

# Indigenous Water Rights and Climate Change In Alberta



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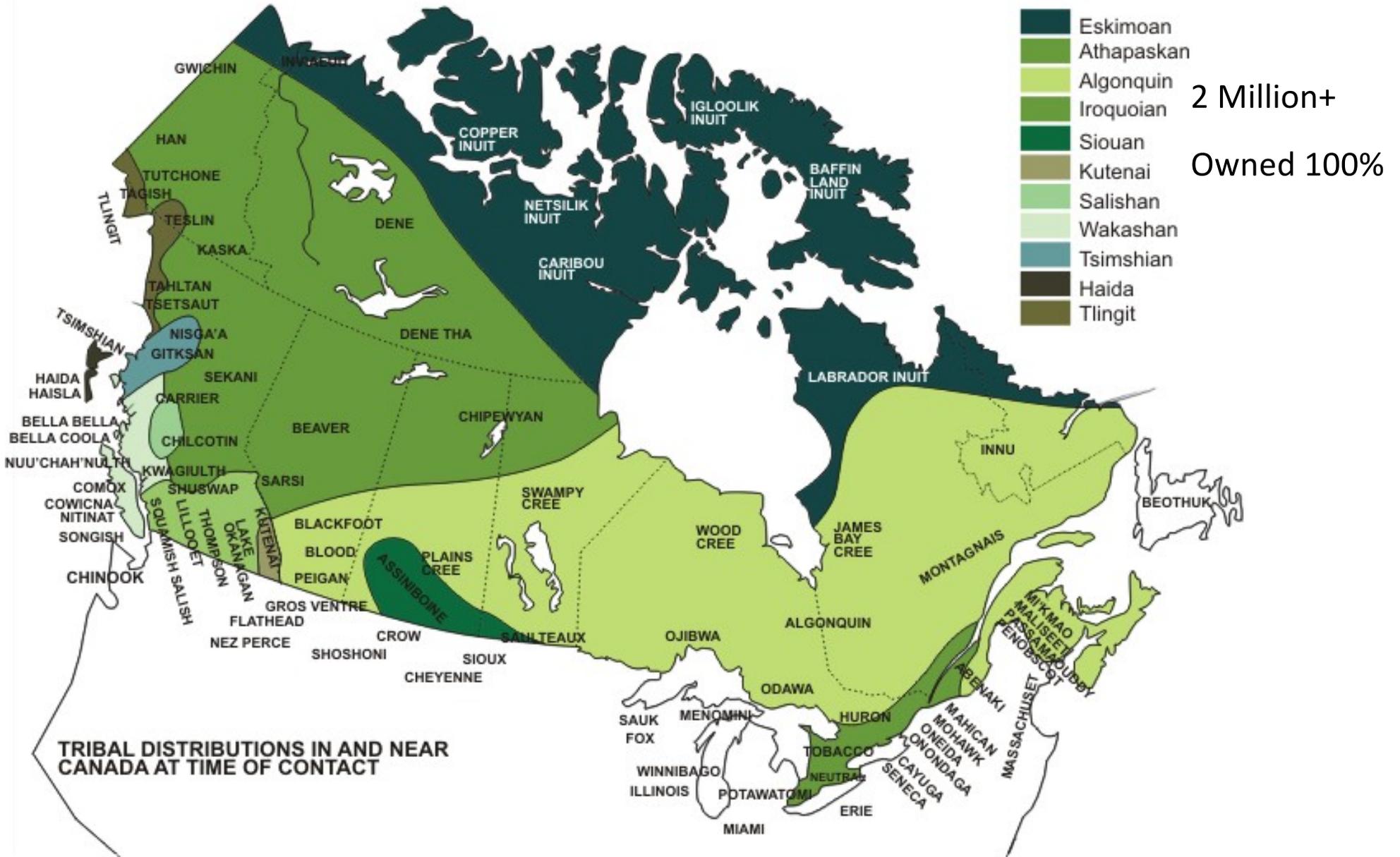
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- History of Indigenous Peoples living in Alberta - Treaties
- Alberta & Northwest Irrigation Act
- Indigenous Rights to Water
- Alberta Water Licencing & Water Scarcity
- Climate Change



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# Pre-Contact Indigenous Nations



# Hudson's Bay Company Charter 1670



## Hudson's Bay Company Charter 1670

The Hudson's Bay Company Charter of 1670 established HBC and

- granted monopoly rights to trade in Prince Rupert's Land defined as the lands draining into Hudson Bay.
- constituted the colony of Ruperts Land with HBC as "Lords and Proprietors" with the power to make laws "necessary and convenient for the good Government of the said Company and of all... [employees of HBC] in any of the Territories."
- as a Proprietary Government, HBC was bound by the *Royal Proclamation, 1763*

# Ruperts Land and Northwestern Territory

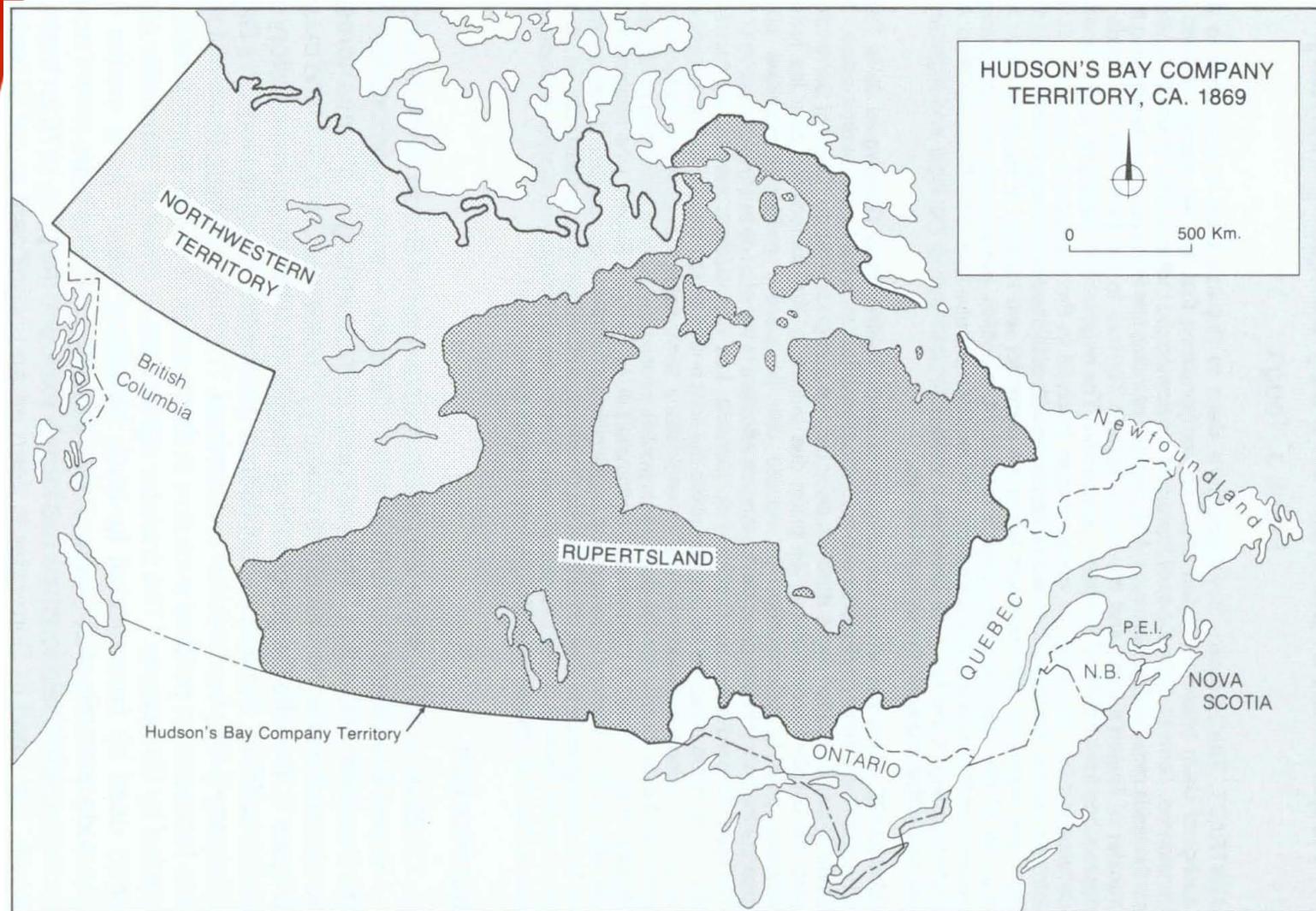
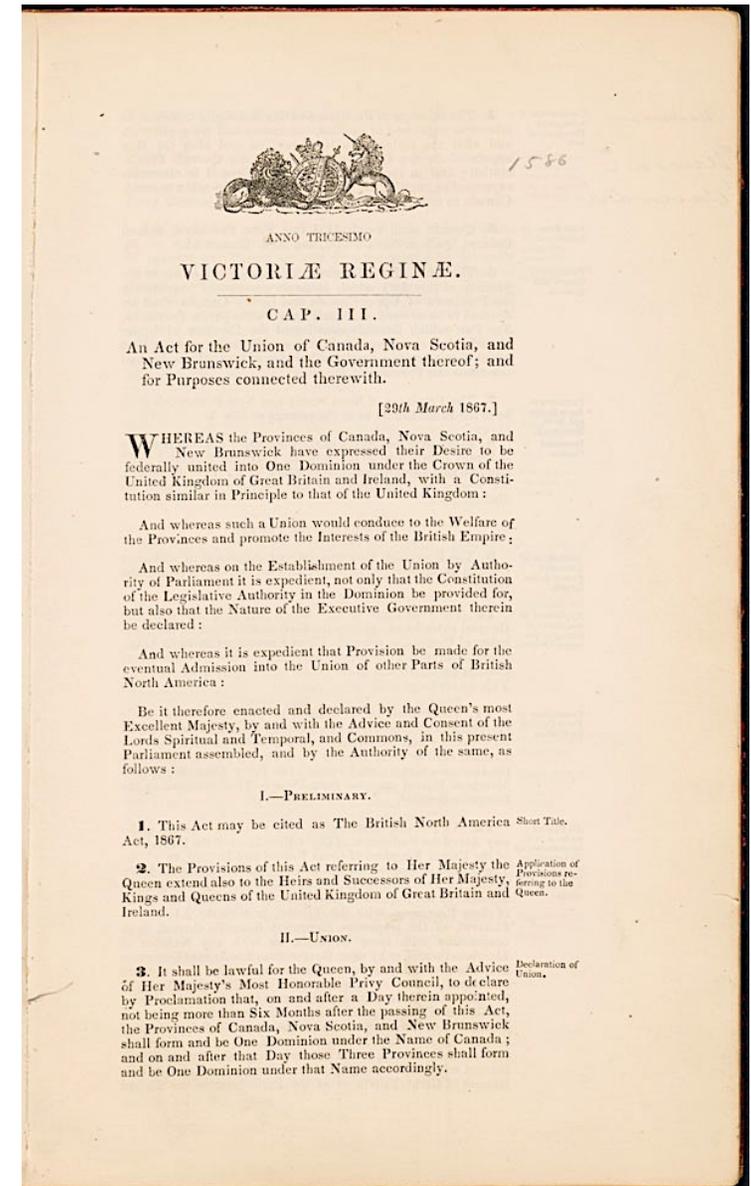


