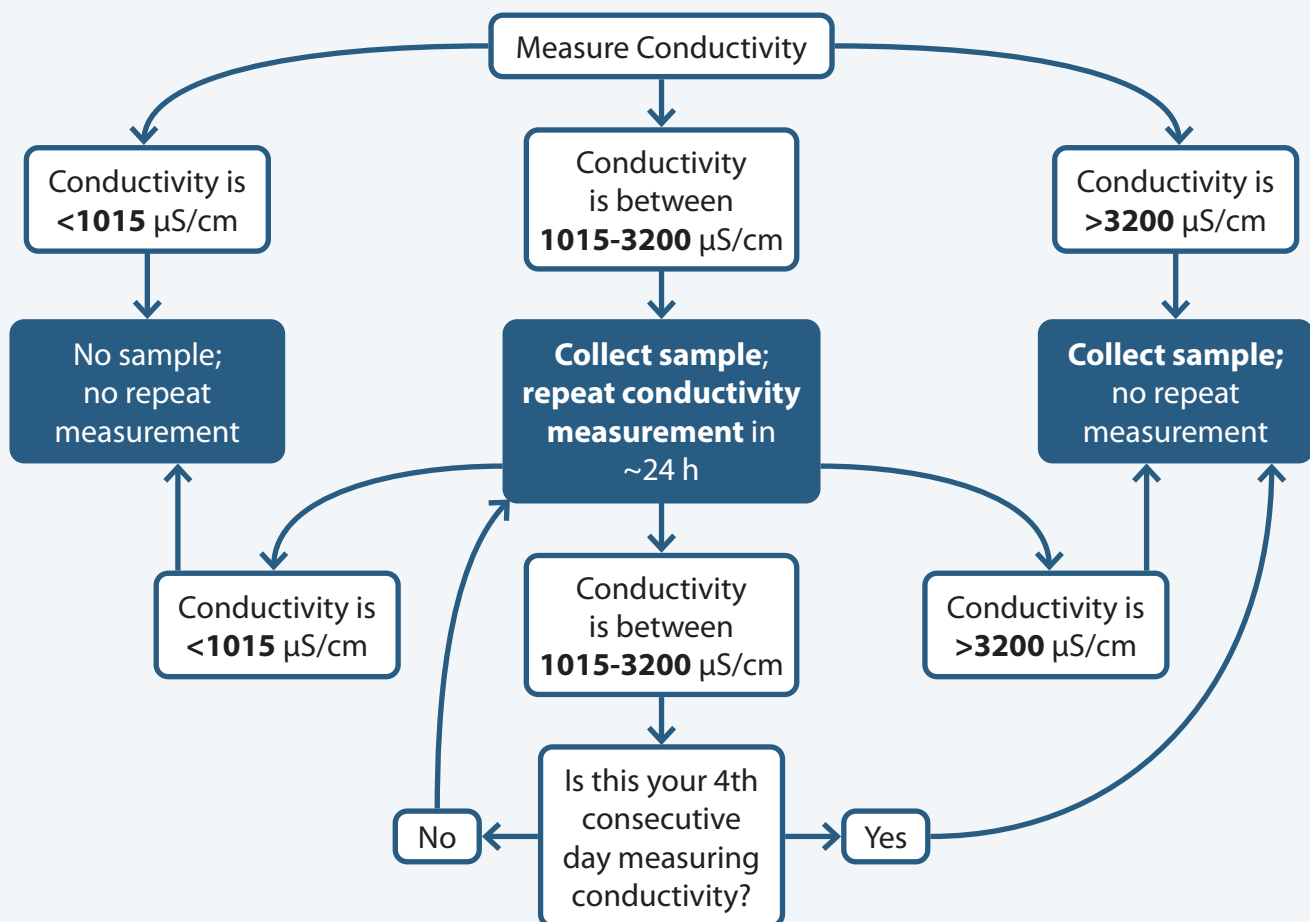
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HOW: Procedure (cont'd.)

Step 4: Collect water sample

- If conductivity is **below 1015 $\mu\text{S}/\text{cm}$** , no sample collection is required.
- If conductivity **exceeds 1015 $\mu\text{S}/\text{cm}$** , collect at least 50 mL in the chloride sample bottle.
 - samples can be kept refrigerated for up to 20 days.
- Consult the flow chart below to determine if subsequent sampling is required.

Sampling Flow Chart



CONTACT

cbm@ottawariverkeeper.ca; Please include "Road Salt" in the subject line of your email

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Site Name &
Coordinates

Sampler(s) Name

Date (yyyy/mm/dd)				
Time				
Ice Cover (Y / N)				
Air Temperature (°C)				
Water Temperature (°C)				
Conductivity (µS/cm or mS/cm; circle units used)	µS/cm or mS/cm	µS/cm or mS/cm	µS/cm or mS/cm	µS/cm or mS/cm
Chloride sample collected (Y / N)				
Weather conditions (sunny, partly sunny, cloudy, rain, snow, etc)				
Water level (very low, low, average, high, flooding)				
Comments / Observations (eg. nearby road salt use, pollution, etc)				

Please submit data following the monitoring event. Fill out the Road Salt Monitoring Google Form, or scan and email this sheet to kalambo@ottawariverkeeper.ca