

ISSUES IN THE MAJOR RIVERS IN ALBERTA

Each of Alberta's major rivers and river basins are experiencing their own unique set of stresses and strains. While there can be some overlapping concerns, the challenges of one river system are not identical to those of others. A quick overview of some of the key issues affecting each of Alberta's major rivers:

This backgrounder is part of "From H₂O: Turning Alberta's Water Headache to Opportunity," a forthcoming research paper by Casey Vander Ploeg identifying Alberta's water challenges and opening discussion on possible solutions.

Canada West Foundation is the only think tank dedicated to being the objective, nonpartisan voice for issues of vital concern to Western Canadians.

Visit us on-line at www.cwf.ca.

Hay River Basin: The Hay is virtually untouched, with all allocations comprising only 0.1% of average annual flows. There is limited demand for any domestic use. Petroleum allocations comprise three-quarters of the few allocations that exist. There are very few pressing issues on this river basin.

Peace River Basin: The Peace also has very few allocations relative to its sizeable flow. Total allocations comprise less than 0.3% of average annual flow. The single largest use is for industrial activity, which comprises about 37% of all allocations, and water management and environmental allocations, which comprise 38%. There are two large kraft pulp and paper mills on the Peace, including the Weyerhaeuser plant (1973) and Daishowa (1990). The Peace enters Alberta from British Columbia, which heavily manages the flow as the result of two hydro dams. BC Hydro is contemplating a third. A new hydro dam in Alberta has also been approved just south of Fairview, AB. The Peace drew significant attention in 2008 when Bruce Power made application with the Canadian Nuclear Safety Commission for a nuclear power plant near the town of Peace River.

Athabasca River Basin: The Athabasca is Alberta's only river that has no dams. The Athabasca supports a great portion of Alberta's forestry industry, including five pulp and paper mills. The two kraft mills include Weldwood (1957) and Al-Pac (1993), and the three CTMP mills include Millar Western (1988), ANC (1990), and Slave Lake Pulp (1991). The Athabasca provides all the water needs for the Athabasca oil sands deposits. Specific concerns include the potential for increased water withdrawals to feed oil sands expansion, water withdrawals during low flow periods (winter flows in the Athabasca can be only 10% of average annual flows), as well as increased nutrient loading from forestry and pulp operations.

Head Office:
 900 – 1202 Centre Street SE
 Calgary, AB Canada T2G 5A5
 ph: 403-264-9535
 fax: 403-269-4776
 toll-free: 1-888-825-5293
 email: cwf@cwf.ca
 website: www.cwf.ca

British Columbia Office:
 810 – 1050 West Pender St.
 Vancouver, BC V6E 3S7
 ph: 604-646-4625
 fax: 604-684-7957
 email: kunin@cwf.ca

Saskatchewan Office:
 KW Nasser Centre
 256 – 3 Avenue South
 Saskatoon, SK S7K 1L9
 ph: 306-966-1251
 fax: 306-966-8812
 email: vicq@cwf.ca

Manitoba Office:
 900 – One Lombard Place
 Winnipeg, MB R3B 0X3
 Phone: 204-947-3958
 Fax: 204-942-3563
 email: carson@cwf.ca

Head Office:

900 – 1202 Centre Street SE
 Calgary, AB Canada T2G 5A5
 ph: 403-264-9535
 fax: 403-269-4776
 toll-free: 1-888-825-5293
 email: cwf@cwf.ca
 website: www.cwf.ca

British Columbia Office:

810 – 1050 West Pender St.
 Vancouver, BC V6E 3S7
 ph: 604-646-4625
 fax: 604-684-7957
 email: kunin@cwf.ca

Saskatchewan Office:

KW Nasser Centre
 256 – 3 Avenue South
 Saskatoon, SK S7K 1L9
 ph: 306-966-1251
 fax: 306-966-8812
 email: vicq@cwf.ca

Manitoba Office:

900 – One Lombard Place
 Winnipeg, MB R3B 0X3
 Phone: 204-947-3958
 Fax: 204-942-3563
 email: carson@cwf.ca

Beaver River Basin: The Beaver river basin is the smallest basin in Alberta, and is also home to the Cold Lake oil sands deposit. About 45% of all allocations are for petroleum production. Concerns in the Beaver have centered around the reliability of domestic water supplies, the increased use of saline groundwater, and the effects of in-situ production in the Cold Lake oil sands deposits, which currently provide 10% to 15% of all Canadian oil production.

