



The Lake Sampler

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

Friday
December 15,
2023
Issue: Fall 2023

Season in Review

An End of Season Summary

The BC Lake Stewardship and Monitoring Program (BCLSMP) had a very successful year in 2023.

This season Level 1 monitoring (secchi depth and temperature) was conducted on 36 lakes, managed by the [BC Lake Stewardship Society](#). Additionally, 12 Level 2 (secchi depth, lake profiles and ENV data) and 12 Level 3 (secchi depth, lake profiles, multi-depth sampling) monitoring programs, managed by the Ministry, were accomplished.

Most of the data has been received, and is under review. Annual data summary information has been posted for many lakes through the [BCLSMP mapping portal](#). To view these summaries, zoom in on a lake, click on the green dot, and then click on the "Annual Data Summary" link in the pop-up box.

The Ministry is also hoping to collect ice-on data in 2023 using our new [BC Lake Ice Reporting Tool](#). The tool can be accessed from the [BCLSMP webpage](#) using a weblink or QR code. Simply open the tool, input your information, and click submit. The data comes directly to the Ministry allowing us to track ice-on and off dates over time which is helpful for climate change studies.

The BCLSMP relies on volunteer samplers to ensure the best possible data collection. The Ministry and BCLSS would like to sincerely thank all our volunteers from the 2023 monitoring season.



Sampler on Lake Kathlyn, Smithers.



Christina Lake, Grand Forks. September 2023.

Wrapping Up

Final steps for volunteers to complete 2023 programs

Snow is in the air and we are wrapping up the 2023 lake monitoring season. Here are some things to keep in mind as you finish your programs for the year.

If you have not already done so, please ensure that all the data you collected has been sent to us so we can complete the annual data review for your lake and post it to our mapping portal. Data can be submitted by filling in the digital excel file, available on the BCLSMP [webpage](#), and emailing it to volunteerlakes@gov.bc.ca. Alternatively, volunteers can submit data using the [online field data submission tool](#). Please include photos of completed field sheets and completed requisition forms (Level 3 only) with all data submissions.

Additionally, if you still have Level 2 or 3 monitoring equipment, please return it to your Ministry contact, or ship it to us here:

Ministry of Environment & Climate Change Strategy
1011-4th Ave, Suite 325
Prince George, BC V2L 3H9
Attn: Kim Klaczek

Email us for the Purolator account number to charge the shipping to. The equipment needs to be maintained over the winter and we will store things and return them to you in 2024 if you are continuing with your monitoring program.

As the winter temperatures move in, please keep in mind our new [BC Lake Ice Reporting Tool](#). This tool was developed to track ice on and off dates for lakes around the province to aid in climate change studies. The tool can be accessed from the BCLSMP webpage and allows lake users and residents to submit ice on and off information directly to the Ministry.

Meet the BCLSMP Team

Vacant
Unit Head Ambient Surface Water Quality Monitoring Team
TBD

Kirsten McNeill Aquatic Stewardship Coordinator Prince George	Vacant Sr. Ambient Water Quality Scientist TBD	Mike Sokal Water Quality Limnologist Penticton	Jolene Raggett Aquatic Resource Biologist Nelson
Kim Klaczek Water Quality Monitoring Specialist Prince George	Kristy Rasmus Water Quality Monitoring Specialist Smithers	Dan St. Hilaire Water Quality Monitoring Specialist Penticton	Dean Peard Water Quality Monitoring Specialist Victoria

Behind the Scenes

What the Ministry is working on

Volunteers make a commitment to the BCLSMP program and donate their time and energy to collecting the data. Naturally, you want to see the data you have spent your time collecting. We hear you.

