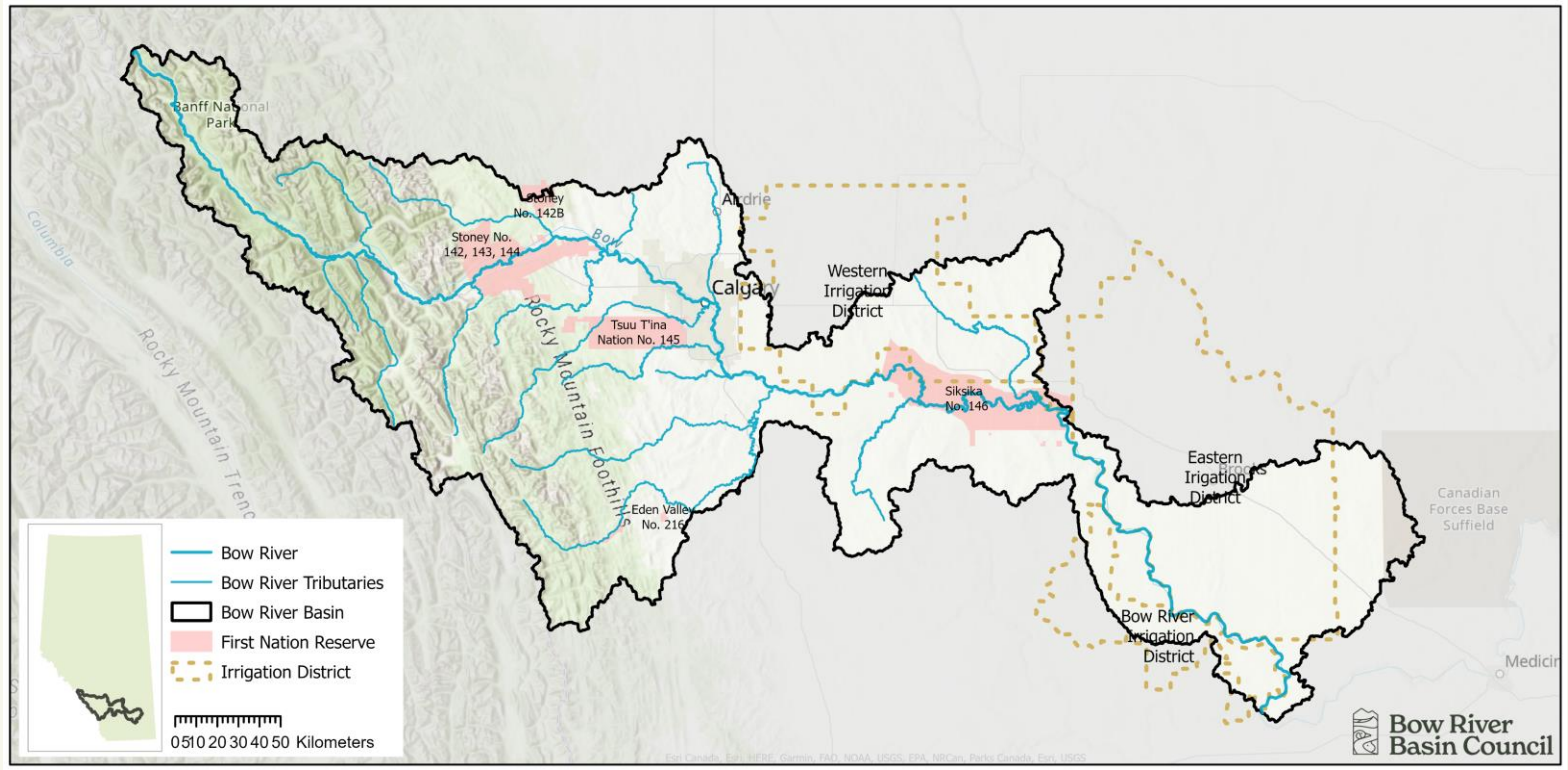
Collaborative Watershed Management in the Bow River Basin

Bow River Basin Council

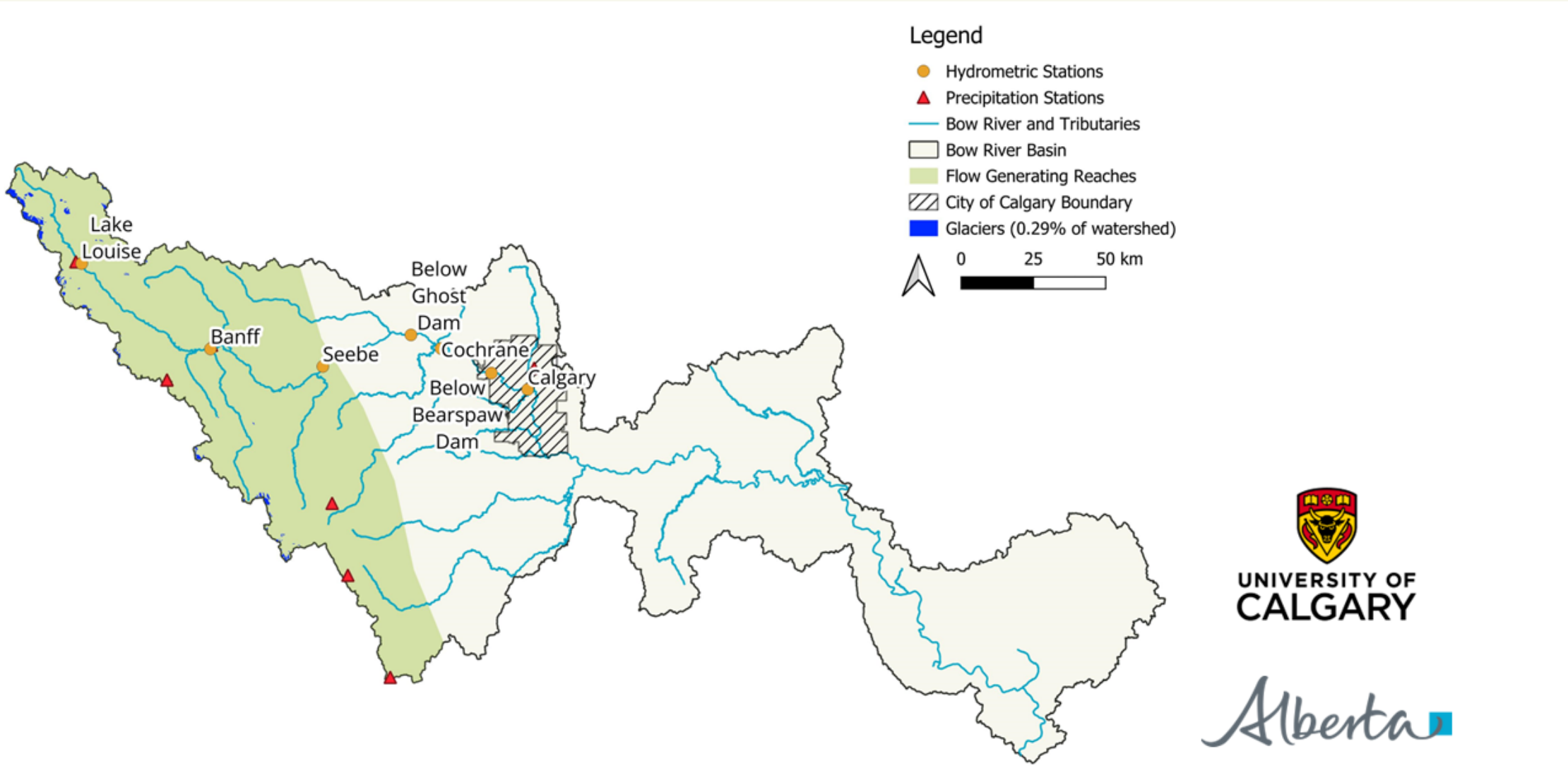
Alberta Lake Management Society

October 1-2, 2026

One watershed, many interests



- Basin is 4% of AB's area; 3% of water supply; >33% of population
- Largest tributary to the South Saskatchewan
- Significantly engineered basin (16 major dams / weirs)
- Hard Working >45% of AB's irrigated land is served by Basin waters
- Water quality and quantity are ongoing issues



Map of the Bow Watershed showing the location of Calgary, precipitation stations, and hydrometric (streamflow) stations along the Bow and its tributaries. Glaciers make up only 0.29% of the watershed and are highlighted in dark blue. The shaded area shows the headwaters or 'streamflow-generating reaches' where >90% of the streamflow is generated.

