

AGENDA
COUNCIL COMMITTEE MEETING
MUNICIPAL DISTRICT OF PINCHER CREEK

January 18, 2022

5:00 pm

*** via GoToMeeting*

- 1) Approval of Agenda
- 2) Delegations:
 - a. 5:00 pm to 5:30 pm - Oldman Watershed Council
 - b. 5:30 pm to 6:00 pm – Highway 3 Twinning Development Association
 - c. 6:00 pm to 6:20 pm – Wood Gundy
 - d. 6:20 pm to 6:40 pm – McMillan LLP Water Law Series (Irrigation Districts)
 - e. 6:40 pm to 7:00 pm – RCMP Sgt. Ryan Hodge
- 3) 7:00 pm to 7:30 pm - Council Roundtable
- 4) Closed Session
- 5) Adjournment



Oldman Watershed Council

PO Box 1892 Lethbridge, Alberta, T1J 4K5
RECEIVED (403) 330 - 1346
info@oldmanwatershed.ca
JAN 13 2022 oldmanwatershed.ca

M.D of Pincher Creek

Reeve Rick Lemire
Municipal District of Pincher Creek
PO Box 279
Pincher Creek Alberta T0K 1W0

Dear Reeve Lemire and Council,

January 4, 2022

Thank you for your on-going support of the Oldman Watershed Council and our mission to keep our water and land healthy and safe. You are an essential part of the fabric of our organization and we offer our sincerest thanks for your support as a donor.

The Oldman Watershed Council is a collaborative forum for all voices. Our Board of Directors is made up of 19 seats from all sectors, to make sure that all voices are at the table and have an equal vote. Municipalities have the most seats, with 3; 1 for towns and villages, 1 for rural municipalities, and 1 for the City of Lethbridge. We provide monthly updates to municipalities at the Mayors and Reeves of Southwest Alberta meetings. This group also elects a mayor for the towns and villages seat, and a reeve for the rural municipalities seat.

When contentious topics, like coal mining, are being debated, we provide you with reliable, trustworthy information so that you can make your own informed decisions. Last year was polarizing because of the public debate about coal mining, and it was a good example of how important it is to have unbiased, science-based groups like the OWC to inform the conversation. We demonstrated how it is possible to provide neutral information about the potential benefits and drawbacks of a development project, without taking sides. We received positive feedback from stakeholders, and government officials that our non judgemental approach and information sharing was helpful and appreciated. Our unique role helped to depolarize the debate and assist decision makers to separate fact from rumour.

We are working alongside all levels of government, stakeholders and First Nations partners to improve the health of the watershed. We provide information about key issues, and we also work on the ground to restore damaged ecosystems. In 2021, we rehabilitated 7 streambanks by staking 2500 willows to reinforce eroding banks, improve water quality, and provide habitat for fish and wildlife. We also engaged over 2000 people in-person and tens of thousands online through our many videos, blogs, and social network.

One of our largest projects is in the headwaters where we engage recreationists in watershed-friendly practices that minimize their impact. We also have a large focus on agricultural stewardship, where we invest in producer-led restoration projects and showcase these beneficial practices to the broader community. Our approach is always to ensure there are educational opportunities, appropriate infrastructure and practical guidelines that benefit everyone; we do not place blame but focus on solutions. We hope you will take a moment to look through our [annual report](#), which is full of exciting photos of our projects and short summaries.

Your municipality is asked to help ensure this critical work continues with a standardized rate of 47¢ per resident for the April 2021 to March 2022 fiscal year. For 2965 residents based on the 2019 Municipal Affairs Population List, that is a donation of **\$1,394**. Thank you for your support over the years, it is making a difference. Your contribution provides critical funding which allows us to provide citizen education, habitat restoration, and be an unbiased forum for all voices in the watershed.

Sincerely,


Doug Kaupp, OWC Chair and General Manager of Water and Wastewater, City of Lethbridge



**OLDMAN
WATERSHED
COUNCIL** | 2020 • 2021
**ANNUAL
REPORT**

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NOTE FROM THE CHAIR

Has it been a year already? What a 'special' year it has been. The global pandemic had us frozen in our tracks for a time and postponed much of the summer fieldwork we had planned. Eventually, we got better at meeting, without actually meeting, and proved very capable of responding to topical concerns as they appeared before us.

The lull in 'on the ground' activities afforded the Board of Directors some time to reflect on governance, policy, and process. This effort will continue and will surely pay dividends in the form of organizational sustainability and a higher level of confidence in our purpose.

I would like to thank you, our members and directors, for your support and patience over this strangest of years. Looking forward, we have much work to do delivering on the backlog of projects. But I am confident that we will rise to the occasion and will have a lot of fun while we are at it.

Doug Kaupp, MBA, P.Eng.
General Manager,
Water and Wastewater, City of Lethbridge



Have you seen the Oldman around Lethbridge?

The City of Lethbridge might just have the most unique storm drain manhole covers in the world! In 2020-21, with Doug's leadership, the City installed 14 custom-made storm drain manhole covers that feature the OWC's Oldman logo and the words "Oldman watershed stormwater". These one-of-a-kind cast iron covers not only allow access to the storm water drainage system for maintenance and repairs, but also remind passersby that storm water flows directly into the Oldman River, untreated.

You can find them around the city on streets and sidewalks near you, with more on the way!



03

NOTE FROM THE EXECUTIVE DIRECTOR

This has been a year like no other. A global pandemic, rising momentum to end racism, and debate over the future of the Eastern Slopes made 2020-21 challenging and exhausting, yet hopeful, and more appreciative of our good fortune in life, like the privilege to work from home when necessary.

Our team has been working from home for over a year now, and it has been a difficult time away from our volunteers, funders, and partners. With few opportunities to catch up and build bonds, I know people are feeling disconnected from each other. As soon as possible we will resume in-person events, and I am very much looking forward to seeing you again!

Some of our projects were postponed when the pandemic hit, but we look forward to resuming those in 2021-22. Despite the challenges, I am very proud of what we accomplished. Looking back, our list of achievements is impressive, and demonstrates how dedicated and capable our small team is. I am also

proud of how our Board of Directors and staff quickly shifted to virtual work-arounds; I firmly believe that our nimbleness is one of our greatest strengths.

Diversity is also our greatest strength, and we aim to do our part to address the systemic racism and injustices that continue to oppress Indigenous People and People of Colour. The OWC strives to be an inclusive, empowering forum for all voices, but I know that we can do more. And I am committed to doing more to ensure racialized voices are amplified, and OWC is a reflection of the diversity of our community.

I am fortunate to hear the voices of our Blackfoot partners, who have taught me so much and who have become role models and friends. I strongly believe that our western societies would be more sustainable if we adopted an Indigenous worldview that prioritizes environmental health. The Blackfoot have thrived on this land for millennia, and know how to respect nature's limits. I would like to thank Mike Bruised Head, Randall Wolf Tail, Api'soomaahka, Harley Bastion, and Kansie Fox for sharing their wisdom with me. You have taught me not only lessons about mother Earth, but also lessons about life.

We learned this year just how much Albertans love the Eastern Slopes of the Rocky Mountains as debate erupted over coal mines, water allocation, and recreation. In my nearly 11 years with OWC I have never had so many phone calls, emails, presentation requests, and media interviews in only 3 months. It was encouraging to see that people on all sides care so deeply about the mountains, and I am pleased that we were able to provide neutral, science-based information that was valued by our stakeholders. It means a lot to me that we have earned the trust of our community, and our analysis is being sought.

Trust is our most valuable asset, and as we wrap up another successful fiscal year, I want to thank our funders, volunteers, partners, and especially the Board of Directors, led by our incredible Chair, Doug Kaupp, for putting their trust in me. We made it through a very challenging year together, and I appreciate your support and encouragement.

The ongoing pandemic, systemic racism, and unresolved future of the Eastern Slopes mean next fiscal year will likely present its own difficulties, but I truly believe we can tackle anything we put our minds to. It won't be perfect, but we'll tackle the issues together, and be a stronger community for it.

Thank you for your support, and I look forward to seeing you again in-person soon!

Shannon Frank

ABOUT THE OLDMAN WATERSHED COUNCIL

The Oldman Watershed Council (OWC) is a not-for-profit organization in Southern Alberta, Canada. We are one of 11 Watershed Planning and Advisory Councils in Alberta, mandated by the provincial government to provide an independent voice for watershed management and health under the province's Water For Life Strategy.

The Council consists of the staff and OWC members who work collaboratively with all stakeholders to improve the Oldman River watershed by:

- **improving and sharing knowledge**
- **building and strengthening stakeholder partnerships**
- **providing a science-based forum for all voices to be heard**
- **promoting and facilitating community and institutional action and stewardship**
- **developing and implementing integrated land and water plans**

The Council is governed by a Board of Directors that is composed of nineteen perspectives from various stakeholder sectors, including four members at large.

The OWC began to form in September 2004, when the Oldman River Basin Water Quality Initiative merged with the Oldman Basin Advisory Council. When the Province's Water for Life Strategy was released, these two groups combined to provide a diverse partnership knowledgeable in all areas of watershed management, including sustainable water management and land use practices in the Oldman basin.

Watershed Planning and Advisory Councils are mandated to create a State of the Watershed Report and an Integrated Watershed Management Plan. The OWC has accomplished these targets, and is moving through implementation.

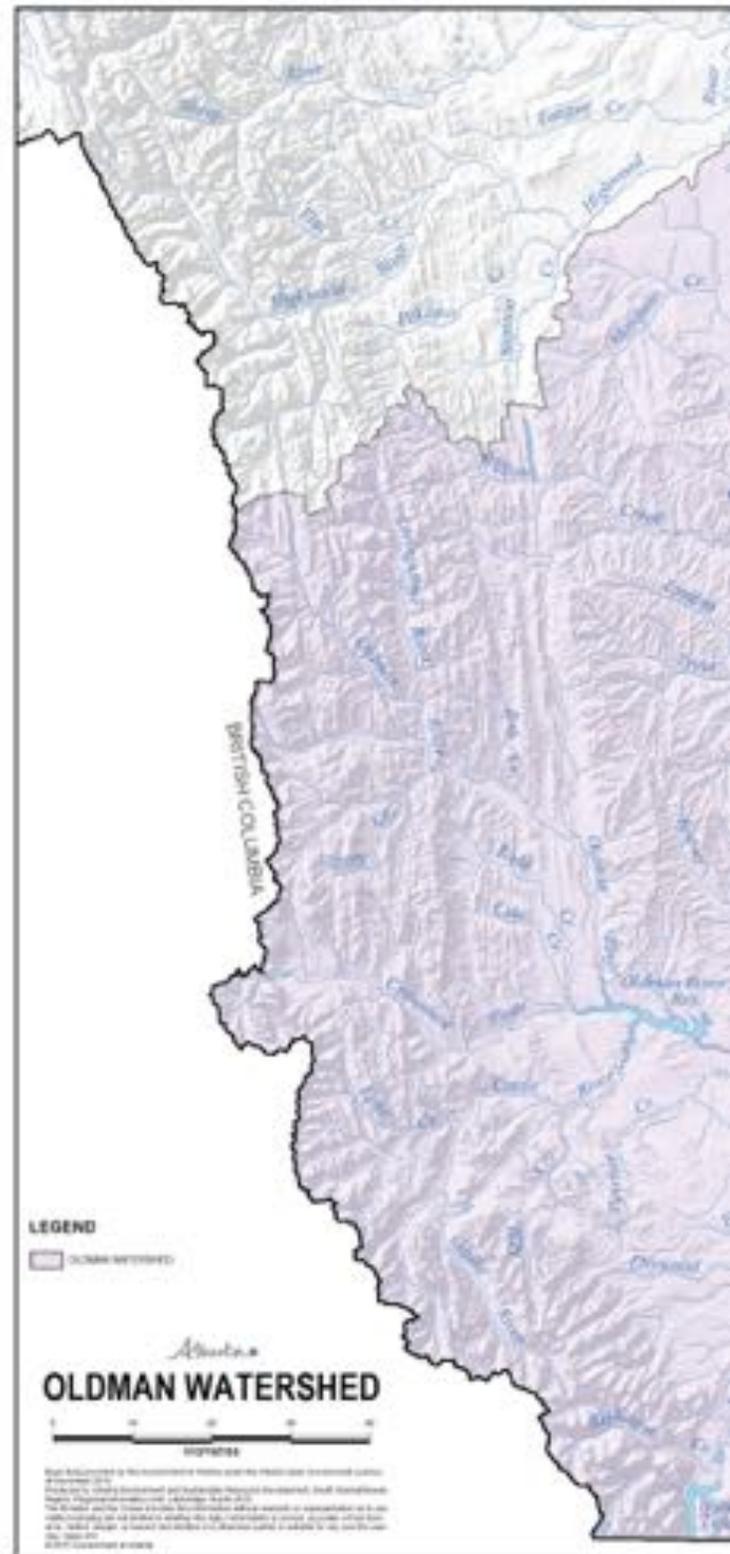
About our Watershed

A watershed is an area of land that drains into a water body, like a creek, river, or lake. Our Oldman watershed is all the land that eventually drains into the Oldman River through its tributaries.

The Oldman watershed is a large, diverse land and water system in Southern Alberta, covering 23,000 km² in southwestern Alberta and 2,100 km² in Montana.

It extends eastward from the forested slopes of the Rocky Mountains, through rangelands in the foothills, dryland and irrigated agricultural plains, to the prairie grasslands.

The Rocky Mountains feed the headwaters of the



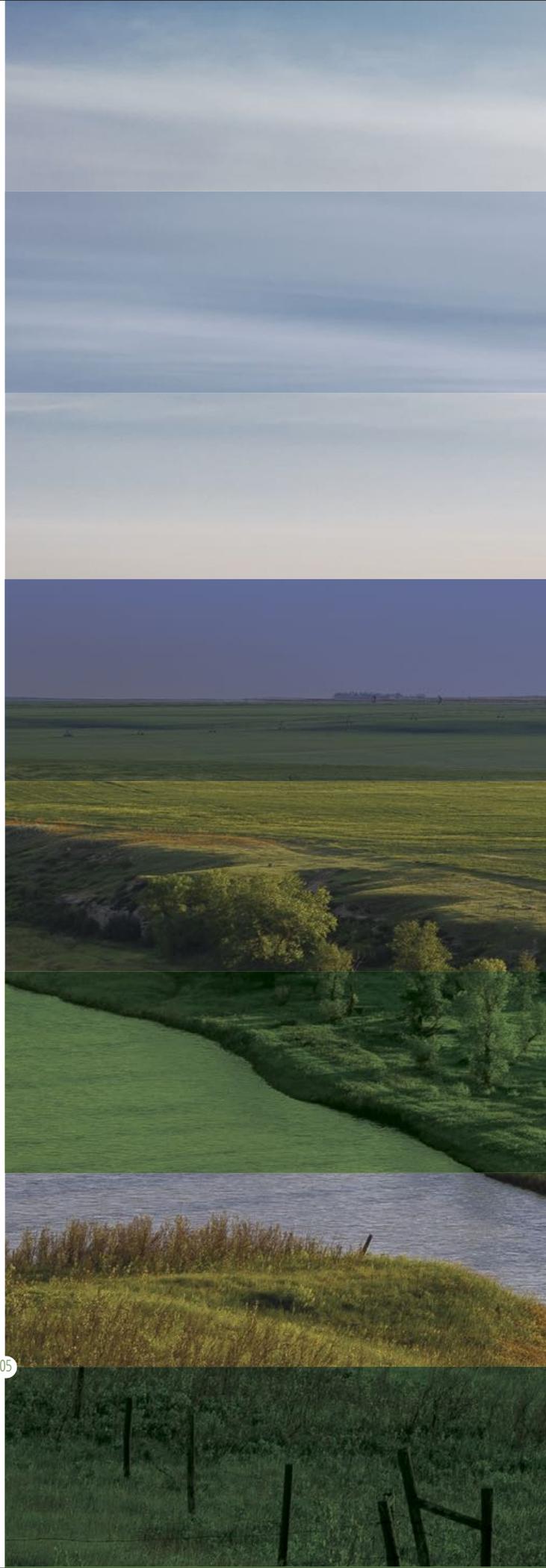
Oldman mainstem and its tributaries (Crowsnest, Livingstone, and Castle Rivers, Willow and Pincher Creeks), while the headwaters of the Belly, Waterton and St. Mary Rivers rise in Montana. The watershed varies greatly, both in terms of the status of the land and water resources and impacts from human activities.

In headwater subbasins, water quantity is adequate, quality is fair to good, and riparian ecosystems are generally healthy. However, as the Oldman River flows east, water quality deteriorates and available water supplies diminish, creating challenges for those downstream.



2020-2021 HIGHLIGHTS

- Supported our Indigenous partners by investing and participating in cultural and environmental restoration projects and events, including the Peigan Friends Along the River Fish Rescue where hundreds of fish were returned to the Oldman River from an irrigation canal, and 500 native seeds were collected as part of Naapi's Garden project, for replanting grasslands.
- Headwaters restoration included planting 280 shrubs and 550+ willows, installing hitching rails and 5 educational signs, and re-assessing riparian health at 4 restoration sites along streambanks, together with many partners.
- Launched a brand-new stream biomonitoring program; hosted 1 field training event and sampled 7 sites in the headwaters.
- Headwaters education included engaging over 600 people at 6 public events, presentations, conferences, and webinars.
- Invested in 2 on-farm riparian restoration projects led by agricultural producers.
- Developed a cutting-edge virtual reality experience to instill stewardship behaviours in participants.
- Surveyed 150 consumers about their attitudes and beliefs regarding food production, which will inform a new educational program.
- Responded to community demand for information about coal mining by providing 5 blogs, 4 presentations, 4 letters to government decision makers, and answering 30 requests for information.
- Increased our membership by over 100, and followers on Facebook by over 1%.
- 64 youth submitted project proposals to the Caring for Our Watersheds contest.
- Leveraged Alberta Environment and Parks investment into an additional \$166,182 from non-Government of Alberta sources.
- Leveraged \$182,307 in-kind support from non-Government of Alberta partners and volunteers.
- Released 5 videos and 12 blogs to educate and engage our membership and followers.





