LICA
ENVIRONMENTAL STEWARDS

Summer 2020
Newsletter

LICA Contests

Writing Contest

This spring's writing contest gave Grade 6 students in the LICA region the opportunity to compete for prize money while practicing for the Provincial Achievement Test. The topic of the functional writing assignment was blue-green algae blooms (cyanobacteria). Students were given a writing prompt that provided information about a local report of cyanobacteria with instructions to write a news article covering the issue. We received 37 entries and awarded three prizes. Congratulations to:

First Prize: Carter Hughes
Second Prize: Lexy Mackay
Third Prize: Drew Yuill

Virtual Science Fair

The virtual science fair provided an opportunity for students to explore the Lakeland region's environment through science. Participants could enter by submitting a short video showing off their studies, experiments, or inventions relating to water, air, or other environmental topics. Thank you to everyone who participated and congratulations to the winners:

Grade 4 & 5 – Tobias Allen
Grade 6 & 7 – Lucas Vining
Grade 8 & 9 – Morgan Gillis

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2021 Youth Calendar Contest

Which plants do you love in the Lakeland Region?

Would you like to have your drawing featured in a calendar? If you're a student in grades K-12 in the LICA region we invite you to send us your artwork! Our favourite drawings will be featured in our 2021 calendar!

Competition closes **Friday October 2nd, 2020**
Please complete the entry form available at
www.lica.ca/education
Submit entries by e-mail to
outreach@lica.ca or mail to
LICA, Box 8237,
Bonnyville, Alberta,
T9N 2J5

Winners will have their artwork featured in our calendar and receive a
$50 VISA gift card!

2020 Nature Photography Contest

Cash Prizes

1st: $150
2nd: $100
3rd: $50

A Public Showcase

Two Categories

Beginner & Advanced

Professional Judges

Canvas Prints for the Winners

Deadline

August 25th, 2020 @ 4:00 p.m.

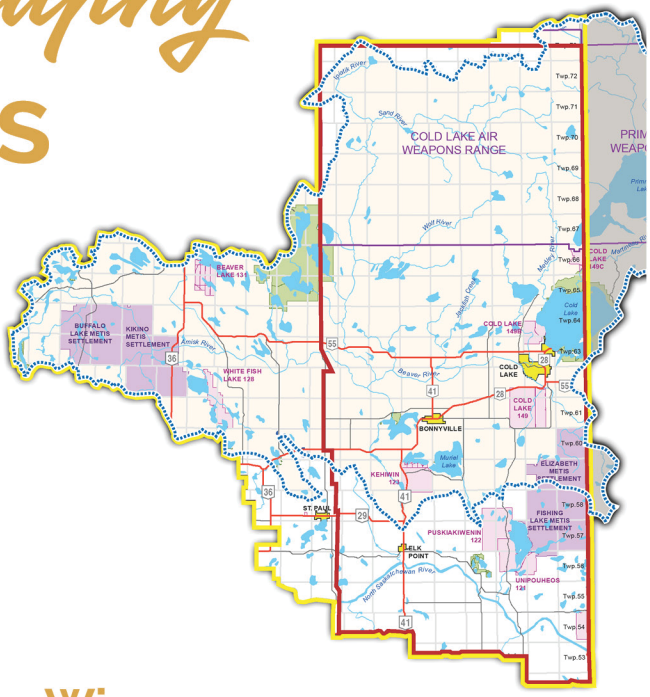
Presented by

LICA ENVIRONMENTAL STEWARDS

Online entry forms at www.lica.ca

More Information on the following page

2020 *Nature Photography* Contest Details



Eligibility

- Open to all photographers that reside or work in the LICA region
- Open to all ages
- Advanced Category: 5 or more years of experience
- Beginner Category: Less than 5 years of experience
- **Photos must be within the LICA region**
- LICA Staff, Board & Committee members are not eligible to enter the contest

Submission Specifications

- All entries must be received by **August 25th, 2020 @ 4:00 p.m.**
- Up to three (3) entries per person
- The online entry form must be completed
- E-mail entries as JPEG files
- Send entries to outreach@lica.ca with the subject line as "Photography Contest"
- The entry file name must be titled: Category-Name-Entry Number