Created by Caryn Sidharta. From Sidharta et al., 2024. Prepared for BRBC State of the Watershed reporting.
Available on: brbc.ab.ca/state-of-the-watershed

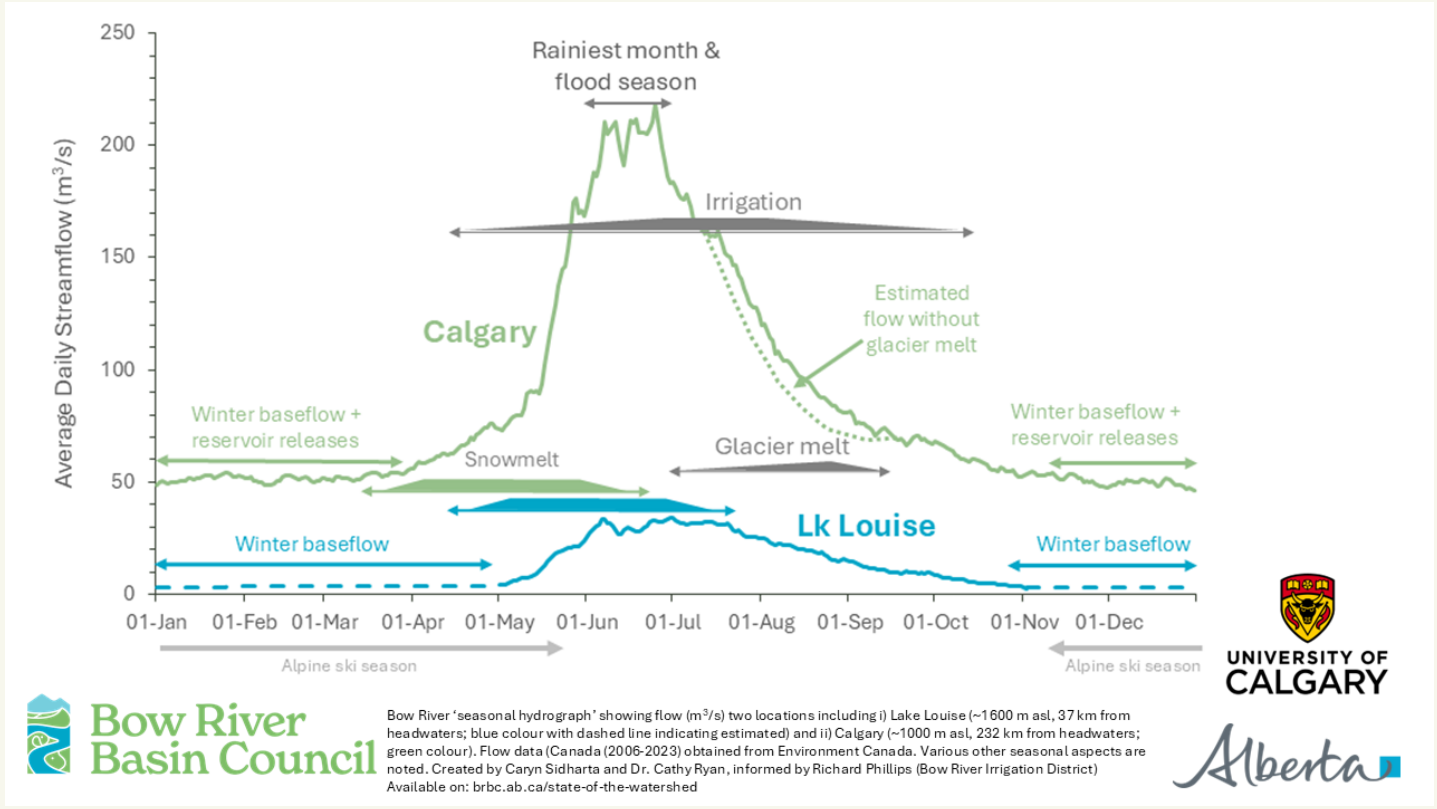
UNIVERSITY OF CALGARY

Alberta

Bow River Basin Council

Bow River seasonal hydrograph

Showing flow (m^3/s) two locations including i) Lake Louise (~1600 m asl, 37 km from headwaters; blue colour with dashed line indicating estimated) and ii) Calgary (~1000 m asl, 232 km from headwaters; green colour). Flow data (Canada (2006-2023) obtained from Environment Canada. Various other seasonal aspects are noted.



