

CONNECTIONS

Newsletter | September 2025



Photo taken at Footprint Lake



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What's New

With wildfires affecting regions all across Manitoba, CAMP has had to modify this year's monitoring program. In this issue of our newsletter, we'll provide an update on the monitoring schedule and explore the Lower Churchill River region. We'll also learn about what we can do to protect lakes and rivers from aquatic invasive species. Keep reading for this and more!

About the Program

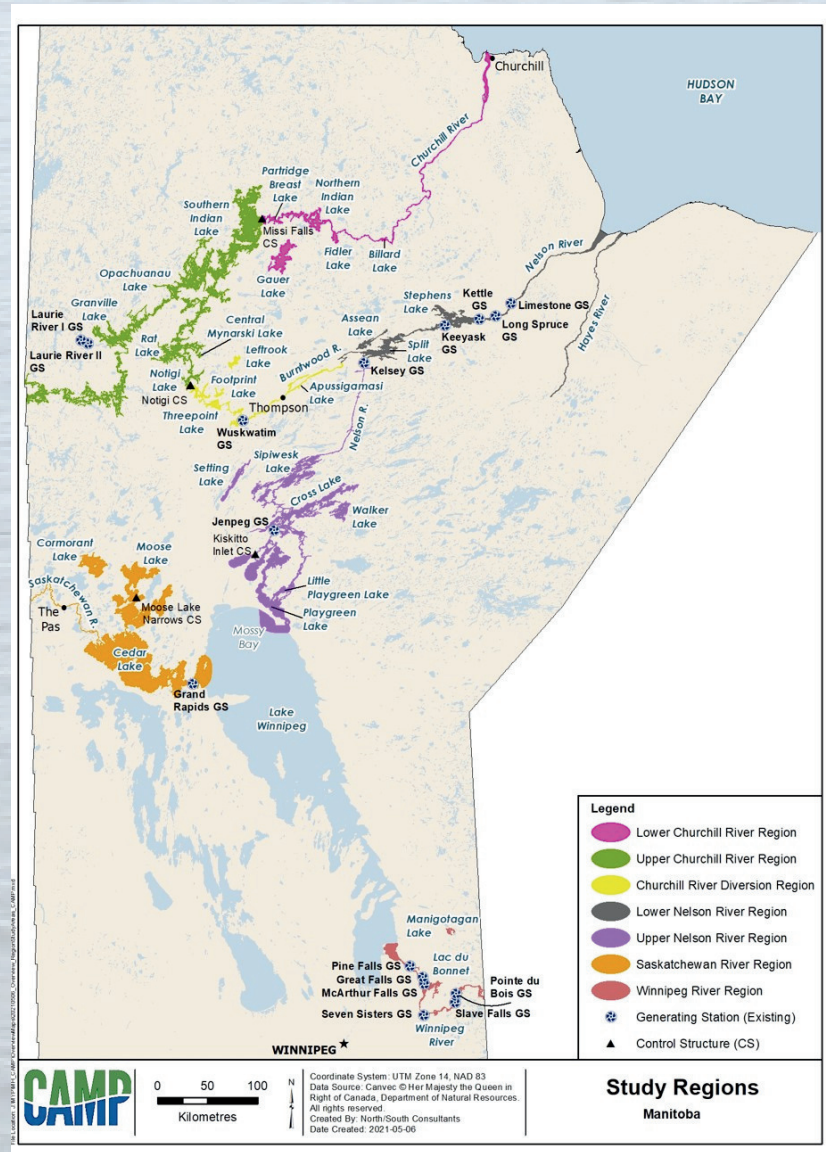
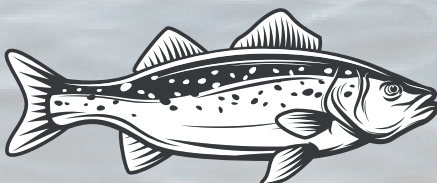
The Coordinated Aquatic Monitoring Program (CAMP) was established in 2006 as a partnership between the Manitoba government and Manitoba Hydro. CAMP is a long-term aquatic monitoring program to study and monitor the condition of rivers and lakes affected by Manitoba Hydro's generating system.

We monitor water bodies in regions all around the province in relation to Manitoba Hydro's infrastructure.

