



# Flathead Lake MONITOR

WINTER 2021



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**FLATHEAD**  
LAKERS  
DEFENDERS OF THE WATERSHED



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# Location, Location, Location: The value of Bad Rock Canyon

Envision a puzzle that represents our NW Montana landscape. It must include a native trout, a grizzly bear or elk, a river or lake surrounded by forests or mountains, and a lone person or two up to their knees enjoying the sparkling water while fishing. That is the lifeblood of our economy, and the quality of life that attracts residents and tourists alike to this valley for the beauty and magic of these escapes into nature.

Bad Rock Canyon is a critical piece of the puzzle, and in a prime location. Hidden in plain view, 80 acres of wetlands and 120 acres of healthy cottonwood forests, within 700 acres of diverse riparian forests, run along 1.1 miles of the Flathead River. It has a warm spring, and a primitive trail sought by hikers and bikers only minutes from the growing city of Columbia Falls. Just downstream, the land is located at a geographic pinch point where the Flathead River flows through a narrow canyon between two mountain ranges, connecting other areas of protected lands. This year, follow our stories about the Bad Rock Canyon Conservation Project, an invaluable place, and one that we hope our state wildlife agency will purchase and protect.

These undeveloped lowlands provide a safe crossing area for grizzly and black bears, mountain lions, wolverine, and other wide-ranging carnivores that move north and south between the Whitefish and Swan mountain ranges. You may see a grizzly bear print in the snow, although most are likely to have gone through, as they use this land to travel between these mountain ranges, and on to hibernate (giving birth about now to a 1-pound cub).

A herd of elk takes refuge here in the winter. In the spring, thousands of migratory birds seek open water, food, and rest here along their long annual migration routes. Frozen creeks and lakes often greet these migrants, but the warm spring guarantees a safe place to land, when winter lingers in the valley. Bull trout and westslope cutthroat trout pepper the property's shores when migrating to upstream spawning grounds, some as far as 150 miles from Flathead Lake into Canada.

An alternative reality looms over the valley. This land is also a prime location for housing development. Development has its place and time; and, if done properly, newcomers and future generations can call this beautiful place home while also enjoying the very landscape and incredible experiences that give Montana its distinctive reputation.

We are working with the Flathead Land Trust and other Flathead River to Lake partners to help MT Fish Wildlife and Parks protect this special place. Join us in raising the remaining \$385,000 needed (down from \$500,000!) to match over \$6 million in federal grants to purchase the property (by December 2021). Donations made by July 15 will be matched up to \$100,000!

**Next time:** What do these 772 acres have to do with water quality in Flathead Lake?

To learn more or donate to the project, visit: [flatheadlakers.org/bad-rock-canyon-conservation-project](https://flatheadlakers.org/bad-rock-canyon-conservation-project)

## Upcoming events

[FLATHEADLAKERS.ORG/UPCOMING-EVENTS](https://flatheadlakers.org/upcoming-events)

### Virtual Science on Tap - Flathead

MARCH 1 AT 6:30 PM ON ZOOM

Dr. Jay Evans, University of Montana

Vaccines-SARS-CoV-2 Vaccine Discovery and Development

### Flathead Lakers Annual Meeting

SAVE THE DATE: AUGUST 17, 2021

With keynote speaker and long-time Lakers member, Phil Jackson

Lakers Offices, Salish Building, Polson



# Wastewater treatment in our watershed

## How your septic system works

On-site septic systems are great when they function properly. They are the only way most of us in rural areas can treat our wastewater. It is impossible to justify building a treatment plant and installing miles of pipe and lots of pumps in areas where the homes and businesses are so far apart. We rely on individual systems with a tank, to collect the solid waste, and a drain field, to distribute the liquid into the ground. When the tank, where the solids settle, starts to fill up, we have it pumped out. The pumping company then takes the solids to an approved site and spreads the solid waste on the ground where natural biological processes break it down.

The septic tank is actually two tanks connected together. The waste from the home or business drains into the first tank where the solids should settle to the bottom, and the liquid runs off the top into the second tank. The waste in that tank gets pumped out to the drain field. The drain field is commonly a system of long perforated pipes buried a few feet underground. The liquid should drain through the perforations over the entire area of the drain field. Soil particles filter out small suspended solids and organic matter, while soil bacteria break down harmful microorganisms and other organic components. Viruses adhere to clay particles in the soil and eventually die. The treated effluent continues its downward flow through the soil layers.