Water doesn’t follow organizational boundaries

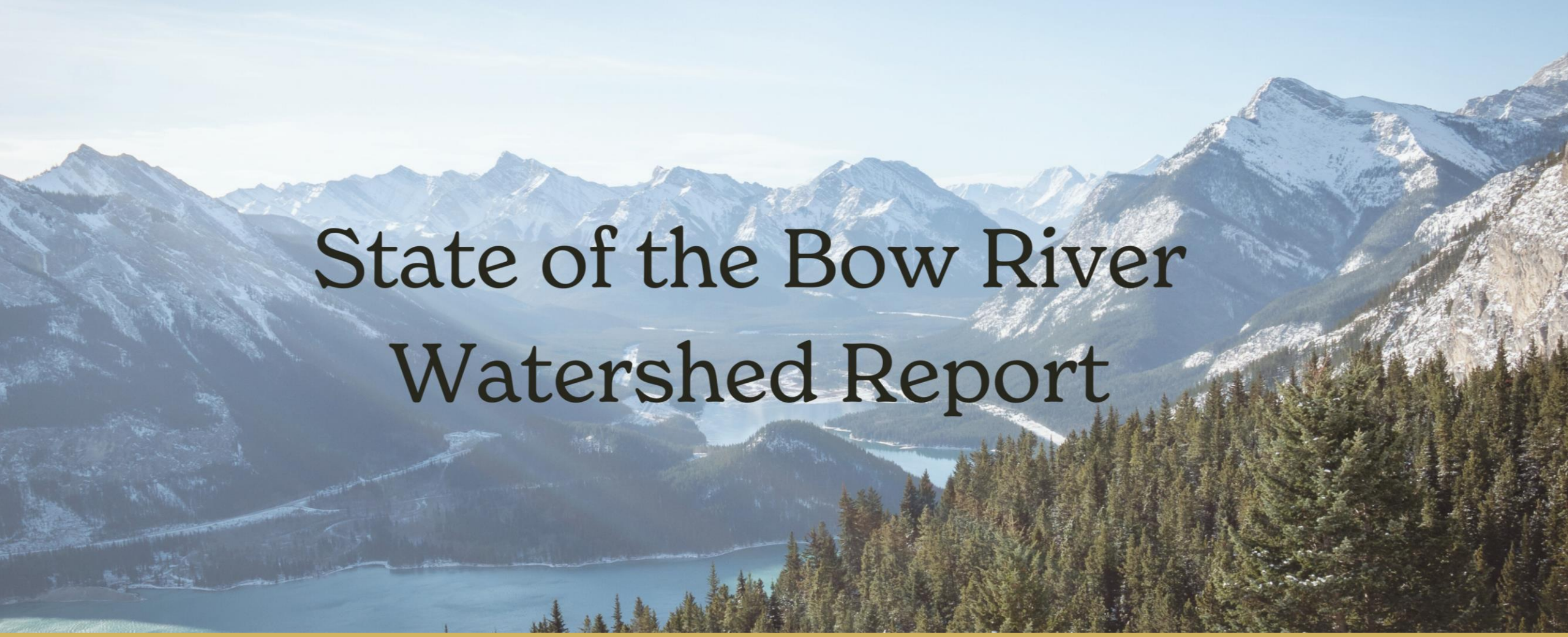
BRBC Role

CONVENER AND COLLABORATOR

MONITORING AND REPORTING

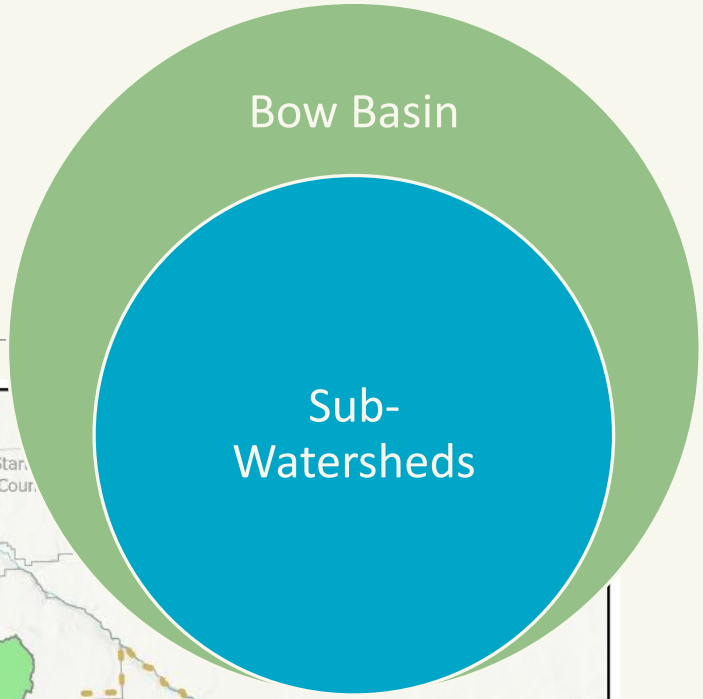
PLANNING AND POLICY

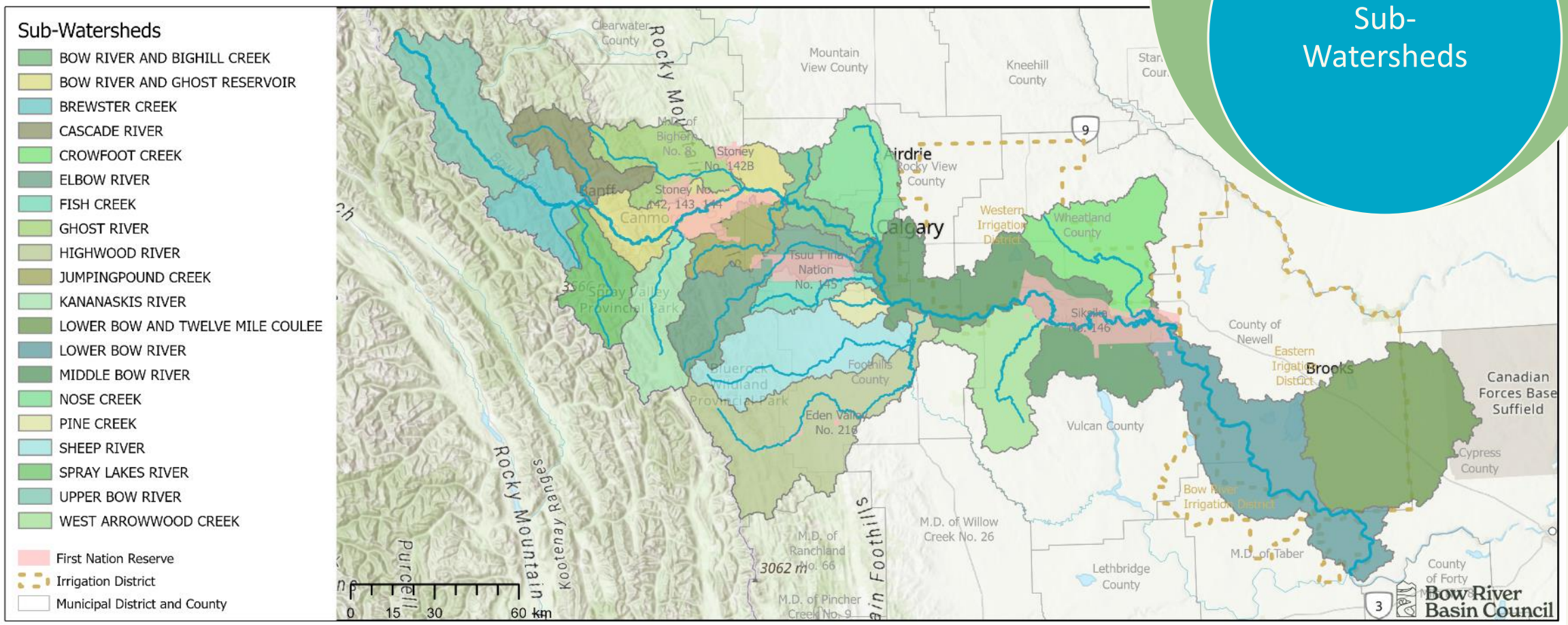
EDUCATION AND LITERACY

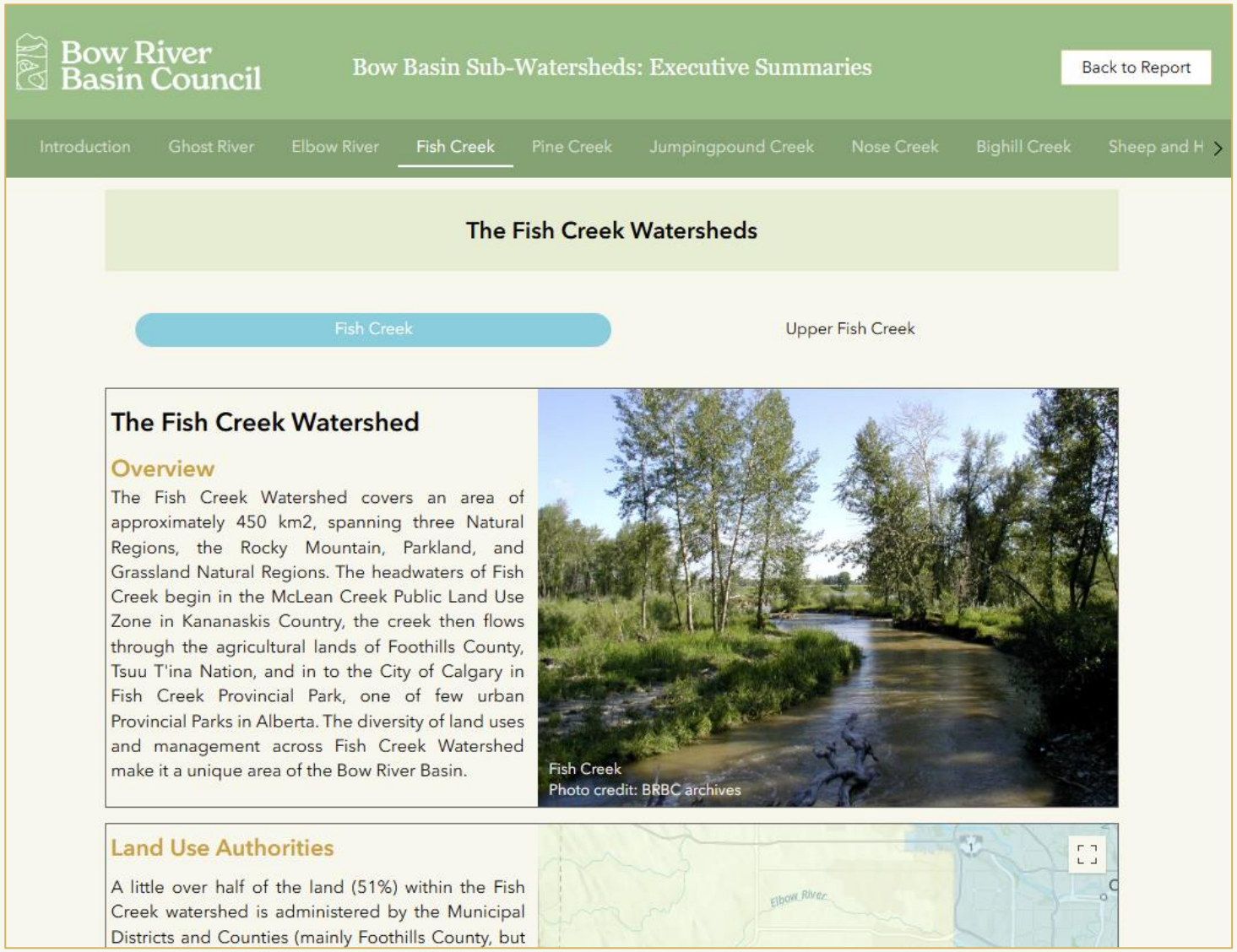


Collaboration in Action!

