Battle River Watershed

wa•ter•shed the area of land that catches precipitation and drains into a larger body of water such as a marsh, stream, river or lake. [syn: *basin*]

Vol 1, Issue 6, August 2005: Future Water Needs—Supply & Demand Management

Visit our website!
www.battleriverwatershed.ca

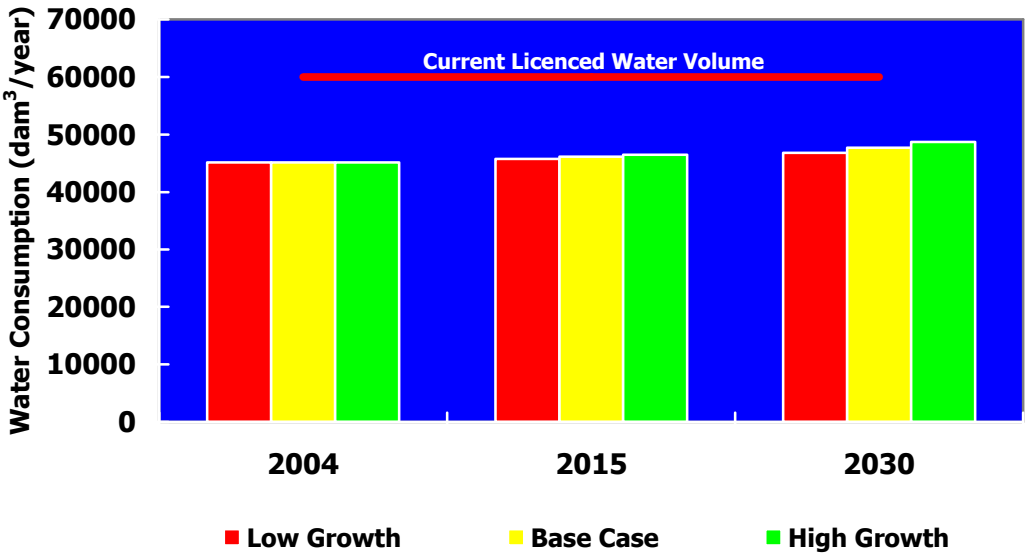
Events

Sep 14th (Wed)
BRWAG Forum VII: Dams, Weirs, Recreation & Biodiversity
9:30am-12:30pm
Community Hall, Forestburg
Contact: Rhonda King AENV (403) 340-7195

July-September
Water Quality Sampling
An open invitation to the public to see water quality sampling in action on the Battle River.
Contact: Chris Teichreb AENV (403) 341-8613

Did You Know… *fresh water represents less than ½ of 1% of the total water on the earth's surface. The rest is either seawater or locked up in icecaps or soil. Worldwide the consumption of water is doubling every 20 years –more than twice the rate of increase in population.*

Future Water Demand



Surface water demands in the Battle watershed are expected to increase by about 5.6% over the next 25 years, according to a recent water use report by Watrecon Consulting. Most of the increased demand will be for stock watering, primarily in the middle and eastern portions of the watershed.

Growing municipalities, particularly in the watershed's west end, will also put increased demands on surface water supplies. While most municipalities should be able to accommodate increased water use within the scope of their existing water licences, some of the faster growing communities, including Camrose and Wetaskiwin, are projected to exceed their water licences within 20 to 30 years.

While water use in the oil and gas industry is on the decline, other industrial uses of water –such as manufacturing, agricultural processing, and gravel production –are expected to climb as regional economies diversify.

The amount of surface water currently licenced for use in the Battle River Watershed is 60,000 dam^3/year. However, current surface water consumption (actual use) is only about 45,000 dam^3/year. With a 5.6% increase over 25 years, water use will rise to 47,500 dam^3/year. This increase can be largely met within existing licenced allocations, using water licence transfers as a way of redistributing water to new industries (*see article on Water Licence Transfers on page 2).*

Type of Use	Predicted Annual Growth
Municipal Use	0.80%
Stockwatering	1.20%
Irrigation	0.00%
Thermal power	0.00%
Oilfield Injection	-2.50%
Other Industrial	1.60%
Habitat Enhancement	0.00%
Recreation	0.00%
Water Management	0.00%
25 Year Increase	**5.60%**

Did You Know… *some of Alberta's major municipalities supply drinking water to smaller communities around them. Edmonton has the largest regional supply system, providing drinking water to rural communities over 100km away.*

Water Forums

The Battle River Watershed Advisory Group (BRWAG) is attending seven water management forums held monthly until Sep 2005.

