

# The Lake Sampler

Quarterly news and updates bulletin from the  
BC Lake Stewardship and Monitoring Program

Tuesday  
Feb 14, 2023  
Issue: Winter  
2023

## Season in Review

### An End of Season Summary

In 2022/23, 49 lake monitoring programs with 55 sample locations were completed under the BC Lake Stewardship and Monitoring Program (BCLSMP). The Ministry and BC Lake Stewardship Society (BCLSS) were able to complete audits of 28 (57%) lake monitors. Data has been received for 42 of the 49 lakes (86%). Data reviews are in progress, along with final lake reports.

Lake reports are published in the BCLSS online [library](#), and are linked to the mapping portal on our [website](#).

This year the BCLSMP team also added several tools to the website including a video training library and updated field sheets in response to the 2021 volunteer survey results. Also, by volunteer request the team restructured the sampling kits to include fewer bottles and better organization for ease of use. As well, we implemented a seasonal bulletin, "The Lake Sampler," to help improve communication between the Ministry and our volunteers.

For more on what we are working on, please see "Behind the Scenes" on page 2.



Example of a final lake report.



Azousetta Lake. Photo Credit: powderking.com

## Warming Up

### Next steps for volunteers

The new year is for sitting with hot cocoa and enjoying the quiet after the holiday rush. The new year also sets our minds to thinking and planning for the upcoming months.

The BCLSMP team has sent out emails to all our ongoing, and some new, lake volunteers and stewardship groups. Please check your email inboxes, and respond appropriately as soon as you are able. This information will help us with our budget forecasting and program planning for the 2023/24 monitoring season.

Additionally, if you have not already done so, please visit our website ([www.gov.bc.ca/lakestewardshipmonitoring](http://www.gov.bc.ca/lakestewardshipmonitoring)) and complete a year end survey. The survey is completely anonymous, so feel free to be as candid as you like. Your responses help us to identify areas of concern or areas in need of improvement. The goal is to make the BCLSMP program work as efficiently and effectively as possible for the volunteers and the Ministry alike.

As well, if you still have data that needs to be sent in, please do so. We have received data from most lakes, but there are still a few lakes with outstanding data. You can email your data to us directly at [volunteerlakes@gov.bc.ca](mailto:volunteerlakes@gov.bc.ca), or use the online data submission form tool available through our [website](#).

The BCLSMP team will keep everyone informed on when to expect shipment of sampling kits and equipment. Additionally, we will send out emails with weblinks including dates and times for the online training session. The team will also coordinate with volunteers and lake groups to organize dates, times and locations for in-person training sessions. As a reminder, all volunteers should do the training every year as a refresher. All new volunteers are required to attend training sessions before they can begin a sampling program.

We look forward to another successful year with all of you.

## Meet the Ambient Surface Water Quality Monitoring Team

Lucie Thomson Unit Head Vernon	Kirsten McNeill Aquatic Stewardship Coordinator Prince George	Mike Sokal Water Quality Limnologist Penticton	Jolene Raggett Aquatic Resource Biologist Nelson
Kristy Rasmus Water Quality Monitoring Specialist Smithers	Kim Klaczek Water Quality Monitoring Specialist Prince George	Dan St. Hilaire Water Quality Monitoring Specialist Penticton	Dean Peard Water Quality Monitoring Specialist Victoria

## Behind the Scenes

### What the Ministry is working on

It is probably not news that in our work winter is a time for completing tasks from the previous field season, and preparing for the upcoming one.

The BCLSMP team have been working on getting caught up on a back log of data analysis and reporting, but we are making headway.

The team is also working on a project where interim data summaries will be available on our website through the mapping portal. It is not live yet, and will take some time to have summaries for all the lakes.

Full lake study reports will still be written at the end of the three year study cycle.

In December the BCLSMP team sent out a year-end survey to all 2022 volunteers and stewardship groups. In the coming month we will be reviewing the results of that survey to identify areas for improvement. We will then brainstorm ideas to add to action items in our 2023/24 workplan.

The BCLSMP team continues to add tools to the [website](#) including a link to additional surface water monitoring [resources](#). This link can help volunteers and stewardship groups design and implement their own monitoring programs, and includes guides on data management and program structure, even providing example field sheets. Additionally, we are completing a new BCLSMP Field Manual that will be available soon, and we will also be adding some georeferenced sampling location printable maps to the mapping portal.