BRBC State of the Watershed: Scales





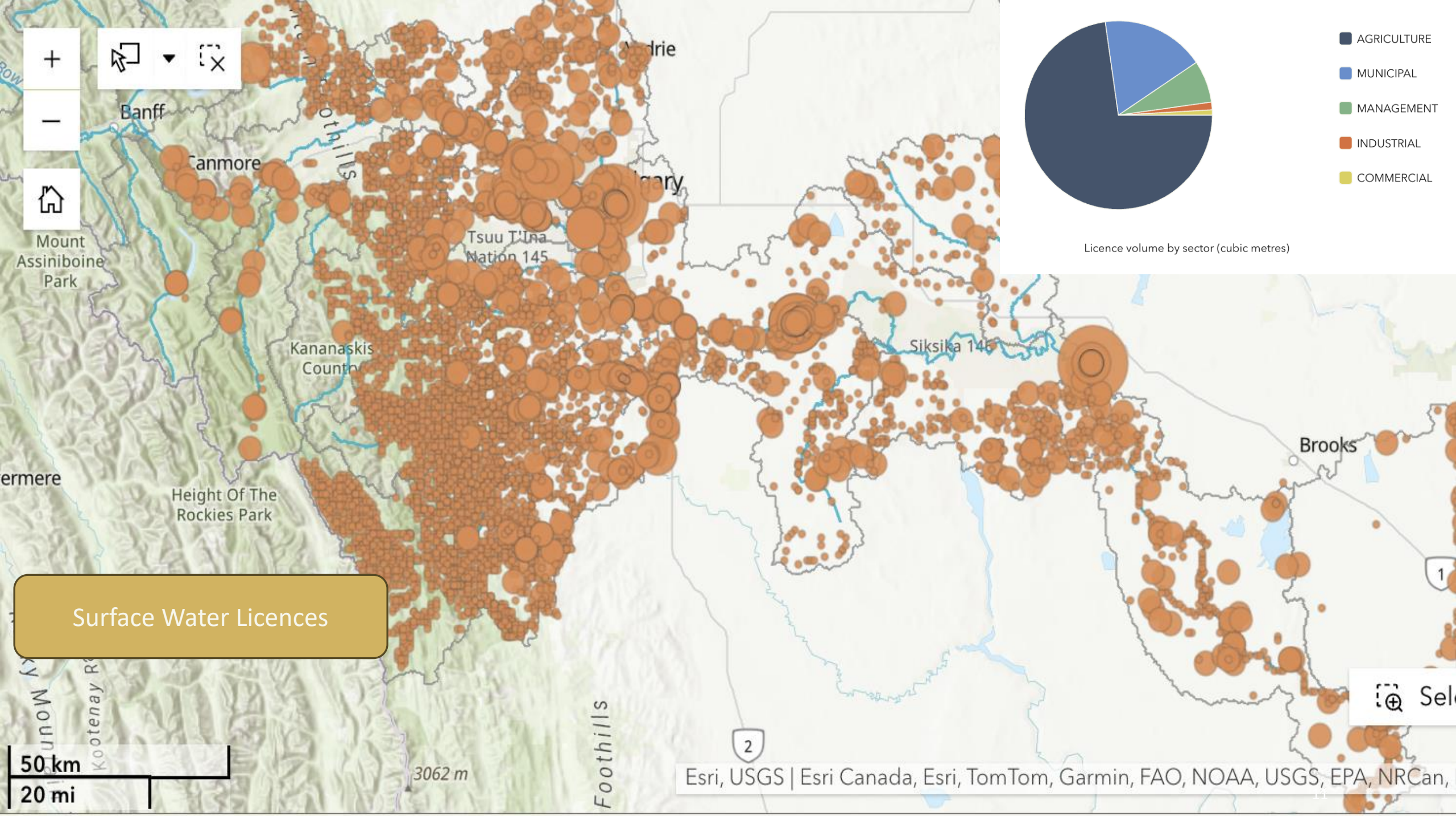


Sub-Watersheds: Executive Summaries

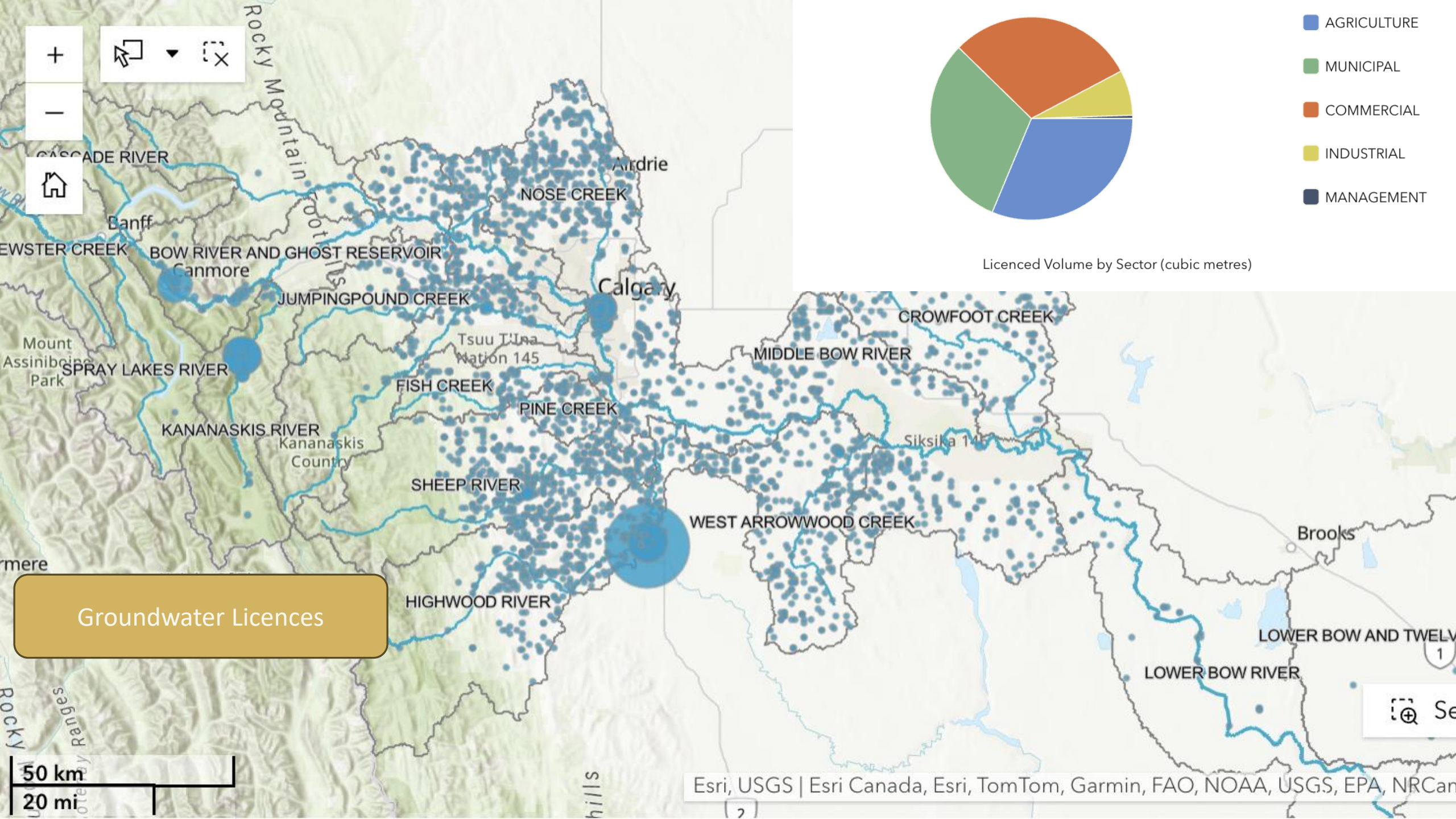
- Overview
- Land use authorities
- Water quantity
- Water allocation
- Groundwater
- Water quality
- Natural regions
- Climate
- Land cover
- Biodiversity
- Human footprint
- Challenges and responses