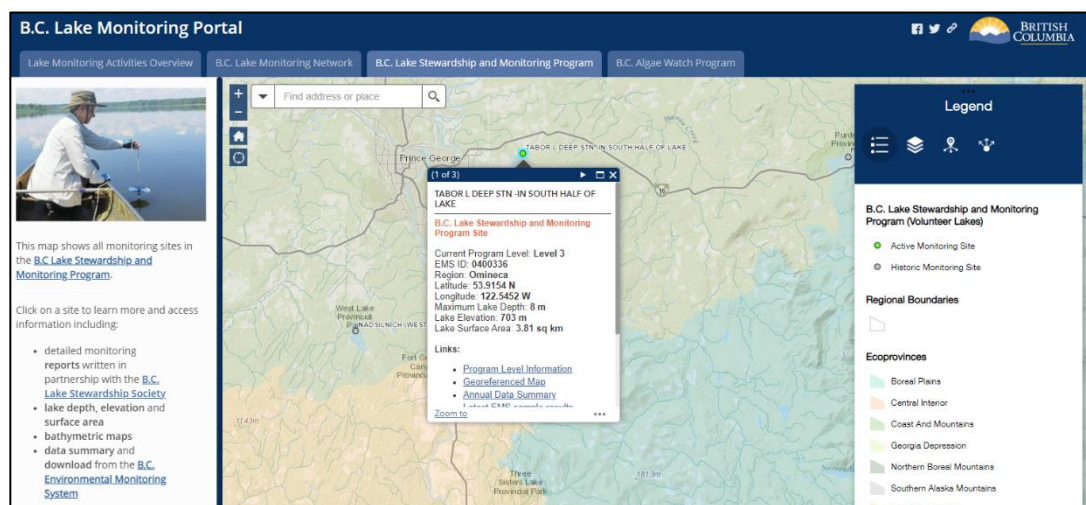
The Ministry has been working diligently over the past year to develop systems that allow us to review data faster and publish it sooner.

Part of these systems is having volunteers submit data electronically, either using the online data submission tool or filling in the excel sheets and emailing them to us. This allows us to move data much quicker into the format that we need for analysis and reduces transcription errors when we need to input all the data points by hand.

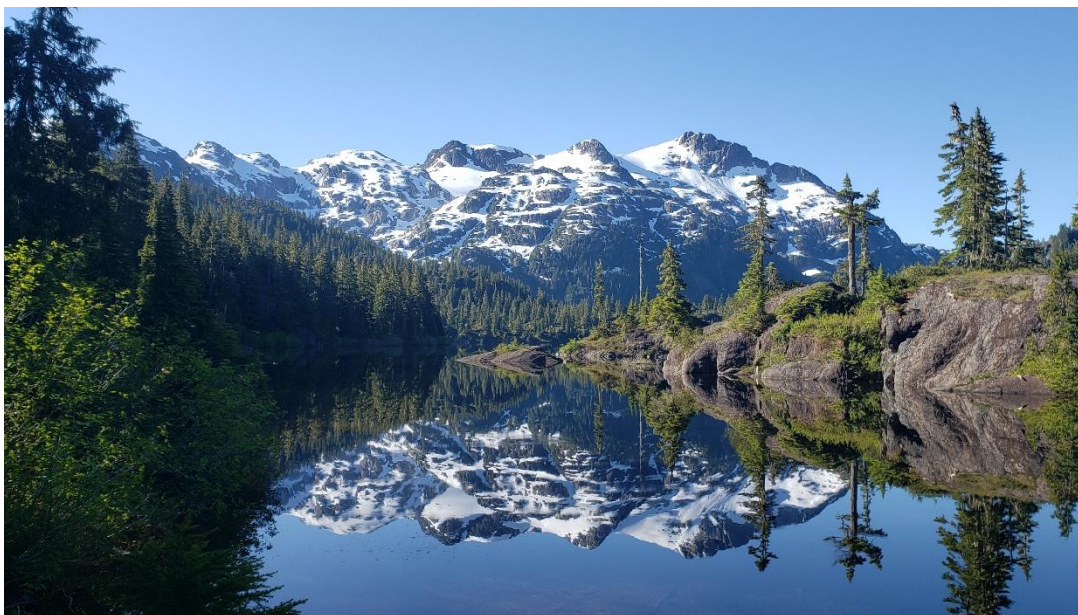
We have also begun utilizing a powerful

data analysis tool that provides outputs very quickly. This allows us to review the data faster and upload the figures and tables needed to relay that information to lake users and residents sooner.