  Ex. Beginner-Jane Doe#1
  Beginner-Jane Doe#2
  Beginner-Jane Doe#3
- Resolution: Min. 300 dpi / Max. 10 MB
- Do not digitally alter photos (beyond colour adjustments)
- Photo entries must be captured by the person entering the contest

Publication

- LICA reserves the right to publish winners' names & photographs in any promotional material
- To be published, your prints & digital files must be of acceptable quality & resolution

Winners

- 1st, 2nd, & 3rd place images from both categories will receive a cash prize, a print, and a public showcase around the LICA region
- The printed versions of the winning images will be held for two weeks while they are on display at indoor, public spaces

Judging

- This year LICA is privileged to have Susie O'Connor from Images Studio in Cold Lake help with the judging. She is certified through the Professional Photographers of Canada to judge photography contests. This ensures the best photos submitted will be the ones that win!

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Keep Our Lake Blue

Taking Action to Improve Moose Lake's Water Quality

LICA - Environmental Stewards and Moose Lake Watershed Society are launching their second annual Keep Our Lake Blue campaign, encouraging residents to take action to help improve the water quality of Moose Lake. The campaign emphasizes how small actions by individuals play a significant role in preventing runoff and pollutants from getting into the lake and improving the water quality of Moose Lake.

Runoff and pollutants, such as phosphorus, can lead to algae blooms and decrease the water quality of the lake. Items like detergents, fertilizer, manure, human waste, and decaying plants are all sources of phosphorous. When excess phosphorus enters the lake it results in increased growth of algae that is often quite odorous. When mats of algae die, they sink to the bottom of the lake and decay, creating low-oxygen conditions that are detrimental to fish and other aquatic organisms. Excess phosphorus can also result in the formation of cyanobacteria, also known as blue-green algae. When cyanobacteria decompose, they produce nerve and liver toxins that can pose a serious health risk to humans and animals.

Residents can help prevent algae blooms by reducing runoff, phosphorus, and other pollutants on their properties. LICA and Moose Lake Watershed Society hosted a lawn sign pickup for residents who sign-up at Vezeau Beach Park on July 17th. In addition to displaying a sign on their properties, residents will have the opportunity to learn more about the campaign and the different actions they can take throughout the summer by pledging their support online: **https://bit.ly/KOLBMooseLake**.

Last year's Keep Our Lake Blue Campaign was very successful. Residents around Moose Lake were provided with a list of 52 actions they could take to reduce runoff and pollutants on their properties, and they were invited to take one action during the summer of 2019. Households that signed up for the campaign received a lawn sign to display their commitment to taking action to keep Moose Lake's water clean. The average household implemented 2 new actions and took 31 actions in previous years. Upon receiving the campaign information, one resident changed their plan to install an asphalt driveway to one with a permeable surface.

Reduce
Runoff &
Pollutants

LICA ENVIRONMENTAL STEWARDS

Moose Lake Watershed Society

The New Bonnyville Community Garden & Compost

A Fresh Space for Growth

The new Bonnyville Community Garden and Compost is an outreach project initiated by LICA – Environmental Stewards. Located in between the Wholesale Club, Sobeys, and the Bonnyville Community Church, the new community garden will benefit citizens by providing a space to not only grow fresh produce but sentiments of kinship and pride for the town. Included in the cultivation of communal relationships there will be educational opportunities for local groups or organizations that inform the public on how food is grown and other sustainable horticulture practices. Once the garden is operational, peripheral benefits such as beautifying an unused space, providing fresh fruits and vegetables to citizens, practicing healthier lifestyles, sharing educational opportunities, and offering a cleaner environment will be available to all members to enjoy. The compost component of the garden will be available to the public for use and will include informational signs displaying what is compostable and what is not permitted. Converting otherwise wasted organic material into compost will lead to healthier soil and higher yields each year the natural fertilizer is applied.