Basin-Wide Content: Chapters

Overview	Sub-watersheds	Water quality	Hydrology
Groundwater	Groundwater Quality	Water Management	Climate Change
Riparian Health	Wetlands	Biodiversity and Wildlife	Land Use and Development

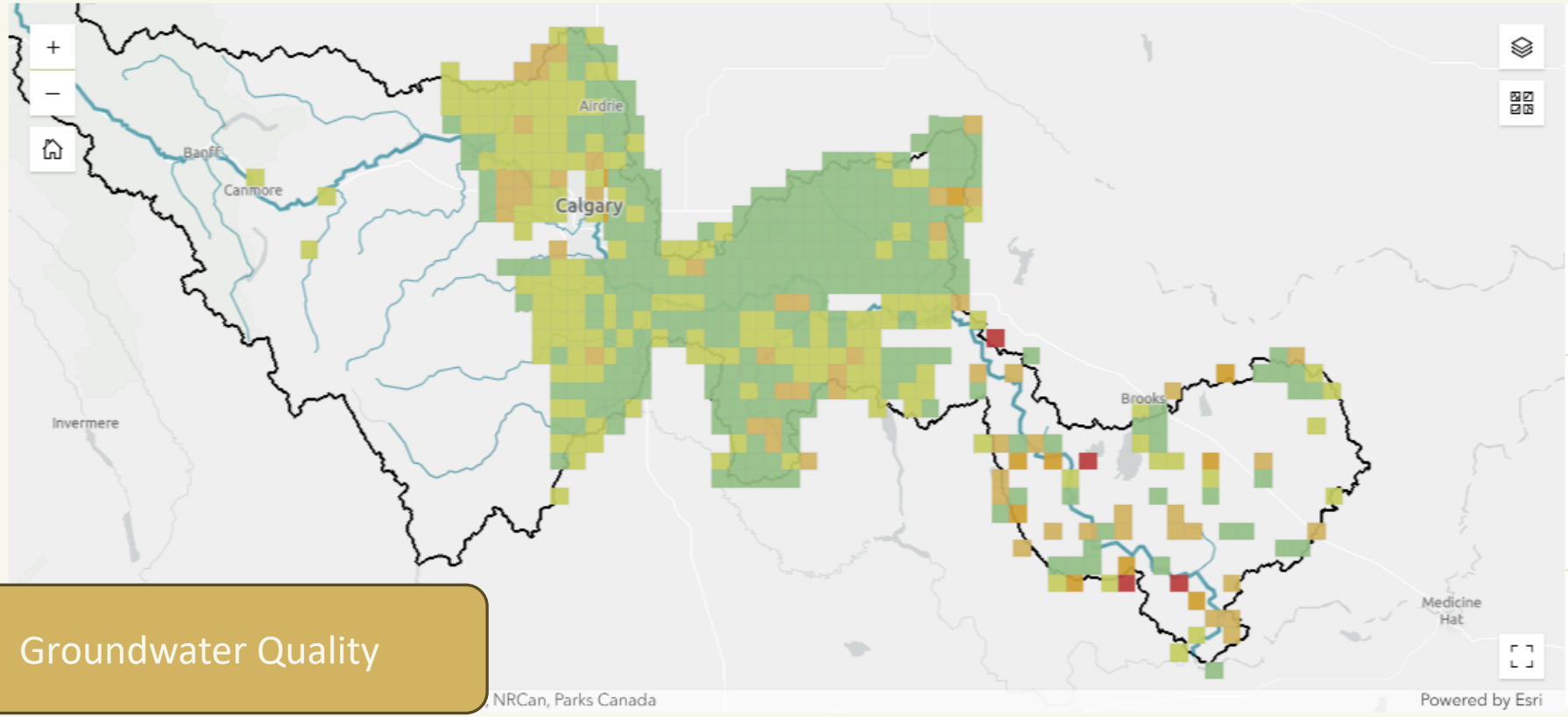


Surface Water Licences


AGRICULTURE
MUNICIPAL
COMMERCIAL
INDUSTRIAL
MANAGEMENT
Licenced Volume by Sector (cubic metres)
Groundwater Licences
Airdrie
NOSE CREEK
Calgary
Banff
BOW RIVER AND GHOST RESERVOIR
Canmore
JUMPINGPOUND CREEK
Tsuu T'ina Nation 145
SPRAY LAKES RIVER
FISH CREEK
PINE CREEK
KANANASKIS RIVER
Kananaskis Country
SHEEP RIVER
HIGHWOOD RIVER
CROWFOOT CREEK
MIDDLE BOW RIVER
Siksika 146
WEST ARROWWOOD CREEK
Brooks
LOWER BOW AND TWELV
LOWER BOW RIVER
50 km
20 mi
Esri, USGS | Esri Canada, Esri, TomTom, Garmin, FAO, NOAA, USGS, EPA, NRCan

Calcium | Chloride | Fluoride | Nitrate | Sodium | Sulfate | Total Dissolved Solids | Sample Density

Calcium (Ca) Occurrence at Quarter Township Scale



Median Ca Concentration (mg/L)