Components currently monitored under CAMP include:

- hydrometrics
- water quality
- benthic invertebrates
- fish community
- mercury levels in fish
- phytoplankton
- sediment quality
- physical environment

CAMP monitors some waterbodies on an annual basis and some on a three-year rotational basis.



Did you know that all CAMP data is available to the public?

Visit

<https://www.campmb.ca/request-data> to submit a data request

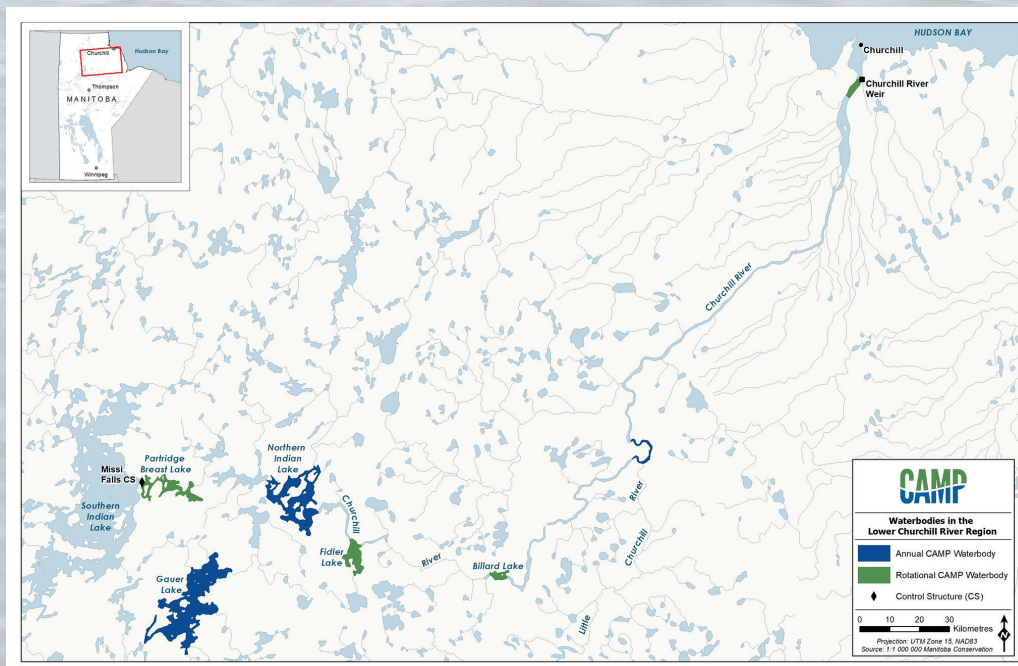
CAMP Study Region Profile

Lower Churchill River Region

In this issue of CAMP Connections, we are highlighting the Lower Churchill River Region, one of seven regions monitored through CAMP. The Town of Churchill is situated along the river, and the waterbodies within the surrounding region are encompassed by the South Indian Lake and Split Lake Resource Management Areas.

The Lower Churchill River Region extends from the outlet of Southern Indian Lake downstream of the Missi Falls Control Structure to Hudson Bay. Since the Churchill River Diversion in 1976, the majority of the Churchill River's flow is diverted into the Nelson River for power production. While a substantial amount of flow is diverted most of the time, the Churchill River also still experiences high flow events when flooding occurs in the broader system. This results in the river experiencing a significant range of flows and water levels.

Spanning three ecozones (Boreal Shield, Taiga Shield, and Hudson Plain), the upper portion of the region is characterized by numerous lakes and slow draining wetlands while the lower portion has more flat muskeg plains, extensive permafrost, shallow lakes, and raised gravel beaches.



CAMP monitors the following waterbodies in this region:

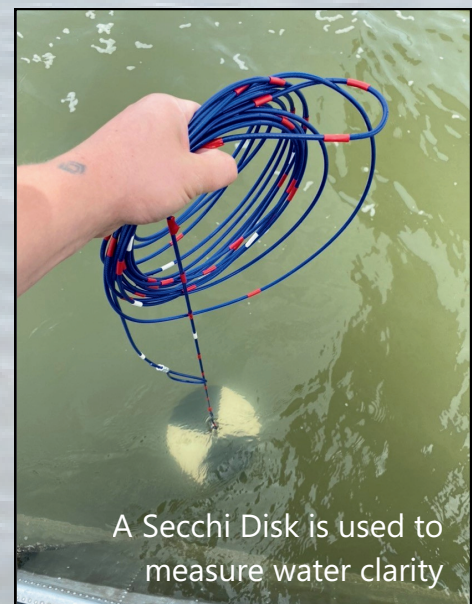
- Partridge Breast Lake (rotational)
- Gauer Lake (annual)
- Northern Indian Lake (annual)
- Fidler Lake (rotational)
- Billard Lake (rotational)
- Lower Churchill River at the Little Churchill River (annual¹)
- Lower Churchill River at the Churchill Weir (rotational)
- Missi Falls (continuous water quality)

CAMP monitoring started in the region in 2008. Recent data has shown that the most common fish species in the region include Cisco, Lake Whitefish, Northern Pike, Walleye, White Sucker, and Lake Sturgeon. The clarity of the water along the lower Churchill River is high, as shown by low turbidity and total suspended solids, as well as Secchi disk depths of greater than one metre. A Secchi disk is a black and white disk that is lowered into the water, where a measurement is taken at the deepest point where the disk can be seen.

¹ fish and benthic invertebrate monitoring has been paused at this site since 2019 due to a community concern. Water quality continues to be monitored annually



Photo taken at Northern Indian Lake



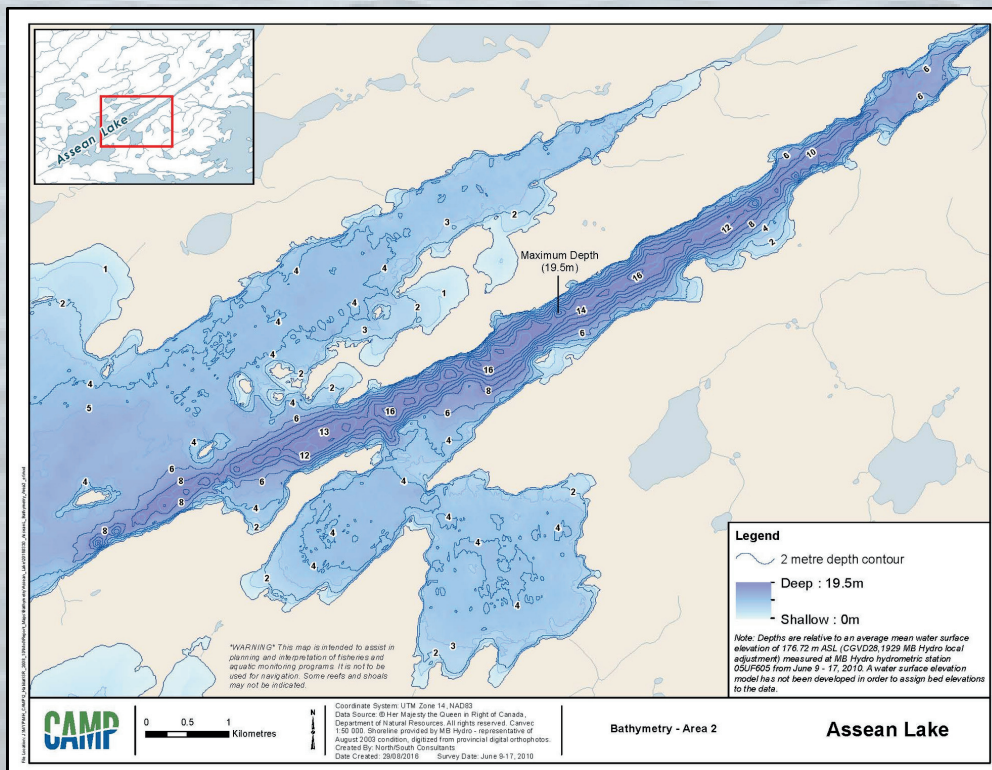
A Secchi Disk is used to measure water clarity

Science Corner

Beneath the Surface: The Science of Bathymetry and Substrate Mapping

Have you ever wondered what lies beneath the surface of Manitoba's lakes and rivers? Bathymetry and substrate mapping are two interesting tools that can help us understand the complexities of underwater ecosystems. Bathymetry involves measuring the depth of waterbodies, while substrate mapping includes the identification of materials like bedrock, sand, or clay, that make up the bottom of lakes and rivers. The combination of bathymetry and substrate mapping can provide a more complete picture of underwater habitats, and the types of fish or benthic invertebrates most likely to use them.