Figure 1. The Hudson's Bay Company Territory: Rupert's Land and the North-Western Territory.

## The Fur Trade – 250 years

- Indigenous Nations had a long history of trading and in the fur trade they engaged the early capitalist Trans-Atlantic market
- In return for western supplies, e.g. iron knives and clothing, Indigenous Nations provided harvest furs, local labour and food to Trading Posts that would forward furs to Europe
- It was a cooperative relationship, supplies were given on credit to ensure a supply of fur and in lean times to preserve Indigenous people as a source – extended up to the 1980's
- Kinship traditions lead to the intermarriage of fur traders with Indigenous women to result in a distinct people the Métis

The Dominion of Canada, as part of the British Empire was organized on July 1, 1867 by the confederation of the British North American colonies of New Brunswick, Nova Scotia, and the Province of Canada (Ontario and Quebec) under the *British North America Act, 1867* (BNA Act).



## Confederation, 1867

- BNA Act provided for a government similar in principle to UK and divided areas of legislative authority between Federal (section 91) and Provincial governments (section 92).
- The Federal Government have jurisdiction over “Indians, and Lands reserved for the Indians” in section 91(24).
- Provincial governments have jurisdiction over property and civil rights in the province in section 92(13) and owned the lands and mineral rights in the province “subject to existing trusts” in section 109.

From 1863 to 1870, Canada negotiated to acquire Ruperts Land from HBC and Britain's Northwestern Territory.

This resulted in a three way transaction, between Canada, Britain and the HBC which would see:

- HBC surrendering its 1670 Charter to Britain on terms;
- Britain accepting the surrender and transferring Ruperts Land and its Northwestern Territory to Canada; and
- Canada paying the surrender terms to Britain who would pay HBC.

Indigenous Nations played no role in this transfer.



HBSC Surrender Deed

On November 19, 1869, HBC surrendered its rights to Ruperts Land in return for £300,000, various land grants and an indemnity for “[a]ny claims of Indians to compensation for lands required for purposes of settlement”.

The Surrender was accepted under the *Rupert's Land Act, 1868* (U.K.) and By Order-in-Council dated June 23, 1870, the British government admitted Ruperts Land and its Northwestern Territories to Canada, effective July 15, 1870.

This was delayed to December 1, 1870 because of the First Riel Resistance.

Canada had agreed that,

“...upon the transference of the territories in question to the Canadian Government, the claims of the Indian tribes to compensation for lands required for purposes of settlement will be considered and settled in conformity with the equitable principles which have uniformly governed the British Crown in its dealings with the aborigines.”

Canada's Parliamentary Address to Her Majesty on December 16 and 17, 1867

The Federal Government, set out negotiate with the Indigenous Peoples of its new lands. Canada negotiated 11 Numbered Treaties from 1871 to 1921.

# Historical Treaties 1725-1975



## Historical Treaties 1725-1975

Note: Reserves within Treaty Areas, in Alberta and elsewhere, are still being allocated and surveyed in 2019+

The yellow areas are territory where no treaties were made.

## Numbered Treaties

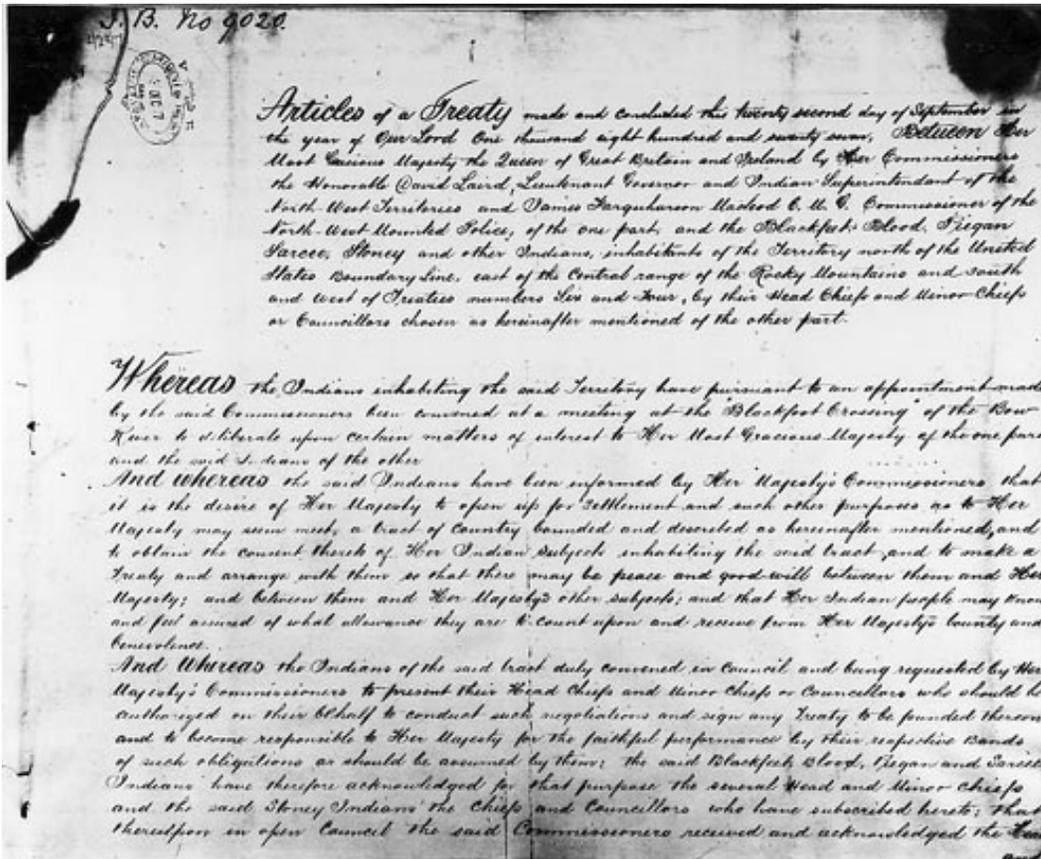
The Numbered Treaties, based on the Ontario Robinson Treaties, were framed in Canadian law as “land surrender treaties.