Ca_med

- > 430 - 1,256
- > 202 - 430
- > 83 - 202
- > 36 - 83
- 0.05 - 36

Bow River and Tributaries

NAME

- Bow River
- Tributaries

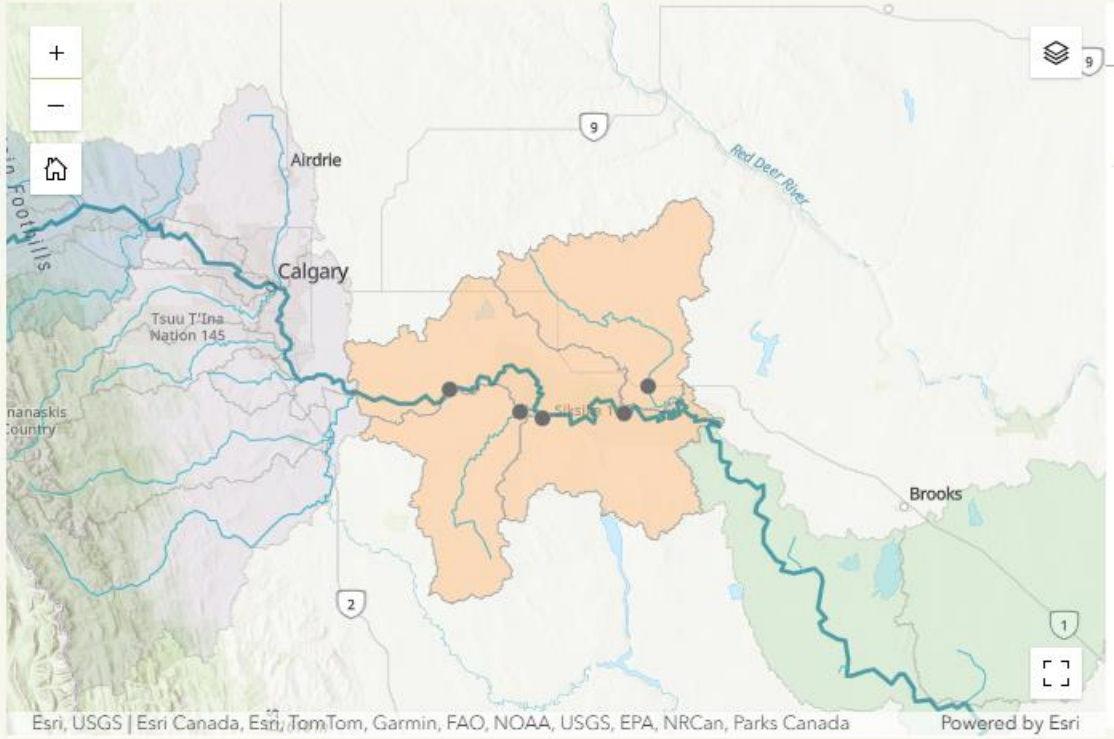
Bow River Basin

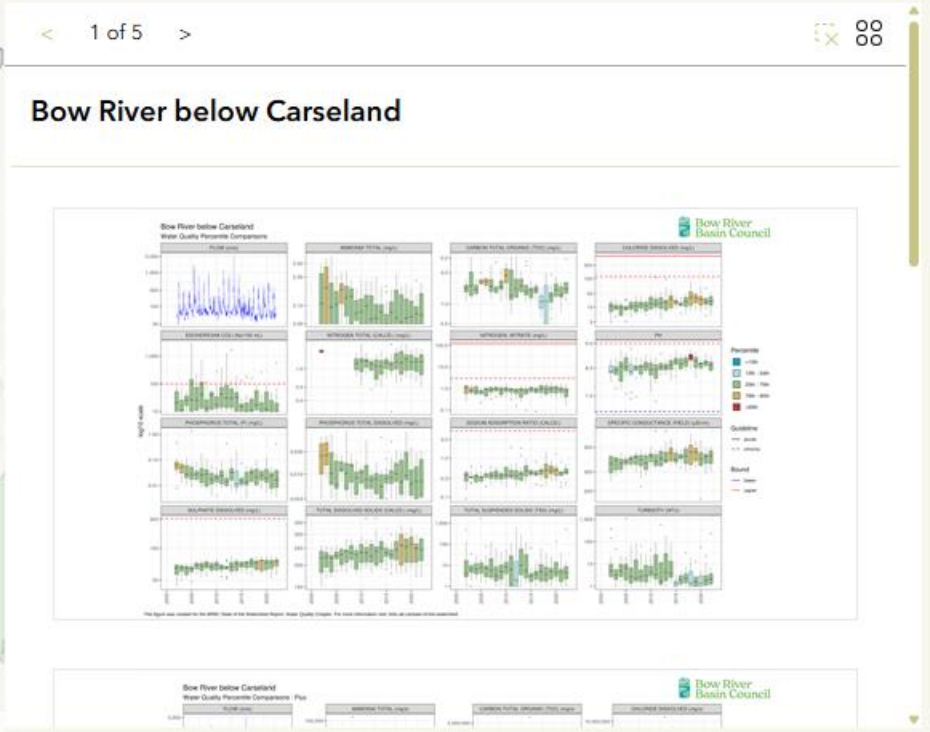
Groundwater Quality

To view the well sample density on this map, click the 'layers' button on the top right to toggle on that layer.

Calcium (Ca) histogram

Upper Bow Summary | Upper Foothills Summary | Lower Foothills Summary | **Middle Bow Summary** | Lower Bow Summary





Surface Water Quality

cludes the Bow River from wnstream to the Bassano Dam. itoring sites are included in this reach.

Mainstem monitoring locations:

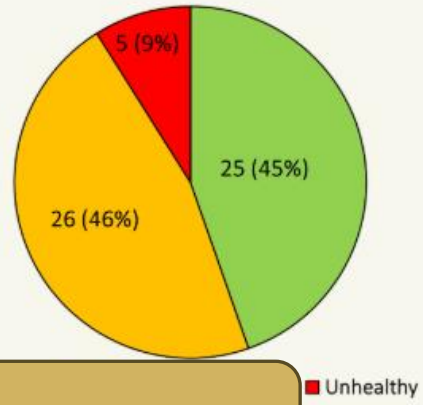
- Bow River Below Carseland Dam
- Bow River at Cluny

Middle Bow Water Quality: Summary

At both of the Bow River monitoring locations in the Middle Bow reach, total nitrogen and total phosphorus concentrations are relatively high compared to upstream sites, but nutrient concentrations and fluxes have been stable or decreasing over time. In contrast, the chloride concentrations in this reach are high and increasing over time, including in flux data, which indicates an increase in supply to the river over time. As discussed for the Lower Foothills reach of the Bow River, chloride concentrations are elevated in the Bow River downstream of the

Highwood River Watershed: Riparian Health Report Card

Number of Riparian Sites by Health Category



Average riparian health score is 76% (Healthy, with problems)

A total of 56 riparian sites have been assessed in the Highwood River watershed since 2007, including 51 lotic (stream or river) and 5 lentic (lake or wetland) sites. Of the lotic sites, 11 are located on the Highwood River mainstem and 40 are located on tributaries. Approximately 238 ha of riparian habitat and 33 km of bank length has been assessed since 2007. The average riparian health score for the watershed is 76% (healthy, with problems).

Riparian Health Report Cards

300,000 views and counting!

> 6000 in-kind hours

State of the Bow River Watershed: in numbers

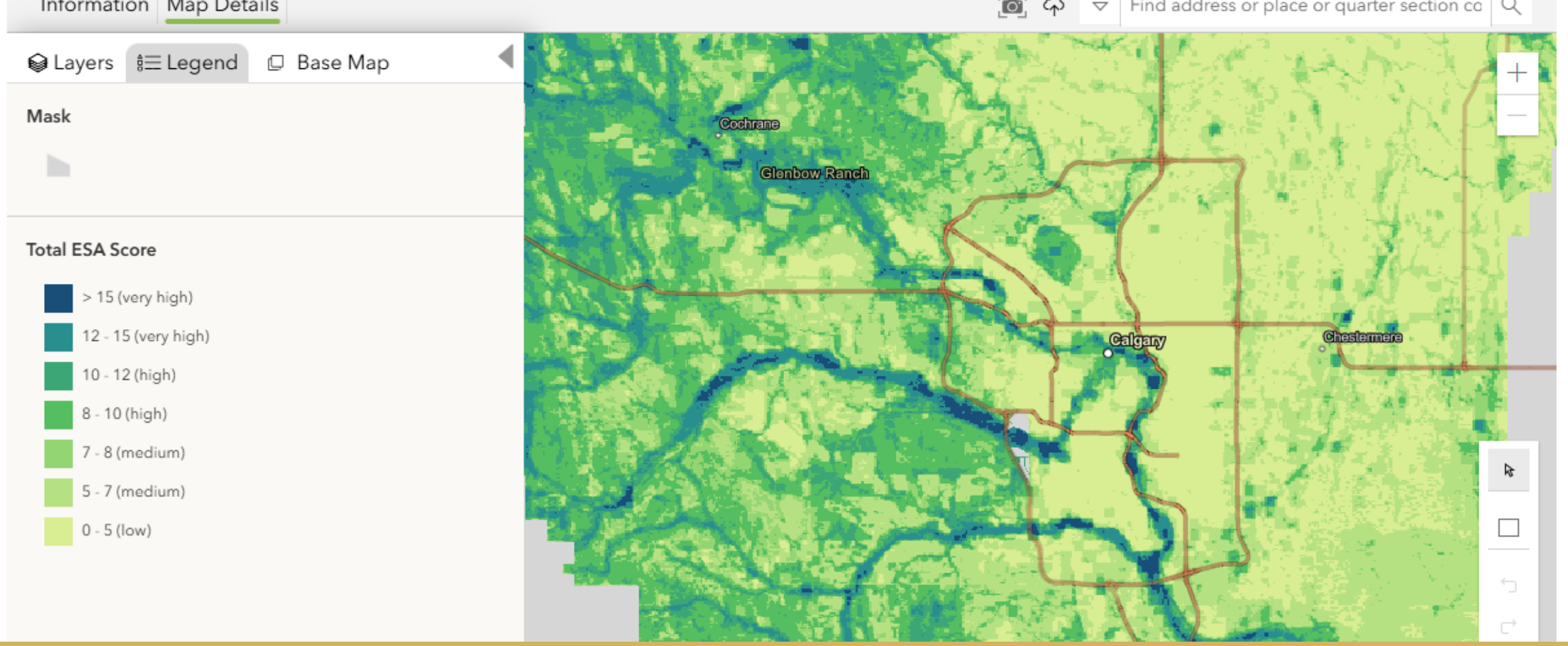
The notable achievements of the BRBC's State of the Watershed Report since December 2024