Doug Kaupp
City of Lethbridge
Chair



Andrew Hurly
Academia
Vice Chair



Alan Harrold
Irrigation
Treasurer



Maureen Bell
Environment



Mike Swystun
Health



Mike Bruised Head
Indigenous



Randall Wolf Tail
Indigenous



Wade Aebli
Industry



Errol Kutcher
Industry (Alternate)



Erik Cline
Member at Large



Jan Newberry
Member at Large



Jana MacKenzie
Member at Large



Henk De Vlieger
Member at Large



Randy Bullock
Municipal Districts
and Counties



Linda Cerney
Provincial Government



Michael Wagner
Provincial Government



Chad Willms
Provincial Government
(Alternate)



Blair Painter
Towns and Villages



Lori Goater
Wildlife & Habitat



Anne Stevick
Wildlife & Habitat
(Alternate)



John De Groot
(resigned)
Agriculture (Alternate)



Dwayne Rogness
(resigned)
Agriculture

BOARD OF DIRECTORS





Executive Director

Shannon Frank
August 2010 - Present



Education Program Manager

Sofie Forsstrom
November 2015 - Present



Communications Specialist

Jon Martin
October 2018 - Present



Office Manager

Kallie Desruisseaux
October 2018 - Present

OWC STAFF



Office Dog • **Quiche** April 2017 - Present

DONORS & FUNDERS 2020 - 2021

Over \$400,000

Government of Alberta - Environment and Parks

Over \$100,000

Canadian Agricultural Partnership

\$25,000 to \$50,000

City of Lethbridge
RBC Foundation
Samuel Hanen Society for Resource Conservation
Shell Canada

\$10,000 to \$20,000

Alberta Conservation Association
Government of Canada
Alberta Ecotrust Foundation
Edmonton Community Foundation

\$2,000 to \$6,000

Lethbridge Northern Irrigation District
Lethbridge County
Calgary Foundation - J.N. Fyvie Family Fund
Taber Irrigation District
Alberta Beef Producers
MD of Willow Creek
Plains Midstream Canada

\$1,000 and over

Vulcan County
Town of Claresholm
Town of Pincher Creek

Town of Taber
Town of Fort Macleod
Town of Coalhurst
Calgary Foundation - Perlette Fund
Town of Nanton
Terry Kerkhoff

Under \$1,000

Town of Picture Butte
Magrath Irrigation District
Alberta Irrigation Districts Association
MD of Ranchland No. 66
Janice Newberry
Raymond Irrigation District
Town of Stavely
United Irrigation District
Rosemary Jones
Virginia Grinevitch
Shannon Frank
Andrew Hurly
Kirsten Hironaka
Village of Cowley
Village of Hill Spring
James Fujikawa
Elspeth Nickle
Graeme Greenlee
Heather Sinton
Jason Josey
Knud Petersen
Ted Nanninga
Donna J Stevenson
Patricia McBride
Cheryl Fujikawa
Curtis Goodman
CanadaHelps.org



Samuel Hanen Society for Resource Conservation

IN-KIND DONATIONS FROM APRIL 1, 2020 - MARCH 31, 2021

Description	Person	Organization	Value (\$)
Board member	Doug Kaupp	City of Lethbridge	\$3,570
Board member	Andy Hurly	University of Lethbridge	\$2,975
Board member	Alan Harrold	Lethbridge Northern Irrigation District	\$2,380
Board member	Erik Cline		\$2,975
Board member	Mike Bruised Head	Kainai Ecosystem Protection Association	\$2,975
Board member	Dwayne Rogness	Lethbridge County	\$1,190
Board member	Linda Cerney	Alberta Environment and Parks	\$3,570
Board member	Chad Willms	Alberta Environment and Parks	\$1,785
Board member	Errol Kutcher	Spray Lakes Sawmills	\$3,570
Board member	Jana MacKenzie		\$2,975
Board member	Lori Goater	Southern Alberta Group for the Environment	\$2,975
Board member	Maureen Bell	Water Conservation Trust of Canada	\$3,570
Board member	Henk DeVlieger		\$1,785
Board member	Jan Newberry		\$2,380
Board member	Randall Wolf Tail	Piikani Public Works	\$1,190
Board member	John De Groot	Hays Stock Grazing Association	\$595
Board member	Wade Aebli	Montem Resources	\$1,785
Board member	Randy Bullock	Cardston County	\$1,190
Board member	Blair Painter	Municipality of Crowsnest Pass	\$595
Board member	Mike Wagner	Alberta Agriculture and Forestry	\$1,190
Board member	Mike Swystun	Alberta Health Services	\$595
Agriculture Literacy Survey Participants	anonymous		\$6,114
Agriculture Literacy Video Participant	Ryan Kasko	Kasko Cattle Co. Ltd.	\$170
Agriculture Literacy Video Participant	Rob Van Dieman	Van Diemen Poultry Farm Ltd.	\$170
Agriculture Literacy Video Participant	Cor Van Raay	Cor Van Raay Farms	\$170
Agriculture Literacy Video Participant	Norine Ambrose	Cows & Fish	\$170
Agriculture Literacy Video Participant	Dwayne Rogness	Lethbridge County	\$170
Agriculture Literacy Video Participant	Gary Secrist	Lethbridge County	\$170
Headwaters Education and Restoration Project		Eastern Slopes Biomonitoring Collaborative	\$21,080
Headwaters Education and Restoration Project		Living Lakes Canada	\$20,068
Headwaters Education and Restoration Project		World Wildlife Fund-Canada	\$67
Headwaters Education and Restoration Project		University of Guelph	\$2,340
Headwaters Education and Restoration Project		Cows & Fish and Blackfoot Confederacy	\$35,795

Description	Person	Organization	Value (\$)
Indigenous Partnerships		Kainai Nation and Piikani Nation	\$2,210
Watershed Legacy Program Team			\$2,040
	Anne Stevick	Rancher	
	Troy Ormann	Alberta Agriculture and Forestry	
	Carla Preachuk	MD of Willow Creek	
	Dwayne Rogness	Lethbridge County	
	Mike Uchikura	Alberta Conservation Association	
	Richard Burke	Trout Unlimited Canada - Oldman Chapter	
	Katheryn Taylor	MULITSAR	
	Kristi Stebanuk	Cows and Fish	
	Jamie Puchinger	Farming Smarter	
Watershed Legacy Program grant recipient		Taber Irrigation District	\$51,113
TOTAL			\$187,662

SUMMARY OF FINANCIAL EXPENDITURES

	2020-2021	2019-2020
Administration and Office Space	\$194,138	\$179,628
Headwaters Restoration and Education	\$127,504	\$179,888
Communications	\$112,799	\$89,285
Indigenous Partnerships	\$33,666	\$42,287
Watershed Legacy Program	\$21,820	\$18,348
Uniting Rural Producers and Urban Consumers	\$19,198	-
Youth Education	-	\$16,570
	\$509,125	\$526,006

For detailed financial information, please see Audited Financial Statements.



INDIGENOUS PARTNERSHIPS

The Oldman watershed is a part of Treaty 7, and the traditional territory of the Blackfoot People. The Siksikaitsitapi (Blackfoot Confederacy) includes 4 Nations: Kainai-Blood Tribe, Siksika, Peigan-Piikani and Aamskapi Pikuni.

Our Indigenous partners continue to teach us how to live lightly on the land, and we are honoured to learn from their wisdom and traditional ways of knowing. The traditions and culture of the Blackfoot are rooted in respect for the Earth, and there is much we can learn about sustainability from their time-tested experience living on this land for time immemorial.

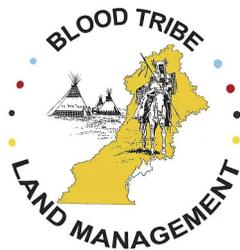
In 2020-21, the OWC was proud to invest \$22,800 in local Indigenous-led projects that are supporting cultural and environmental restoration. Our partners on Kainai Nation and Piikani Nation are leaders in demonstrating how to braid traditional ecological knowledge and western scientific knowledge together.

We are honoured to be a small part of the many valuable initiatives being undertaken by our Blackfoot partners, and share these highlights from 2020-21:

- OWC toured Naapi's Garden project on Kainai Nation to learn about culturally important Blackfoot plants, and how they are being used to restore grasslands, and feed the iinnii (buffalo).

- The Blackfoot Confederacy invited OWC to participate in their Native Trout Recovery Project where we participated in and presented at a workshop, and demonstrated how to stake willows at a planting event at Dutch Creek.
- Together with Kainai Nation staff we completed benthic invertebrate (insects that live on creek bottoms) monitoring training, and are working together on a larger collaborative along the entire Eastern Slopes of Alberta.
- OWC participated in the Peigan Friends Along the River Fish Rescue where hundreds of fish were returned to the Oldman River from an irrigation canal.
- We assisted with organizing the Crown of the Continent Roundtable Conference to showcase Indigenous knowledge and community action, but it was unfortunately canceled due to the pandemic.

Thank you to our partners:



**PIKANI NATION
LANDS DEPARTMENT**

**KAINAI ECOSYSTEM
PROTECTION ASSOCIATION**

Thank you to our funders for making
these partnerships possible:



PROFILING THE WATERSHED

A new project for 2020-21 was our high-tech Profiling the Watershed project. Made possible by the RBC Foundation's Tech for Nature program, the goal of the first year of this multi-year project was to create an interactive, accessible, and forward-thinking virtual reality experience to help inspire and train participants to act as stewards of the watershed. We also captured and documented special areas of the watershed with 360° video and immersive, spherical audio to establish a baseline for tracking the effects of climate change.

While the realities of working safely within health guidelines related to COVID-19 created a few challenges regarding the testing and rollout of the program, due to the nature of using a virtual reality headset and working in close proximity with others, we were able to adapt the project, ultimately making it stronger and more accessible.

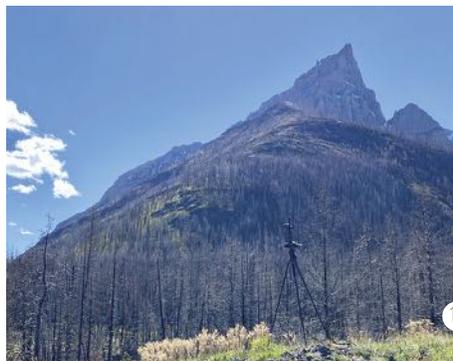
The virtual experience, which will be available to try at future in-person events, takes the user through a short training program where they learn the basics of invasive weed removal, willow planting, and extinguishing campfires. After the training is complete, they are sent to a virtual headwaters site where they put their skills to use. Once all of the

objectives are completed, the player is transported to an interactive scene of a real-world watershed location. The memorable experience provides the user a taste of backcountry restoration work and basis to start their own journey of watershed stewardship.

As our population gets vaccinated and our understanding of COVID-19 increases, we have been able to rethink how some of these experiences can be approached and be most applicable and effective in our current climate. As a result, we have made some modifications to delivery and programming—for this and future years—that will make the experience safer, more accessible, and more inclusive.

The Profiling the Watershed project will continue development and expansion in 2021-22. Watch for it at a future OWC booth or event in the coming year!

Thank you to our project funder



360° and ambisonic audio being captured on location in the watershed.



The OWC VR application transports you to a virtual watershed.

HEADWATERS RESTORATION AND EDUCATION

At a glance:

- Presented at international conference and provincial webinars
- 3 videos + 3 blogs about streambank restoration
- 750+ willows and shrubs planted along streambanks
- 5 signs installed to educate public and protect restored areas
- 50 partners and students engaged in streambank restoration
- 8 field assistants trained in creek monitoring protocol
- 7 streams sampled to monitor restoration sites
- 4 riparian health assessments completed

Education

With the restrictions in place due to the COVID-19 pandemic, we shifted our outreach and engagement strategy to be primarily online. We published a 3-part blog and video series outlining the process of planning and implementing a streambank restoration project.

OWC's proposal to the North American Association for Environmental Education national conference was accepted as a 10-minute "Bright Spot" presentation, available on demand to attendees. Since the presentation was pre-recorded (not live), we took the opportunity to film it on location in our headwaters - sharing this beautiful place with practitioners from across North America.

"I watched your bright spot last week on building a bridge with recreationists and it just keeps resonating with me! What a skill you all must have and what an accomplishment! Thank you so much for sharing and inspiration!"

~ Jen, NAAEE conference attendee from Dayton, OH

We also presented as part of a webinar about creek monitoring hosted by fRI Research, and at the Native Trout Workshop Series organized by Cows and Fish.

Restoring Streambanks

Dutch Creek: In August 2020, OWC and Cows and Fish met with Alberta Environment and Parks staff,

who showed us the sites where the government was going to be investing in bridges, road and trail improvements, and access control. In September, OWC and Cows and Fish hosted a planting event with the Blackfoot Confederacy at two sites along Dutch Creek. We planted more than 250 willows at these two sites.

Beaver Creek: OWC partnered with Cows and Fish, who hired a contractor to work on six sites along Beaver Creek in the Porcupine Hills Public Land Use Zone. The contractors used machinery to apply "rough and loose" treatment to decompact the soil. They planted grass seed, native shrubs, willow fascines, and willow stakes. They also installed straw wattles, hitching rails, four "Steer Clear of Ponds and Creeks" signs, and one "Beaver Creek Restoration Project" sign. In October OWC, Cows and Fish, and the Blackfoot Confederacy met to do some willow staking at one of the sites along Beaver Creek. We planted 156 willow stakes, built two silt fences made of willows, and buried 4 willow fascines, which will hopefully grow and trap sediment before it enters the creek.

In October, we were invited by Lethbridge College to help train their Natural Resource Conservation students in willow staking techniques; 30 students took part in this experiential field work, planting willow stakes to stabilize a streambank of the Oldman River.



Willow staking along Dutch Creek with Cows and Fish and the Blackfoot Confederacy. September 2020.



OWC staff Kallie and Sofie making a hole for a willow stake along Dutch Creek. September 2020.

Evaluating Success

Four riparian health assessments were completed this season by our partners, Cows and Fish, at restoration sites along Pasque and Dutch Creek.

New this year, we developed a stream biomonitoring program to complement riparian monitoring at our restoration sites in the headwaters. OWC hosted a CABIN field certification training session with Living Lakes Canada in the Crowsnest Pass in September, in which staff from partner watershed councils, Blood Tribe Land Management, and a neighbouring watershed stewardship group were trained in both CABIN (Canadian Aquatic Biomonitoring Network) and STREAM (Sequencing the Rivers for Environmental Assessment and Monitoring) sampling protocols.

From September to November, OWC sampled 7 restoration sites in the headwaters, sending samples of benthic macroinvertebrates for both DNA metabarcoding (University of Guelph) and taxonomic analysis. These data will provide an important baseline of aquatic health against which to measure improvements over time.

OWC has also been hosting online meetings with Living Lakes Canada, Environment Canada, First Nations, and watershed stewardship groups from across Alberta to support the development of community-based stream biomonitoring projects along the entire Eastern Slopes of the Rockies. Stay tuned for updates on this work in the coming year!

Funders and Partners:

- Government of Alberta
- Alberta Conservation Association
- Government of Canada
- Shell Canada
- Living Lakes Canada
- University of Guelph
- World Wildlife Fund Canada
- Blackfoot Confederacy
- Cows and Fish



CABIN / STREAM field certification course provided by Living Lakes Canada. Crowsnest Pass, September 2020.



Sofie, Shannon, and Kallie holding OWC's very first STREAM sample collected for DNA metabarcoding analysis. South Racehorse Creek, September 2020.

INFORMING THE COAL MINING DEBATE

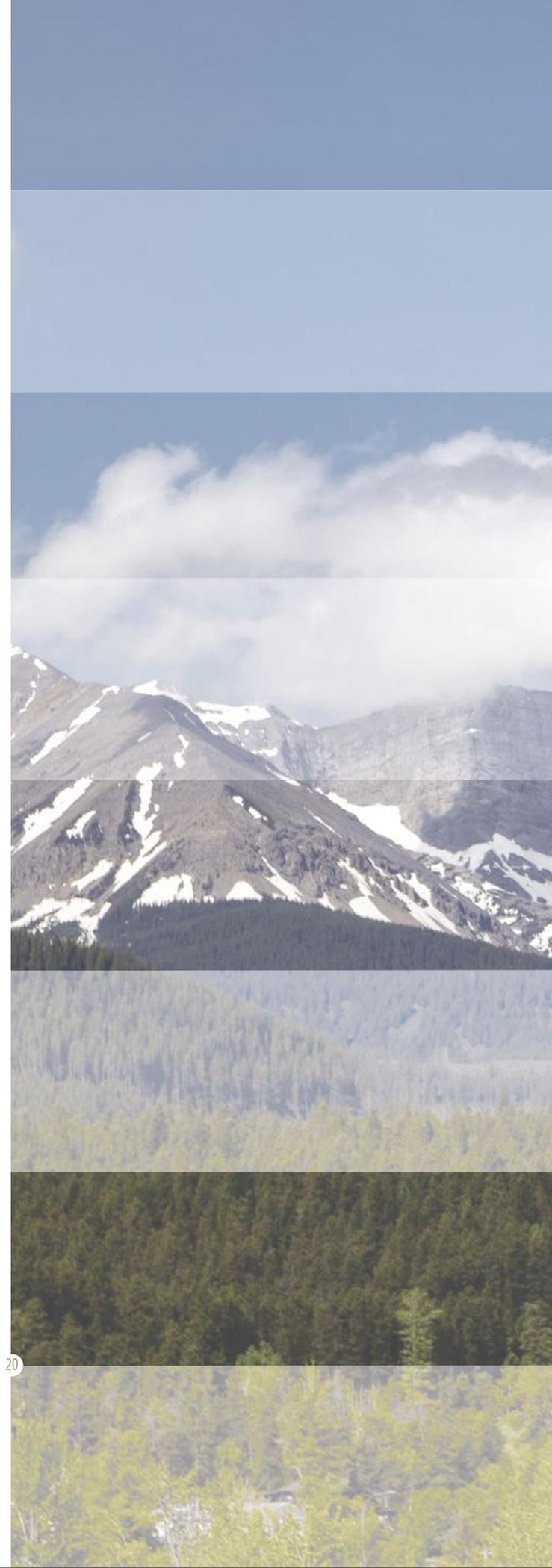


The OWC regularly participates in government consultation processes, and provides feedback on a variety of legislation and policy issues, but this year was like no other.

As the debate grew about coal mining along the Eastern Slopes, the OWC stepped up to provide timely, unbiased, scientific information to the community and to decision makers. We fulfilled our role to remain neutral and support people to formulate their own informed opinions.

The OWC thoroughly researched and analyzed each topic in order to provide 4 detailed letters to government decision makers about the Grassy Mountain Coal Project, Mineral Mining Strategy, Oldman River Basin Water Allocation Order, and the Tent Mountain Coal Project. We also participated in the public hearings held by the Joint Review Panel of the Impact Assessment Agency of Canada, and Alberta Energy Regulator for the Grassy Mountain Coal Project.

To support education and community engagement, we also released 5 detailed blogs on our website, gave 4 public presentations, were quoted in 10 media articles, and responded to at least 30 direct requests for information.



WATERSHED LEGACY PROGRAM

Farmers and ranchers have an important responsibility as stewards of our watershed, and the OWC is proud to support them in this vital role. We have been supporting rural watershed enhancement projects since 2009, and since then we have invested in 70

education and restoration projects. These grassroots, producer-led projects have improved the health of streambanks, fish and wildlife habitat, and water quality, which benefits all of us.

Congratulations to our 2020-21 grant recipients!

Steelhorse Ranch, who is installing a bridge over Beaver Mines Creek in the Municipal District of Pincher Creek to keep cattle and equipment out of the creek and improve riparian health.

Timber Ridge Land and Cattle, who are installing off-stream watering troughs to attract cattle away from Nanton and Cross Creeks in the Municipal District of Willow Creek.

Thank you to the WLP Team and all our Funders!

Watershed Legacy Program Team:



Anne Stevick



Watershed Legacy Program Funders:



Samuel Hanen Society for Resource Conservation

70 FUNDED PROJECTS



IMPACTS

21



50 km
Riparian Fencing



27
Off-stream Watering
Systems



80
Bison



8,790
Cows



300
Sheep



Removed from water
bodies & riparian areas!