The major terms were identical and asserted that Indigenous Nations surrendered their rights to vast tracts of land, in return for promises:

- a. that they could continue their traditional way of life on surrendered lands (subject to tracts being taken up);
- b. lands based on population would be reserved for their exclusive use (Reserves); and
- c. annual annuities and other benefits.

Government penury, neglect, corruption and Indigenous Nation political powerlessness left the majority of these treaty promises unfulfilled, and subject to ongoing dispute and litigation.

# Southern Alberta - Treaty No. 7



First Page Treaty 7

Glenbow Archives NA-3314-1

Treaty 7 was signed on September 22, 1877, between Canada and the Blackfoot Confederacy (Blood, Peigan and Blackfoot), the Tsuu T'ina First Nation (Sarcee) and the Stoney Nakoda First Nation (Bearspaw, Chiniki and Goodstoney/Wesley First Nations).

- The Federal *Indian Act* required registration of “Indians” into Indian Bands and distributed benefits and imposed restrictions on the basis of that status. It imposed Canada’s trusteeship for Indian Reserves on the basis that “Indians” were legally children and could not manage them.
- Indigenous religious ceremonies were banned and replaced Indigenous governance with elected Chiefs and Band Councils with limited power.
- All powerful “Indian Agents” managed Reserves, distribution of moneys and their approval was required for example, to live on or travel off the reserve, inherit any property or transact any business with “Indians.”

## Indian Act 1876+

- It criminalized the hiring of lawyers to advance Indian claims and the raising funds to do so in 1927 until amended in 1951 that also saw the powers of Indian Agents reduced.
- Express government policy of assimilation until 1969, a key element was the Indian Residential Schools were boarding schools where Indigenous children were compelled to attend from 1883 to the 1980's that intended to "civilize them."
- Children were forcibly separated from their families, housed in deplorable conditions, subject to abuse (including sexual abuse) where missionary teachers "prohibited ... speaking their native languages, taught them to reject their cultures and traditions as inferior and to recoil from their spirituality as devil worship."

## Assimilation: Indian Residential Schools

- Children received substandard education, and graduates were rejected by Canadian society as inferior and either returned to their Reserves as aliens unable to speak their native language or migrated to urban areas as a permanent underclass.
- Five generations of children were trapped in these schools with incalculable and continuing consequences to the social fabric Indigenous Nations.'
- Indians had no right to vote, except in Band Council Elections, unless they gave up their status. The right to vote in federal elections came in 1960 and provincially in the 1960's.

In the Northwest Territories, no water legislation applied and the Numbered Treaties were silent on waters, meaning water rights were governed by common law doctrines of *riparian rights*.

There is no property in flowing waters at common law, but riparian rights set out principles for the use of waters in defined channels (watercourses) :

- riparian water rights are automatically vested in owners of land bordering watercourses or through which watercourses flow: those properties are described as riparian property;
- water may be used for ordinary domestic purposes – regardless of impact to downstream riparian property owners;

- water may be used for secondary or “extraordinary purposes” such as irrigation or industrial uses but any waters diverted for these uses must be returned to the watercourse substantially undiminished in quantity and quality, subject to an allowed “reasonable use” diminishment; and
- the rights to use water were restricted to riparian property as they were inseparable from that land.

Riparian principles did not allocate a specific amount of water to riparian property, are not exclusive in nature (as all riparian properties have them) and do not carry a priority – other than being located closer to the water source.

# Prairie Waters: North-West Irrigation Act (1894)



57-58 VICTORIA.

CHAP. 30.

An Act respecting the utilization of the waters of the North-west Territories for Irrigation and other purposes.

[Assented to 23rd July, 1894.]

HER Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. This Act may be cited as *The North-west Irrigation Act*. Short title.

2. In this Act, unless the context otherwise requires,—  
(a.) The expression “minister” means the Minister of the Interior; Interpretation.  
“Minister.”

(b.) The expression “agent” means the registrar of the lands registration district in which the land or water is situated; “Agent.”

(c.) The expression “Dominion land surveyor” means a surveyor duly authorized, under the provisions of *The Dominion Lands Act*, to survey Dominion lands; “Dominion land surveyor.”

(d.) The expression “company” means any incorporated company, the objects and powers of which extend to or include the construction or operation of irrigation or other works under this Act or the carrying on thereunder of the business of the supply or the sale of water for irrigation or other purposes, and includes also any person who has been authorized or has applied for authority to construct and operate such works or carry on such business, or who has obtained a license under section eleven of this Act; “Company.”

(e.) The expression “works” means and includes any dykes, dams, weirs, flood-gates, breakwaters, drains, ditches, basins, reservoirs, canals, tunnels, bridges, culverts, cribs, embankments, headworks, flumes, aqueducts, pipes, pumps and any contrivance for carrying or conducting water or other works which are authorized to be constructed under the provisions of this Act; “Works.”

(f.) The expression “duty of water” means the area of land that a unit of water will irrigate, which unit is the discharge of one cubic foot of water per second. “Duty of water.”

3. This Act shall apply to and be in force throughout the North-west Territories. Application.

To encourage agricultural settlement in arid areas e.g. Palliser Triangle in southern Alberta, Canada passed the *North-West Irrigation Act (1894)*, to replace riparian rights and claimed ownership of waters by the Crown to be licenced to land owners.

This Act attempted to eradicate riparian rights by requiring all current water users, including riparian users, to apply for a licence to validate their uses within one year of enactment or lose their rights permanently.

## North-West Irrigation Act (1895)

- Extinguishment of riparian rights did not go over well, and in 1895 Canada amended the Act to exempt existing and future riparian land owners from the licensing requirements for domestic surface-water and ground water uses.
- The NWI Act (1895) established a system of essentially perpetual water licences to use a certain amount of water (usually very large amounts) for certain purposes that was attached to designated lands that could, but need not adjoin a watercourse.
- Water use priority was given by registration with the government sequentially. A water licence allowed the use of the licensee's entire water allocation before a subsequent licence holder could use their allocation.

## Alberta Act (1905)

- When Alberta was established in 1905, unlike the other provinces, Canada retained “all Crown lands, mines and minerals and royalties incident ...[and] waters within the province” and provided a subsidy for the Alberta government.
- This changed in 1930 with the constitutional enactments, the *Natural Resources Transfer Acts*, which transferred the mines and minerals and royalties to the prairie provinces, except for Federal lands such as National Parks and Indian Reserves.
- Surface waters were transferred in the *Natural Resources Transfer Amendment Act*, 1945 back dated to 1930. Ground water was never transferred to Alberta.

- The exemption of Indian Reserves in the *Natural Resources Transfer Acts* means that under Canadian law, Prairie First Nations on Reserves are the beneficial owners (by way of Federal title) of riparian lands adjoining a watercourse and have the right to use water for domestic and extraordinary purposes *without requiring a provincial water licence*.
- There are other arguments including, since 1982 constitutional ones, for the continuation of Indigenous rights to water – although there has never been a court ruling on this.
- There have been lawsuits but they have all been settled e.g. Oldman Dam litigation.