While residents await the opening of the 17 raised garden plots, there will be a compost drop off-site where the production of compost will begin. The garden will be used to engage Bonnyville residents with educational opportunities based around the benefits of sustainable gardening and to provide fresh produce for those who participate. LICA will facilitate community partnerships with businesses, organizations, and individuals to ensure the longevity and continued care for the garden. The Bonnyville Wholesale Club has generously permitted LICA to use the space south of their building as the site for the new garden and compost. Construction of the first phase will be completed this summer and prepared for planting in the 2021 growing season.

If you would like more information about the new Bonnyville Community Garden, please contact LICA at 780-812-2182 or outreach@lica.ca. Residents who are interested in getting involved can sign-up for various rolls or ways of participating at the link provided here: https://bit.ly/BCG-Sign-up.

Aquatic Invasive Species Webinar

On May 21st LICA hosted its first online webinar. Nicole Kimmel from Alberta Environment and Parks joined participants through Google Meet where she shared information on Aquatic Invasive Species (AIS), potential risks to Alberta, how AIS are monitored, and the current campaigns used to raise public awareness. AIS are non-native organisms that have been brought from other places into Alberta's water. These species cause, or have high potential to cause, harm to our environment, economy, and human health as they become established outside their natural range. Many AIS are very difficult to eradicate once they are established, so prevention is essential. Unique incidents within Alberta include a shipment of live Chinese Mitten Crabs from China, Grove Snails from the UK, a Giant African Land Snail from Hawaii and even a report of an octopus in Lake McGregor. In 2019 there were 10,819 watercraft inspections and 597 K9 inspections throughout the province. Thank you, Nicole Kimmel, for sharing with LICA and the community members who attended!

School Programs Online

Typically LICA delivers classroom presentation at schools with hands-on activities for students to participate in. Due to the early closure of schools' this spring, presentations moved to an online format. During the spring there were 11 virtual presentations delivered to classes throughout the Lakeland. Currently LICA is working on innovative ways to engage students while navigating the new school format anticipated in the fall.

These FREE programs are available year-round! Contact outreach@lica.ca or call (780) 812-2182 to book your classroom presentation. To learn more about LICA's programs visit www.lica.ca.

- All Grades: Vermicomposting
- Kindergarten & Grade 1: Wildlife Discovery
- Grade 2: Creepy Crawlies
- Grade 3: Animal Survival
- Grade 4 : Waste Water
  Plants in our Watershed
- Grade 5: Air, Water, and Climate
  Wetland Ecosystems
- Grade 6: Trees and Forests
- Grade 7: Ecosystems
- Grade 8: Water Quality
- Grade 9,10, 11 & 12: X-Stream Science

Paddling the Beaver River

Exploring Our Watershed

Meandering through farmland, Boreal forest, and prairies the Beaver River is a picturesque gem usually experienced only through fleeting bridge crossings. This summer an opportunity to canoe a portion was presented by an experienced paddler and friend, Les Parsons. We began where the Beaver River crosses Highway 36 for the last time and finished at the Amisk and Beaver River confluence. Only a week after historical record breaking high-water levels the river had already dropped a meter. Throughout the peaceful paddle we were serenaded by countless birds and canoed by dozens of beaver dams and lodges. From our observations, the ecosystem appeared to be healthy and benefiting from the influx of water. Below are images taken throughout the 10 hour day.

Working with Beavers

Natures' Architects

Beavers are truly amazing animals! More than any other animal in North America, beavers create fertile ecosystems, making habitat for many other species and providing numerous benefits to humans, animals, and ecosystems alike. Beavers help store, cleanse, and manage water, preventing floods and droughts and improving downstream aquatic health. This is probably why beavers have superstar status, being featured on the dime, having watersheds named after them, and even have a delicious dessert in their image! It is extremely important to work with beavers, creating ways to keep them on the land, instead of using confrontational management options that destroy beavers and their homes. In July, LICA worked with the Muriel Lake Basin Management Society to build and install a beaver exclusion device, which allows beavers to remain in their habitat while preventing dam construction along culverts.