235,000+	Report views*
400+	Individual maps and layers
84+	Contributors
13	Chapters
22	Sub-watershed executive summaries

brbc.ab.ca/state-of-the-watershed

*updated July 2026

Bow River Basin Council



Environmentally Sensitive Areas Dashboard

Information | Map Details

Find address or place or quarter section co

Selected Area | Glossary | About | Help

Total Score | 1.0 Water | 2.0 Species + Habitats | 3.0 Biodiversity | 4.0 Other Ecosystem Services

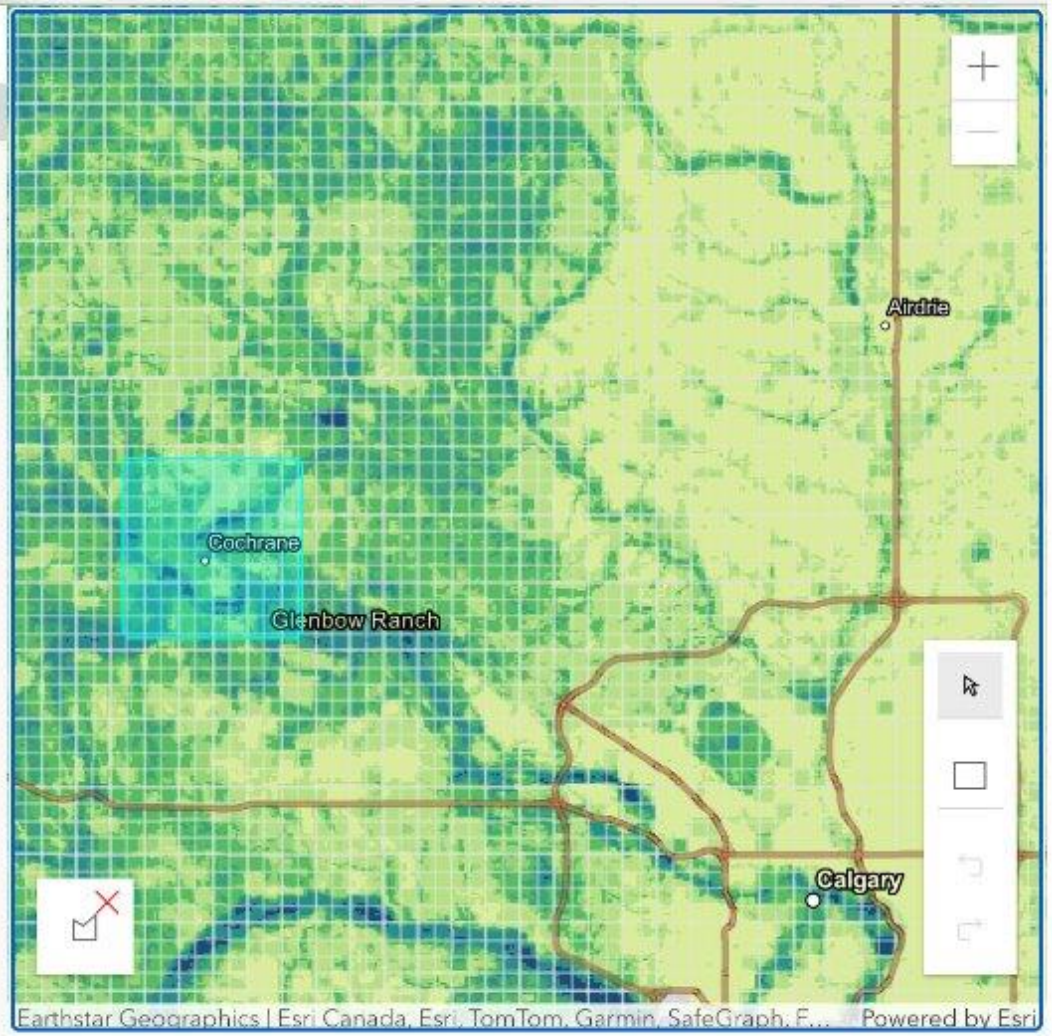
**Disclaimer:* *Intended to be used at the regional scale and should not replace site level investigation.*

Total ESA Score

Total ESA Score

20.44% of the selected area contains **Very High** scoring Environmentally Sensitive Areas. These areas contain Very High scores for two or more main criteria. 7.9% of the total Calgary Metro Region contains Very High scoring ESAs.

46.65% of the selected area contains **High** scoring Environmentally Sensitive Areas. These areas likely contain High to Very High scores for two or more main criteria or may contain Medium scores for more than three main criteria. 26.8% of the total Calgary Metro Region contains High scoring ESAs.



Please review the main criteria summaries to understand the factors influencing the Environmental Sensitivity of the selected area.

1.0 Water

low score | medium score | high score | very high score

2.0 Species & Habitat

low score | medium score | high score | very high score

95% 5% % of area

3.0 Biodiversity

low score | medium score | high score | very high score

These areas may be important for regional connectivity and represent opportunities to maintain or restore connectivity on the landscape. Further site level study is likely required.

4.0 Other Ecosystem Services

low score | medium score | high score | very high score

9% 89% % of area

- 4.1 Significant Landforms
- 4.2 Natural Resources
- 4.3 Ecotourism + Recreation
- 4.4 Cultural + Heritage