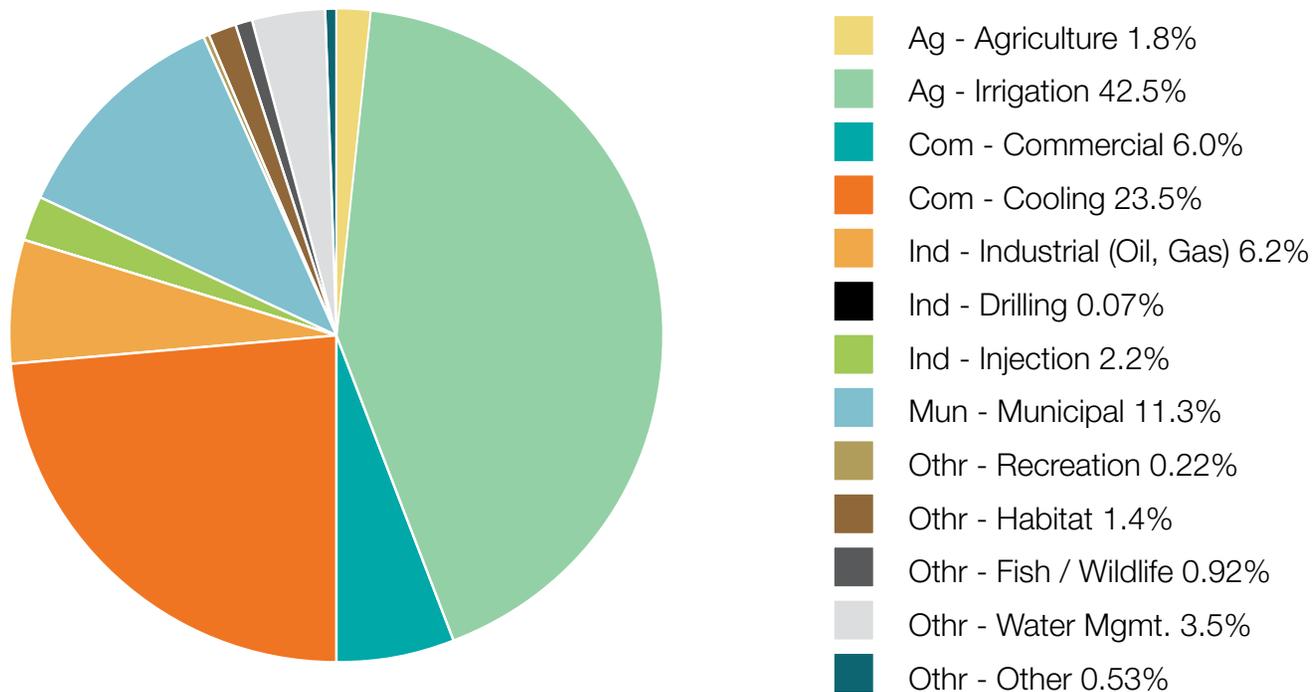
- Canada holds 20% of the world's supply of fresh-water but only 6.5% of the renewable supply, the balance is retained in lakes, underground aquifers, and glaciers.
- 60% of this renewable water drains northward into the Arctic Ocean and Hudson Bay. As a result, it is unavailable to the 85% of the Canadian population who live along the country's southern border.
- In Alberta 80% of Alberta's freshwater supply is found in the northern reaches of the Province while 80% of water demand lies in the south.

- Alberta continued the water licencing of the *North-West Irrigation Act* in the *Alberta Water Resources Act* (1931).
- This was only incrementally changed by Alberta's *Water Act* of 1996, effective January 1, 1999 which:
  - continued individual domestic use exemption
  - provided a modest "traditional agriculture use" exemption
  - grandfathered existing licences
  - required water basin frameworks for water allocation
  - the transfer of unused water allocation between licences
  - enabled the Director to adjust licences in an emergency

## Alberta's water licencing does not encourage water conservation

### Water Allocations in Alberta\*

by Specific Purpose (2009)



Total Licensed Volumes: 9,891,606,000 m<sup>3</sup>  
 (9,591,071,000 m<sup>3</sup> Surface Water;  
 300,535,000 m<sup>3</sup> Groundwater)

Population growth has put pressure on water supplies, particularly in Southern Alberta. Alberta water comes from:

- 97 % (9.59 billion m<sup>3</sup>) from surface water sources with 138,175 surface water licence holders (74% total)
- 3% (301 million m<sup>3</sup>) from groundwater sources with 49,376 groundwater licence holder (26 % total)
- Groundwater reserves dwarf surface waters but only 1% of are in usable non-saline aquifers, groundwater use will not address water shortages given the limited recharge rate of aquifers.

- Not all uses are equal, but all uses cause pollution, removing that pollution requires sewage and water treatment facilities
- Agricultural (44%) uses are consumptive as water (60-65%) is incorporated into crops or livestock – Agriculture is 53% of Alberta's exports and has reduced water use by 26%.
- Commercial (29%) uses with 23% cooling is entirely returned
- Municipal (11%) uses return 80–90% - target reduction of 30% not achieved

- The Water Act (1996) separated the attachment of land from water licences and was intended to create a water licence market – to indirectly drive conservation by water pricing.
- Water licence transfers are registered and lead to two new water conditional licences in equal priority – *but* in limited duration and potentially limited by withholding up to 10% water for environmental purposes (instream flow).
- Holders of large senior water licences, were deterred: any price received for their unused waters would not guarantee they could buy additional waters if circumstances changed. In the result transfers of unused water licences provided a “safety valve” – but did not increase the total supply.

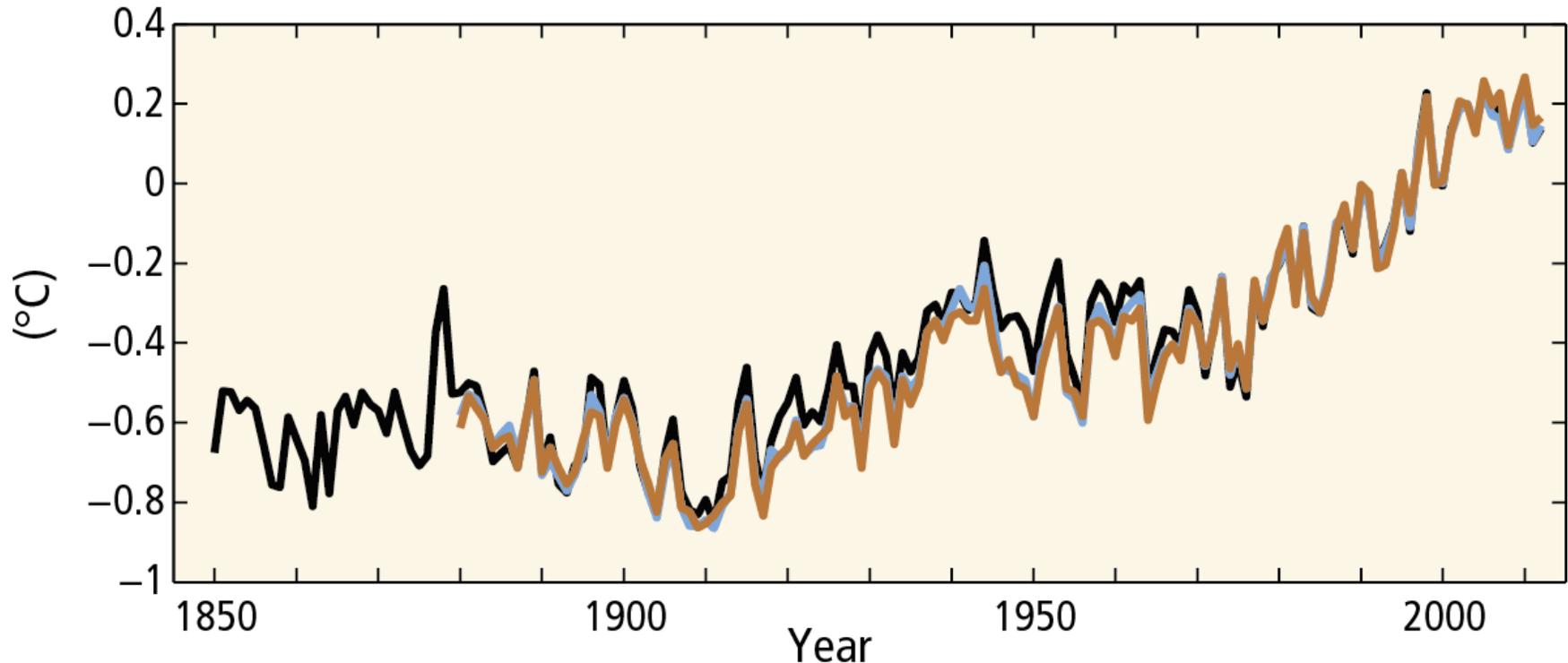
- The first time Alberta experienced water shortage was in the dustbowl era of the 1930's.
- Rather than change the water allocation system, Alberta embarked on an effort to increase the useable water supply by storing water behind dams in reservoirs.
- \$1 Billion were devoted to water projects from 1930-1990, with Alberta continuing to issue extensive water licences.
- Suitable storage sites for major water projects, at least in some basins in the south of Alberta, have been exhausted.