The Ministry is transitioning from our existing data management system to a new system. This will mean that there may be some changes to the online data submission form for all programs, as well as to the requisition forms used for Level 3 programs.

Lastly, if you have not already done so, please respond to the email sent from the BCLSMP team at the end of January to confirm your participation in the 2023/24 season.

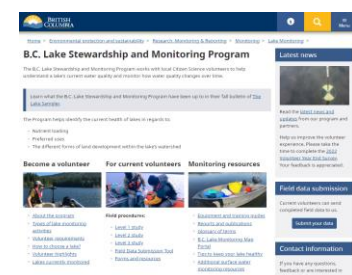
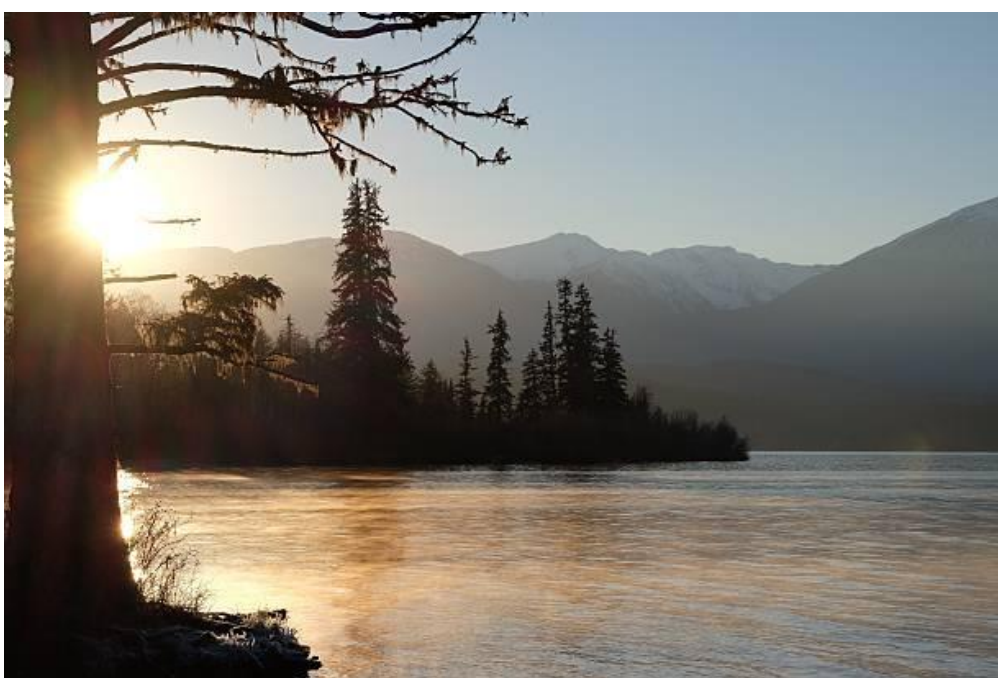


Image capture of BCLSMP website homepage.



Lakelse Lake. Photo credit: iStock.com/Tomas Handfield

## In the Know

### Items volunteers and stewardship groups need to know

- 2022 was the first year for widespread use of our online field data submission tool. Based on feedback from the 2022 year-end survey (which was sent out in December) there may be changes to the form for the 2023 season.
- All new lake groups or volunteers will start with Level 1 programs the first year, and may be able to transition to a Level 3 program in the following year.
- The Ministry sent an email to confirm participation in the 2023 sampling season. Please respond if you have not already done so.
- The Ministry is replacing its current data management system with a new system. This means that requisition forms for Level 3 programs may look different in the 2023 season.
- For any questions or concerns email [volunteerlakes@gov.bc.ca](mailto:volunteerlakes@gov.bc.ca)

## Team Tell-All

### Spotlight on a Team Member

Kim Klaczek is one of the four Water Quality Monitoring Specialists working in the Environmental Protection Division of the Ministry. Kim began her role in 2022 and is based out of the Prince George Office. Some of her key responsibilities include equipment management, kit preparation, data intake and management and communications.

In addition Kim is the field lead in the Omineca-Peace for both the [BC Lake Monitoring Network](#) conducting lake monitoring, and for the Province's [Canadian Aquatic Biomonitoring Network \(CABIN\)](#) work doing stream and invertebrate monitoring. Kim also does GIS and mapping work for the Algae Watch Program.

Kim has worked all over western Canada including stints in all three of Canada's northern territories. She began her career with Environment Canada working with shorebirds and water quality. More recently she has worked in environmental consulting on a variety of projects. When not working, Kim enjoys spending time with her husband and two children exploring the outdoors.