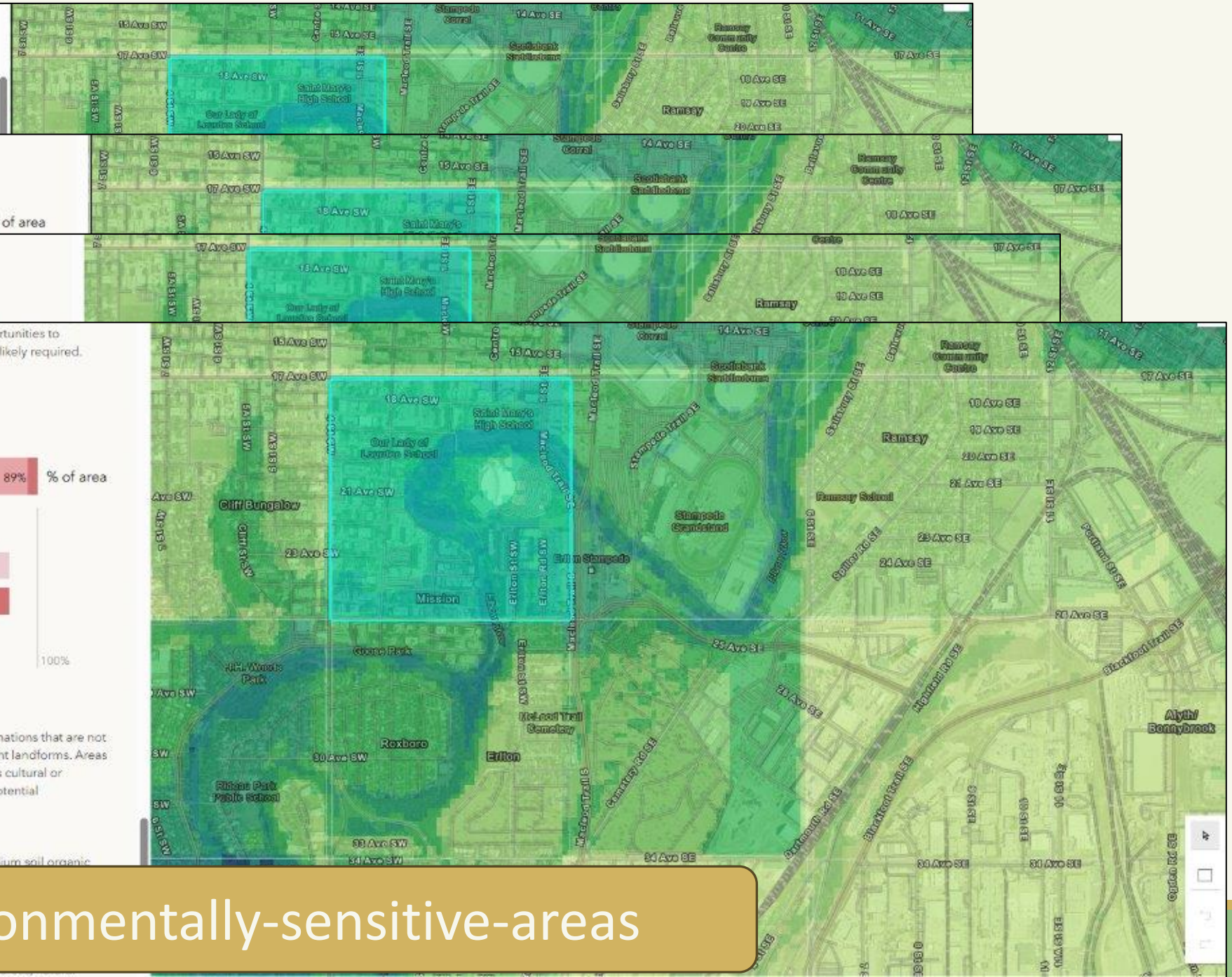
25% 50% 75% 100%

4.1 Significant Landforms

Areas with **Low** Significant Landform scores contain examples of glacial formations that are not regionally significant, or they may contain Nationally or Provincially significant landforms. Areas with slopes from 15 to 20% may be represented. These areas likely have less cultural or ecological value, but further site level study is required to understand the potential implications of development.

4.2 Natural Resources

Areas with **Low** Natural Resource scores likely contain regionally low to medium soil organic



brbc.ab.ca/environmentally-sensitive-areas

Acknowledgements

The Calgary Region ESA Database and Dashboard Tool was created by O2 Planning and Design for the Calgary Metropolitan Region Board (2022-2025) and adopted by the Bow River Basin Council in 2025. The development of this ESA database was supported by many academic, government, and non-profit contributors. Organizations who provided data, subject matter expertise, and material review are listed below:

Municipalities:
City of Airdrie
City of Calgary
City of Chestermere
Foothills County
Town of Cochrane
Town of High River
Town of Okotoks
Rocky View County

Government:
Alberta Environment and Protected Areas
Alberta Geological Survey

Academic:
University of Calgary

Non-profit:
Alberta Biodiversity Monitoring Institute
Bow River Basin Council
Foothills Land Trust
Miistakis Institute
Nature Conservancy Canada
Nose Creek Watershed Partnership
Southern Alberta Land Trust

brbc.ab.ca/environmentally-sensitive-areas

State of Stewardship:

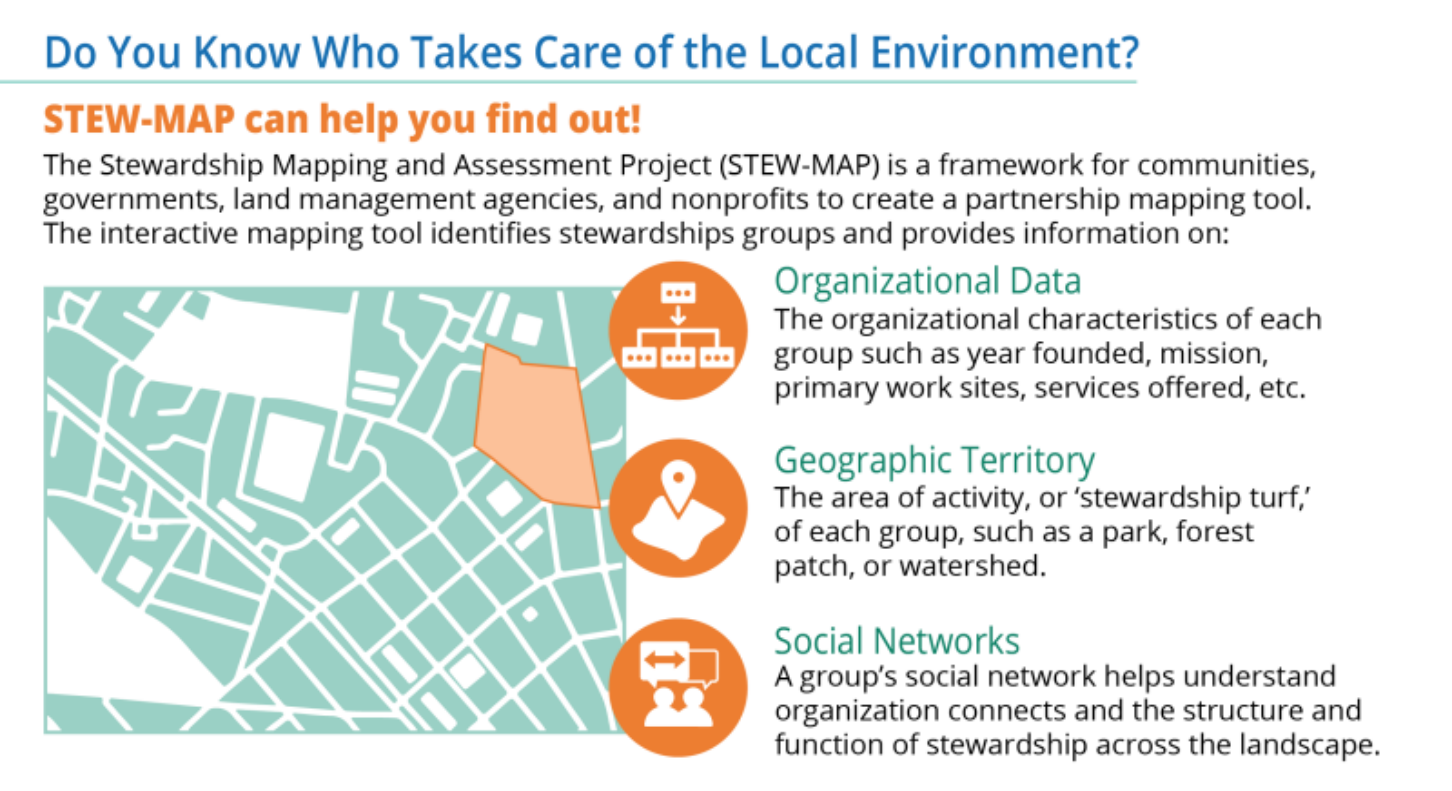
who is protecting the watershed?

State of Stewardship

Conducting an inventory of stewardship work and organizations across the watershed

Anticipated results

- Map of stewardship projects/work areas
- Network of organizations (collaboration, funding, advice/in-kind support)
- Standalone report + integrated as SOW chapter



Methodology: Stewardship Mapping and Assessment Project (STEW-MAP) (US Forest Service)

Upcoming BRBC Priorities

CONVENOR AND COLLABORATOR

MONITORING AND REPORTING	Continued SOW development Monitoring and data Science Forum
STEWARDSHIP AND PARTNERSHIPS	State of Stewardship Watershed Stewardship Coordination Committee Water monitoring equipment
PLANNING AND POLICY	Adaptation Drought/water availability Natural infrastructure
EDUCATION AND CAPACITY	Forums Workshops Committees

Opportunities to get involved

JOIN OR CONNECT TO A COMMITTEE

CONTRIBUTE A CASE STUDY OR CHAPTER OR AUGMENT AREAS OF THE REPORT

REVIEW AND PROVIDE FEEDBACK

CONNECTIONS WITH MEMBERSHIP SECTORS, CONFERENCES, EVENTS

A healthy watershed is a shared responsibility

A healthy watershed is a shared responsibility

Thank you!

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