- The South Saskatchewan River Basin (SSRB) is fully or over allocated and Alberta declared a moratorium in 2006 on new water licences with exceptions to permit junior allocations for First Nations needs, instream flows, and storage.
- The Alberta Land Stewardship Act (2012) governs land and water use planning with the South Saskatchewan Regional Plan being approved in 2014 that entrenched the moratorium
- The City of Calgary estimates that it will reach the limit of its water licence in the next decade.

Population growth and climate change will impact Alberta's water supply...

# Global Warming – Observed Impacts

(a) Globally averaged combined land and ocean surface temperature anomaly



IPCC, 2014: Climate Change 2014: Synthesis Report (5<sup>th</sup>) at 3

Climate Change Denial Arguments see: <http://www.skepticalscience.com>

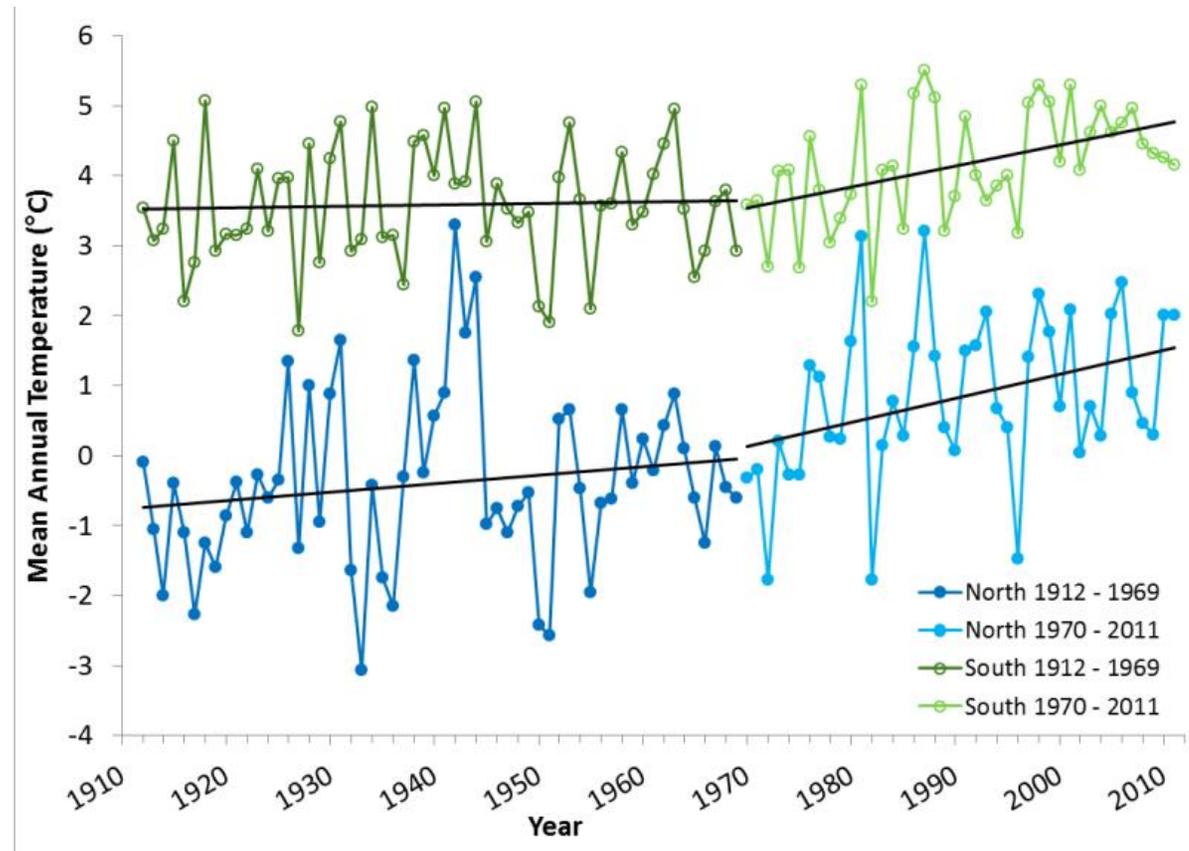
The northern hemisphere warms faster than the global average because it has more land and less ocean than the southern hemisphere (water warms slowly). So in Alberta....

# Global Warming – Alberta Observed Impacts

Over the past 100 years mean temperature has increased by 1.4° C with most of the increase occurring since 1970.

Between 1912 and 2011, the average annual temperature increased by 1.1°C (0.1 per decade) in the southern half of the province and double that (2.3°C or 0.2 per decade) in the north.

Since 1970 the pace of warming has intensified increasing at a rate of 0.3°C per decade in both the north and the south.



**Figure 1.** Mean annual temperature averaged over five northern Alberta weather stations (Beaverlodge, Fort Chipewyan, Fort McMurray, Fort Vermilion and Peace River) and five southern Alberta weather stations (Calgary, Camrose, Lacombe, Olds and Pincher Creek) from 1912 to 2011. Data from Environment Canada Homogenized Surface Air Temperature Data at <http://ec.gc.ca/dccha-ahccd/>

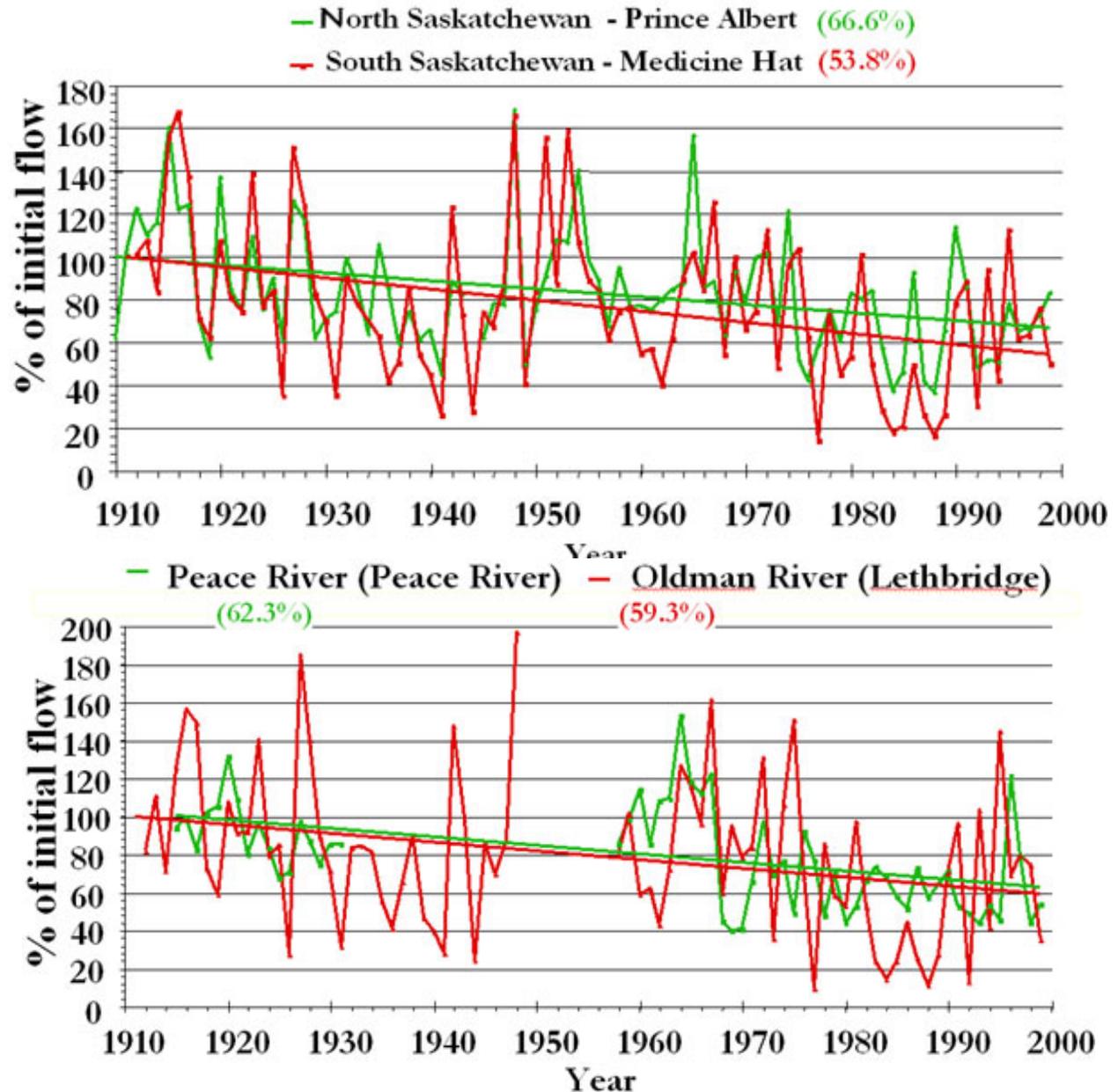
# Global Warming – Alberta Observed Impacts