Getting to the Root of the Problem

Understanding the Jessie Lake Tree Planting Project

On May 29, 2020, the LICA funded tree planting project took root along the water's edge of Jessie Lake Trail. The tree planting is part of the larger Jessie Lake Restoration Project in partnership with the Town of Bonnyville, which started in 2016 in response to complaints about the unpleasant rotten egg smell of Jessie Lake.

To identify the source of the smell, LICA supported air and water quality monitoring, which demonstrated an increase in hydrogen sulfide and nutrients (phosphorus) in Jessie Lake. Water runoff entering the lake has high phosphorus levels, which causes increased algal growth and decreased water oxygen levels. The hydrogen sulfide is likely released when large amounts of algae die. Therefore, the goal of restoration efforts is to decrease high nutrient levels from entering the lake, which will in turn help decrease the smell.

One way to help decrease the amount of nutrients entering the lake is to improve the health of the riparian area. The riparian area is the land right next to a waterbody that has soil and vegetation adapted to living in a wet environment. Healthy riparian areas have many important functions including filtering water, and trapping sediment (and attached nutrients) that may enter the lake.

To improve the riparian area along the Jessie Lake trail, 5000 dogwood trees were planted between 55th and 42nd street. Dogwoods are a preferred riparian species because they help filter runoff; stabilize shorelines; protect from erosion; provide shelter and food for water and land animals; and are a small, aesthetically pleasing tree.

Other LICA organized and funded actions supporting the Jessie Lake Restoration Project include: riparian tree planting with various tree species between 42nd street and the causeway in 2018 and the rodeo grounds in June 2020; annual shoreline clean-up and weed pull since 2017; and water quality sampling of Jessie Lake in 2020. LICA continues to use available knowledge and resources to plan additional restoration efforts to improve the health of Jessie Lake.

