



# Preserving Our Lifeline

*working together to nurture, renew and protect  
the waters of the bow river basin*

[Follow us @BowRiverWPAC](#) [facebook.com/BowRiverBasinCouncil](https://facebook.com/BowRiverBasinCouncil) [www.brbc.ab.ca](http://www.brbc.ab.ca)

Volume 21 | Issue 4

December 2021

## 2021 BRBC Board Retreat

Brooke Kapeller  
BRBC Program Coordinator  
[brooke.kapeller@brbc.ab.ca](mailto:brooke.kapeller@brbc.ab.ca)

After 18 months of seeing each other on the screen, the BRBC Board of Directors and staff were finally able to meet in person once again. The group met at the Ghost Crossing in September for the annual Board retreat.

The BRBC has completed a transition period and has new staff, energy and ideas. We have wrapped up major projects and are well positioned to take on new ones. There is a lot of positive energy moving forward into our next chapter. This retreat was imperative to reconnect and strategically plan for the future.

During the retreat, facilitated discussions engaged the Board in understanding the challenges we have all faced over the course of the pandemic, the positive aspects over the past 18 months, and what the Board sees as new opportunities for the BRBC.



BRBC Board at Ghost Crossing, September 2021. Photo: Mike Murray.

The following areas of focus were identified as new or ongoing priorities. First, we plan to enhance our digital presence by updating and re-designing the website, improving our social media presence, and building up the BRBC's brand. Second, we will undertake an updated State of the Watershed assessment for the Bow Basin. This will be hosted completely online within a Geographic Information System (GIS) format, integrating other sub-watershed assessments as well. Third, we will continue collaborating with our

Continued on page 2

### IN THIS Issue

- 1 2021 BRBC Board Retreat
- 2 The Bow River Fishery
- 4 Elbow River Watershed Partnership - State of the Watershed Report
- 8 Agenda: December Forum

Continued from page 1

valued partners, identifying areas of shared interest and value among BRBC members. Fourth, the BRBC will work to enhance citizen science efforts in the basin by fostering collaboration opportunities among stewardship groups and hosting events to connect like-minded individuals and organizations. Finally, the impacts of climate change in the Bow Basin were discussed as something we need to further understand, so this will be investigated in terms of impacts as well as adaptation and mitigation options for our region.

The next chapter of the BRBC looks exciting and promising. We are looking forward to getting a jump-start on these projects and excited for the membership to come together once again to tackle these projects.

If you are keen to engage in one or more of these projects, please reach out to one of the BRBC staff! Your invaluable knowledge, expertise and passion are the reason we have been successful and why we will be successful in the future.



Ghost Lake. Photo: Mike Murray.

## The Bow River – Alberta’s Best Worst Kept Secret

Paul Christensen, Senior Fisheries Biologist, [Paul.Christensen@gov.ab.ca](mailto:Paul.Christensen@gov.ab.ca)  
Michael Sullivan, Provincial Fish Science Specialist, [Michael.G.Sullivan@gov.ab.ca](mailto:Michael.G.Sullivan@gov.ab.ca)  
Alberta Environment and Parks

Unless you are a *Plectopteran* or *Ephemeropteran* living under a rock, you have no doubt heard of Alberta’s renowned Bow River fishery, which has been the subject of countless books and fly-fishing magazine articles.

The Bow River supports a vibrant economy of guides, outfitters, specialty fly shops and countless other businesses that benefit from the crowds that flock to the river. It is known on the international stage as one of the world’s best dry fly fisheries, but has recently become a subject of concern for anglers and biologists due to declining fish populations.

In 2018, a study by the University of Calgary and Alberta Environment and Parks (AEP) looked at historical population estimates and concluded that rainbow trout populations declined 30 to 50 per cent between 2003 and 2013. Current fish population assessments indicate that populations are not improving. So what is causing the decline? While it would be nice to finger point at

one specific factor, there are multiple factors threatening fish populations that need to be considered in a collective manner.

### **Cumulative Effects Modelling**

In late 2020, AEP assembled a few stakeholders to develop a Bow River Cumulative Effects Modelling group tasked with identifying and understanding what factors are affecting trout populations and, most importantly, *to what degree*. The latter statement is key to identifying which factors are affecting the fishery the most, and to developing a series of actionable management and policy options to reverse the declining trend. It is critical to understand that all threats are not necessarily actionable and successful management of the fishery depends on taking the right management action at the right time.