28 Weed Pulls



11 Clean-Ups



1,030 Volunteers



1,977 lbs Garbage
4,015 Bags Weeds
12,750 lbs of Weeds

12 Hectares Wetland Restored

8 Bio-Control Releases

6 Bioengineering Projects

1300 Willows Planted

304 Plans, Assessments, Surveys

380 People Engaged in
Educational Events

2 Cattle Crossings

UNITING RURAL PRODUCERS AND URBAN CONSUMERS

Uniting Rural Producers and Urban Consumers is a three-year project that aims to educate, engage, and inform urban consumers in Southern Alberta about agriculture and watershed stewardship through innovative, interactive, and collaborative communications packages of videos, articles, and events.

We completed the first year of the project in 2020-21, where we delivered public surveys to find out where the knowledge gaps, curiosity, and opportunity exist for helping better equip people with knowledge about where their food comes from. The information we gathered at in-person events and online is compiled and is being used to inform a suite of communications pieces, including two seasons of a web-series, interviews with agricultural producers, and public events.

Like many projects and events centred on in-person, face-to-face communication, we faced a number of challenges stemming from the pandemic. Fortunately, we were able to find solutions to many of these challenges that have subsequently helped make this project more flexible and provide insight that will shape the way we design projects in the future.

Now that year one—which was primarily focused on research—is complete, we look forward to years two and three of the project where we will be developing a series of communications pieces highlighting the important work that is being done to make food production safer, more efficient, and less impactful on the health of our water and watershed. Follow along as we enjoy and discuss food from your favourite bakeries and restaurants with local agricultural producers and experts!



22

Community members complete the agricultural literacy survey.



23

Thank you to our project funders





24



25



26



COMMUNITY OUTREACH

SOCIAL NUMBERS ▶▶▶

1,750

670 

Blogs released ▶ 12 

Public Presentations
reaching +868 people ▶ 17 

times in the news
across Canada ▶ 21 

2,249 

3,692 



PARTNERSHIPS AND COMMITTEES

Watershed Planning and Advisory Councils Of Alberta (WPACs)

OWC is one of 11 WPACs in Alberta; there is one for each major river. WPACs work in 4 main areas:

1. Convenor and collaborator,
2. Education and literacy,
3. Planning and policy,
4. Monitoring and reporting.

WPACs meet regularly to learn from each other and to maintain a strong provincial voice with the Government of Alberta, and more recently, the Government of Canada. Together we shape the role and future of WPACs as leaders in watershed management, stakeholder engagement, and environmental education.

Thank you to our 10 sister WPACs across Alberta for all that you do to improve watershed health!

Alberta Water Council

Alberta's eleven Watershed Planning and Advisory Councils have a seat on the Alberta Water Council Board of Directors and actively participate on project teams to shape Government of Alberta policy and provide tools for watershed managers.

In 2020-21 the Alberta Water Council focused on 3 projects:

1. Alberta's Water Future, a report identifying risks and opportunities facing water management in Alberta.
2. Alberta Wetland Policy Implementation Review, a report to measure progress toward achieving the intended outcomes, identify challenges and successes with the policy implementation so far, and opportunities for improving policy implementation.
3. Water for Life Strategy Implementation Review, a report to track achievement of the goals of the Strategy, and recommend ways to improve progress.

The OWC provides input and support to the elected Watershed Planning and Advisory Council representatives on project teams and the Board of Directors.

Thank you very much to the 2020-21 volunteers for all the time and energy you put in to bring a watershed perspective to the Alberta Water Council:

Roxane Bretzlaff – Lakeland Industry and Community Association / Beaver River Watershed
Morris Nesdole – Athabasca Watershed Council
Josée Méthot - Red Deer River Watershed Alliance
Marilou Montemayor - South East Alberta Watershed Alliance

South Saskatchewan River Basin Intra-basin Water Coordinating Committee

The OWC participates on this committee to provide advice to the Government of Alberta on managing water during periods of water shortage, and how to best meet the Master Agreement on Apportionment, which shares water between the Prairie Provinces. Thank you to Alan Harrold, Lethbridge Northern Irrigation District, and Doug Kaupp, City of Lethbridge, for serving as our representatives on this vital Committee.

Kainai Ecosystem Protection Association

KEPA's Annual Summit is normally a highlight of the year, where captivating presentations and tours showcase the important work being done by members of the Kainai Nation. Unfortunately, due to the pandemic the KEPA Summit was cancelled in 2020. OWC participates to learn from traditional ecological knowledge, and support our Indigenous partners. Thank you to Mike Bruised Head, Kansie Fox, Api'soomaahka, and everyone who is involved in KEPA for your leadership and dedication to KEPA and the watershed!

Recreation Advisory Group

OWC is a member of the Government of Alberta's Recreation Advisory Group to provide input on recreation management in the headwaters of the Oldman watershed. The group is made up of stakeholders from all sectors, who have important discussions about the implementation of recreation management plans, and park management plans. The group discusses linear features density, designated trail systems, infrastructure needs, restoration plans, and much more. Thank you to Andy Hurly for representing OWC on this important Committee!

Roundtable on the Crown of the Continent

The Roundtable is a network of networks, bringing over 100 groups together from all sectors to share information, resources, and best practices. The forum helps protect the headwaters of North America that provide water to millions of people and flow through a large portion of the continent all the way to the Pacific Ocean, Gulf of Mexico, and Hudson Bay.

Usually, the primary event for the Roundtable is its annual 3-day conference, where participants learn from their neighbours across the Crown of the Continent, and strengthen their transboundary relationships. OWC was assisting with organizing the 2020 conference in Lethbridge to showcase Indigenous knowledge and local projects, but it was unfortunately cancelled due to the pandemic.

Thank you to Mike Bruised Head for your valuable contributions to the Roundtable and for keeping OWC up to date on the group's projects!

Alberta Energy Regulator Multi-Stakeholder Engagement Advisory Committee

This committee provides input to AER as they work towards 3 new approaches to resource management: cumulative effects management system, area based regulation, and integrated decision approach. This committee is important because it keeps stakeholders informed as these changes progress, and offers opportunities for discussion about how each sector will be impacted.

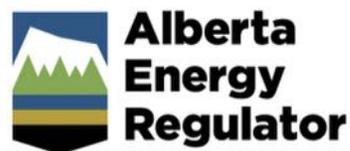
Thank you to Jim Fujikawa for serving as our watershed council representative on this committee!



Alberta WPACs



Kainai Ecosystem Protection Association



YOUTH EDUCATION

This year was a challenging one for teachers and students due to the COVID-19 pandemic and switching between online and in-person learning. In March 2020 we published a Learning At Home blog replete with watershed-related resources and lesson ideas for educators.

OWC promoted the 2020-21 Caring for our Watersheds - Southern Alberta contest, and judged the top 10 finalist presentations. Sixty-four students from three schools in the Oldman watershed submitted thirty-one project proposals to the contest—four of which placed in the top 10 final competition. Congratulations to students from R.I. Baker Middle School in Coaldale, Magrath Junior Senior High School, and Cardston Junior Senior High School for your winning project proposals!



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Highway 3 Twinning Development Association
 Who is H3TDA and What is H3TDA doing?
 By Victoria Chester, Director of Advancement



The History



Our Association was formed in the 70's to promote Highway 3 safety and tourism, including design of the current Crow signage



Grew to incorporate a large number of communities across southern Alberta, advocating for a Twinned Highway from BC to SK, resulting in twinning between Fort MacLeod and Taber



Our Board currently includes every Municipality between Medicine Hat & Crowsnest Pass, with exception of Coalhurst and Barnwell

What are the STAGES to twin?

STEP ONE: DONE!

Studies of the entire corridor, with exception of Piikani Nation, were completed with the financial support of the Province. Currently there are 12 *Sections* identified.

STEP TWO:

Some locations require Environmental Impact planning (Wildlife Crossings, Water protection, Traditional lands, Gravesite sensitivity, etc).

STEP THREE:

Engineering Design (the firm road construction location and details for RFP).

STEP FOUR:

Utility and Right-of-Way (purchase land for the new location and coordinate utility changes)

STEP FIVE:

Construction start (Land clearing & Asphalt)! Most likely completed in sections.

Highway 3 Twinning Feasibility: A Cost-Benefit Analysis



Report Prepared for the Highway 3 Twinning Development Association

by

Kien C. Tran, Ph.D.
Professor
Department of Economics
University of Lethbridge

STEP ONE IS DONE!



GOVERNMENT PERSPECTIVE



COMMUNITIES NOT READY:

The studies showed some communities do not agree on the location of new roadways.

Government does not want to force communities and would prefer consensus before final Design investment.



COST:

The *TOTAL* cost to twin the remaining 190+ kms is significant, **estimated at 1.2 Billion** .
Economy of Alberta impacts funds available for Capital Projects.



STAGES & SECTIONS:

Providing for funding in Stages AND Sections is more cost effective for Albertans.

Many road projects and upgrades are needed throughout Alberta.



WHO IS RESPONSIBLE?!

Communities :

Get Route Consensus!

Businesses:

Become a H3TDA Member!

H3TDA:

Coordinate with/Lobby Government!

Part 1: Strategic Ladder

Regional Vision

The Vision of the Region is a broad statement that encompasses what sort of economic membership would like to see realized. It informs H3TDA mission and gives us a direction towards. SouthGrowth cannot achieve the vision alone, but we can play our part to realize it.

H3TDA's Vision is a twinned Highway 3 is a safe, community and regional economy, and the provincial and national transportation network.

The Association's Mission

This is to realize the vision of the region.

To collaborate with municipalities and industry stakeholders to advance the region's economic development.

Core

These are the core values of the Association.

4. Develop Collaborative relationships with Indigenous Communities along Highway 3 to fast-track twinning where community safety is a high priority.

A. Engage Blood Tribe & Piikani Nation in Highway 3 twinning efforts

SMARTER GOAL	Find common needs and goals. Encourage membership and attendance.
OUTCOME	First Nations feel respected and engaged as an important partner, and advocate for the twinning of highway 3 within their communities.
MEASURE	Written support of twinning highway 3 within respective nations Increased attendance at Board meetings Membership
TARGET	

Pillar 3: Develop a multimedia communication program to promote twinning, community and economic development initiatives

1. Determine communication program elements required to effectively inform residents, landowners and elected officials about the initiatives and successes of H3TDA

A. Create a new Brand (re-brand)

SMARTER GOAL	By Q3 2020 H3TDA has launched a new visually exciting logo, messaging solutions and easy to understand marketing materials.		
OUTCOME	H3TDA has an effective brand that is recognizable and understood by Southern Alberta residents		
MEASURE	New Logo & transition of marketing materials Recognition of Brand ("oh I saw/heard about that")		
TARGET	2019 invite student designs, 2020 select logo, prepare implementation complete program		
WORKPLAN	2019 Q3: Connect with college to engage students in fall Q4: Lethbridge college design students work on logo & branding	2020 Q1: Select best student campaign Q2: Prepare new logo/branding materials Q3: Implement new branding	2021

B. Create a communications strategy to guide long-term efforts

How do we get here? H3TDA PERSPECTIVE

Momentum in the Association was slowing, so the Board initiated a 2018 Strategic Plan.

With financial commitment from Municipalities and Industry Stakeholders, along with Economic Development partnerships, the 2018 Plan moved the Association to a central location with a Director of Advancement to drive Plan targets through Collaboration, Lobbying and Promotional exposure.

Now we're GOING BIG, just completing our 2022-2024 Strategic Plan and looking forward to initiating a 2022 Economic Impact Study. We are successful in our advocacy and outreach!



Operationalize the NEW 2022-2024 Strategic Plan into a detailed Work Plan



Communicate H3TDA Vision to Citizens



Secure the Commitment of Industry Stakeholders

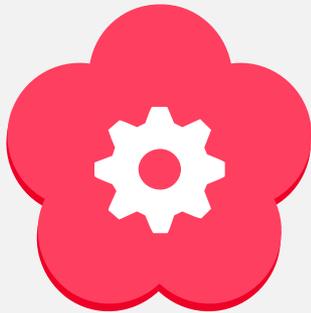


Deliver a Consistent, Concentrated and Unified Effort & Vision



The Plan – Increase Awareness/Engage!

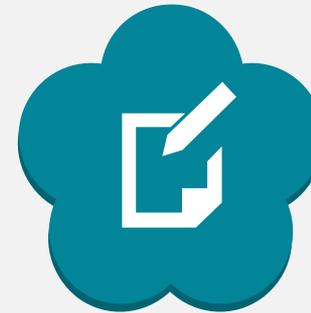
Industry, Stakeholder Associations, Community, and support Municipal Member priorities



Continue to collaborate with Associations (Rotary Clubs, Economic & Tourism Groups, School Districts, Chambers of Commerce, AMTA, Sugar Beet & Potato Growers, etc) and engage Industry Stakeholders



Continue to increase our membership, so we SPEAK LOUDER to Government and diversify the financial burden



When restrictions ease, develop Community Events to connect H3TDA with citizens, answer questions and support Advocacy.

What's Next?

2021-2022 Goals

- Complete New Strategic Plan and Work Plan –underway now
- Complete Community & Stakeholder Engagement Events in 2022 (tabled in 2020 & 2021 due to pandemic) and grow Stakeholder Membership (First ever Virtual Town Hall with citizen attendance held Oct 13th!!)
- Regional Awareness through Quarterly Media Release updates and Advertising Exposure (Media Coverage, Facebook & Billboards)
- Coordinate with MP's to identify and lobby for Federal financial support
- Collaborate with BC Hwy 3 Coalition on joint Provincial & Federal advocacy, along with joint Economic Impact Study
- Engage Government of Alberta to plan next -steps for the twinning of Hwy 3.

2021 TWINNING PRIORITIES of H3TDA

Lobby the GOA to fund/approve any one (or more)
of the Priorities, in stages or as a whole.

- 1) Medicine Hat to Seven Persons, including Airport runway realignment (26kms)
- 2) Pincher Station to Bellevue (36kms)
- 3) Piikani Nation Functional Planning Study **** CONSULTATION REQUESTED**
- 4) Fort MacLeod Stage 1A (Shovel Ready) ****COMMUNICATION UNDERWAY**

Deliver a Concentrated and Unified Message



How do we get there?

H3 TDA Advocates to Government:

COST:



- The *TOTAL* cost to twin the remaining 190+ - kms is significant (4 -8 Million per km). As such a continuous stream of funding is needed to complete twinning over the next 15 to 25 years. If we do not plan now, the bottleneck and safety issues will only increase.
- Availability of Contractors in the current economic climate could reduce cost.
- Agricultural Land needing acquisition continues to increase in value (cost to twin in the future will continue to increase exponentially)
- Capital Project funding is provided for in every GOA budget, regardless of the economy. Pressure GOA to plan to include a stipend for twinning in each budget cycle.



RECOVERY:

- Job Stimulus through Infrastructure Projects provide short -term employment activity and long -term growth through supply capacity.
- Potential Resource Development in the mountain fringe, several new Solar Farms, and large Commercial or Industrial developments are planned along the Hwy 3 corridor.



STAGES & SECTIONS:

- H3TDA is working with GOA to identify which Stage/Section or Priority is next, based on available funding and ease/speed of construction completion.



GOVERNMENT MESSAGE TO H3TDA:

- Continue to advocate support from Stakeholders to complete Hwy 3 twinning.





Align Advocacy with Government
Strategic Economic Priorities

Support Economic
Development along
Corridor

Increase safety for all
travelers



Oct. 2019 to Oct. 2021 Successes!

- Lobbied Government for Twinning Hwy 3 as “Accelerated Design/Build” project **resulting in the twinning of Hwy 3 from Taber to Burdett**, funding of Piikani Nation Functional Planning Study + initiation of engagement, and communication negotiation with Fort Macleod on the completion of Stage 1A!
- Meetings with Provincial Government: Ministers of Transportation, Treasury, Agriculture, Economic Development
- Chamber Presentations made along the Corridor with Regional Policy sponsored by ALL Southern AB Chambers
- Alberta Motor Transportation added Hwy 3 twinning to Top 5 Priorities
- Collaboration with Associations (Alberta Sugar Beet Growers, Potato Growers of Alberta & etc.)
- Connected with Trucking Industry Stakeholders, such as Perlich Bros., Chinook Carriers, Gateway Carriers, etc.
- Collaboration with BC Hwy 3 Coalition on shared initiatives and joint New Economic Impact Study.
- Engaged with Industry Stakeholder Businesses impacted by Hwy 3 twinning, such as Rogers Sugar, McNally Contractors, Lamb Weston, Rowland Farms, Goodyear Canada, Triple M Housing, Jayco Builders & Jade Homes RTM, etc.
- Regular Meetings with local Government: Southern Alberta Department of Transportation, MLA’s and MP’s
- Connecting with Community to sign Petition to Twin Hwy 3: www.twin3.ca (currently 3502 signatures, aiming for 10k)
- Operations Organization: Bylaw revision, Branding (new website/logo), Policy & Procedures Manual, Registered Lobbyist through Alberta Lobbyist Registry, Association Bank Account and PO Box, etc.
- Promoted improved East/West travel experience and safety for tourists, commuters and local travelers.
- Advocated for Highway 3 as a Commodity and Provincial-National Economic Corridor for a diversified economy.
- Worked to establish *H3TDA as the collaborative and regional leader* of the Hwy 3 twinning initiative.
- New Billboard located just West of Brockett.



What Can You Do?

Become a Business Member!

SUPPORT:

- A dedicated part -time advocate for Highway 3 Twinning,
- The expansion of stakeholder collaboration, and
- Improvement to Association operations.

Work with your Community!

H3TDA has Board/Municipal representation from every community.

YOUR representative is willing to work with your community to define a Resolution for the location and access points for future Highway 3.

Advocate!

Encourage Business owners impacted by Hwy 3 twinning to:

Join H3TDA

Inform Community

Support twinning to your MLA

[Follow H3TDA on Facebook!](#)

[Sign the Petition at www.twin3.ca](http://www.twin3.ca)

The REGION needs Hwy 3 Twinned.

H3TDA needs support from Municipalities, Industry & Citizens.

#twin3





**CROWSNEST
HIGHWAY**

ALBERTA

~ Since 1932 ~



Contact

Highway 3 Twinning Development Association

Victoria Chester

Director of Advancement

403-929-3593



admin@twin3.ca



www.twin3.ca

visit our website to SIGN THE PETITION!