The presentations given at the water management forums are posted on our website and summarized in our monthly newsletters.

Although the Forum Series was designed for BRWAG members there *may* be space for other observers.

Contact Rhonda King at: (403) 340-7195 or rhonda.king@gov.ab.ca

Forum Schedule

- **Watersheds & Climate Variability *(Mar 19, Killam)***
- **Aquatic Environment: River Health and Fisheries *(Apr 13, Ponoka)***
- **Municipalities, Public Health & Industry *(May 11, Castor)***
- **Water Licensing; Water Supply & Demand *(Jun 8, Hardisty)***
- **Agriculture: Water Needs and Impacts*(Jul 13, Wetaskiwin)***
- **Economics & Alternative Water Supply Options *(Aug 10, Wainwright)***
- **Dams, Weirs, Recreation & Biodiversity *(Sep 14, Forestburg)***

Water Licence Transfers: helping economic growth in water-short basins

In areas experiencing increasing water demands and a limited water supply, new projects have had no option other than applying for new water licences with junior priority.

Water rights in Alberta are prioritized using the *First in Time, First in Right* principle, meaning those with the oldest water licences have seniority and therefore priority access to water during shortages. Junior licence holders face the risk of not being able to withdraw water until senior licence holders have satisfied their water needs.

However, with water transfers in effect as part of an approved water management plan for a watershed, existing licence holders can transfer all or part of their licenced water allocation to a new user. Importantly, the *seniority* of the licence is also transferred. In this way, a new enterprise can secure a higher seniority licence and increase the reliability of their access to water.

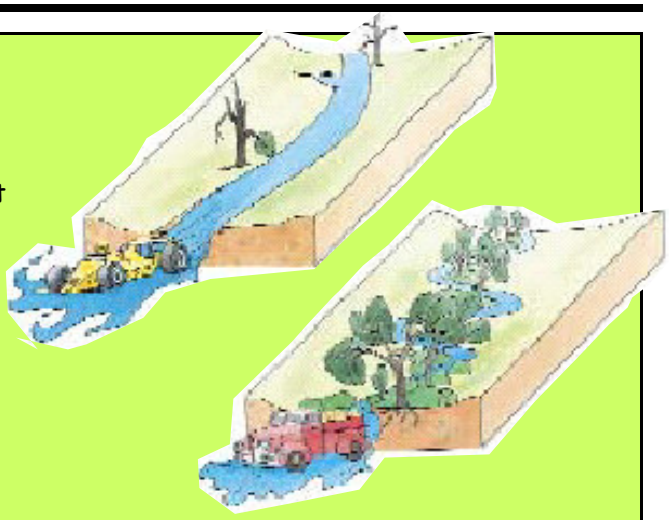
There is good news for the environment too. Up to 10% of the transferred water volume can be held back by the Province to bolster river flows. This can help restore the health of a degraded aquatic ecosystem. Everyone within the watershed benefits.

For a legal water transfer to take place, an application must be made with Alberta Environment. The process is similar to a new water licence application. When Alberta Environment receives a transfer application, all potential impacts are looked at. Although water transfers must occur in the same watershed, the use and timing of the withdrawal can be different.

Take for example a company that has a water licence for oilfield injection. Typically, the amount of water injected declines as an oilfield matures and yields drops. The company finds itself using less than what its licence allocation permits. The company could then transfer part of it's licensed allocation to a new enterprise, like a green house business, wanting to start up in the watershed.

Kids' Stuff

Riparian areas slow down water. A straight stream with not many riparian plants will move quickly - like a race car. This fast moving water will cause erosion (the carving away of soil from streambanks). A healthy stream with many riparian plants will meander (curve and bend) across the land and there will be less erosion.