North Saskatchewan River Basin: The North Saskatchewan supports the industrial heartland of Alberta, including the great majority of the province's thermo-electrical generation. The basin is home to two large dams including the Big Horn Dam (creating Lake Abraham) and the Brazeau Dam (creating the Brazeau Reservoir). The biggest concerns center around huge withdrawals for cooling in thermal power plants and the effects of return flows on downstream water. Studies show water quality upstream from Edmonton at 98 out of 100, but quality downstream falling to 74 out of 100.

South Saskatchewan River Basin: The South Saskatchewan River Basin is the most concentrated and fastest growing region in the province and contains Alberta's most productive soils and climate. At the same time, the Bow, Oldman, and South Saskatchewan rivers have been closed to new surface water allocations since 2006. The Bow is the most densely populated sub-basin, and the most actively managed. There are 11 hydro facilities on the Bow and numerous dams and reservoirs. Concerns on the Bow include water shortages, elevated nutrient and pesticides in downstream reaches and ongoing development in the sub-basin's headwaters. The Oldman is also heavily managed, home to one of Alberta's largest dams, and is used heavily for agriculture, which holds almost 90% of all allocations on the river. Concerns include nutrient loading from crop cultivation as well as intense livestock production. There is also growing pressure on groundwater resources. The Bow and Oldman converge to form the South Saskatchewan River, which is used less for agriculture (30% of all allocations) and more for municipal purposes (60% of all allocations). A key issue for the South Saskatchewan is water quality impacts from water use on tributaries upstream. The Red Deer River is the least used river in the SSRB. Concerns here include the need to reserve capacity to possibly meet apportionment requirements in the future (this has rarely happened to date, however) and pressure to supply additional water to regions both south and the north.

Head Office:

900 – 1202 Centre Street SE
 Calgary, AB Canada T2G 5A5
 ph: 403-264-9535
 fax: 403-269-4776
 toll-free: 1-888-825-5293
 email: cwf@cwf.ca
 website: www.cwf.ca

British Columbia Office:

810 – 1050 West Pender St.
 Vancouver, BC V6E 3S7
 ph: 604-646-4625
 fax: 604-684-7957
 email: kunin@cwf.ca

Saskatchewan Office:

KW Nasser Centre
 256 – 3 Avenue South
 Saskatoon, SK S7K 1L9
 ph: 306-966-1251
 fax: 306-966-8812
 email: vicq@cwf.ca

Manitoba Office:

900 – One Lombard Place
 Winnipeg, MB R3B 0X3
 Phone: 204-947-3958
 Fax: 204-942-3563
 email: carson@cwf.ca

Milk River Basin: The Milk is the smallest river in Alberta, constituting only 0.7% of total provincial average annual flow. Across the Milk, 88% of all allocations are for agriculture. Farms in the Milk River Basin total 2.7 million acres, covering almost 93% of the total area. The Milk shares a number of similar concerns with the South Saskatchewan River Basin where agriculture is also heavily concentrated. There are concerns over water shortages as no new surface allocations have been issued since 2000. Transboundary issues have also been a concern. In 2004, Montana approached the *International Joint Commission (IJC)* for a greater share of the Milk's flow. ■

Sources:

Manning Centre for Building Democracy. 2008. *Market Mechanisms for Watershed Management and Conservation*.
 Water Matters Society of Alberta. 2010. *Alberta's Watersheds*.
 Water Matters Society of Alberta. 2009. *Hydroelectric Dam Project Approved on Peace River*.
 BC Hydro. 2007. *The Peace: Hydroelectric History*.
 BC Hydro. 2010. *What is Site C?*
 Canadian Broadcasting Corporation (CBC). 2008. *Alberta Nuclear Power Project Discussed at Peace River Meetings*.
 Canadian Broadcasting Corporation (CBC) News. *Blueprint H2O Alberta*.