FOLLOW US! www.facebook.com/twin3.ca/



mcmillan

Water Law Seminar

Part 1 – A Virtual Event

| December 1, 2021

Our Speakers



Tory Campbell
Farmer, Coaldale
Chair, Taber-Warner NDP



Richard Jones
Partner & Water Law Specialist
McMillan LLP



Richard Phillips
General Manager
Bow River Irrigation District



Jeff Bronsch
AG Water/Data Specialist
Data Driven Agriculture



Julia Loney
Partner, Environment
& Regulatory, McMillan LLP

| Agenda



- Water Act Legal Framework
- Irrigation Perspective
- Challenges & Opportunities
- Q&A



Water Act Legal Framework

Richard Jones



Historical Overview

- In 1894, the Parliament of the Dominion of Canada introduced the *North-West Irrigation Act*
- It granted the statutory right to use water in Alberta (then the North-West Territories)
- It declared the federal Crown owned all water
- It set out a mechanism to distribute the Crown water to others
- This distribution system is known as “first-come, first-serve”, “first in time, first in right” (“FITFIR”) and “prior allocation” system

FIRST IN TIME, FIRST IN RIGHT

North-West Irrigation Act

19. Companies which acquire the right to use or divert water from any river or other source of supply shall, subject to section eight, have priority among themselves according to the date of their licenses or authorizations, so that each company shall be entitled to receive the whole of the amount of water which its works will carry, or an amount of water required by the land on which it is applied, whichever is the smaller amount, before any company whose license or authorization is of a later date has any claim to a supply;

Key Aspect of the Water Act - FITFIR

“One of the key aspects of the *Water Act* is the ability to set a priority for certain licences over others. This has been an integral part of water management in the province for over 100 years. Under this regime, senior licence holders have priority over more junior licence holders in times of shortage. Seniority is derived from when the licences were issued. In other words, first in time is first in right.

There is currently no statutory authority in Alberta for any statutory decision-maker to rearrange the priority system, or to alter the statutory priority system.”

Tsuu T'ina Nation v. Alberta (Environment), [2008] 4 C.N.L.R. 249 (Alta. Q.B.)

Water Act

- Under the current *Water Act*, the property in and the right to divert and use all water is vested in the Province of Alberta. With limited exception, no person is permitted to divert for any purpose except in accordance to a licence.
- The term “diversion of water” has an expansive definition. It means:

“the impoundment, storage, consumption, taking or removal of water for any purpose, except the taking or removal for the sole purpose of removing an ice jam, drainage, flood control, erosion control or channel realignment,

Bow, Oldman and South Saskatchewan River Basin Water Allocation Order

- Under *BOSS Order*, all water in these basins that is not under licence or other allocation is reserved to the Province, subject to some exceptions.
- As a result of the *BOSS Order*, the only effective method by which a person may acquire water in these basins is from an existing water licence holder. This can be done by:
 - (1) agreement to temporarily assign water (WA, s. 33), and
 - (2) transfer (permanent or for a term) of a water allocation (WA, s. 81)

| Agreement to temporarily assign water

An agreement to assign water allows an existing licence holder or a traditional agricultural user to assign part of their water allocation to another license holder or traditional agricultural user for a temporary period.

The purpose is to deal with a temporary water scarcity issue that may be widespread or specific to a water user.

This temporary assignment can only occur if it does not adversely affect (i) the rights of a household user, or a licence holder or a traditional agricultural user with a more senior priority, or (ii) any water body or the aquatic environment.

Transfer of a water licence

- A transfer is a permanent assignment of a water allocation (volume, rate and timing of a diversion of water).
- Either the transferor or transferee must make an application for transfer to the Director.
- The Director must “conduct a public review” of the proposed transfer.
- Preconditions to the transfer: (i) the ability to transfer the allocation must be allowed by an approved water management plan, and (ii) the water allocation to be transferred must be held under a licence in good standing.

Matters & Factors to be considered

1. Effects on the aquatic environment
2. Applicable instream objective or water conservation objectives
3. Efficiency of use
4. Net diversion
5. Hydraulic, hydrological and hydrogeological effects
6. Effects on household users, traditional agriculture users and other higher and lower priority licensees.
7. With respect to irrigation, the suitability of the land for irrigated agriculture
8. Volume, rate and timing of the diversion under the original and proposed license
9. Location of the existing diversion and the proposed new diversion
10. Water quality (including public health and safety and assimilative capacity)
11. Linkages between surface and groundwater and the effects or changes in overall water use (quantity and quality)
12. Effects on the operation of reservoirs or other water infrastructure
13. Master Agreement on Apportionment (1969)
14. First Nation rights and traditional uses.
15. Any other matter applicable to the transfer of the allocation that the director considers relevant.

Public Review of application for transfer

- Each application for a transfer is required to undergo a public review. The level of public review depends on the scale of potential issues. Public review may include public information sessions. The Director may refer the application to other government agencies for comment and may seek advice from Alberta's Aboriginal Consultation Office.
- The Director must provide public notice of the application. A person who is "directly affected" may submit to the Director a written statement of concern setting the person's concerns and after the Director makes a decision, a directly affected person has the right to appeal the decision to the Alberta Environmental Appeal Board.

Decision

- The Director may decide to (i) approve the transfer and issue a new licence or (ii) refuse to issue a licence.
- The new licence will retain the priority number assigned to the existing licence.
- The Director may issue the new licence for the transferred allocation of water “subject to any terms and conditions that the Director considers appropriate,” including specifying the lands or undertaking to which the licence attaches.

| Role of Alberta Energy Regulator

As of March 2014, the Alberta Energy Regulator assumed responsibility for elements of the *Water Act* relating to energy development activities



Irrigation Perspective

Richard Phillips





Province of Alberta

IRRIGATION DISTRICTS ACT

Revised Statutes of Alberta 2000
Chapter I-11

Current as of November 1, 2010

Office Consolidation

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Edmonton, AB T5K 2P7
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Irrigation Districts are corporations which own and operate water distribution systems to provide water for irrigation and other uses.

They are each governed by a board of directors in accordance with applicable legislation.

Directors are elected from and by the irrigators in the district.

Units

- Rural Alberta was laid out on a grid of one square mile “sections” of land. Each section contains 640 acres. The basic parcel of land is a quarter section (160 acres). One acre = 43560 sq. ft. = 4047 square metres.
- Water allocations were measured in acre feet (one acre one foot deep) which is equal to 1233 cubic metres.
- Flow rates were measured in cubic feet per second (cfs). 1 cfs = 28 litres per second. A typical irrigation system for a $\frac{1}{4}$ section uses 2 cfs to 2.5 cfs
- By convenient coincidence, 1 cfs for one day = 2 acre feet (close enough, one day = 86,400 seconds, 2 acres = 87,120 sq. ft.)
- Irrigation districts (and this presentation) use metric and imperial units

Alberta's Irrigation Districts

13 districts, 1.5 million acres

4 large (including EID & BRID)

2 medium (including WID)

3 small

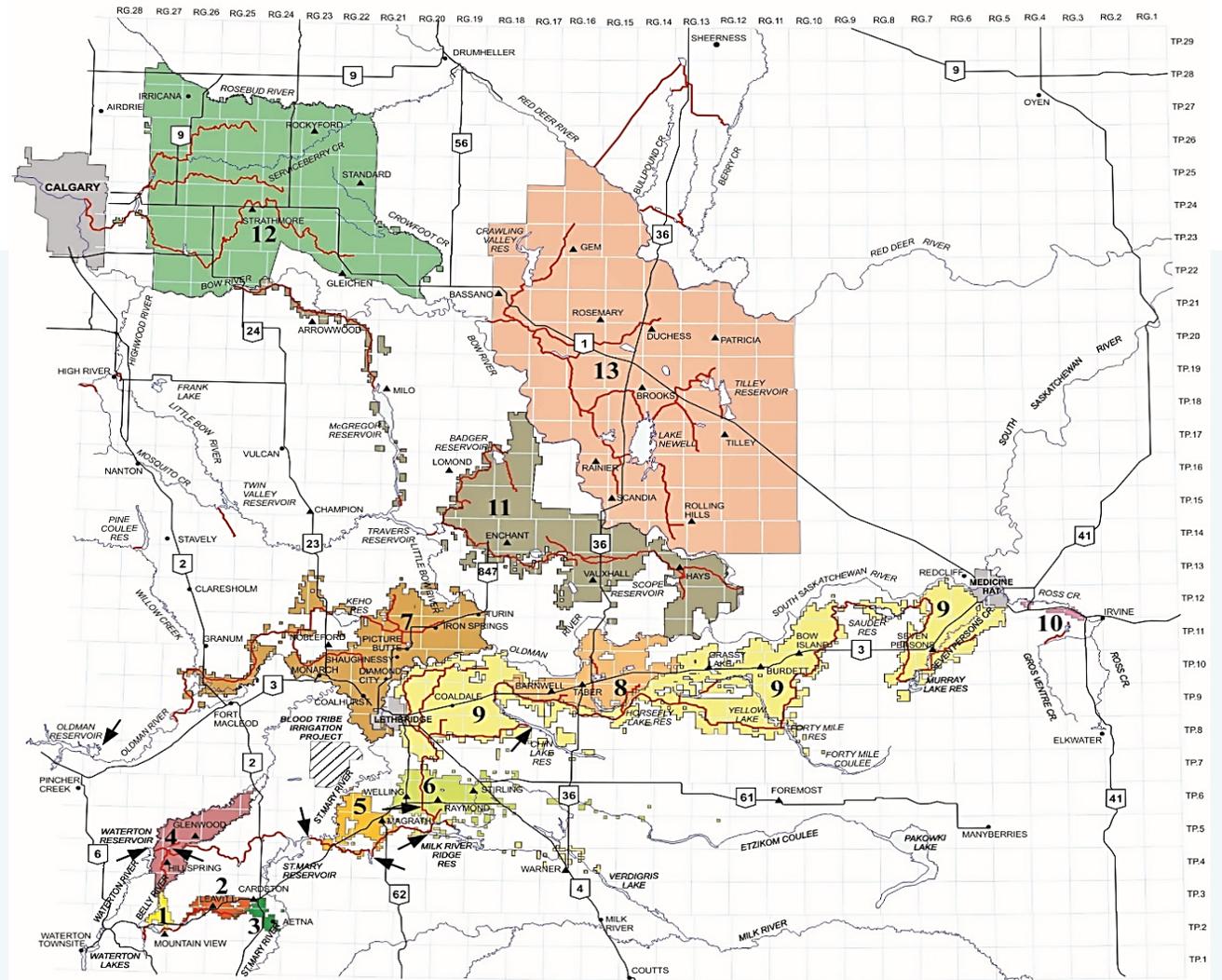
4 even smaller

3 on the Bow River (46% of total irrigated area)

1 on the Oldman River

8 on the St. Mary, Waterton, & Belly (Oldman tributaries)

1 on Ross Creek (Cypress Hills)



- 1 Mountain View Irrigation District
- 2 Leavitt Irrigation District
- 3 Aetna Irrigation District
- 4 United Irrigation District
- 5 Magrath Irrigation District
- 6 Raymond Irrigation District
- 7 Lethbridge Northern Irrigation District
- 8 Taber Irrigation District
- 9 St. Mary River Irrigation District
- 10 Ross Creek Irrigation District
- 11 Bow River Irrigation District
- 12 Western Irrigation District
- 13 Eastern Irrigation District

 Hydroelectric plants associated with water distribution works
 Main canals

There are 13 irrigation districts in southern Alberta providing water to 1,428,577 assessed acres of farmland. The infrastructure within these irrigation districts is comprised of 7,933 kilometres of conveyance system, of which 339 kilometres are owned and operated by Alberta Environment and Parks. (information from 2016 irrigation statistics)

Irrigated Acres Expansion – BRID, EID, WID Combined

	2001	2020	
Expansion Limit	592,000	701,000	(max legal size)
Assessed Area	579,561	684,025	(current allowable)
Irrigated Area	552,371	604,980	(actually irrigated)

In order to increase its expansion limit, a district must:

1. Hold a public meeting and present water supply details.
2. Hold a plebiscite which requires a majority of irrigators that vote to vote in favour.

Key considerations:

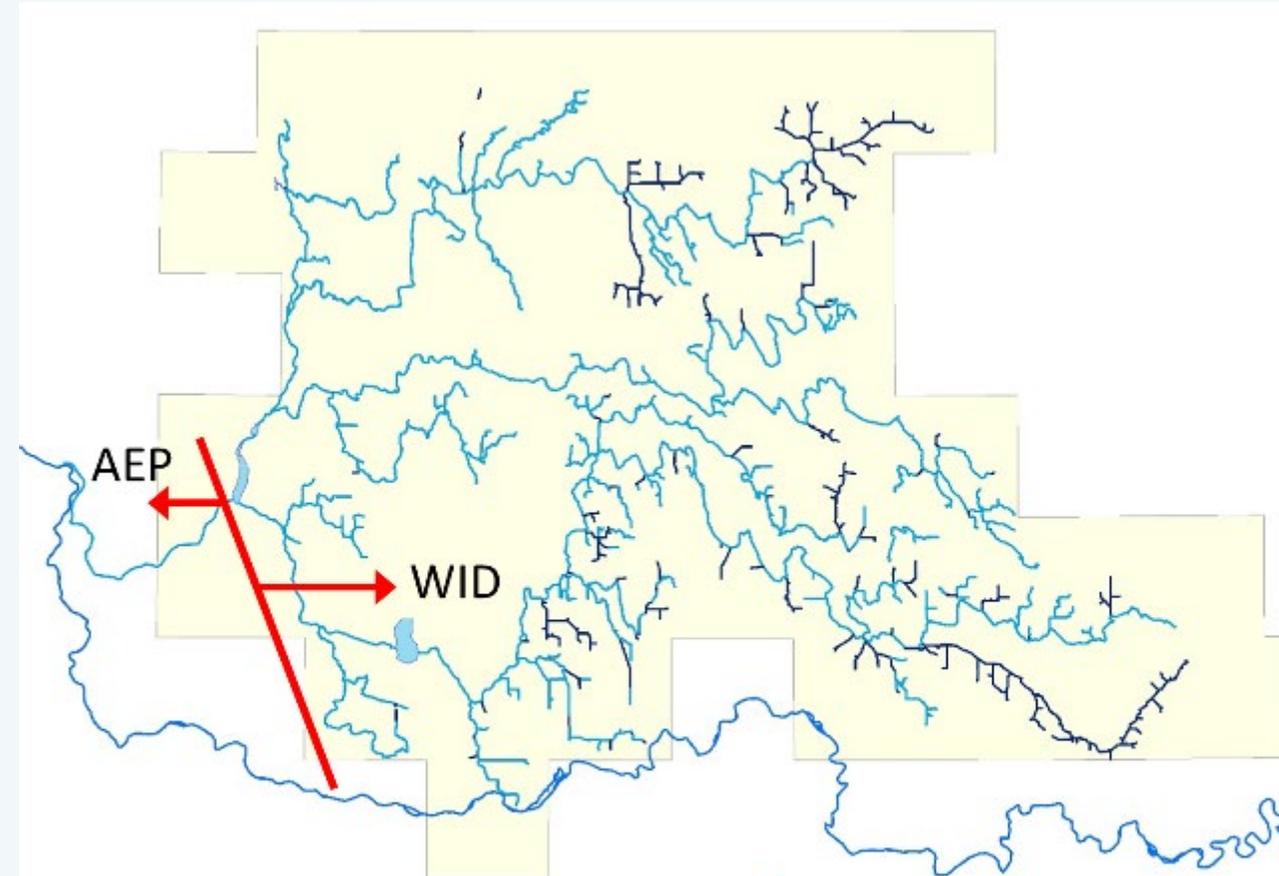
1. Most irrigators do not want any additional irrigation themselves.
2. Irrigators do not want increased risk of water shortages.

Therefore:

They only vote in favour of expansion if efficiency gains have created water for expansion.

Western Irrigation District

- Diversion weir on the Bow River at Calgary (AEP owns it)
- 1,065 km of canals and pipelines
- 2 Reservoirs (17,000 acre feet)
- Max diversion rate: 1000 cfs
- 96,996 assessed acres
- 91 acres/km (10th highest of 13 districts)
- Expansion Limit: 95,000 acres
- 5th largest district
- 30 employees

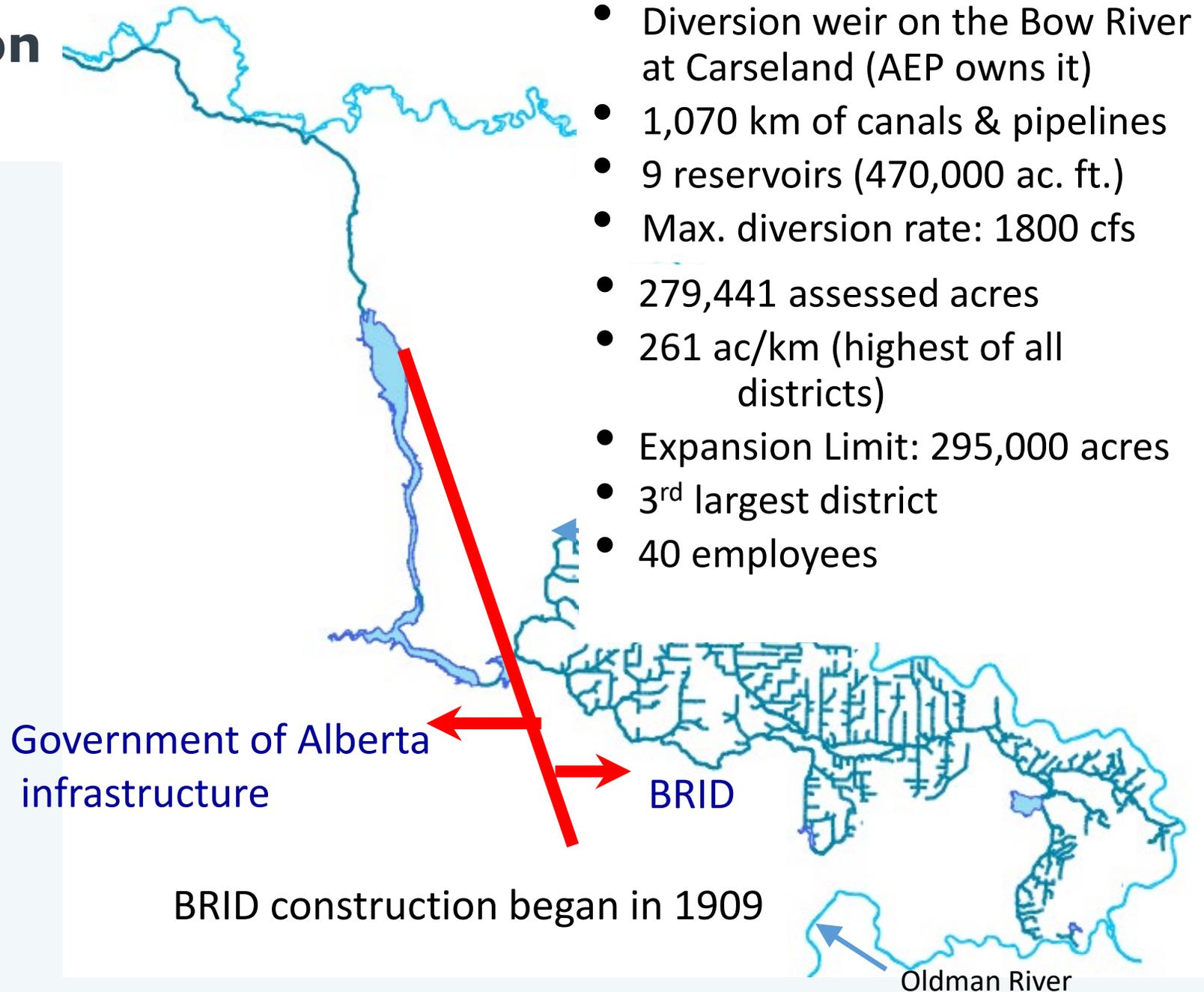


WID's Challenges – inadequate storage & low utilization of infrastructure

Bow River

Bow River Irrigation District (BRID)