We are already updating the mapping portal, accessed from the [BCLSMP webpage](#), with the 2023 Annual Data Summaries for many lakes and plan that all the data reviews will be available by the end of the year.



BC Lake Monitoring Portal



Favourite Lake Photo Submission: Bedwell Lake, Comox. Photo Submitted by: Jesse Francisco

In the Know

Items volunteers and stewardship groups need to know

- The Ministry created a new BC Lake Ice Reporting Tool in 2023 which allows lake users to send information about ice on and ice off dates to the Ministry to be added to our records. The tool can be accessed by visiting www.gov.bc.ca/lake-monitoring.
- Annual data summaries are now available and accessible through our [website](#). Click on the mapping portal link, and then choose the BCLSMP tab, zoom in to a lake, click the dot and select the "Annual Data Summary" link.
- The 2023 Year End Survey is ready for your feedback and comments. It can be accessed through the BCLSMP webpage and has been sent out via email. The survey is completely anonymous, and helps our team determine and prioritize updates that are needed to make the program better both for volunteers and the Ministry.
- For any questions or concerns at any time please email us at volunteerlakes@gov.bc.ca

It's Tradition

Spotlight on a Winter Tradition

Polar Bear Dips, Swims or Plunges are a winter tradition that occurs all over the world. These events, where participants enter a water body despite the low or freezing temperatures and possible ice cover, typically occur on New Years Day and can be held to raise money for charitable organizations.

On New Years Day in the Netherlands, approximately 10,000 people dive into the icy sea at Scheveningen for the country's "Nieuwjaarsduik" (New Year's dive). In New Zealand Polar Plunges are held during their winter in late June, on or near the shortest day.

In the UK, the majority of winter swimming events take place on Christmas Day or Boxing Day. Antarctic polar plunges are held during their midsummer season, usually in late December.

In BC, many communities host Polar Bear Dips. The Polar Bear Swim Club in Vancouver has been active since 1920, and usually has 1,000 to 2,000 participants in the event annually.



New Year's Day Polar Bear Dip at Ness Lake, Prince George.

Stewardship in Action

Highlighting volunteers and stewardship groups



Harvester on Tabor Lake, Prince George.

The Tabor Lake Cleanup Society is a society formed by a group of concerned citizens in 1994. The group formed following a late season fish kill that the lake experienced in September of 1993.

The TLCS has participated in the BCLSMP since 1994 doing Level 3 monitoring. This monitoring includes bi-weekly secchi depth and lake profile readings as well as multi-depth water sampling for nutrients and biological indicators. Monitoring is conducted throughout the open water season, and the TLCS has an impressive 29

year data record. This is one of the longest records for any lake in B.C., and the only long-term data set for a lake in the north of the province. In 29 years the TLCS has been monitoring only two years of data were missed, one due to volunteer availability, and one due to COVID.

In addition to the BCLSMP work, the TLCS also manages a harvester on the lake. The harvester acts as an aquatic lawn mower, removing aquatic plants from the lake. These plants are then transported to a specified area where nutrients cannot re-enter the lake as the plants decay. The TLCS is working with the University of Northern British Columbia to see whether the plant compost is useable for home and commercial gardening applications.

The LWA also engages in multiple fundraising activities throughout the year to support the costs of running the harvester.

To learn more about the Tabor Lake Cleanup Society, become a member, or donate, visit <https://taborlakecleanup.com/>.