## Summer Flows

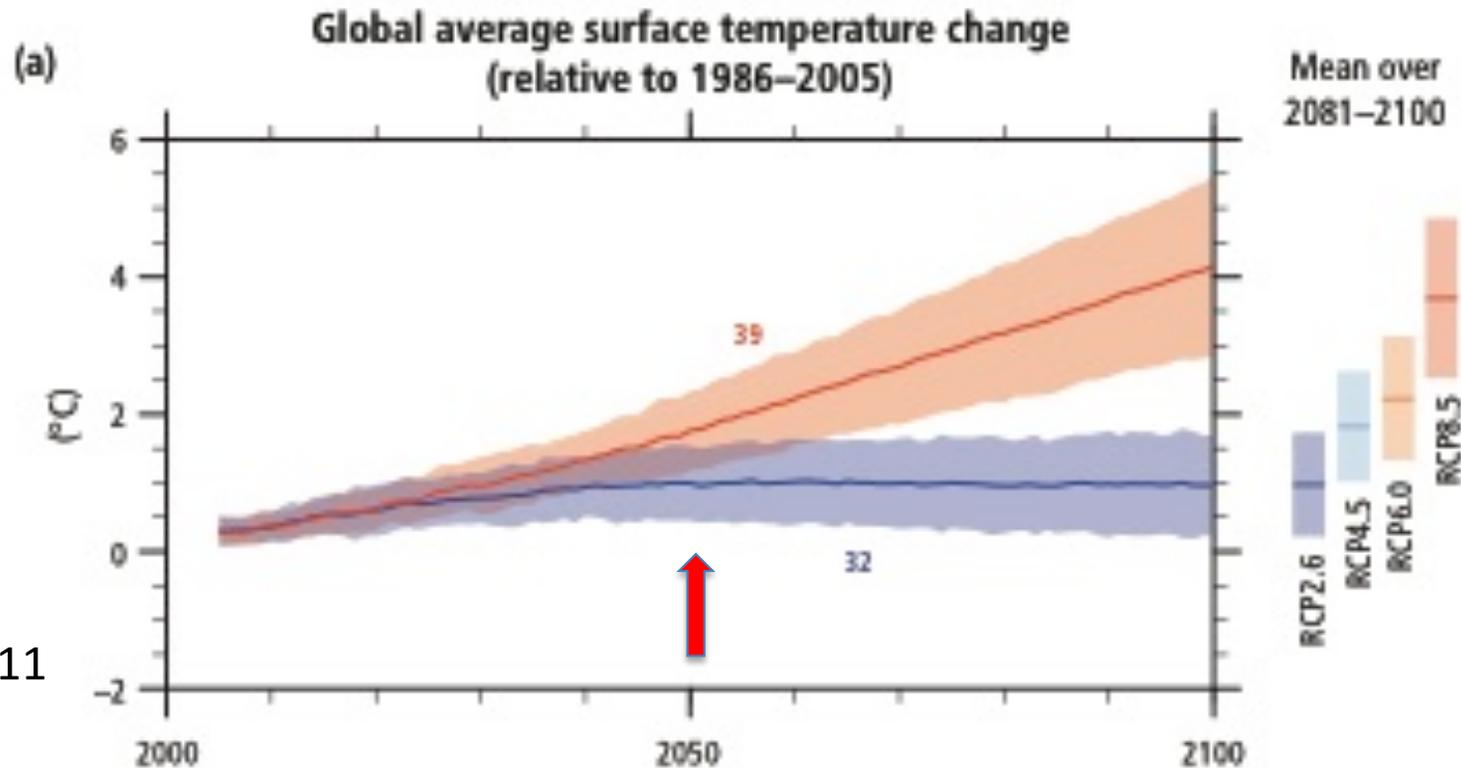
The summer flow reduction further downstream in the South Saskatchewan river is even more severe.

In Saskatoon, the flow has dropped to 20% of that at the beginning of the 20th century.

University of Alberta,  
Environmental Research  
and Studies Centre page  
4 of 8 : Online at  
<https://sites.ualberta.ca/~ersc/water/climate/impacts4.htm>