In initial stages of modelling, we will be looking at approximately 20 threats that might influence rainbow trout in the Bow; the big five appear to be flow, nutrients, temperature, angling and whirling disease. Other threats like road salt and bird predation are in the model but the data suggests they are minor or negligible compared to the big five. Additional factors, like fish entrainment into irrigation

Continued on page 3

Continued from page 2



Alberta Environment and Parks fisheries biologists electrofishing the Bow River, fall 2021. Photo: Alberta Environment and Parks.



Standardized techniques are used to measure the fish population. Fish that are collected are identified, measured, weighed and tagged with a PIT (passive integrated transponder) tag. Photo: Alberta Environment and Parks.

canals will also be analyzed. If the big five are having the greatest impact, we need to prioritize action towards those threats that we are most able to influence and which will have the greatest positive impact on Bow River fish populations.

### **Numbers Matter**

By the numbers, the Bow River is now the province's busiest fishery, offering enjoyment for some 200,000+ hours of summer angling effort (measured in 2018). This surpasses even Lesser Slave Lake from an angling pressure perspective. This increase of 15 per cent since it was last measured in 2006 corresponds almost perfectly with the City of Calgary's population growth rate over the same period; this rate of population increase (and corresponding angling effort) is expected to continue unabated into the future. While no angling effort surveys were completed in 2020, AEP saw sportfishing licence sales increase by 30 per cent due to COVID-19, resulting in increased angling pressure on Alberta fisheries.

Angling, or more specifically overfishing, is the one threat that AEP biologists and anglers can tackle by developing innovative solutions. How can overfishing happen in a catch-and-release fishery? We call it "recycle rate," or the number of times a fish is caught per summer. In popular catch-and-release trout fisheries, each fish might be caught several times. Based on hundreds of angler interviews during creel surveys on the Bow River and extensive population "mark-recapture" work by biologists,

Continued from page 3

we estimate that anglers are catching more than 60,000 trout each summer...out of a trout population of less than 15,000 fish. Modelling shows that a sustainable recycle rate would be 1 or 2 (resulting in one fish being caught 6 to 10 times in their lifespan if they live to age 8). The recycle rate is now above 4, which might be part of the reason why anglers see so few big and old rainbow trout in the Bow River.

With all of the positive attention the Bow River fishery has received over the past decades, this increase in angler pressure has many anglers and biologists wondering what the future of the river will look like in the coming years as more anglers compete for fewer trout. After all, it is still a “working” river with conflicting objectives, all supplied by a complex series of dams upstream of Calgary. The Bow River is expected to fulfill some tall orders, including irrigation water supply, hydroelectric power generation, municipal drinking water, sewage treatment dilution and other industrial uses, recreation (including fishing and boating) and, most recently, flood mitigation for the City of Calgary.

### ***Involving Anglers***

The advice of knowledgeable anglers is critical to understanding which methods or rules might help reduce the recycle rate. Two main areas of action are obvious: reduce the number of people fishing, and reduce the number of trout each angler can catch. Other ideas include shorter seasons or time limits on a fishing day, similar to Montana’s famous trout rivers. Ideas from anglers have included looking at



All fish are released back into the same stretch of river they were collected from during sampling.  
Photo: Alberta Environment and Parks.

gear restrictions such as dry-fly only or single-lure only regulations. These and other innovative or tried-and-true methods are all on the table for discussion and analysis. There are two key features of any successful action: Bow River anglers must accept it as reasonable, and it must be effective in reducing that high recycle rate.

These changes might appear drastic but doing nothing leads to even more drastic consequences. If the Bow River fishery collapses, everybody – from anglers and fly shops, to hotels and restaurants – loses. Thousands of Bow River anglers will need to go fishing somewhere else, like the Crowsnest,

Oldman or Red Deer rivers, which could launch a cascade of overfishing issues. Our Bow River is a critical keystone fishery in Alberta.

This project will involve ongoing conversations around the current state of the Bow River fishery and management options that are being considered, prior to a public engagement opportunity in the winter. To find additional resources regarding the Bow River fishery, search Fisheries Management on [mywildalberta.ca](http://mywildalberta.ca). To view a recorded education session on the Bow River Fishery that took place on November 3<sup>rd</sup>, click [this link](#).

“Like a river collecting water from many tributaries, this report collects knowledge and data from many voices and sources.”