Animalia

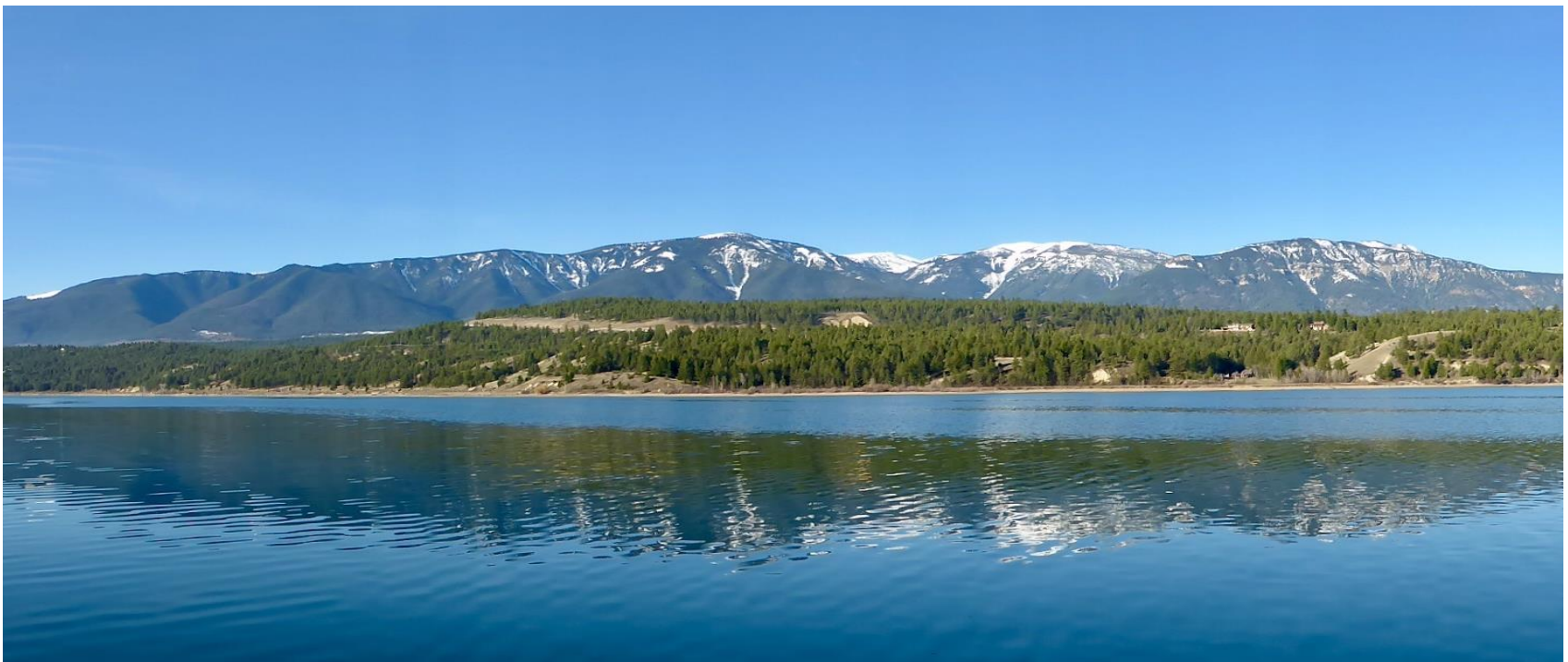
Understanding aquatic animals and insects

The green darner (*Anax junius*) is a species of dragonfly, one of the most common in North America. The nymphal stage are aquatic carnivores feeding on insects, tadpoles, and small fish. As adults they are one of the few native dragonfly species that do not overwinter in Canada, instead they fly south, at speeds nearing 18 kms/hr., and return in the spring.

Adult green darners are quite large with males reaching 8 cm long with a wingspan of 10 cm. They prey on insects, spiders and even small birds and are found near streams, lakes, or ponds and also in grasslands, forests and urban areas.



Green darner dragonfly adult.



Lake Windermere, Invermere.

Understanding Drought

How streams and lakes respond to drought.

This year was a record drought year for much of B.C. Drought can appear in two ways: from the atmosphere (rain or snow) or from the ground (less water entering underground aquifers). The water from the ground is called baseflow and is particularly important during times of atmospheric or meteorological drought as it can keep a stream flowing even with a lack of precipitation.

Baseflow, or hydrological droughts occur in response to meteorological droughts because not enough precipitation leads

to less water entering the aquifers which supply the baseflow.

New research shows that recovery of baseflows lags behind the end of a precipitation drought. This study looked at 30 years of data from over 305 stream locations where baseflow drought conditions lasted anywhere between 9 to 104 months. In these cases stream recovery was shown to take 12 to 41 months, despite atmospheric precipitation levels returning to normal.

Lakes and reservoirs will respond similarly to drought conditions.