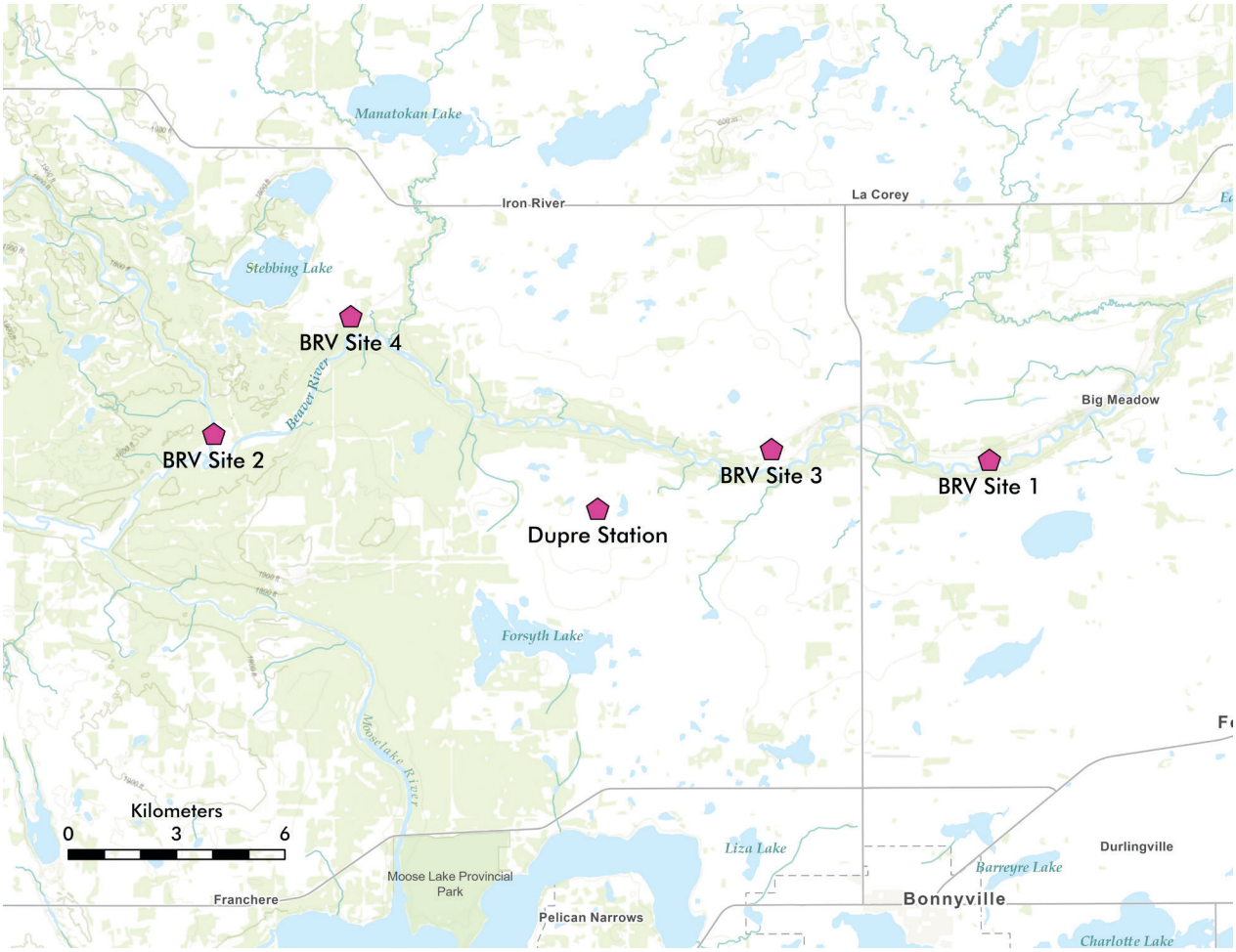
Beaver River Valley Monitoring

Project Update

The Beaver River Valley Monitoring Project aims to understand the meteorological patterns of the Beaver River Valley (BVR) and the role these patterns have in potentially affecting air quality in our region. The underlying assumption of the project is that valleys are deep and steep, and are therefore likely to generate flows, drawing air from above the valley ridge and into the river valley system. This 'drainage effect' may also draw air pollutants along with it and thereafter along the run of the river. When compared to a suitable control site, winds at the ridge and within the valley will likely demonstrate the most noticeable differences under light wind speed conditions and stable atmospheric conditions.

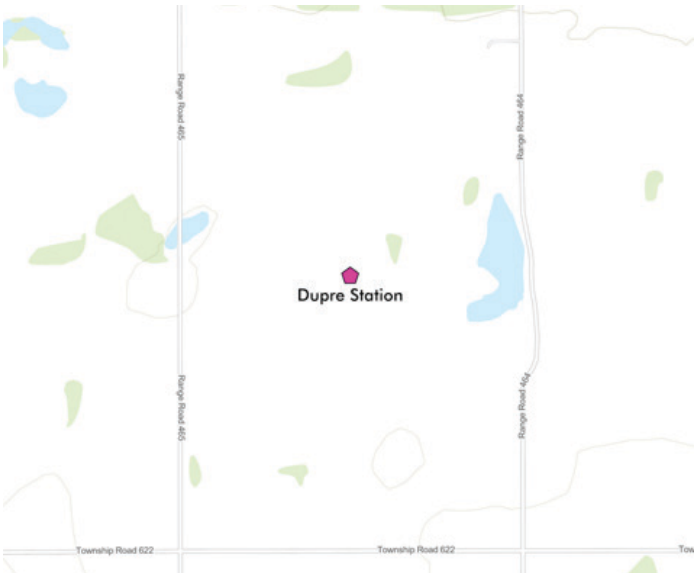
After completing a site selection process, LICA deployed an array of 4 monitoring stations (BRV Site 1-4) within and above the valley in 2018. Dupre is a control site located near the BRV, but far enough away that valley effects will not be detected; this site is operated by Alberta Agriculture and Forestry. The location of these sites is depicted on the following map.

Phase 1 has only collected meteorological data (wind speed, wind direction, temperature, and relative humidity) however, these existing sites may be supplemented with air quality measurements in the future.