BRID's Challenge – limited capacity to fill AEP's reservoirs which support >90% of the district (<60% of WID & EID max. rate per acre)

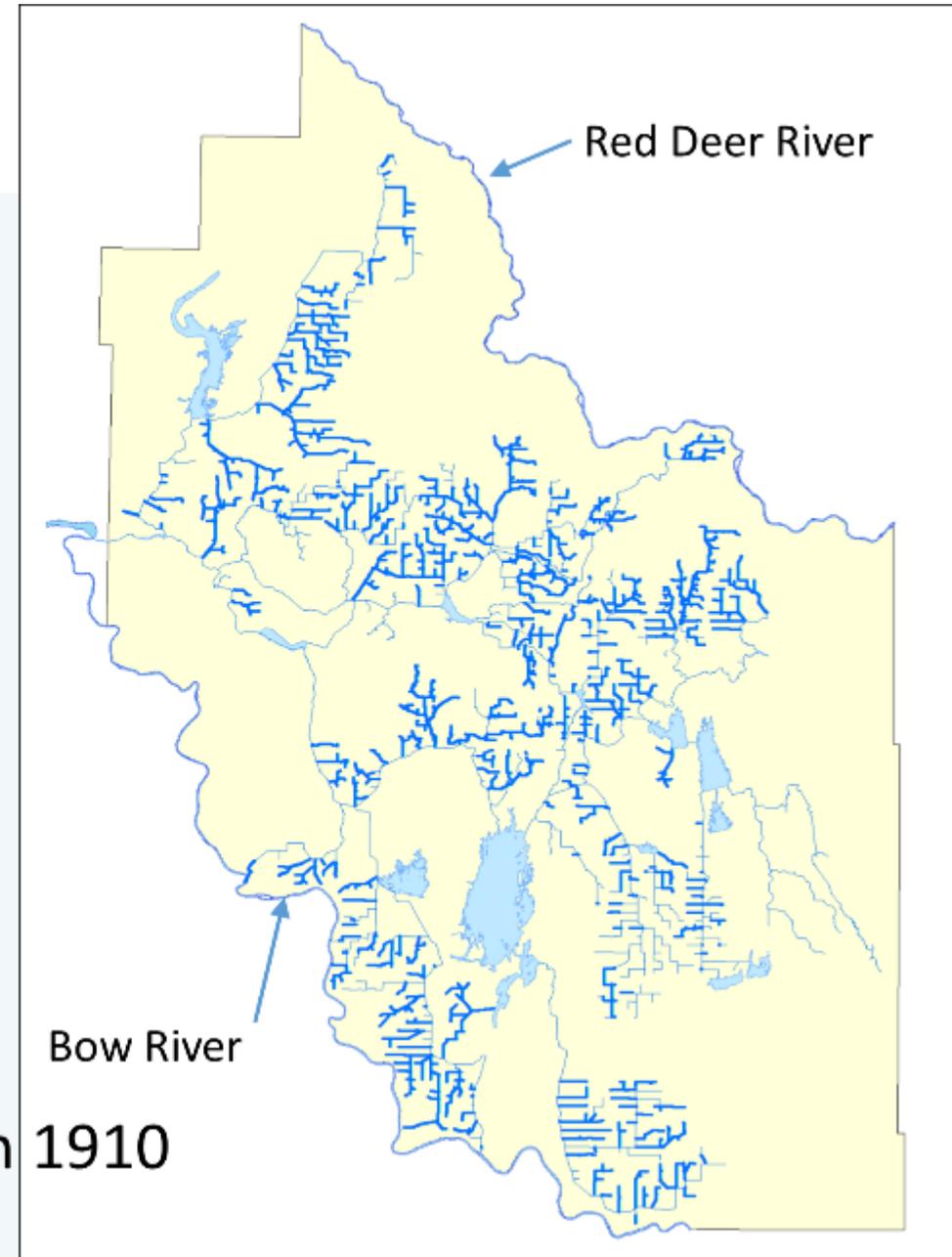


Eastern Irrigation District (EID)

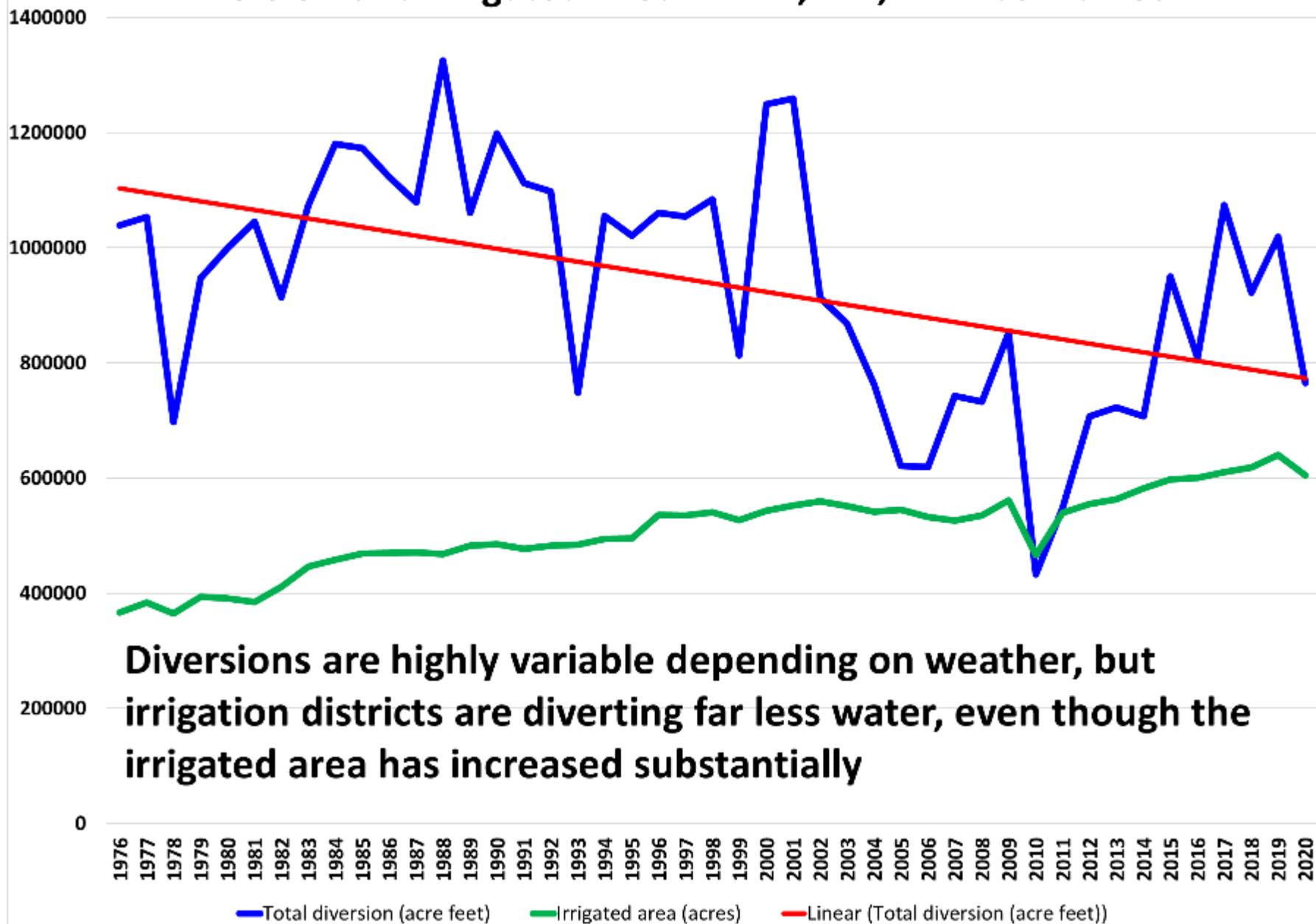
- Diversion dam on the Bow River
- 1,920 kilometers of canals and pipelines
- 13 reservoirs (433,000 acre feet)
- Maximum diversion rate: 3500 cfs
- 307,588 assessed acres
- 160 ac/km (7th highest)
- Expansion limit: 311,000 acres
- 2nd largest district
- 75 employees

EID's Challenge – negligible storage for half of the district

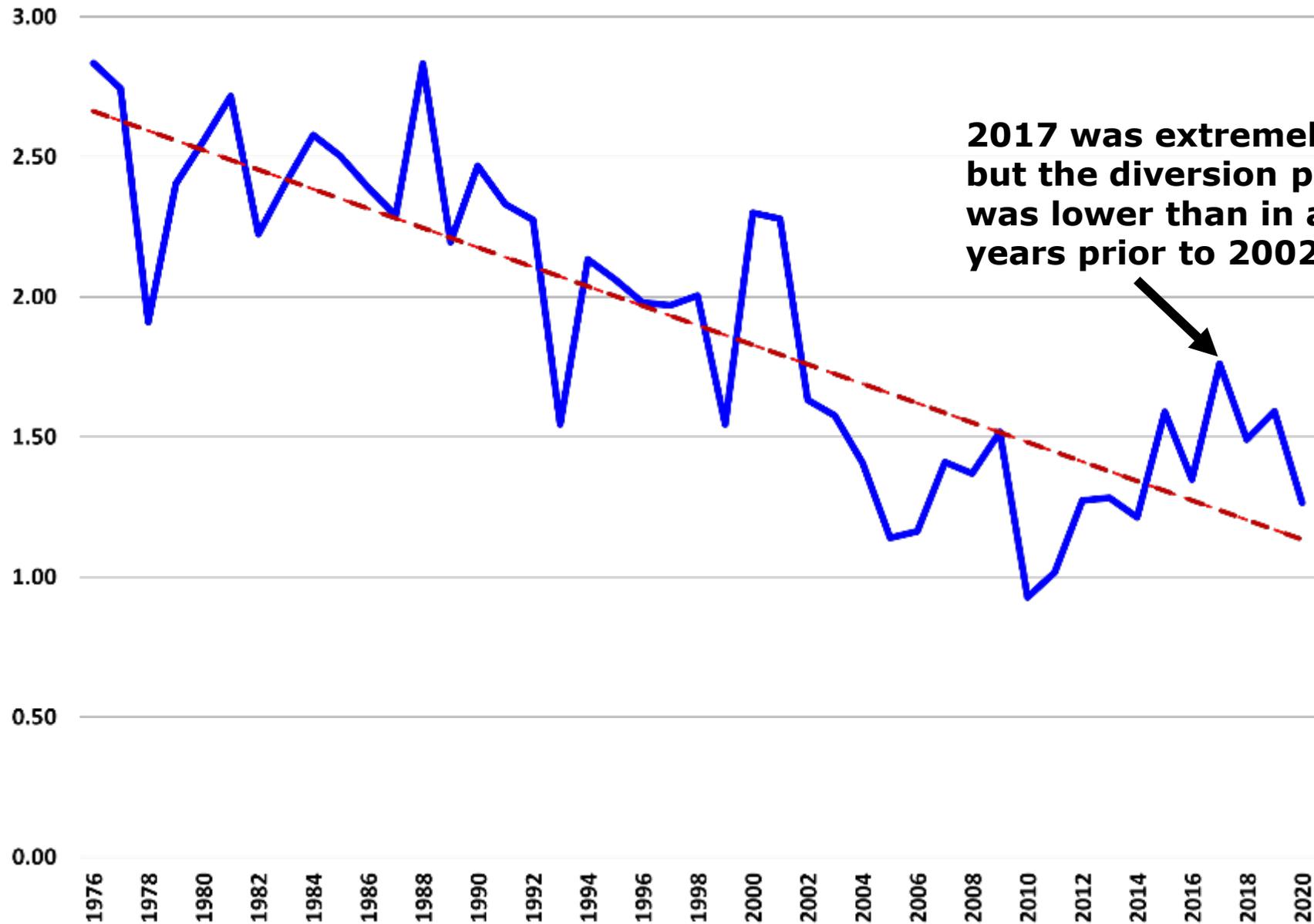
EID construction began in 1910



Diversion and Irrigated Area - BRID, EID, WID Combined

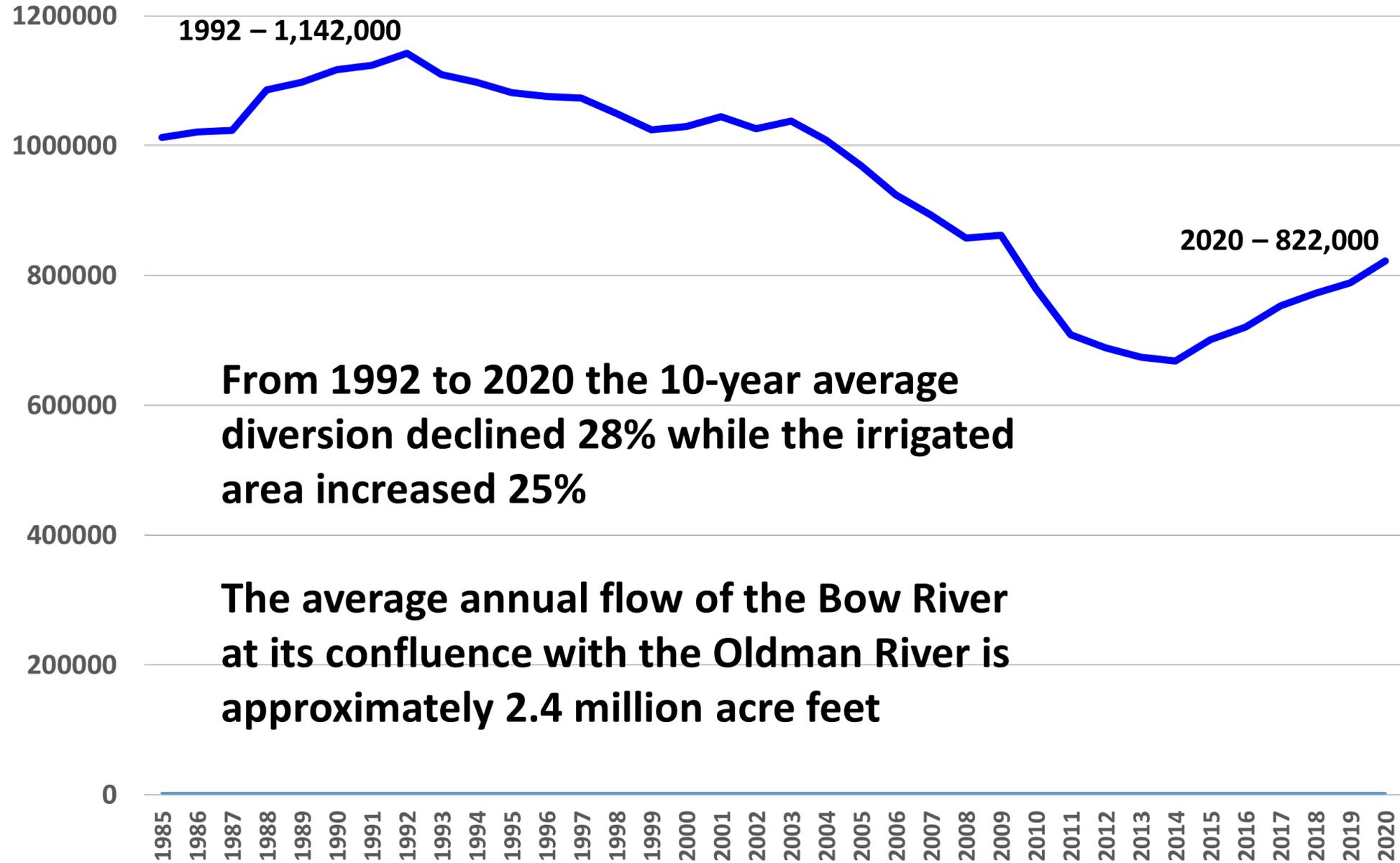


Diversion /Unit Area (ft) - BRID, EID, WID Combined



**2017 was extremely hot and dry,
but the diversion per unit area
was lower than in all but two
years prior to 2002**

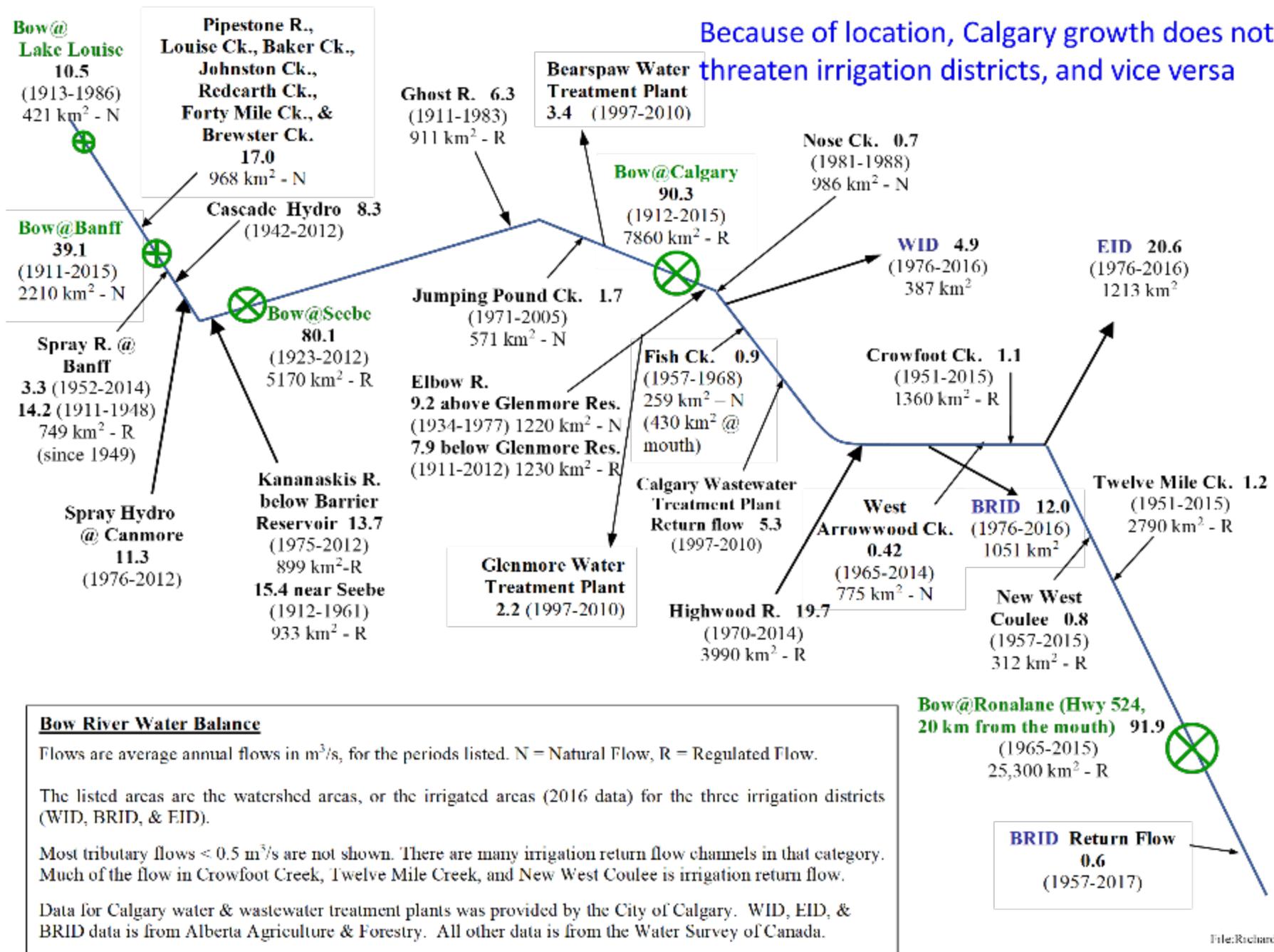
10-Year Average Diversion (acre feet) BRID, EID, WID Combined