CAMP is building an inventory of aquatic habitat maps for waterbodies that are monitored across Manitoba. Using boat-based hydroacoustics, water depths and bottom-type data are recorded in the field. The data are then cross referenced with observations of shoreline features and samples of substrates collected from the bottom. The data are processed and analyzed to produce bathymetric and substrate maps like the ones below.

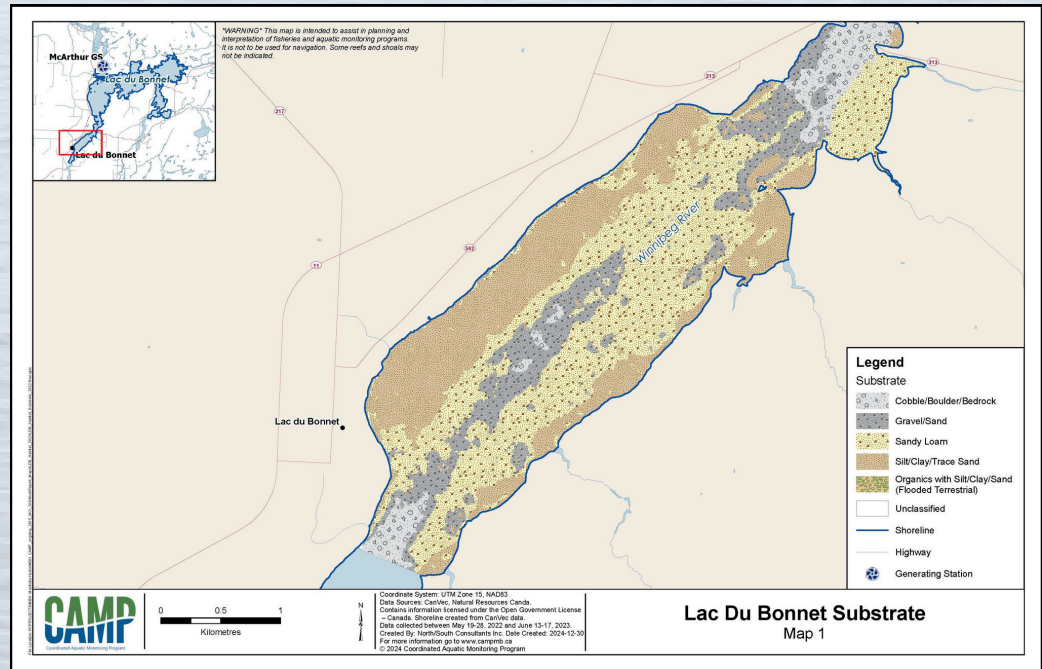


On the left, a map shows bathymetric data collected for a section of Assean Lake.

The contour lines and change in colour illustrate the change in depth.

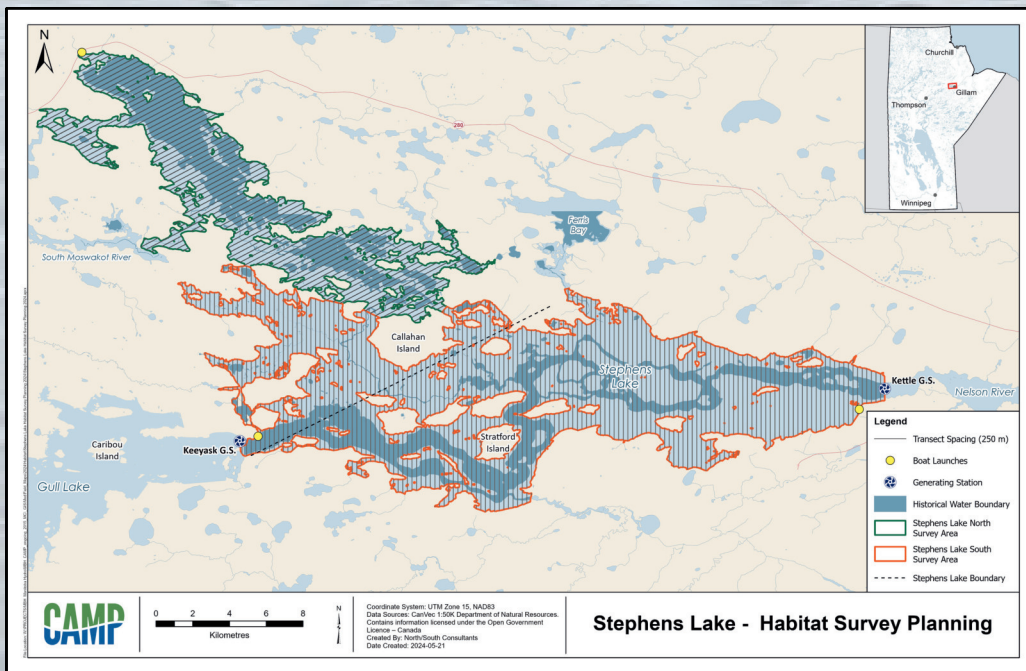
On the right, a map shows substrate data collected for a section of Lac du Bonnet.