### IN THE NEXT ISSUE:

Some practical, daily tips to keep your septic system running properly.

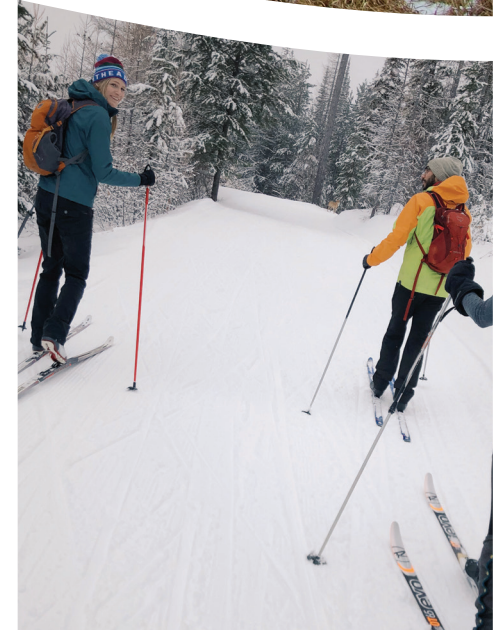
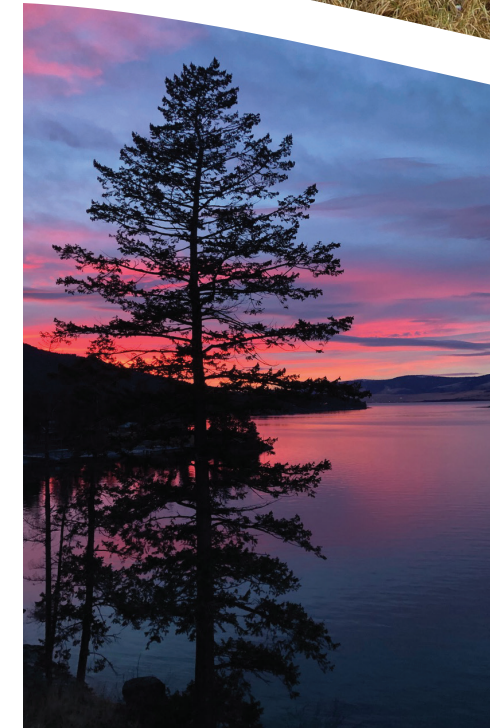
## How to maintain your septic system

Septic systems are designed to hold, treat, and dispose of household wastewater. Household wastewater contains bacteria, viruses, chemicals, and nutrients, all of which can cause health and environmental problems if a septic system isn't properly maintained.

- DO NOT flush anything that you haven't digested first, except toilet paper.
- Pump and inspect your septic system regularly to help your system run longer, save you money, and protect water quality in the Flathead Watershed. Depending on your water use, pump the tank every two to five years.
- Do not use additives in your system. They provide no benefit, and may even harm it.
- Avoid compacting soil over the drain field. Compacted soil cannot treat wastewater, and once compacted, it is difficult to restore.

LEARN MORE AT  
[flatheadlakers.org/septic-systems](https://flatheadlakers.org/septic-systems)

I have three boys that love to get dirty, and a relatively small septic tank. We pump our tank every 2-3 years.





# Flathead Lake Citizen Science

## Seeing Flathead clearly

For three summers, the Flathead Lake Citizen Science (FLCS) program has had a team of volunteers around Flathead Lake monitoring water clarity with a simple scientific instrument called a Secchi disk. Volunteers lower their black and white disks into the water on a sunny July day, until it is no longer visible and note the depth it disappeared. The annual Flathead Lake Secchi Dip-in is part of an international effort to track changes in water quality around North America since 1994, and is in partnership with the Flathead Lake Biological Station's Flathead Monitoring Program (FLBS FMP).

The Secchi depth is a measure of water transparency, or clarity. It can be an indicator of how human activities are impacting the watershed. Transparency can be affected by the color of the water, algae, and suspended sediments, and be influenced by nutrients coming into the lake from nonpoint source pollution. Regularly monitoring transparency can help find water quality issues before they turn into real threats to our clean water.

## Three years of Secchi observations on Flathead Lake

Over the three years, we've had 37 volunteers collect 173 Secchi observations around Flathead Lake during summer. These data have supported the effort for a new FLBS FMP monitoring site in Polson Bay, documented the clearest water in 25 years, and were entered into a national monitoring database.