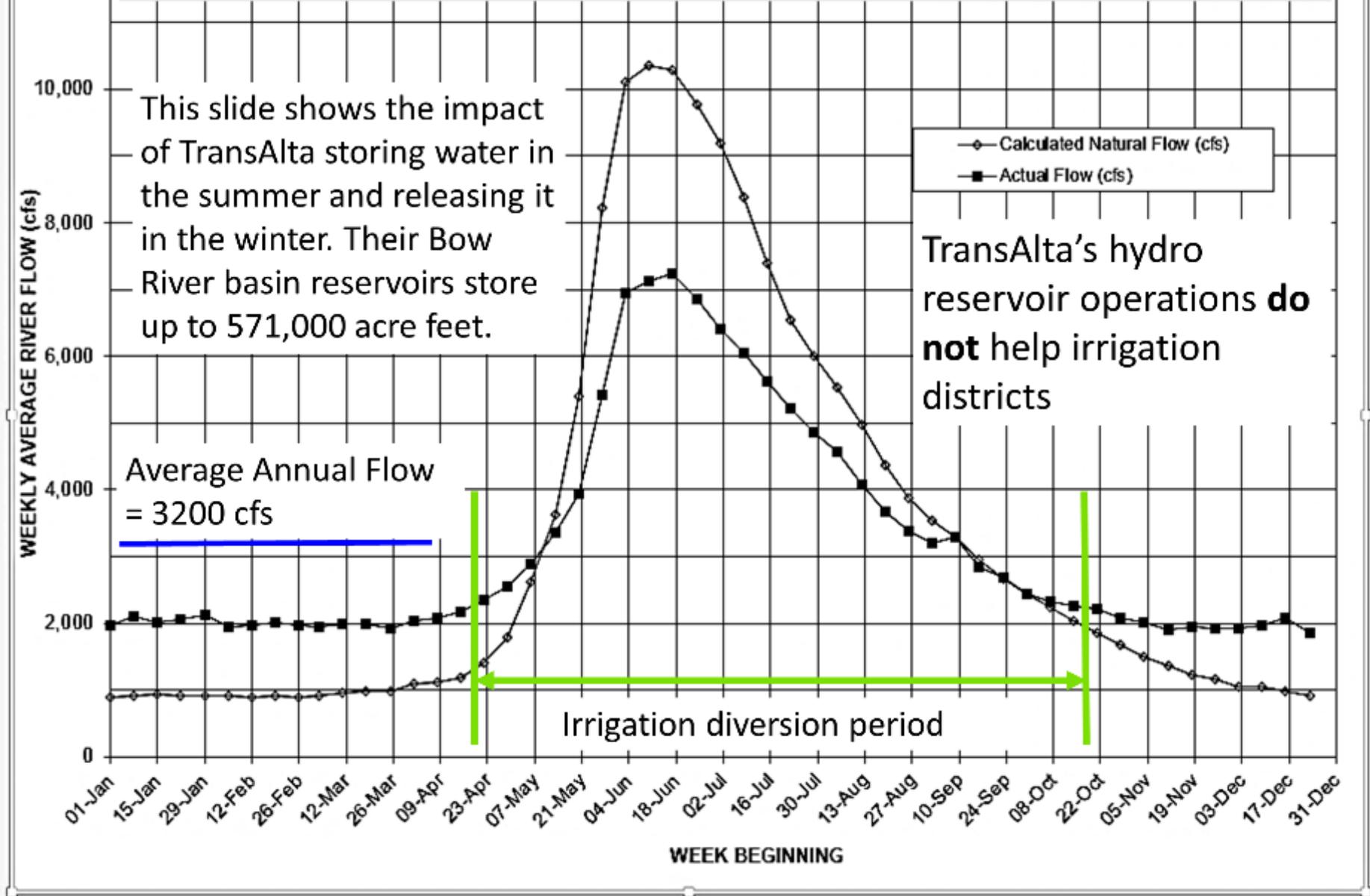
From 1992 to 2020 the 10-year average diversion declined 28% while the irrigated area increased 25%

The average annual flow of the Bow River at its confluence with the Oldman River is approximately 2.4 million acre feet

Because of location, Calgary growth does not threaten irrigation districts, and vice versa



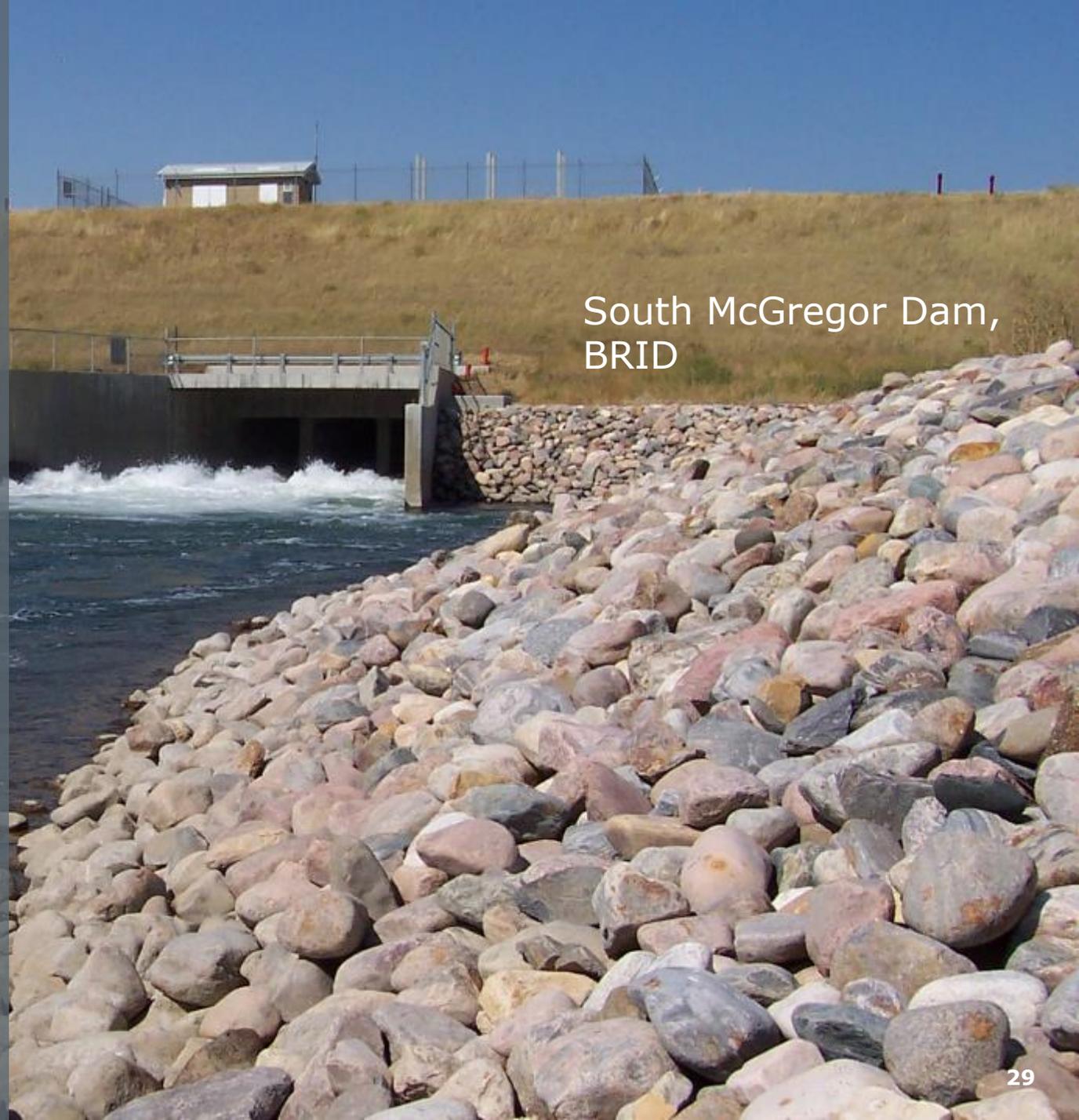
Natural vs. Regulated Flow in the Bow River at Calgary (Upstream of Elbow River and WID Diversion) 1960 – 1997 Average



Q. Why is diversion decreasing?

A. Primarily because of improved efficiency. There are two components:

- On-farm application
- Conveyance (district infrastructure)



South McGregor Dam,
BRID

Flood efficiency: 30% - 55%
Typical gross application: $\geq 200\text{mm}$

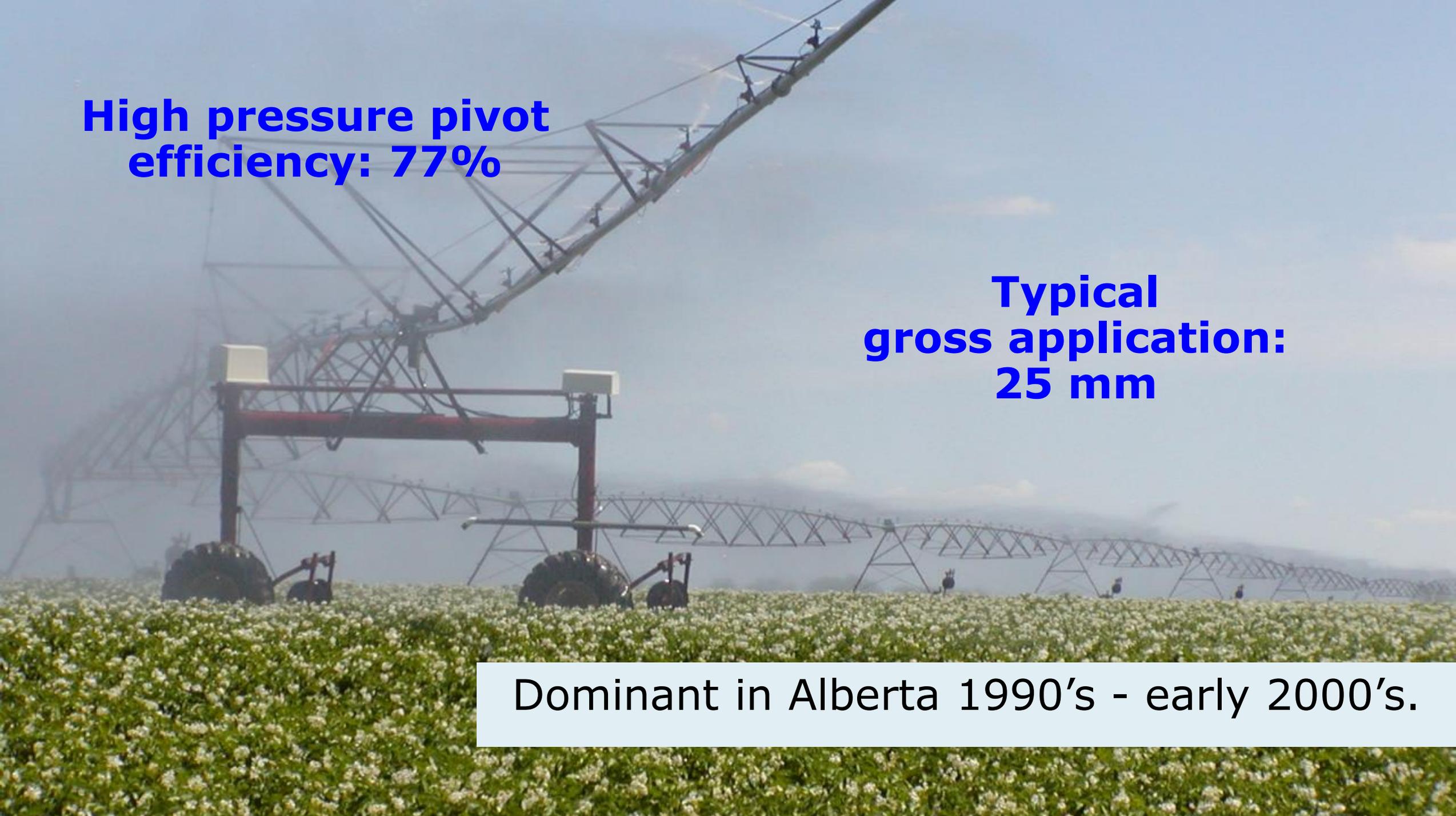


Most common method worldwide. Dominant in Alberta
>50 years ago, still common 15 years ago in the Bow districts

Wheel move sprinkler efficiency: 65%
Typical gross application: 100 mm

Dominant in Alberta 1970's to early 1990's.



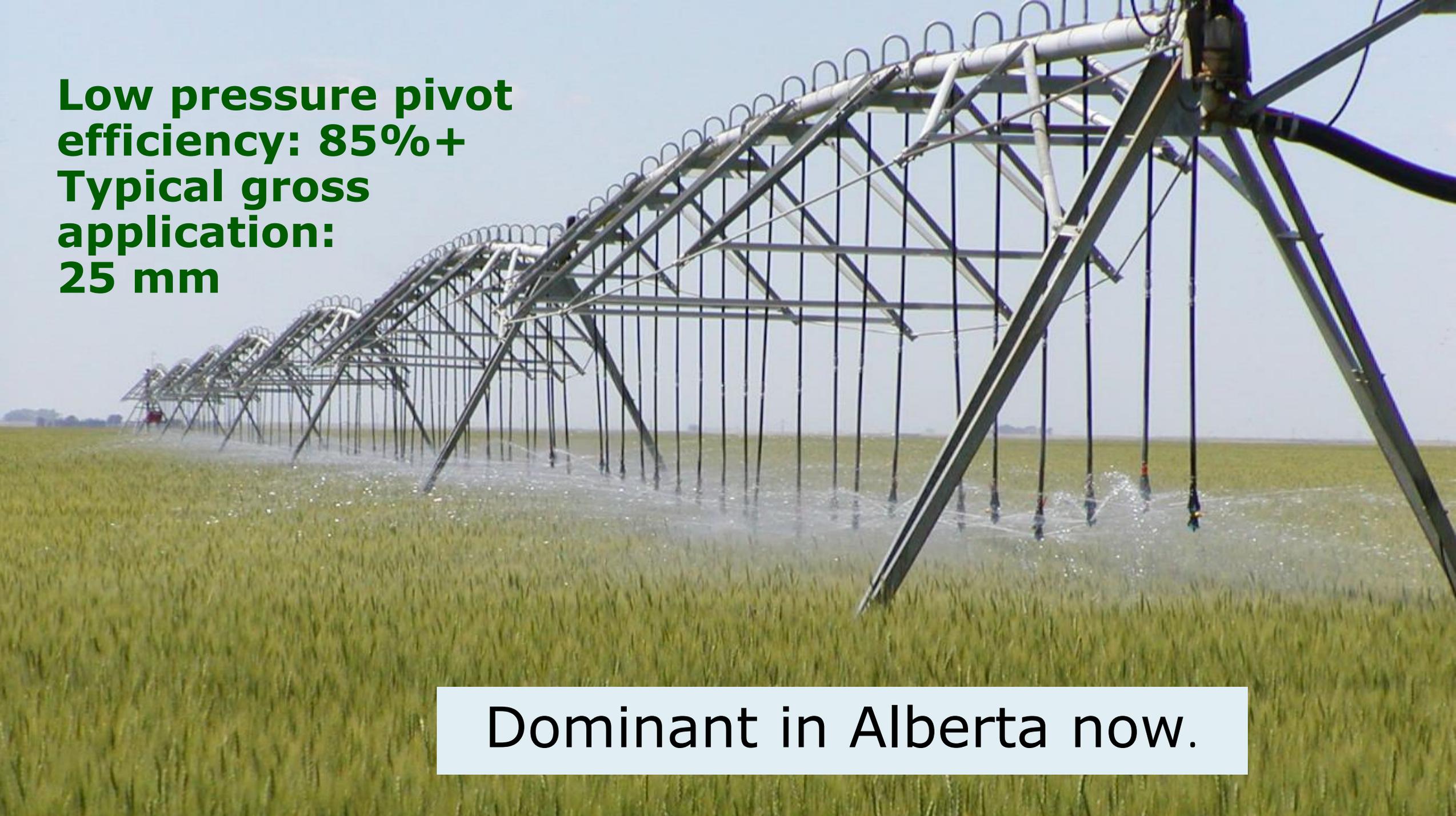
A large center pivot irrigation system is shown in operation over a vast field of green crops with small white flowers. The system consists of a central pivot point with multiple long arms extending outwards, each supported by a series of towers. The arms are covered with a network of pipes and nozzles that spray water onto the crops. The sky is clear and blue, and the overall scene is bright and sunny.

**High pressure pivot
efficiency: 77%**

**Typical
gross application:
25 mm**

Dominant in Alberta 1990's - early 2000's.

**Low pressure pivot
efficiency: 85%+
Typical gross
application:
25 mm**



Dominant in Alberta now.

On-Farm Irrigation Systems (Acres) Comparison

2001				
	BRID	EID	WID	Combined
Irrigation System:				
Flood (29%)	33,400	107,863	20,738	162,001
Wheel moves etc. (22%)	47,847	62,087	18,572	128,506
Pivots (49%)	120,504	111,777	41,971	274,252
TOTALS →	201,751	281,727	81,281	564,759
2020				
	BRID	EID	WID	Combined
Irrigation System:				
Flood (8%)	8,609	40,394	3,183	52,186
Wheel moves etc. (5%)	5,392	14,381	11,374	31,147
Pivots (87%)	247,152	252,893	71,427	571,472
TOTALS →	261,153	307,668	85,984	654,805

District Efficiencies

A photograph showing a construction site where large white pipes are being installed in a deep trench. Several workers in safety gear are visible, along with a red mechanical device and a generator. The scene is set in a dirt-filled excavation.

Four Key Drivers

- 💧 Pipelines - #1 Factor
- 💧 Balancing reservoirs
- 💧 Automation
- 💧 Measurement



Typical mid-size canal has been replaced with a pipeline.



Pipeline replacing a mid-size canal.