(Courtesy of Cows & Fish. Illustrations originally produced for Bow Habitat Station by Liz Saunders)

Which of these two streams will have less erosion?

A or B

Answer: A

Learn more about riparian areas: www.cowsandfish.org/pdfs/cfcdk_activity_sheet.pdf

Forum Notes: Future Water Needs—Supply & Demand Management Options

Future Water Demand

- The amount of surface water licenced for use in the Battle River Watershed is 60,000 dam^3. Current surface water consumption (actual use) in the Battle Watershed is about 45,000 dam^3 per year. Over the next 25 years, water consumption is expected to rise to about 47,500 dam^3 per year, a 5.6% increase. This increase can be largely met within existing licenced allocations.
- The largest increases in surface water demand in the watershed are expected to be for: stock watering, municipal use and industrial use, all of which are expected to increase by 0.5 to 2% annually. Water demand is expected to remain the same or decrease for irrigation, oilfield injection, thermal power, and habitat enhancement.
- Most municipalities will be able to accommodate increased water demands within their existing water licences. However some fast-growing communities in the upper basin (Camrose, Wetaskiwin, Hay Lakes) will likely exceed their current water licenses within the next 25 years, especially to meet demand during peak water use periods.

Demand-side Management - Conservation

- One way of managing increased demands on water is to reduce water demand through water conservation. This can be done by encouraging people to use less water, technological efficiencies in how we use and distribute water, and improving the health of the river (e.g. healthy riparian areas reduce evaporation).
- Conservation options for **municipalities** include: education and awareness, universal water metering, appliance retro-fits (low flow toilets and shower heads), and water system audits (leak detection). Options for **agriculture** include: enhancing riparian areas, pumping stock water to troughs, fencing dug outs, changing crop mixes, and improving irrigation equipment technology and operation. Conservation options for **industry** need additional research, but could include water conservation technologies and practices, and use of saline instead of fresh water.
- Water conservation could result in a maximum overall water savings of 4%. Up to 70% of the projected 5.6% increase in water demand could potentially be met through water conservation.

Supply-side Management (within the Basin)

- Another way of managing increased water demand is increasing or better distributing water supply *within* the watershed. This can be done through storage (dams and weirs), regional supply lines, and water licence transfers.
- Additional large-scale **water storage** projects (e. g. dams) have limited feasibility for the Battle River. Small, off-stream storage projects, however, can increase the reliability of water supply for licence holders. Licensees can ensure that they have sufficient water 98% of the time by having 2 years worth of off-stream storage.
- **Regional water supply systems** consist of networks of pipelines that distribute potable water throughout a region. The infrastructure for these systems has a small environmental 'footprint'. Regional systems can provide a safe, secure supply of water for individuals, businesses, and industry. A recent *Drinking Water Facility Assessment* has determined that regional supply systems are the best long-term option for providing a sustainable drinking water supply in the area.
- **Water licence allocation transfers** allow all or part of an existing water allocation (in good standing) to be transferred from an existing licence to another person or corporation in a new location within the *same* watershed. They can be permanent or for a fixed period of time. The priority of the licence is also transferred. Up to 10% of the transferred licence can be held back by AENV to help protect the aquatic environment or meet a Water Conservation Objective. The impacts of a proposed transfer on the environment, public and other licensees are considered prior to approval. Transfers and holdbacks are only allowed as part of an approved water management plan.
- The benefits of water allocation transfers is that they will allow already allocated water to move to new economic demands, help improve the aquatic environment through water conservation holdbacks, and create monetary incentive for water efficiency. The risk of licence transfers is that they may initially result in an increase in actual water use in the watershed, as the gap between actual and licenced water use narrows.
- Water licence transfers can help meet future water demand within existing licenced water allocations. They are particularly relevant if a cap is put on new licences, because they provide opportunities for new developments to access water, especially more secure senior licences.