TO LEARN MORE VISIT  
[flatheadlakers.org/flathead-lake-citizen-science](https://flatheadlakers.org/flathead-lake-citizen-science)

JOIN US

Contact us if you are interested in participating in the 4th Annual Flathead Lake Secchi Dip-in this summer, at [hilary@flatheadlakers.org](mailto:hilary@flatheadlakers.org).

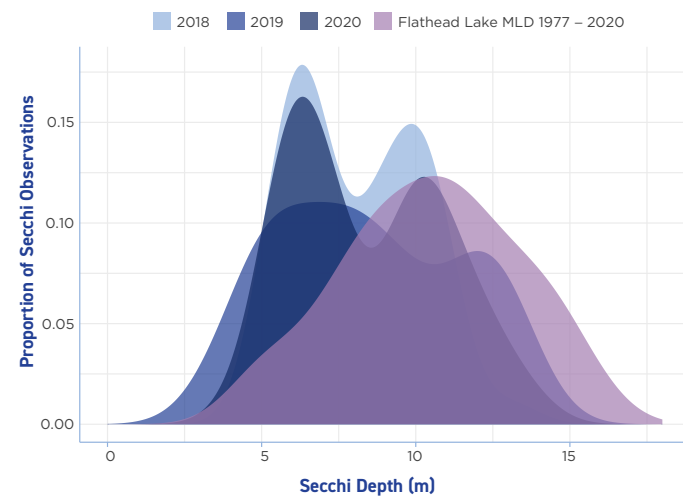


FIGURE 1

Proportional distributions of water clarity measurements collected by citizen scientists across Flathead Lake in July of 2018-2020 compared to the distribution of water clarity measured by FLBS FMP at a single site from 1977-2020.

Secchi observations taken in a single month by our volunteers showed a similar range of water clarity to that of 40 years of measurements at a single site. FLBS FMP data demonstrate that water clarity varies with time. The FLCS Secchi Dip-In data inform us that water clarity is spatially variable as well. The bimodal distributions (double peaks) observed in 2018 and 2020 reflect the dynamic nature of water clarity within a single month.

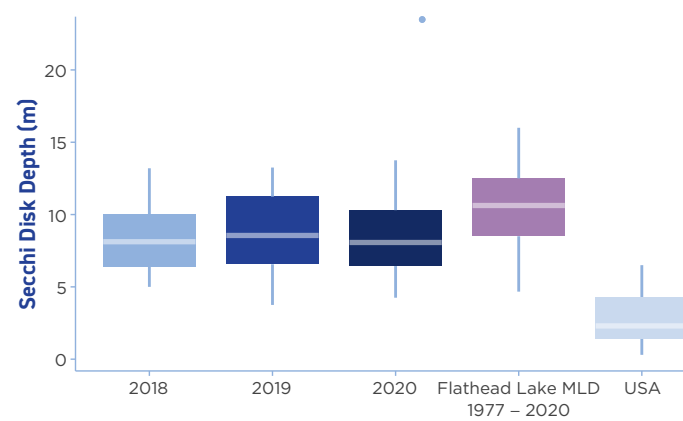


FIGURE 2

Water clarity measurements from the Flathead Lake Secchi Dip-In 2018-2020, FLBS FMP at mid-lake deep 1977-2020, and the 2017 National Lake Assessment. Horizontal lines within the boxes indicate the median value of observed measurements.

There were no real differences in the annual average water clarity observed by FLCS volunteers, and was similar to the FLBS FMP water clarity at mid lake deep. Seasonality is the largest driver of patterns in water clarity observed by FLBS FMP, and the FLSC datasets show that year to year variability in mid-summer is low.

However, Flathead Lake has significantly higher water clarity than most lakes in the US, when compared with the National Lake Assessment data. The values observed in Flathead Lake by the citizen science program are roughly 3 times higher than the national median.