District - Owned Pipelines & Canals

2001				
	BRID	EID	WID	Combined
Canals (81%)	826	1,416	1,014	3,256
Pipelines (19%)	230	481	68	779
TOTAL:	1,056	1,897	1,082	4,035
2020				
	BRID	EID	WID	Combined
Canals (45%)	397	651	727	1,775
Pipelines (55%)	623	1,291	282	2,196
TOTAL:	1,020	1,942	1,009	3,971

Economic Impacts of Irrigation Districts

- “Economic Value of Alberta’s Irrigation Districts” by Acera Consult Inc. was released last week. Key findings include:
 - Sales of crops and livestock produced within irrigation districts accounted for 27% of total primary agricultural sales in Alberta, even though the districts contain only the 4.4% of the province’s cultivated land base.
 - Irrigation districts annually generated \$5.4 billion to the provincial GDP. 20% accrued to irrigation producers, and 80% to the region and province.
 - Every dollar invested by the GoA in irrigation districts returned \$3.56 in direct revenue to the GoA.
 - 46,000 full time equivalent employment positions are attributable to irrigation districts.
- Plus, irrigation reliably produces great food, which everyone needs. Over 40% of the world’s food supply is dependent on irrigation, and climate change will likely increase that dependence.

Irrigation vs. Dryland

- Irrigated land produces consistently high yields of all crops.
- Irrigated land produces a far greater variety of crops.
- Many irrigated specialty crops have much higher value than dryland crops.
- Irrigated specialty crops support a large food processing industry.
- Reliable forage crop production has resulted in Canada's cattle feeding industry being centered in Alberta's irrigation districts.
- Irrigated farming is much more intensive, requiring more inputs and labor. Irrigation farms are generally smaller than dryland farms.



Sugar beet harvest near Vauxhall

Other Positive Impacts

- Irrigation districts provide the sole source of water for many rural communities and industries.
- Water in irrigation districts creates wildlife habitat, aquatic ecosystems and some of our most popular sport fisheries and parks.



Badger Reservoir BRID

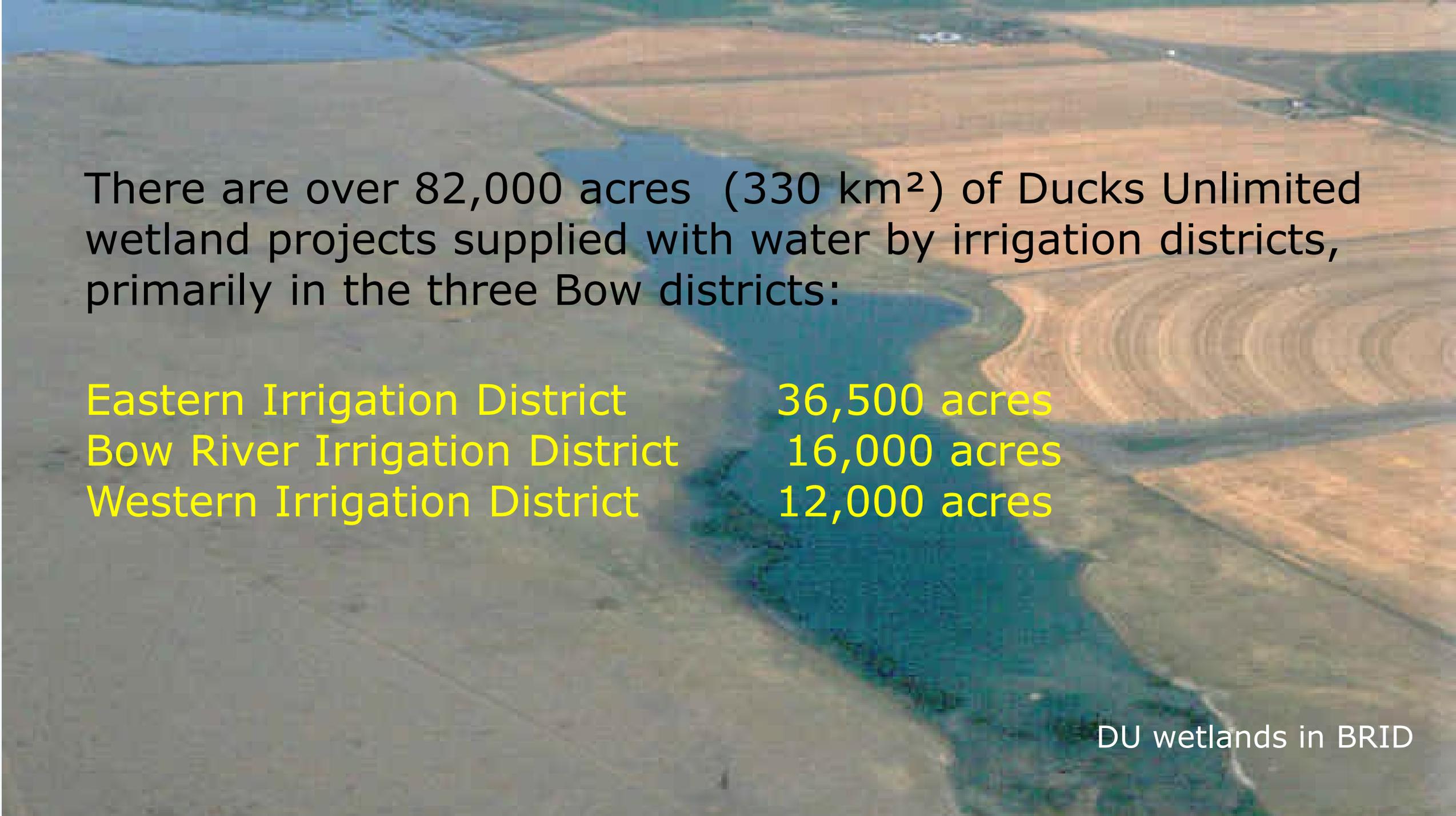


There are over 50 irrigation reservoirs– half in the Bow districts

Scope Reservoir - BRID

Travers Reservoir - BRID



An aerial photograph showing a large, winding waterway, likely a canal or river, flowing through a landscape of agricultural fields. The water is a deep blue-green color, contrasting with the brown and tan hues of the surrounding land. The fields are divided into various shapes and sizes, some showing distinct patterns of irrigation or planting. The overall scene depicts a managed wetland area within an agricultural region.

There are over 82,000 acres (330 km²) of Ducks Unlimited wetland projects supplied with water by irrigation districts, primarily in the three Bow districts:

Eastern Irrigation District	36,500 acres
Bow River Irrigation District	16,000 acres
Western Irrigation District	12,000 acres

DU wetlands in BRID

Conclusions

- Diversions are highly variable depending on weather, but irrigation districts are diverting far less water while irrigating far more land.
- Irrigation districts are essential to the economy and food supply.
- Irrigation districts are vital to communities, industries, and recreation enthusiasts.



Little Bow Provincial Park – Travers Reservoir



Challenges & Opportunities

Jeff Bronsch



| Water “Use”

- Do we really “use” water like we use everything else?
- “Water cycle” grade 8 science class.
- Water has the incredible ability to regenerate itself.
- Where in the water cycle are you sourcing your water?

| Water source can make all the difference...

- Surface Water – movement – open to the atmosphere
- Ground Water – a bit more static

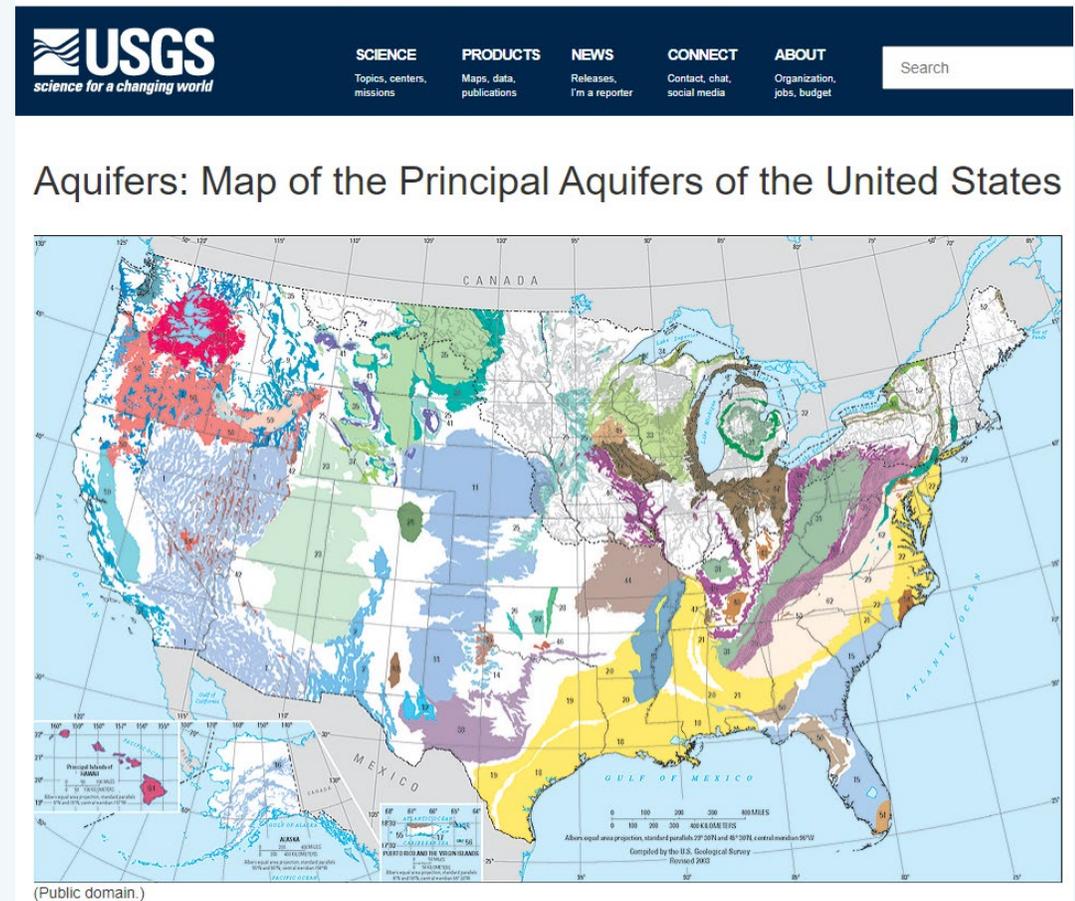
| Water source can make all the difference...



Pumped Dry – YouTube 103 minutes

Water source can make all the difference...

- It's estimated that the United States has pumped 1200 cubic kilometers of groundwater since the 1950's.
- A Column of water 1km x 1km 1,200km long.
- 1 sq kilometer column of water roughly the straight-line distance from Vancouver, BC to Saskatoon, Sask.



Water source can make all the difference...

- All that water has been put to good use for many reasons.
- Russia, China and India have pumped similar volumes for the same needs.
- This water isn't gone. Its just some place else. That's the cool thing about water it hasn't vanished.
- Where do you think it is?

| That's the cool thing about water...

- **All the water there is , is all the water there was, and all the water that ever will be.**
- Gravity, water and the atmosphere is nature's perpetual engine.
- Combination can be relentless and devastating.

Big Challenges in other places...

- Hoover Dam completed in 1936
- Lake Mead filled 1983
- 47 years to fill the reservoir



| Oh Canada!

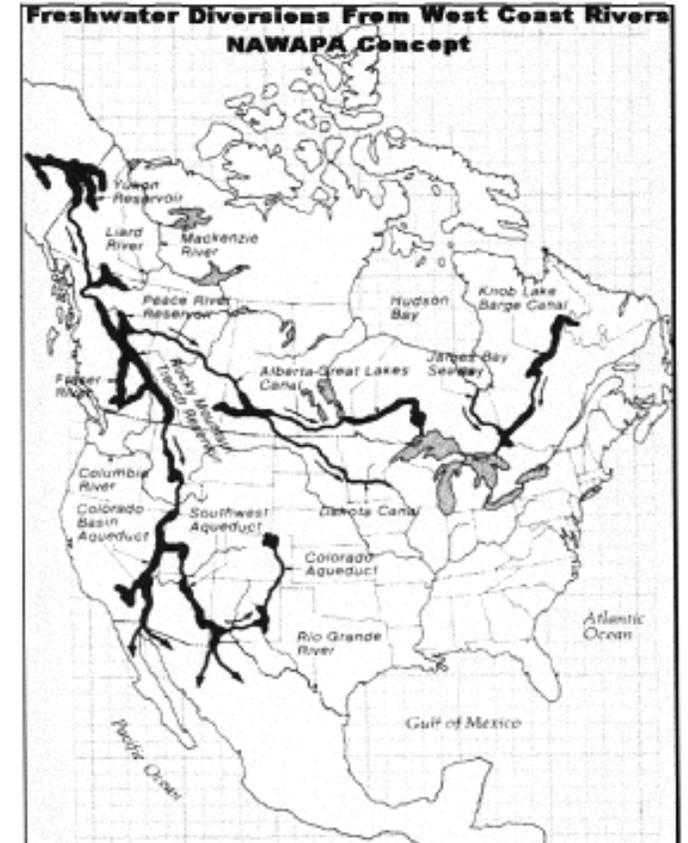
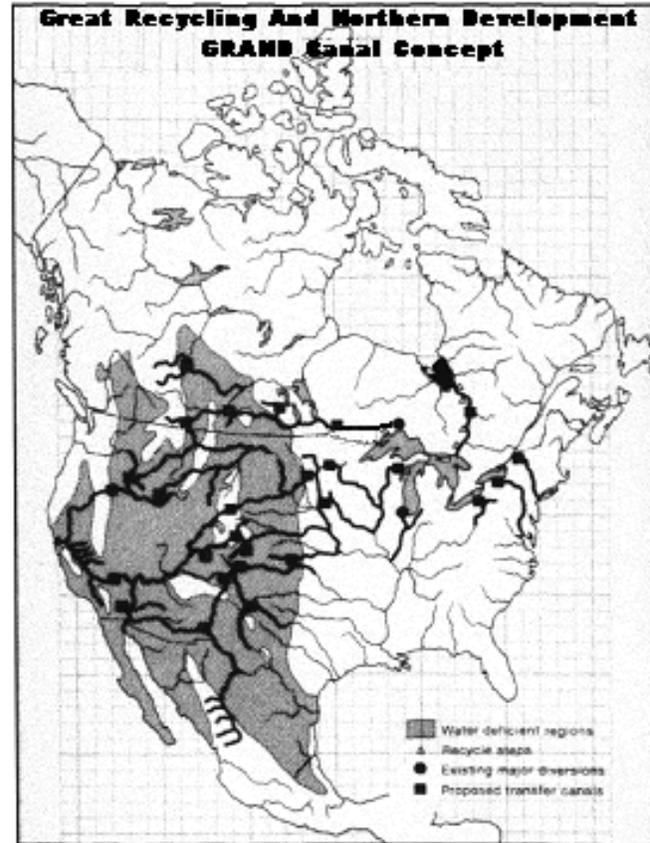


- Canada has 20% of the world's fresh water.
- 7% worlds renewable fresh water.
- Is there interest in our water beyond our borders?

Oh Canada!



- North America Water and Power Alliance – 1950's
- Move water south from the Pacific Northwest



Canadian Stream Flow Map

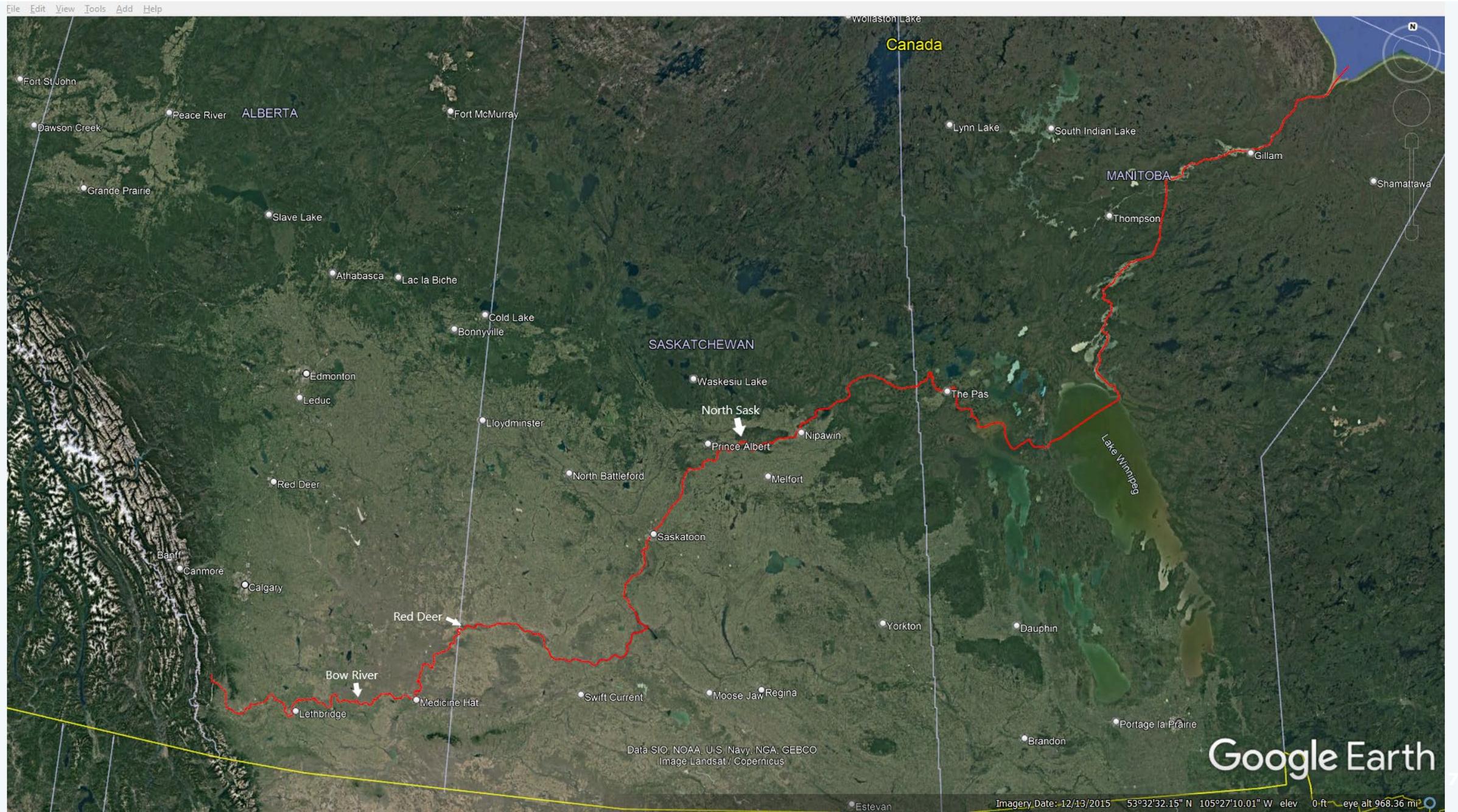
What Drainage Basin do you live in?

Locally I live in the Oldman Drainage.