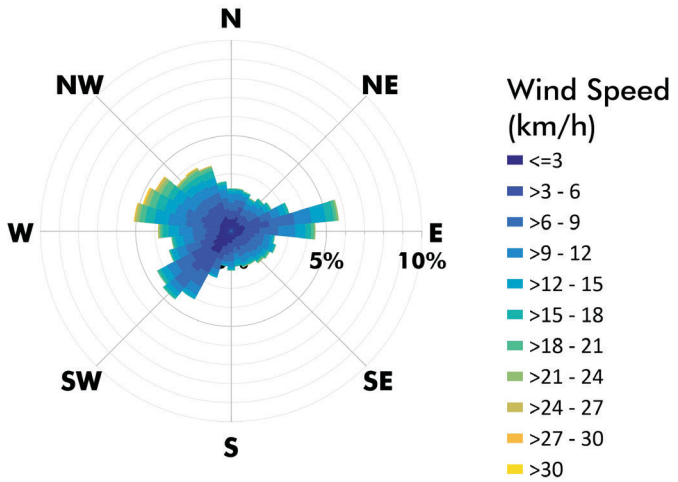


Beaver River Valley Monitoring Project Continued

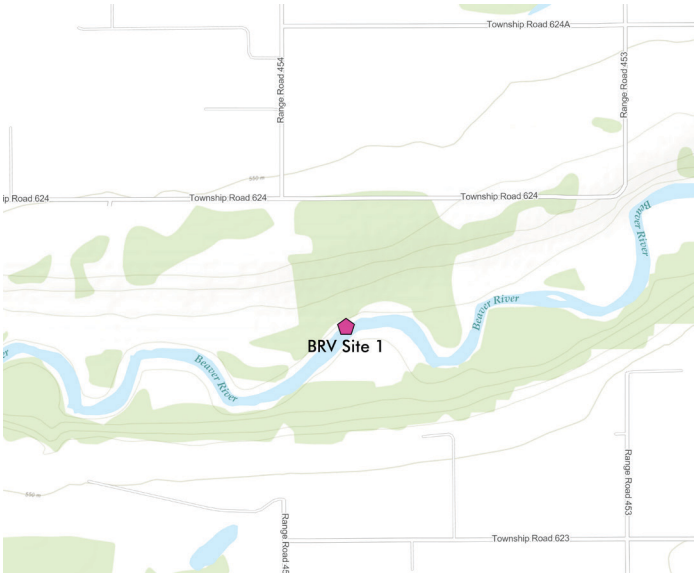
The set of figures that follow help visualize the meteorological data collected at the BRV and Dupre monitoring stations since August 2018. Each set of figures includes a contour map and wind rose diagram. The contour lines on the maps help illustrate where the monitoring station is relative to the valley edge or floor and the wind rose diagrams visualize the frequency distribution of wind blowing from a particular direction at each BRV monitoring site.



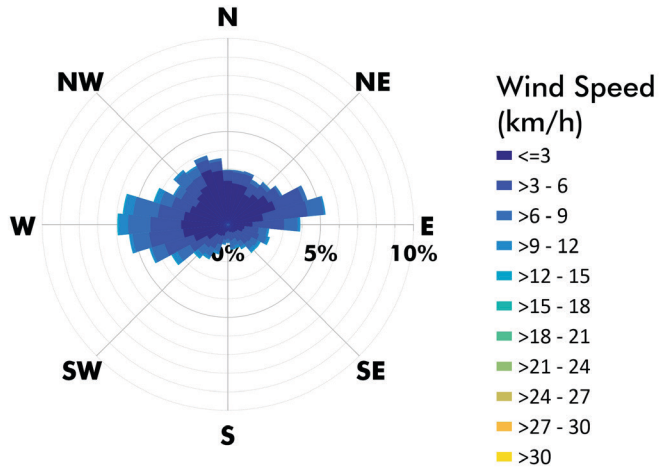
Dupre (Control Site)



Monitoring data at the control site (Dupre) indicates that wind most frequently comes from the north west and south west directions. This station is about 1.5 kilometers from the valley edge and the contours indicate that this site is very flat. Measurements at this location are representative of meteorological conditions that are not influenced by the river valley.