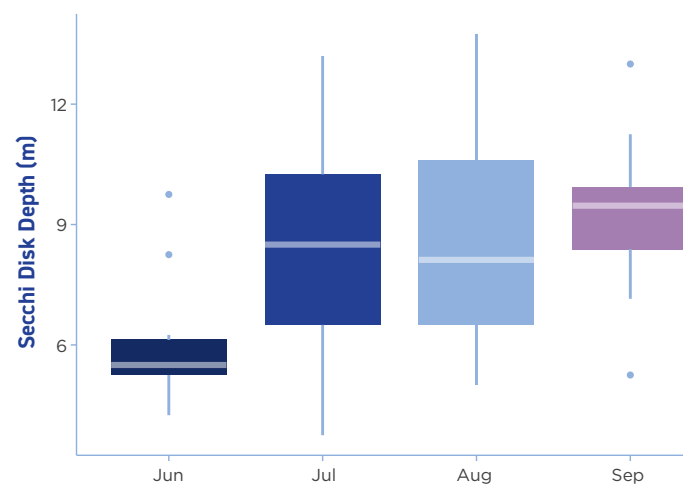


FIGURE 3

Distributions of all measurements of the FLCS program's Flathead Lake Secchi Dip-In 2018-2020 by month. The seasonal patterns shown here correspond to seasonal patterns observed by FLBS FMP.

June observations are low because of the lingering effects of the spring runoff and sediment plume. Water clarity increases in July as particles in the plume begin to settle out. As plume particles continue to sink, primary production of algal biomass maintains similar water clarity in August. In September, rates of primary production decrease as nutrients are depleted, and phytoplankton biomass accumulation no longer exceeds sinking rates, increasing water clarity.

## It's a wrap... Thank you to our A/V intern, Eric Witts

The Flathead Lakers board and staff are so thankful for the opportunity to work with Eric Witts, our Salish Kootenai College A/V intern, during the past six months. Eric produced a citizen science 'how to collect periphyton' video, helped us live stream our annual meeting, archived past Science on Tap-Flathead events, and documented the installation of our watershed community mural in Polson.

Eric showed us how to better connect with our community, and tell our stories through video and digital content. Eric's enthusiasm for his work is contagious, and it has been such a pleasure to work with him. He will be missed, but now he is a part of our Lakers community, and we are better for it.

Visit our Flathead Lakers and Science on Tap-Flathead YouTube Channels to check out some of Eric's work, or to watch a Science on Tap event you missed.

## Take Action: Advocate for Flathead

As the Watchdogs of Flathead Lake, we're following bills in the 2021 Legislative Session that potentially impact the Flathead Watershed. If you would like to be added to our Legislative Action Team to receive up-to-date calls to action, please email [hilary@flatheadlakers.org](mailto:hilary@flatheadlakers.org).





# Executive director update

HAPPY 2021 LAKERS!

**KATE SHERIDAN**

EXECUTIVE DIRECTOR



From above, things may look quiet and still - like the icy cold lake outside my office. However, underneath the surface, we're sowing seeds for our Educating Watershed Citizens programs, a return to Science on Tap, and a handful of summer events at our new office, including our annual meeting with keynote speaker, longtime Flathead Lakers member, and NBA Hall of Fame coach Phil Jackson. We're cautiously and carefully preparing for the possibility of in-person events in the summer, with a realistic view of the uncertainty last year taught us. We will continue to provide online options to view or participate in our events, as well.

This quarter's newsletter highlights two of our budding areas of education and action for 2021:

1. We will be providing straightforward advice in each newsletter about septic systems, whether your home has been on Flathead Lake for generations, or you just moved here (welcome!).

2. We are raising money for an ambitious goal of securing Bad Rock Canyon for habitat protection, public recreation, and the preservation of water quality upstream. We'll include a story about an aspect of this unique area in each issue. We're also accepting donations of all kinds to meet the outstanding amount of \$385,000, with our partners at the Flathead Land Trust. You can donate directly to the project online at [flatheadlakers.org/how-to-give](https://flatheadlakers.org/how-to-give), or send a check to us at PO Box 70, Polson MT 59860, with "Bad Rock Canyon" in the memo line.

I hope this winter is a time of rest, reflection, and rejuvenation for you all. We cannot wait to see you this spring.

Best wishes for a healthful new year,

Kate

## Lakers 2021 Executive Committee

The Flathead Lakers board of directors elected their executive committee for 2021. Thank you to those who are taking on a greater responsibility within our organization. We are excited for this upcoming year.

TO LEARN MORE ABOUT OUR BOARD MEMBERS, VISIT [flatheadlakers.org/who-we-are](https://flatheadlakers.org/who-we-are)

### Mission statement

Working for clean water, healthy ecosystems, and lasting quality of life in the Flathead Watershed.



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PRESIDENT



**ONNO WIERINGA**  
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