The different colours illustrate the different types of substrate at the bottom of the lake.



On the left, a map shows the plan for collecting bathymetry and substrate data for Stephens Lake.

The transect lines show the path the boat will take back and forth across the lake.



Habitat maps are useful for planning aquatic monitoring programs. They enable us to see which types of habitats are present throughout a waterbody so that monitoring sites can be selected appropriately. As well, knowing habitat types helps with interpretation of other monitoring results. For example, analyzing fish population data is easier and more complete when we know the kind of habitat that is present.

To date, maps have been produced for the following waterbodies:

- Southern Indian Lake – Area 4
- Northern Indian Lake
- Billard Lake
- Apussigamasi Lake
- Threepoint Lake
- Cross Lake – West Basin
- Playgreen Lake
- Assean Lake
- Split Lake
- Stephens Lake
- South Moose Lake
- Cedar Lake – Southeast
- Cormorant Lake
- Lac du Bonnet

As with all CAMP data, bathymetric and substrate data are publicly available. We are currently working to update the maps posted online at www.campmb.ca. Raw data collected through the habitat mapping program are also available upon request.

Unwelcome Guests: Detecting and Managing Aquatic Invasive Species

Aquatic invasive species (AIS) are impacting marine and freshwater ecosystems around the world, including right here in Manitoba. AIS are organisms such as plants, animals, parasites, and viruses that are introduced to a region where they are not native. These organisms can outcompete the native species in a waterbody for resources like food and space, potentially disrupting the ecosystem as a whole. AIS can also damage watercraft, negatively impact subsistence and commercial fishing, and even clog infrastructure in waterways like hydroelectric generating stations.

The Manitoba government's AIS Unit is responsible for conducting annual monitoring for invasive species. Because CAMP monitoring covers so many waterbodies across the province, CAMP supports Manitoba's AIS Unit with additional sampling. This helps to detect AIS quickly after being introduced into a waterbody so that action can be taken. To do this, CAMP collects water samples that are assessed for Zebra Mussel veliger (larvae) on behalf of the AIS Unit from waterbodies they prioritize each year. CAMP monitoring crews also know how to spot AIS and report any detections to the province. One invasive species that has been identified during CAMP monitoring is Spiny Waterflea, in waterbodies including the Winnipeg River, Lake Winnipeg, and Playgreen Lake.



Zebra Mussels attach themselves to equipment at CAMP continuous monitoring sites. The photo above is from Grand Rapids, where the invasive species was first found on our equipment in 2023.

AIS of greatest concern (meaning in or close to Manitoba waters) include Zebra Mussels, Spiny Waterflea, Rusty Crayfish, Quagga Mussels, and invasive carps. The Manitoba government is taking steps to address AIS in the province through their AIS Prevention and Response Plan (2024). The objectives of the plan are to:

- Prevent the spread of AIS into and within Manitoba
- Detect and identify new AIS in Manitoba or AIS that have expanded into new locations within Manitoba
- Respond to new AIS detection before they become established or spread elsewhere
- Control, manage and adapt to established AIS to reduce the impact to the environment, economy and society

Preventing the spread of AIS is everyone's responsibility. Here are some actions you can take to do your part:

- Clean, Drain and Dry watercraft and equipment before moving from one waterbody to another. Decontaminate if necessary
- Learn to identify AIS and report any possible sightings to Manitoba's Aquatic Invasive Species hotline at 1-87-STOP-AIS-0 (1-877-867-2470) or online at www.manitoba.ca/stopais/ais_reporting.html
- Do not move water, fish, or other aquatic organisms from one waterbody to another

For more information on AIS and how you can help stop the spread, visit the Manitoba AIS Unit online at: <https://www.gov.mb.ca/stopais/index.html>



A Spiny Waterflea is shown on the left, in a photo provided by the Manitoba government

CAMP Expansion Update

As mentioned in our previous newsletters, CAMP is expanding to include shoreline monitoring, opportunities for inclusion of Indigenous knowledge, and community participation. We're rolling out the expansion in a phased approach, starting in Northern Manitoba. So far, we have had a number of meetings with representatives from First Nations, the Manitoba Métis Federation, and Indigenous communities to discuss how we can work together to grow CAMP with their participation in two regions. The CAMP team is grateful to all those who have participated so far, and we look forward to the next meetings.



Photo taken a Lower Churchill River - Churchill Weir

CAMP Species Feature

Walleye

Did you know that Manitoba's official fish is the Walleye? Announced in 2014, this designation reflects the importance of the species in the province. Also known as Pickerel, Walleye habitats range from Labrador to the Mackenzie River drainage in the Northwest Territories, to the St. Lawrence drainage which includes the Great Lakes, and to the Mississippi River basin as far south as Alabama. They are important for commercial, subsistence, and recreational fishing in Manitoba.

Walleye get their name from, you guessed it, their eyes, which have a reflective layer that helps them see well in the dark. This reflective layer gives the eyes a white appearance outside of the water, hence the name Walleye. This fish is a top-level predator that eats smaller fish and other species that are lower on the food web.

As such an important species in Manitoba, CAMP's fish community program monitors Walleye as one of its target species. Monitoring Walleye helps us track populations in different waterbodies and how they may change over time. We also use Walleye as an indicator of a productive aquatic ecosystem as it must contain suitable habitat and lower-level food sources to support sustainable walleye populations. CAMP's fish community program collects data on Walleye length and weight, sex and maturity, age, and external conditions, such as the occurrence of any deformities. Walleye live in every waterbody monitored by CAMP!

For more information about Walleye:
<https://www.dfo-mpo.gc.ca/species-especes/profiles-profils/walleye-dore-jaune-eng.html>



On the left, a Walleye caught at Pointe du Bois is measured as part of CAMP monitoring

CAMP Monitoring Calendar

This spring and summer, Manitoba has experienced unprecedented wildfires across the province. CAMP monitoring has been delayed in some areas and continues to adapt to prioritize safety of field staff and ensure resources aren't taken away from firefighting efforts and evacuee support. So far, water quality sampling was done later than usual in some areas, and some waterbodies had to be skipped. Some fish monitoring and aquatic habitat surveys have been cancelled. They may be rescheduled to later in the season if conditions allow. The installation of some seasonal water quality monitoring instruments was also delayed. We are continuing to monitor the wildfires and activities will be modified as needed.

From an ecological perspective it is unknown if, or how, the wildfires might affect aquatic ecosystems across the province. Wildfire activity in 2025 will be flagged in the CAMP database, and we will watch for unusual or changing data in the next few years.



Yellow Perch - Pointe du Bois

Along with Walleye, Lake Whitefish, and Northern Pike, Yellow Perch are sampled for mercury



Setting a gill net at Apussagamasi Lake

This year, mercury samples are scheduled to be collected from fish in most waterbodies. Besides two waterbodies that are monitored annually (Threepoint and Leftrook lakes), mercury in fish monitoring takes place every three years.

During regular fish community monitoring, small samples of fish tissue are collected and submitted to a lab for mercury analysis. To learn more about mercury in fish monitoring, you can review the scientific protocols on our website at <https://www.campmb.ca/mercury-in-fish> or check out the [article on Northern Pike](#) in our last newsletter.

CAMP will also monitor water quality, benthic invertebrates, and fish communities in waterbodies across the province. The [full schedule of monitoring activities](#) is available on our website. Dates may change due to weather and wildfire conditions.



Two-Mile Channel Inlet



For more information on the
program, visit our website
www.campmb.ca