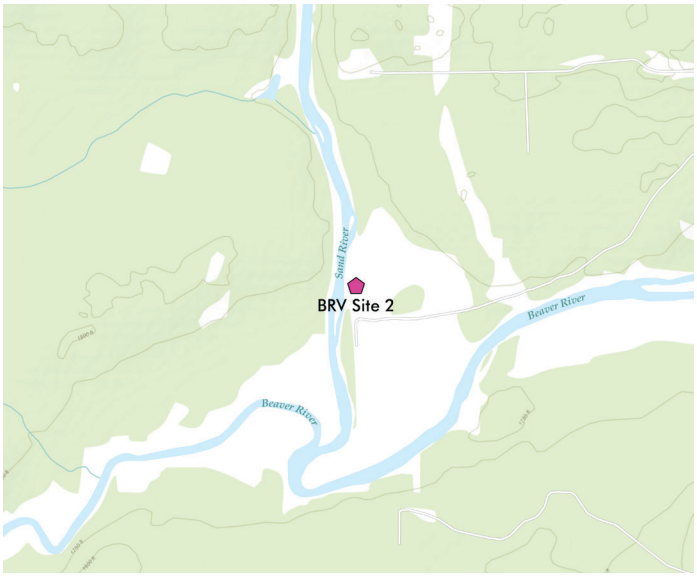


BRV Site 1 (In Valley)

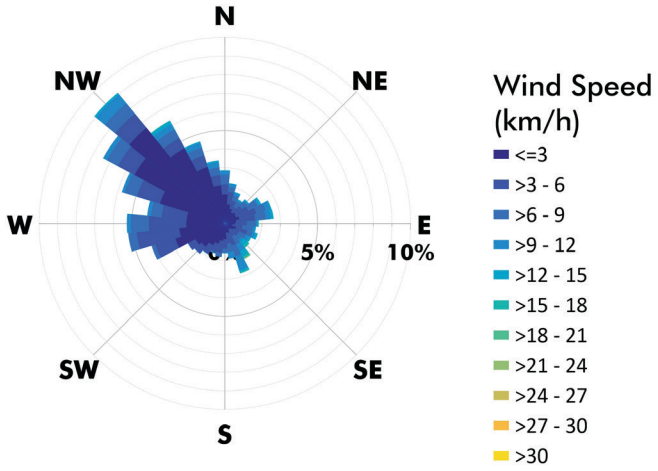


On the valley floor, monitoring data at BRV Site 1 shows that the river valley is influencing air flow patterns. There is an east-west alignment of wind direction which matches direction of the river valley at this location.

Beaver River Valley Monitoring Project Continued

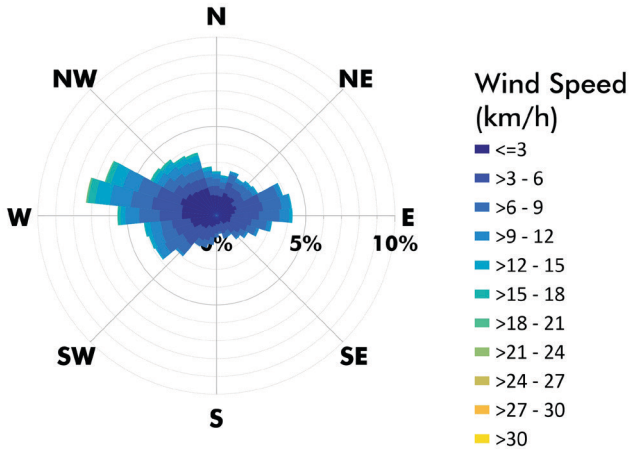


BRV Site 2 (In Valley)