# The Elbow River State of the Watershed Report

Elbow River Watershed Partnership  
Email: [coordinator@erwp.org](mailto:coordinator@erwp.org)

The Elbow River Watershed Partnership (ERWP) is proud to share with you the Elbow River State of the Watershed Report! Spanning a period of three years, the project “kick-starter” was a workshop held in September 2018 at the Grey Eagle Resort. This project relies on the passion and knowledge of a multitude of sources including volunteers, consultants and partners ... all friends of the Elbow. This effort reflects our commitment to maintain and protect the environment, natural resources and ecosystem health through data-driven, fact-based discussion and planning, with an end goal of ensuring a healthy Elbow River watershed for everyone. Like a river collecting water from many tributaries, this report collects knowledge and data from many voices and sources. Gathering and sharing this collection is an important step in enhancing our understanding of the watershed, and will help watershed managers plan and prepare actions that maintain and improve watershed conditions.

Future planning needs to consider changes in natural processes like floods and forest fires, as well as balancing our land uses with the ecosystem needs that sustain us all. The report shows the variable nature and unpredictability of water in this watershed, necessitating our need to plan for all uses and work towards strategies for water management plans that lead to a sustainable future for all who rely on the Elbow watershed to thrive and survive.

The report highlights the connectedness of the river and the

land. The alluvial aquifer is a good example of the interaction between surface water and groundwater. The river recharges and is recharged from the alluvial aquifer as it banks water in times of plenty and withdraws from this source in periods of lower flow. The alluvial aquifer covers only 5 per cent of the watershed, but its importance to the watershed is immeasurable. The report also discusses the importance of riparian landscapes and why we care so much about them. So, when you look at the water of the Elbow River flowing by, you are just scratching the surface...

The visual tools included in the project use the latest available data at the time of writing and allow for improved understanding of the

watershed. The nature of compiling many voices and different datasets, over a considerable period of time, means some chapters have more current information than others. The Elbow River State of the Watershed Report is designed to be a living document, where snapshots in time will be reported on, but we will be updating the report on a regular basis, as new science becomes available and new knowledge and understanding are developed.

We hope that our work will inform, encourage and motivate readers to learn more about this precious resource and to aid in best management planning and decision making!



“North Quirk” by A.O. Wheeler, Canadian Irrigation Survey, 1887.

Photo: Shared with permission from Mountain Legacy Project Collection. A.O. Wheeler extensively surveyed areas in the Canadian Rockies, including the Elbow River watershed (Corey, 2020).

Continued on page 6

Continued from page 5

***The Elbow River State of the Watershed Report Contents:***

**Stay tuned for the online version (currently under development) which will further enhance the experience of reading and visualizing the content of the report.**

- **Chapter 1** - Introduction.
- **Chapter 2** - Provides an overview of the watershed. It describes the key natural features of the watershed, and highlights human history and current socioeconomic conditions.
- **Chapter 3** - Describes the watershed's geology and geomorphology, including mineral extraction activities. It explains how underlying geology and glaciation have influenced today's landscapes and the formation of the river.
- **Chapter 4** - Describes the watershed's climate, its influence on local weather systems and how it is reflected in ecological conditions.
- **Chapter 5** - Deals with groundwater conditions in the watershed, particularly the Elbow River's alluvial aquifer and the demands placed on it.
- **Chapter 6** - Focuses on surface water quantity and allocation within the watershed, with an emphasis on flow regimes in the Elbow River.
- **Chapter 7** - Addresses water quality. It is based on an analysis of ten years of data for nine key parameters.
- **Chapter 8** - Examines wetlands in the watershed, basing the analysis on a number of different inventory approaches. It discusses the role of wetlands in flood management and people's perceptions of wetlands.
- **Chapter 9** - Describes riparian areas in the Elbow River watershed, based on results of riparian health inventories conducted by Cows and Fish (Alberta Riparian Habitat Management Society).
- **Chapter 10** - Explains how vegetation biodiversity changes throughout the watershed in response to elevation and other factors.
- **Chapter 11** - Addresses wildlife biodiversity and selects a suite of indicator species to describe wildlife status in the watershed.
- **Chapter 12** - Provides an overview of land use and development, and highlights some of the land use demands within the watershed.
- **Chapter 13** - Explains watershed stewardship initiatives currently practised within the watershed.