Kim Klaczek, Water Quality Monitoring Specialist.



## Stewardship in Action

Highlighting volunteers and stewardship groups



Lakelse Watershed Stewards Society logo.

The Lakelse Watershed Stewards Society (LWSS) is a non-profit volunteer group founded by residents in 2002. The group formed in response to concerns about shoreline erosion, water quality, sedimentation, invasive species, anthropogenic impacts, and declining fish populations.

The LWSS participates in the BCLSMMP doing a Level 2 program. They collect bi-weekly Secchi depth, surface temperature and dissolved oxygen/ temperature profiles from four sites.

In addition to the BCLSMMP work the LWSS conducts water quality monitoring for *E. coli* and heavy metals, has completed aquatic plant surveys (*Elodea spp.* in Lakelse Lake Wetlands Provincial Park) and assisted with salmon counts in Williams Creek with the Department of Fisheries and Oceans.

The LWSS also engages in public education and outreach initiatives such as leading interpretive walks at Furlong Bay Provincial Park, installing interpretive signage at Clearwater Lakes and Granite Creek trails, and hosting workshops and interpretive events regarding water quality, invasive species, fish and wildlife and wetlands.

The LWSS website also contains links to live webcam footage of the lake, as well as webcam footage from the Scully Creek Camera which monitors salmon migration. For more information visit <https://www.lakelsewatershedsociety.com/>.

## Animalia

Understanding aquatic animals and insects

Snow fleas, *Hypogastrura nivicola*, are tiny insects that are highly active in the winter. They can survive in winter because they have an antifreeze protein but they are actually active all year round and are usually found in moist, damp places.

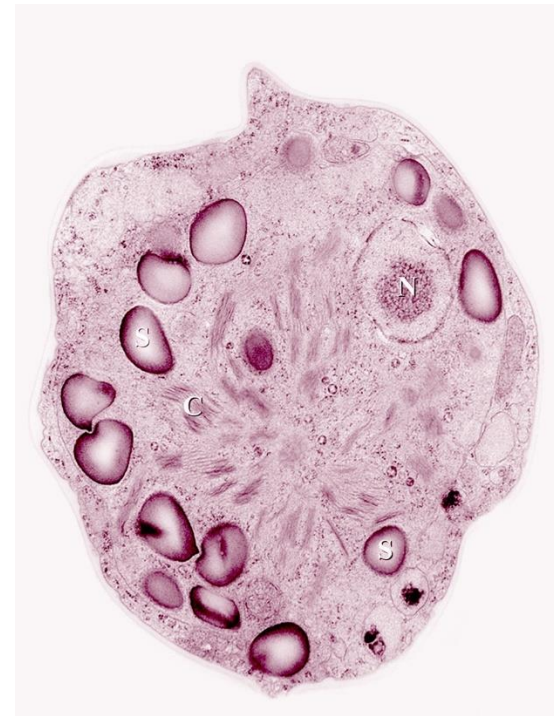
Snow fleas are not actually fleas, they are springtails, a wingless insect that gets around by jumping. They do not bite and are harmless to humans and animals. They eat decaying organic materials and turn them into fertile soil, so they are great for nutrient cycling in the environment.



Snow fleas. (from Farmers' Almanac)



Watermelon Snow on Mount Ritter, California and *Chlamydomonas nivalis* cell (from Wikipedia)



## Terminology Tutorial

Demystifying common lake monitoring terms

While enjoying winter activities such as skiing, ice fishing or snowshoeing you may notice areas of snow that look red or orange in colour, especially as spring nears. This is called "**watermelon snow**" and is caused by a species of green algae called *Chlamydomonas nivalis*. In addition to the green pigment, chlorophyll, that we normally associate with algae, *Chlamydomonas* contains a secondary red pigment called astaxanthin which gives it that distinctive red or orange hue.

Unlike most species of fresh water green algae *Chlamydomonas* is cryophilic, or cold loving, and thrives in freezing water.

Watermelon snow is common during the summer in alpine and coastal polar regions worldwide. They can typically be found at altitudes of 3,000-3,600 m where temperatures remain cold throughout the year and snow lingers from winter storms.

In winter months the algae are dormant. In spring, increased light, meltwater and nutrients stimulate growth. The red colour of the cells aids in absorbing heat from the sun providing the algae with the liquid meltwater they need to survive. However, these algae also play a substantial role in glacial melt as a result.