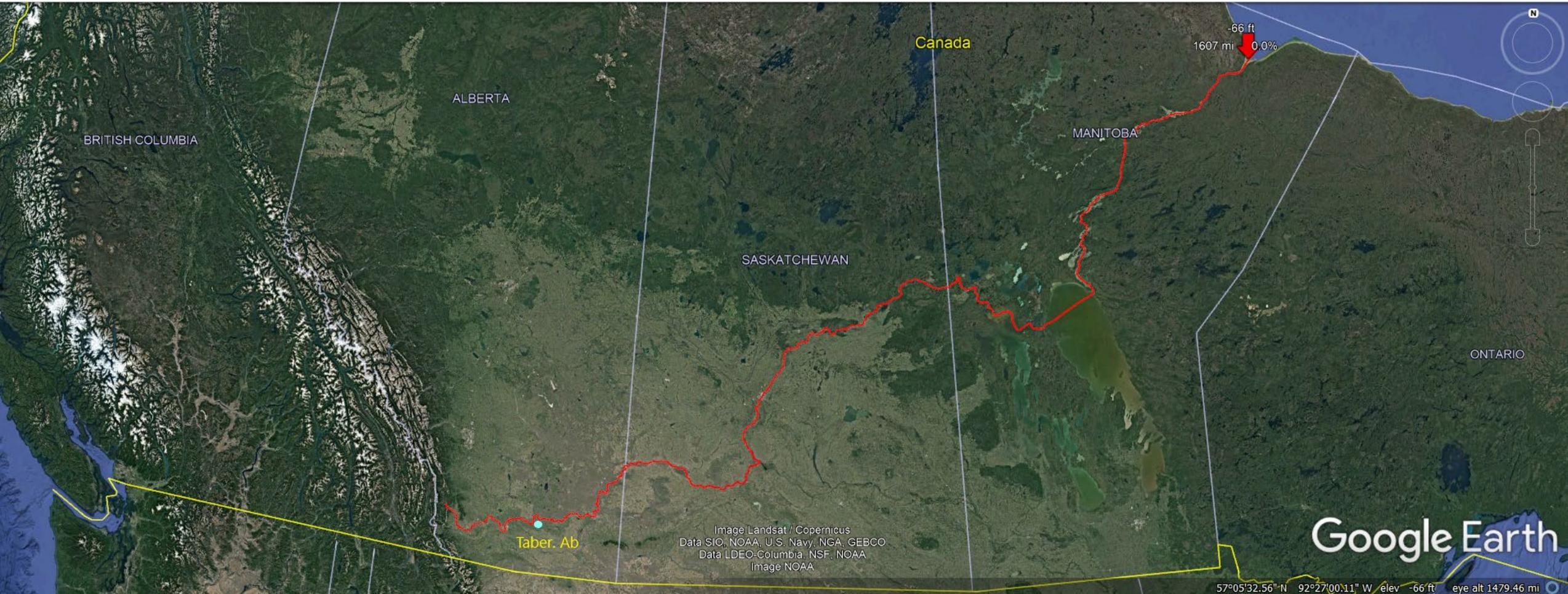
Nationally I live in the Nelson Drainage.



Oldman River - South Sask River - Sask River - Nelson River to Hudson Bay



Oldman River - South Sask River - Sask River - Nelson River to Hudson Bay

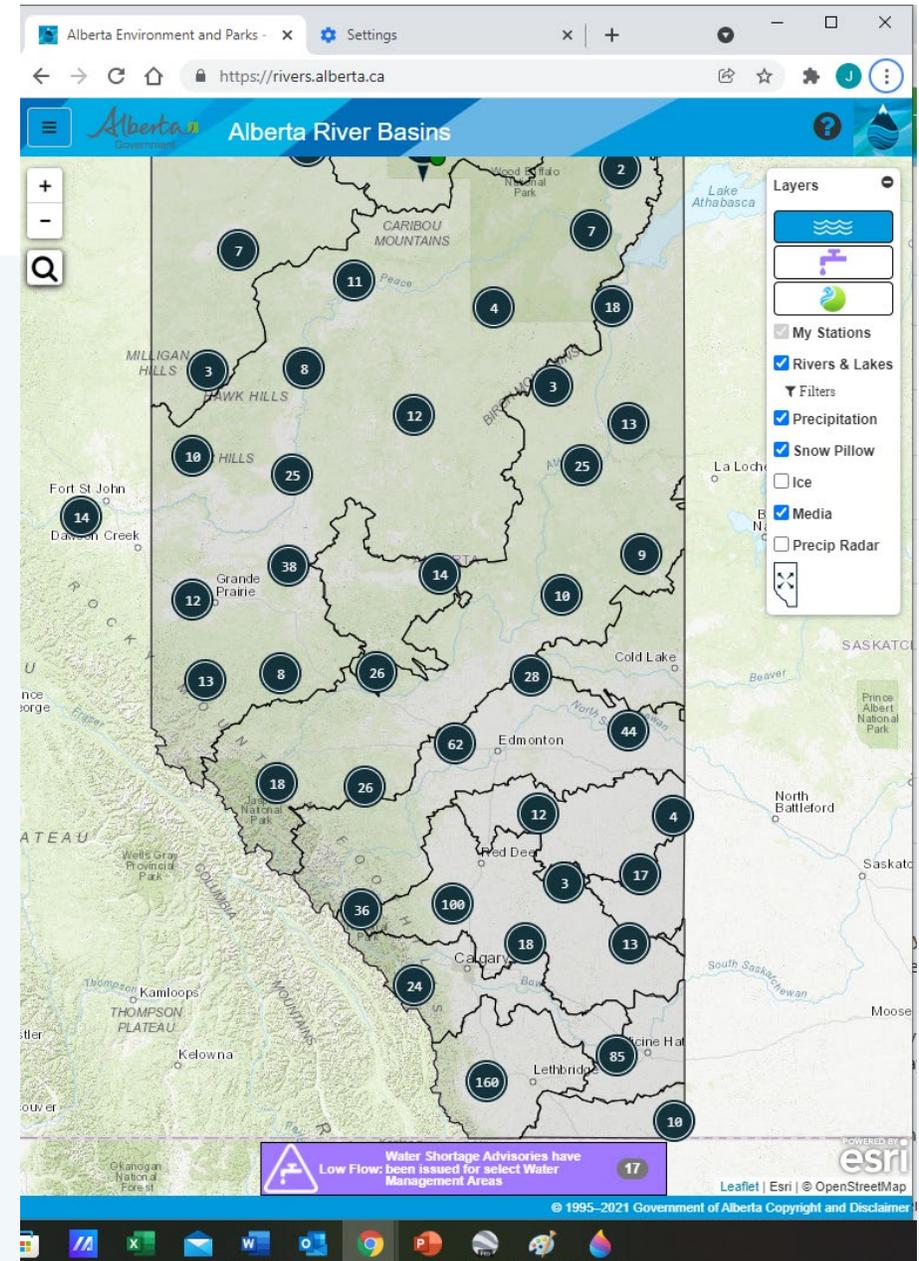


Graph: Min, Avg, Max Elevation: -66, 1406, 4901 ft
 Range Totals: Distance: 1621 mi Elev Gain/Loss: 2413 ft, -7354 ft Max Slope: 0.4%, -1.2% Avg Slope: 0.0%, -0.1%

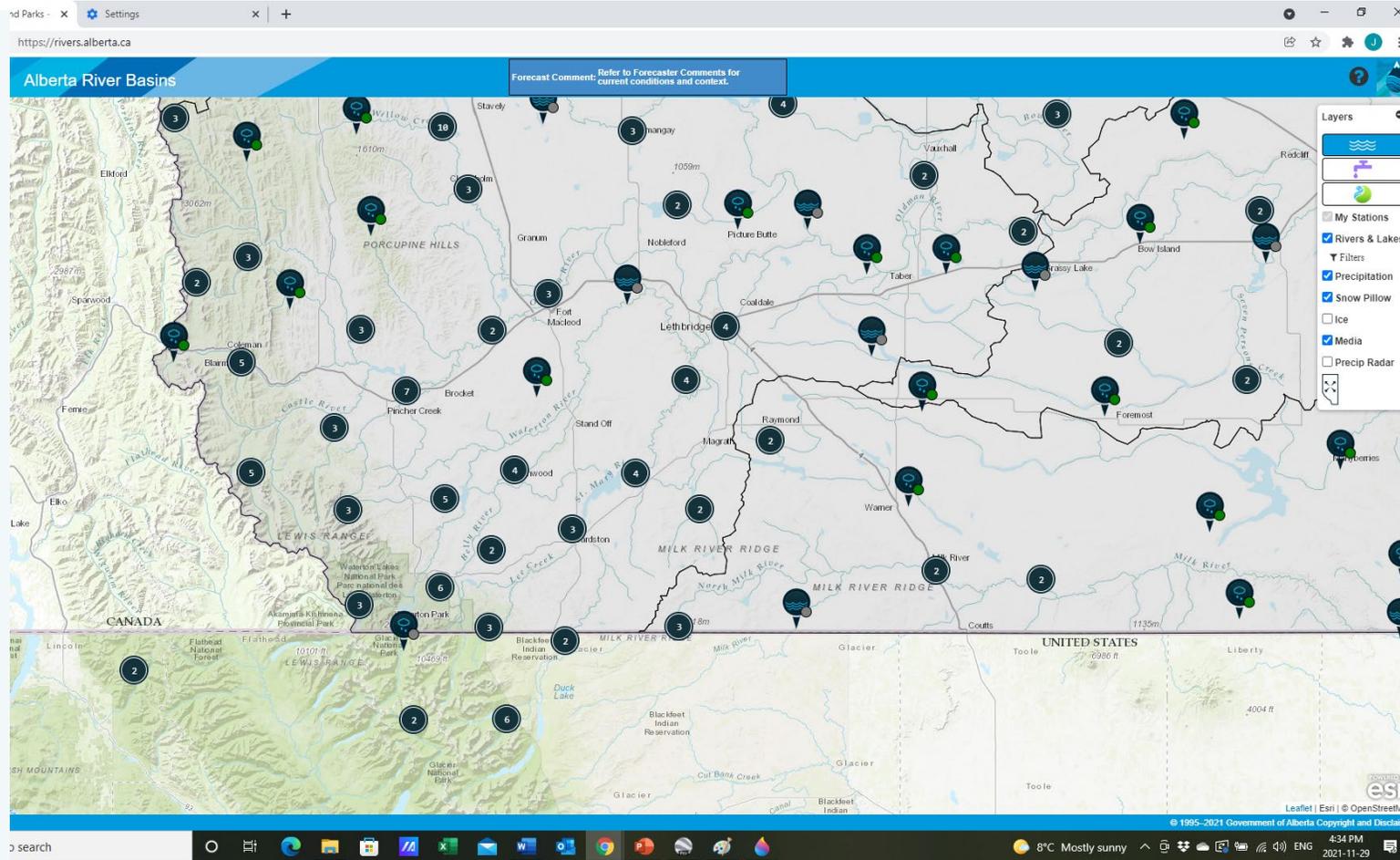


Snow and Flow Data

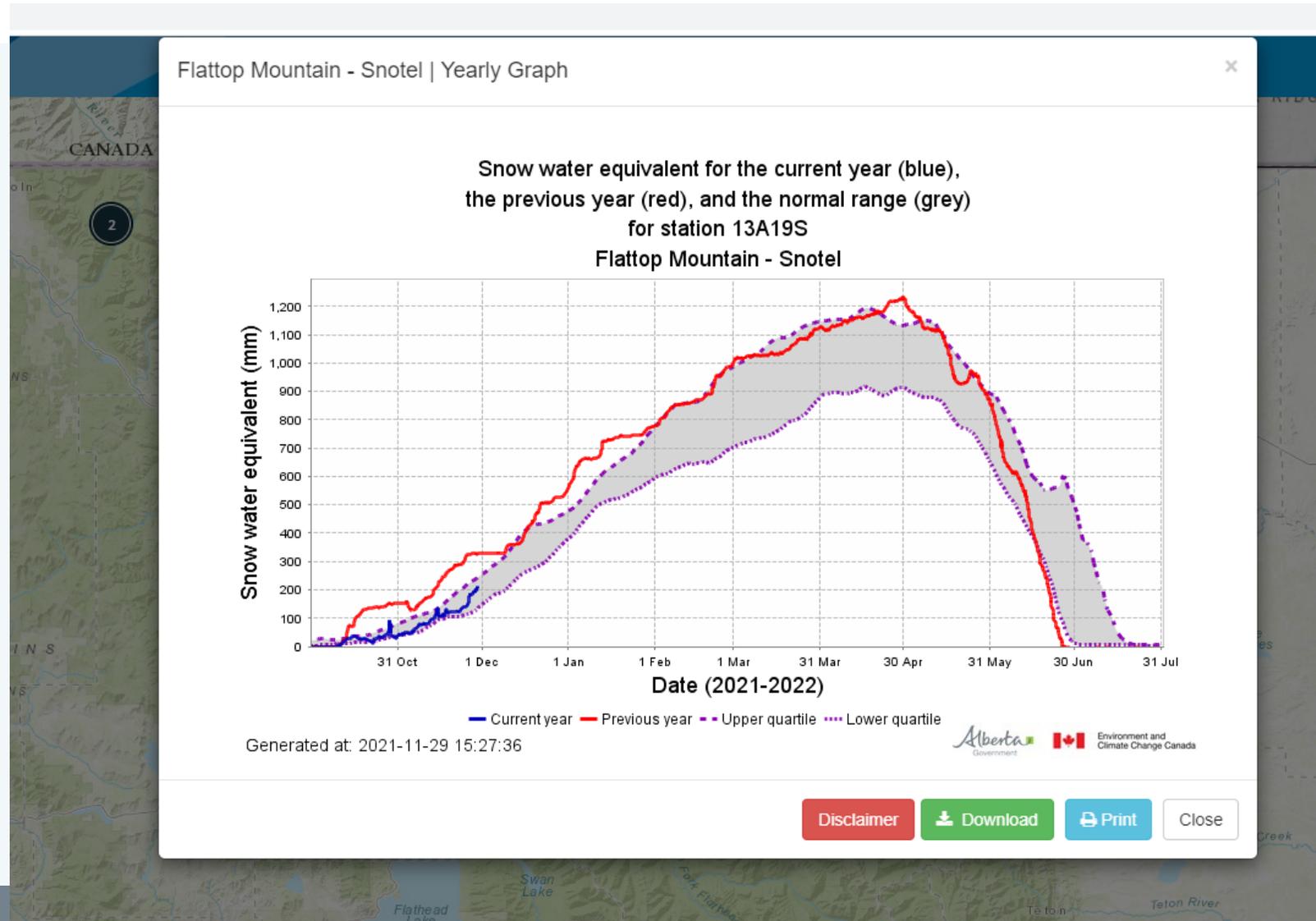
- Alberta River Basins
- <https://rivers.alberta.ca/>
- Near-Real-Time Data!



Snow and Flow Data



Snow and Flow Data



Snow and Flow Data

Flattop Mountain - Snotel | Table Data

Timestamp	Value (mm)
2021-11-29 15:00:00	211.00
2021-11-29 14:00:00	211.00
2021-11-29 13:00:00	211.00
2021-11-29 09:00:00	206.00
2021-11-29 08:00:00	203.00
2021-11-29 07:00:00	203.00
2021-11-29 06:00:00	203.00
2021-11-29 05:00:00	201.00
2021-11-29 04:00:00	201.00
2021-11-29 03:00:00	201.00
2021-11-29 02:00:00	201.00
2021-11-29 01:00:00	203.00
2021-11-29 00:00:00	203.00
2021-11-28 23:00:00	203.00
2021-11-28 22:00:00	203.00
2021-11-28 21:00:00	201.00
2021-11-28 20:00:00	198.00
2021-11-28 19:00:00	196.00
2021-11-28 18:00:00	196.00
2021-11-28 17:00:00	193.00
2021-11-28 16:00:00	196.00
2021-11-28 15:00:00	196.00
2021-11-28 14:00:00	196.00
2021-11-28 13:00:00	196.00
2021-11-28 12:00:00	196.00
2021-11-28 11:00:00	196.00
2021-11-28 10:00:00	198.00
2021-11-28 09:00:00	198.00

Disclaimer Download Print Close

Snow and Flow Data

- Over 100 years of snowfall data

Water Supply Outlook for Alberta November 2021

November 2021 / [Overview](#)

Updated: November 25, 2021

Observed Natural Runoff from March to September 2021

Natural flow volumes from March to September 2021 showed extreme variability in all river basins with a general trend towards below normal values. Locations in the Milk River, Red Deer River and Oldman River basins generally were much below normal. The North Saskatchewan River basin ranged from much above normal to much below normal and the Bow River basin ranged from normal to much below normal. One notable exception was the Bighorn River in the North Saskatchewan River basin that remained much above due to increased glacial melt caused by above normal summer air temperatures.

Natural runoff volumes from March to September 2021 are ranked from lowest to highest to provide a comparison with other years. The volumes in the:

- Milk River basin ranked between 1 and 27 in 98 years of record.
- Oldman River basin ranked between 10 and 19 in 99 years of record.
- Bow River basin ranked between 13 and 50 in 99 years of record.
- Red Deer River basin ranked between 15 and 23 in 99 years of record.
- North Saskatchewan River basin ranked between 14 and 88 in 100 years of record.

Percent of normal natural runoff volumes from March to September 2021 were:

- Milk River basin – 49-82% of normal.
- Oldman River basin – 61-81% of normal.
- Bow River basin – 69-105% of normal.
- Red Deer River basin – 67-70% of normal.
- North Saskatchewan River basin – 75-123% of normal.

The average difference between all forecasts from the beginning of the year through August and the preliminary natural volumes were 37% for the Milk River basin, 19% for the Oldman River basin, 12% for the Bow River basin, 29% for the Red Deer River basin, and 15% for the North Saskatchewan River basin.

Snow conditions leading into the spring of 2021 were generally average to much above average with the exception of the Oldman River headwaters which was generally below average for most of the winter.

Alberta Agriculture modelled soil moisture conditions were near normal with short fluctuations into the moderately low category. Winter precipitation (November- March) was generally normal with small pockets of below normal in the Willow Creek basin and above normal in Kananaskis.

Combined Snow Survey and Pillow Data by Basin

Basin	% of Average
North Sask	103%
Other Basin	104%
Other Basin	113%
Other Basin	116%
Other Basin	117%

Do we have enough Data?

- We are setting out to expand irrigation in western Canada by over 700,000 acres. Where else is expansion like this happening?
- Do we need more data and/or smarter analytics? AI and Machine Learning?
- Is the system ready for the changing climate? Droughts – Floods?

| Locally we do a great job

- Is there a greater need to think past our own local jurisdictions and work together as a greater region, along the entire river system?
- Our rivers and gravity do not recognize our provincial, political and international boundaries.
- How well are we working together nationally on water policy?

Q&A Session – Ask your question in the chat box!

Have feedback?
Fill out our short survey!



Our Speakers



Tory Campbell
Farmer, Coaldale
Chair, Taber-Warner NDP



Richard Jones
Partner & Water Law Specialist
McMillan LLP



Richard Phillips
General Manager
Bow River Irrigation District



Jeff Bronsch
AG Water/Data Specialist
Data Driven Agriculture



Julia Loney
Partner, Environment
& Regulatory, McMillan LLP



Stay Tuned!

Event series to come!

Part 2 - Date TBD