Continued on page 7

Continued from page 6

**The would be remiss if we did not express our deep gratitude to the following people.**

**Many thanks to the major authors and contributors to the report (in alphabetical order):**

- Bette Beswick
- Kristina Boehler
- Dan Brown
- Zoe Crandall
- Matthew Chernos (MacHydro)
- Flora Giesbrecht
- Kathryn Hull
- Mona Keffer
- Dave Klepacki
- Suzanne Lazorko
- Lewis Robertson
- Meike Wege
- Beryl Zaitlin (Zaitlin Geoconsulting)

**Many thanks to the Elbow River State of the Watershed Committee:**

- Dan Brown (Project Chair)
- Brock Coates
- Bianca Duncan
- Mark Giesbrecht
- Kathryn Hull
- Bob McAlpine
- Mike Murray
- Andrews Takyi

**We pass our sincere gratitude also to the following project sponsors:**

- Alberta Ecotrust
- Bow River Basin Council
- Calgary Foundation
- City of Calgary Water Resources
- ERWP casino volunteers
- Green Spaces Programme
- Land Stewardship Centre
- Rocky View County
- United Nations Association in Canada

**Many thanks to Marina Krainer (Technical Project Manager) and Flora Giesbrecht (Project Manager).**

**Special thanks to Bette Beswick for her help as volunteer editor and advisor for the entire project from 2018-2021.**

**And finally, thank you to the 57 folks who kindly reviewed either the entire report, or sections of it, or who contributed in other ways.**

### ***What We Do***

The ERWP is a Calgary-based, non-profit organization. The ERWP was established in 2004 to increase awareness of water issues within our watershed, and to encourage cooperation, coordination and knowledge-sharing among stakeholders to optimize the use of our land and water.

### ***Education***

From our Freshwater Field School, which has educated over 20,000 Calgary-area students about water and watersheds, to our workshops, newsletters and watershed forum presentations, the ERWP works hard to promote sustainable watershed management.

### ***Restoration***

The ERWP works with partners and sponsors, assisted by a host of volunteers, to restore damaged upland and riparian areas and adjacent streams within the watershed through workshops and hands-on project work.

### ***ERWP 2021 Sponsors***

- Bow River Basin Council
- The City of Calgary
- Watershed Stewardship Grant (Land Stewardship Centre)

***Learn More - Visit Our Website!***

[www.erwp.org](http://www.erwp.org)



ERWP State of the Watershed cover art, by artist Janifer Calvez.

## We want to hear from you!

Please fill out our membership survey for a chance to win a special gift from the BRBC!

The survey will take 10 minutes and you will have the opportunity to provide feedback on many of the BRBC's activities.

Follow the link here:

<https://www.surveymonkey.com/r/BRBC2021>

Or use the following QR Code:



If you have any questions, please contact Brooke Kapeller: [brooke.kapeller@brbc.ab.ca](mailto:brooke.kapeller@brbc.ab.ca)

### BRBC Quarterly Educational and Networking Forum (Microsoft Teams) December 8<sup>th</sup>, 9:00 - noon

#### FORUM SPEAKERS

**Richard Phillips**

Bow River Irrigation District

**Flora Giesbrecht**

Elbow River Watershed Partnership

**Marina Krainer**

Ghost Watershed Alliance Society

**Reed Froklage**

RiverWatch Institute of Alberta

**David Swann**

Fish Creek Watershed Association

To register, please visit [this link](#).

### Contact Information

Mike Murray  
Executive Director  
(403) 268-4597  
[mmurray@brbc.ab.ca](mailto:mmurray@brbc.ab.ca)

Medini Prasai  
Financial & Member Services Officer  
(403) 268-6447  
[medini.prasai@brbc.ab.ca](mailto:medini.prasai@brbc.ab.ca)

Brooke Kapeller  
Program Coordinator  
(403) 268-4596  
[brooke.kapeller@brbc.ab.ca](mailto:brooke.kapeller@brbc.ab.ca)

Andrea Czarnecki  
Publications Editor  
[aczarnecki@brbc.ab.ca](mailto:aczarnecki@brbc.ab.ca)

**Mailing Address:**

Bow River Basin Council  
Spring Gardens - Building D  
Mail Code #64  
P.O. Box 2100 Station M  
Calgary, Alberta  
T2P 2M5

The opinions expressed in the articles in this newsletter are those of the author/s and do not necessarily reflect the views of the BRBC.



The next BRBC newsletter will be released in March.

If you would like to submit an article, please contact Andrea Czarnecki at: [aczarnecki@brbc.ab.ca](mailto:aczarnecki@brbc.ab.ca)