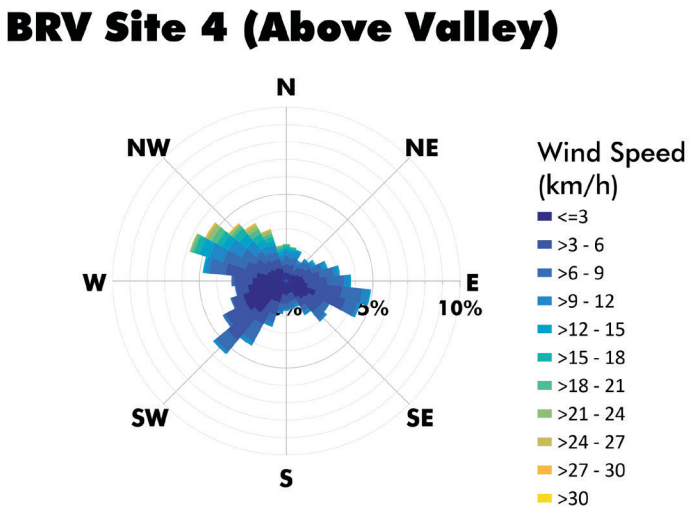
At the confluence of the Sand and Beaver Rivers, BRV Site 2 shows the strongest evidence of air movement channeling in the valley. The distribution of wind direction data appears to be the most divergent from the control site with a pattern of measurements that mirrors the drainage of the Sand River valley into the Beaver River valley. This monitoring station is on the valley floor, less that 50 meters from the Sand River.

BRV Site 3 (Mid Valley)



BRV Site 3 is located about halfway between the valley floor and valley ridge; the contour lines on the map help visualize its relative location. Like Site 1, monitoring data at this location shows a pattern of direction that aligns with the east-west direction of the river valley at this location.

Beaver River Valley Monitoring Project Continued



BRV Site 4 is located above the valley ridge and meteorological patterns at this location most closely resemble the measurements collected at the control site. While it doesn't appear that valley drainage is occurring at this location, this site confirms that above-valley meteorological observations on the north side of the river are very similar to the above-valley observations at the control site on the south side of the river.

The preliminary review of data from the array of stations in LICA's Beaver River Valley Monitoring Project reveals two notable observations: 1) there is little evidence of a valley drainage effect, and; 2) there is strong evidence of the valley controlling air movement within it. These initial observations suggest that there is a micrometeorology within the valley. Monitoring stations on the valley floor and wall show alignment of wind direction with the shape of the valley. While the in-valley stations may indicate that there is evidence of the valley system controlling air movement within it, the above-valley monitoring station shows little evidence of a drainage effect. This may be because the station is not suitably located to detect this effect, or the phenomenon is difficult to discern and/or not occurring. These observations may help inform planning and development activities as well as the need for air quality monitoring within the Beaver River valley. As planned, LICA intends to operate the network for at least another year to gather an additional cycle of seasonal measurements. BRV Site 4 may be relocated to the south bank of the Beaver River to gather additional spatial insights of meteorological patterns along the valley. A detailed analysis of LICA's findings will be reported on in 2021.

2019-2020 LICA Board Members










Thank you for your contribution



Top: Amanda Avery-Bibo, Duane Zaraska, Annette Hobart, Lorna Storoschuk, Dana Swigart
Middle: John Ilchuk, Lorin Tkachuk, Heather Harms, Richard Bourgeois, Tanya Hintz
Bottom: Colin Woods, Andrea Woods, Craig Copeland
Absent: Cody Jackknife, Wayne Bamber, Shawn Elgert, Francis Nkemamin, Abdi Siad-Omar, Duane Lay

New LICA Staff

Welcome to the Team!

Kristina Martel - Executive Director

My passion is to enrich lives and make a difference in the world – no matter how big or small. I strongly believe that LICA falls within these values and I am eager to be apart of this Team and continue the incredible work within our community.

Tricia Fleming - Environmental Coordinator

I have learned there are many ways to see the world and I try to apply this appreciation to all aspects of my life. My interests include developing creative, fair, and just ways to protect and nurture the environment and healthy/sustainable ways of living. I also love being active and outdoors, making tasty food, and having a good laugh.

Stay Updated

Due to current gathering restrictions LICA has postponed public events. To stay up to date on when new events are scheduled you can:

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Free LICA Membership

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Alberta Environment and Parks

Thank you for your support!