Supply-side Management (interbasin)

- Increased demands on water can also be met by looking ways of augmenting water supply from outside of the watershed. This can be done through interbasin water transfers (pipelines, canals from rivers in other watersheds).
- Interbasin transfers are not supported by Alberta's *Water for Life Strategy*, which has adopted the principle that Alberta's water resources must be managed within the capacity of individual watersheds. The *Water Act* also prohibits the transfer of water between *major* river basins in the province unless authorized by a special Act of the Legislature. Because the Water Act considers the Battle River watershed a part of the North Saskatchewan basin, a transfer between these two basins would *not* require an Act of Legislature (whereas a transfer from the Red Deer basin would).
- A number of water diversion options from the North Saskatchewan and Red Deer Rivers to the Battle watershed have been studied. The benefits and beneficiaries from these proposed diversions is unknown because the current status of water shortages and project costs and benefits need to be better assessed.
- Interbasin water transfers can have large and complex impacts (on the environment, infrastructure and water users) in both the receiving and donating rivers. In the case of a transfer from the North Saskatchewan, potential impacts on the Battle River include: increased erosion; changes in the composition and abundance of fish and other aquatic species; and introduction of insects or diseases harmful to fish, animals or vegetation. Potential impacts on the North Saskatchewan River include: channel infilling, less water for aquatic life and humans, and degradation of fish habitat (particularly sturgeon).
- Because of potential environmental impacts, a proposal to transfer of raw water to the Battle from the North Saskatchewan or Red Deer Rivers would likely trigger both Federal and Provincial environmental impact assessments and reviews.

Additional Resources

www3.gov.ab.ca/env/water/legislation/FactSheets/Transferring_Allocations.pdf

Your Local Agriculture & Watershed Specialists

Beaver County
Aimee Cook
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aesa@beaver.ab.ca

Camrose & Stettler Counties
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Farm Extension Coordinator
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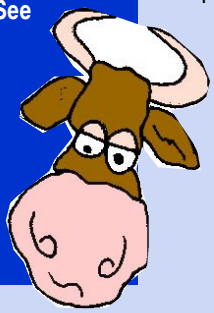
paripcf@parklandconservationfarm.com

Thinking about water conservation at home? Check out some tips on: www3.gov.ab.ca/env/water/conservation/residential.cfm

Interested in sustainable soil & water management on the farm? See how on: www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/agdex3918?opendocument#soilwater



Take Action!

Ready to help the Battle Watershed? Want to find out how? Contact these groups:

Local Agriculture & Watershed Extension Specialists
Sustainable farming, land management & water use
See contacts opposite

Iron Creek Watershed Improvement Society
Promoting sustainable land and water use in the Iron Creek Watershed
(780) 384-4118

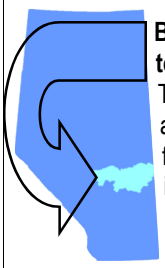
Alberta Fish & Game Association's Parkland Stewardship Program & Farm Waterwatch
Farm conservation planning & surface water quality monitoring
(780) 437-2342

Cows and Fish
Partnering with communities on riparian management
(403) 340-7607

Ducks Unlimited Canada
Restoring & managing wetlands for habitat & wildlife
(780) 672-6786, ext 5

Alberta Conservation Association
Conserving & enhancing wildlife, fisheries, & habitat
1-877-969-9091

Battle River Water Management Plan



Battle River Watershed
The Battle River is a modest prairie-fed river, and an important water supply for communities, agriculture and industry throughout the river's watershed.

With increasing pressure on the Battle River's water supply, demand for water will soon exceed the river's natural supply, creating social, ecological and economic issues.

The Battle River Watershed Management Planning Process

In an effort to resolve water supply and demand issues, Alberta Environment has recently started working with local stakeholders on a water management plan for the Battle R.

These stakeholders include members from local rural and urban municipalities, agriculture, industry, academia, recreation and conservation.

They have formed the Battle River Watershed Advisory Group (BRWAG).

Learn more, have your say

In Spring 2006, watershed residents will be invited to comment on draft water management options for the Battle River. In the meantime, read our newsletters or go to our website to learn more.

Did You Know… *consumers only pay for the costs of treating the water and getting it to their house—they do not pay for using the water nor do they pay the environmental costs of withdrawing the water. This is also true for agricultural and industrial users.*

Environmental Hotline
1-800-222-6514
24 hour Emergency/Complaint
Alberta Environment

Want more information?
Contact:
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www.battleriverwatershed.ca