# Global Warming – Global Impacts



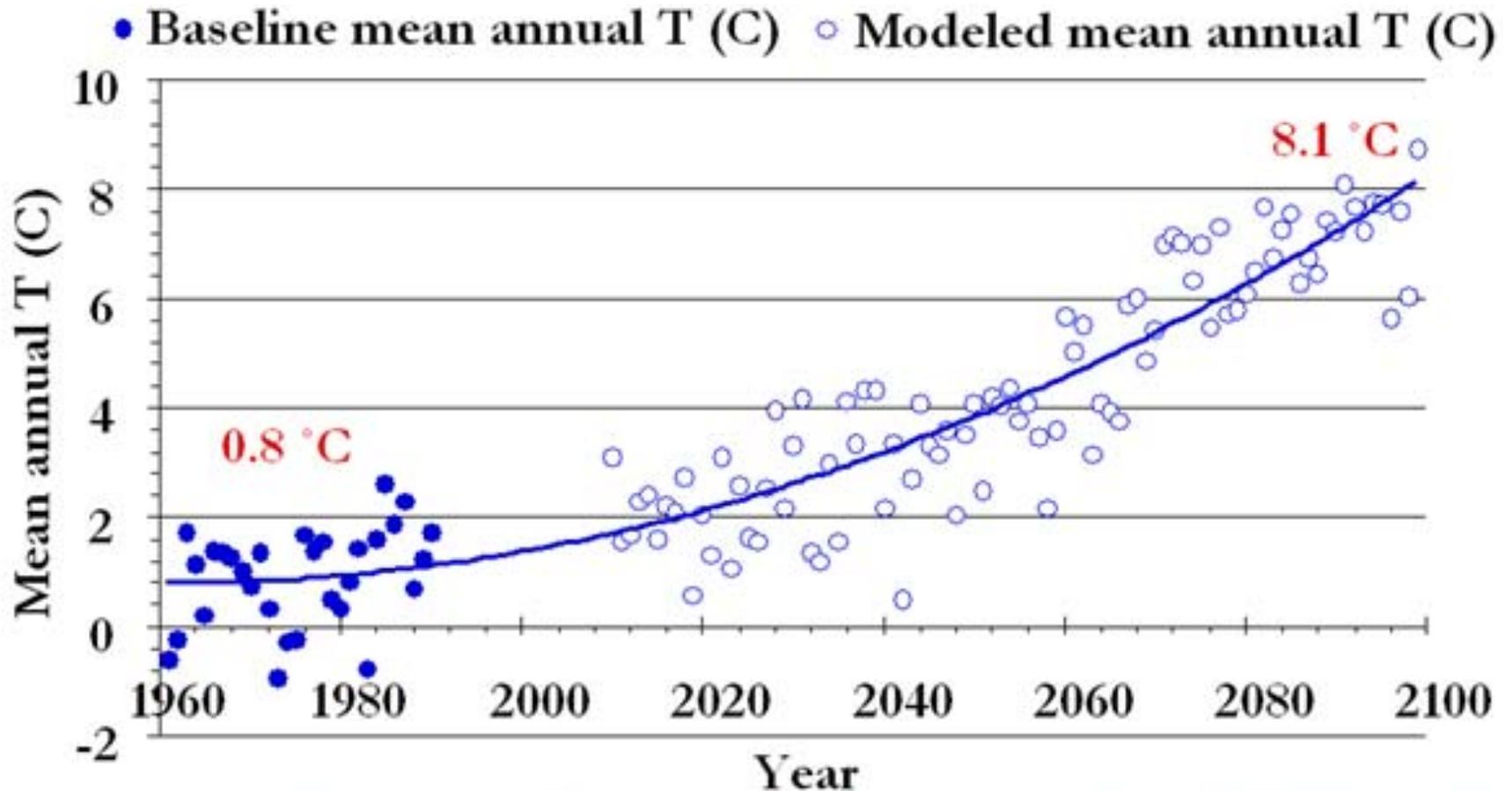
IPCC, 2014, at 11

Representative Concentration Pathways (RCPs), describe four different pathways of GHG emissions and atmospheric concentrations, air pollutant emissions and land use, including:

- a stringent mitigation scenario (RCP2.6), that aims to keep global warming likely below 2°C above pre-industrial temperatures. (Paris Agreement)
- two intermediate scenarios (RCP4.5 and RCP6.0); and
- one scenario with very high GHG emissions (RCP8.5).

Scenarios without additional efforts to constrain emissions ('baseline scenarios') lead to pathways ranging between RCP6.0 and RCP8.5 .

# Global Warming – Alberta Impacts



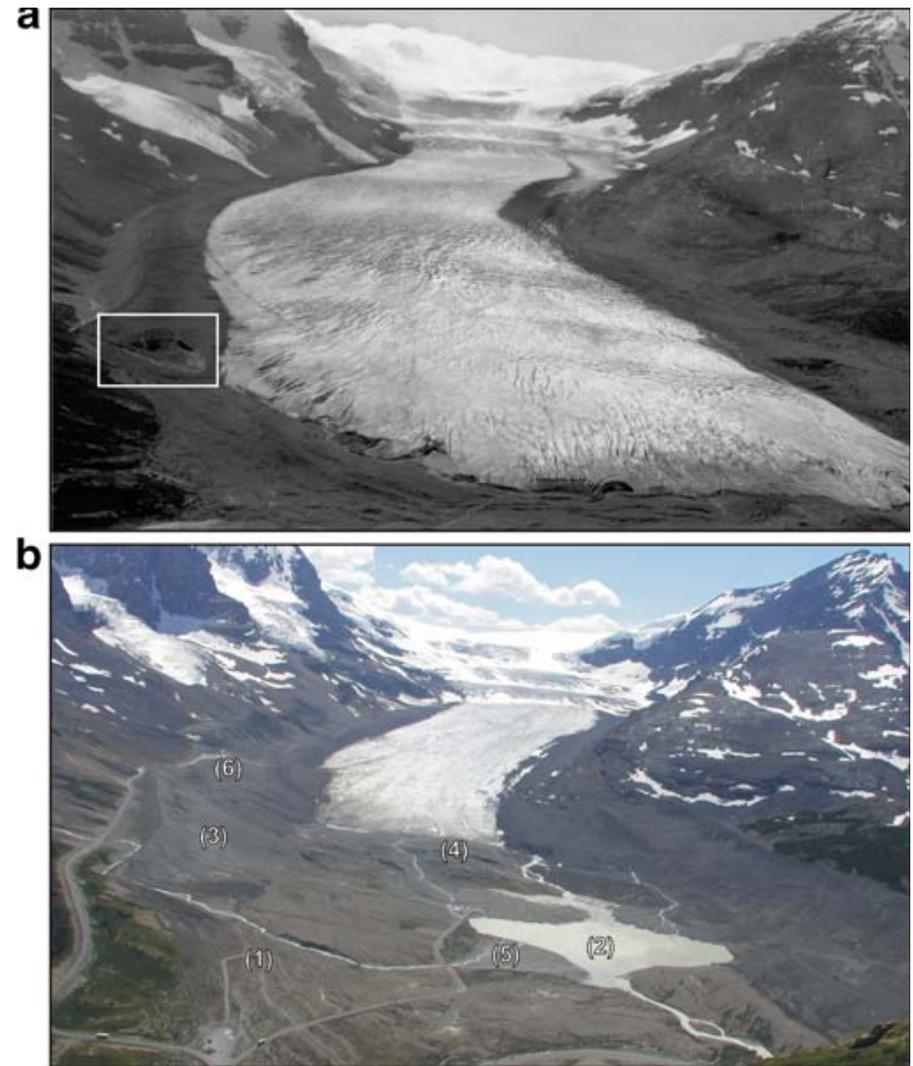
Modeled mean annual temperature for east-central Alberta (2010-2099)

A doubling in CO<sub>2</sub> concentrations is predicted to cause a 6 to 8°C warming throughout most of Alberta by 2100. This will cause a decrease in soil moisture, predicted to be between 30-40% for eastern and southern Alberta, and 20-30% in western Alberta by 2100.

## Glacier Retreat

One of the most visible impacts of global warming is the retreat of glaciers. A good example is the Athabasca Glacier in the Columbia Icefield between Jasper and Banff which is losing ~16,000,000 cubic metres of ice each year.

- glaciers moderate river flows, retaining winter snow and feeding meltwater into rivers in the summer
- the loss of glaciers will lead to increased springtime flows and lower summer flows



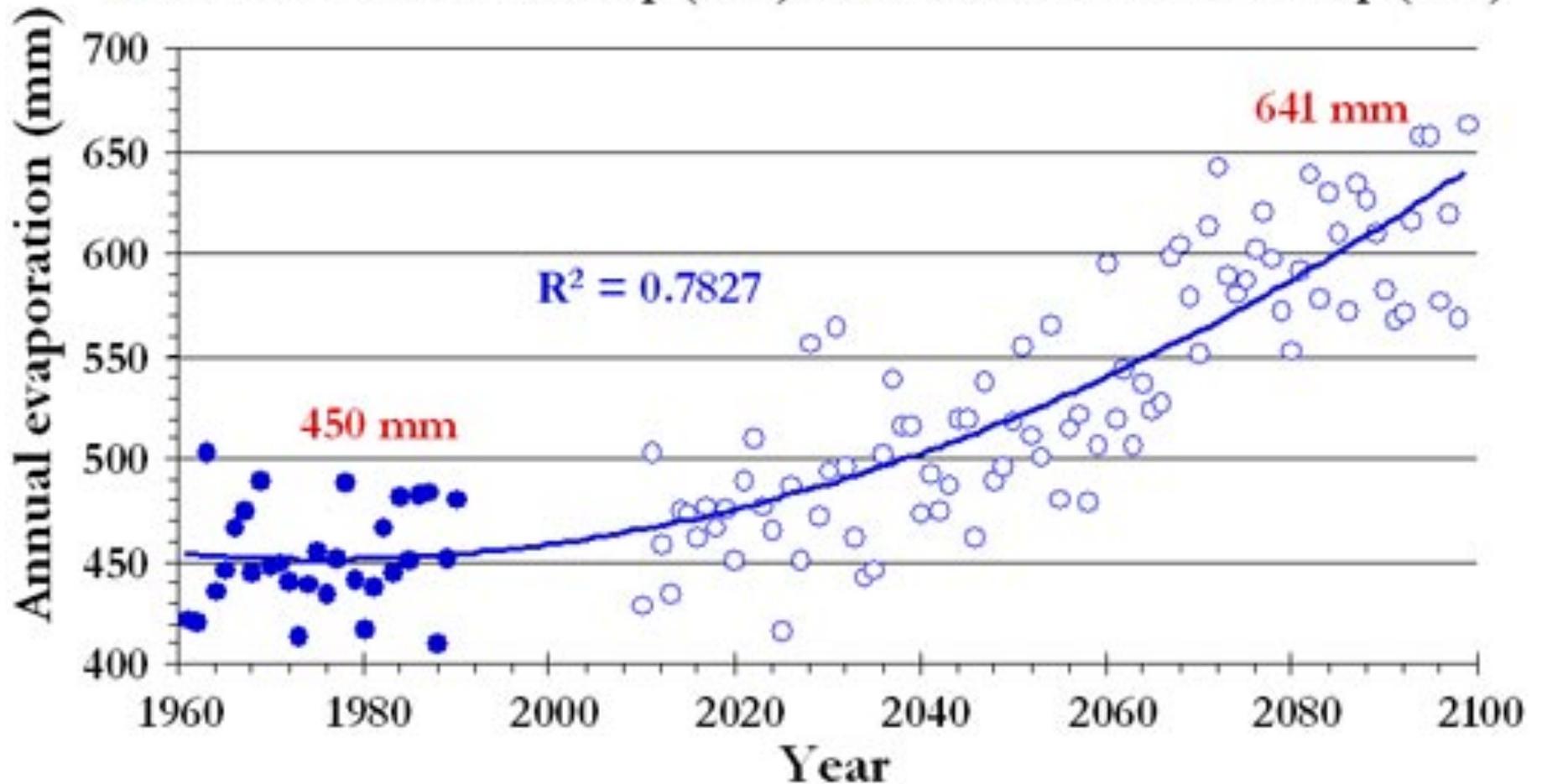
Top: 1917 Bottom: 2006  
Hugenholtz et. al (2008)

# Global Warming – Alberta Impacts

## Evaporation

Increased temperatures lead to increased evaporation.

● Baseline total annual evap (mm) ○ Modeled total annual evap (mm)



Modeled evaporation for east-central Alberta from 1960 to 2099

1. Empirical trend projection (ETP)– extrapolation based on observed trends
2. Climate (GCM) – using regional models – confirmed by observed trends

## Representational Studies:

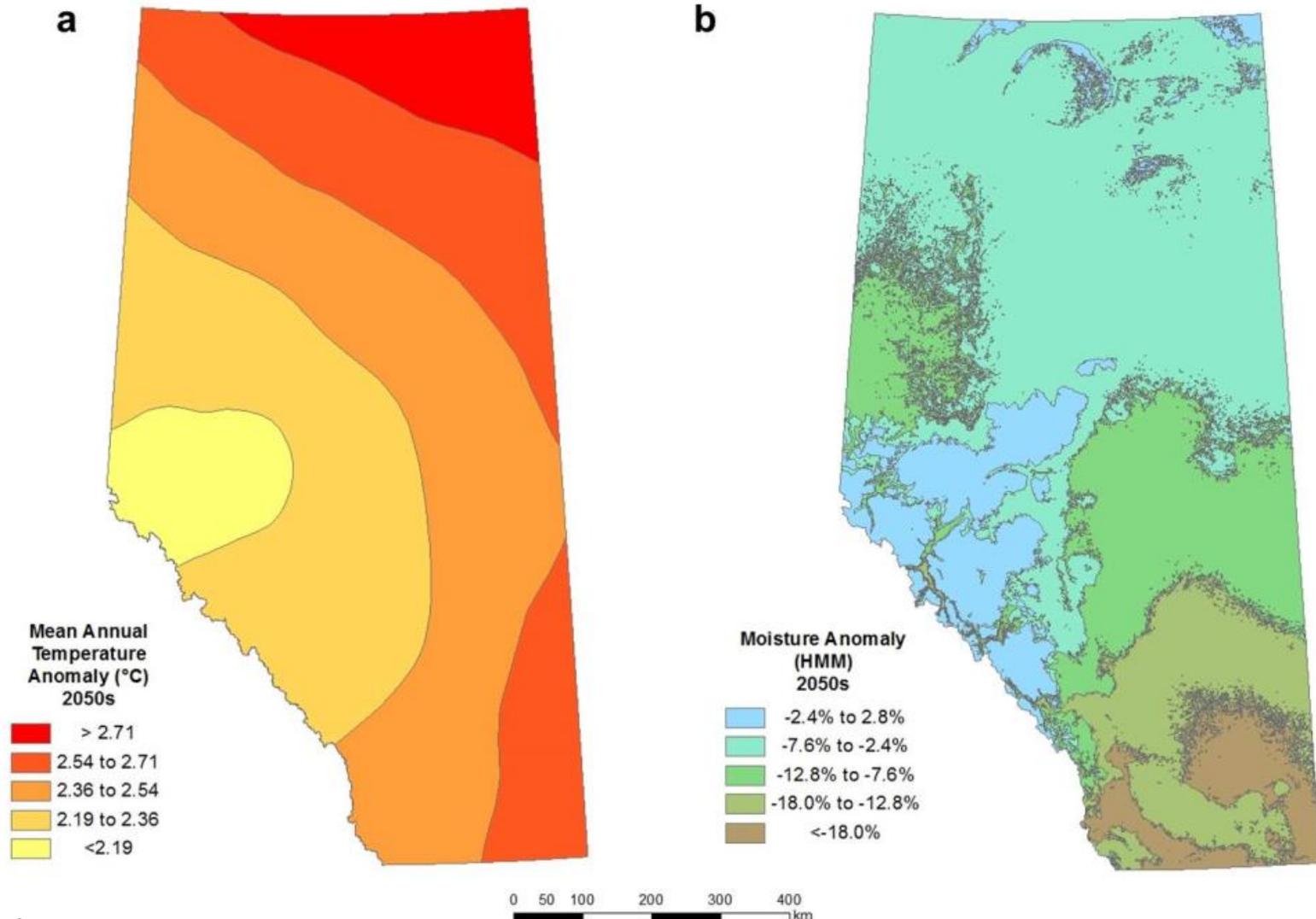
- increase in winter and early spring flows, declines in summer (about 15%) and annual flows (about 5%) – Oldman River (South Saskatchewan) (Sheperd et. al., 2010) (ETP+GCM)
- Increases in both high and low flow magnitudes and frequencies, large increases to winter and spring streamflow are predicted for all climate scenarios. Spring runoff and peak streamflow occur up to 4 weeks earlier than in the 1961–1990 baseline – Cline River (North Saskatchewan) (Kienzlea et. al., 2012) (GCM)
- In the 2050s and 2080s, southern Alberta will be expected to experience more frequent and severe intensive storm events in the May, June, July and August season that could potentially increase the risk of future flooding in this region. (Gizaw et. al., 2016) (GCM)

# Global Warming – Alberta Impacts

Remember the arrow?



Alberta in 2050



## 2050 Impacts – “Baked In”

- **Infrastructure** – higher spring flows lead to flooding – lower summer flows requires changing irrigation facilities
- **Environment** – flow variability affects riverine ecosystems – most threatened ecosystem in Alberta – warmer waters threaten fish and marine life – biome movement
- **Water Competition** – lower flows in summer and fall – less “useable water” – increased water competition + population pressure – South Saskatchewan already over subscribed
- **Drought** – evaporation – lower recharge rate of rivers – desertification

# Changing Alberta's Water Allocation

- Alberta urgently needs to change its water legislation and policies to a more flexible and adaptable regime.
- These changes can benefit from Indigenous perspective and need to incorporate Indigenous rights to water for the benefit of all Albertans.

One proposal for a revision is in:

Arlene Kwasniak, *Climate Change and Water: Law and Policy Options for Alberta* (Calgary: Canadian Institute of Resources Law, 2017). Online: <https://www.cirl.ca/files/cirl/water-and-climate-change-occasional-paper-57.pdf>



Questions?

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- Douglas Sanders, "The Queen's Promise" at 101-126
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