

Stream of thought

YOUR CONNECTION TO THE OLDMAN RIVER WATERSHED

April 2006 – March 2007

Oldman Watershed Council

The Oldman Watershed Council (OWC) is a not-for-profit organization that is working in partnership with communities and residents to improve the Oldman River Watershed. The Council consists of members who live or work within the Watershed. These members provide leadership and guidance in watershed planning and management, water quality monitoring, and stewardship promotion.

The Oldman River Watershed, located in southwestern Alberta, extends north to High River, east to Grassy Lake, west to the Crowsnest Pass in the Rocky Mountains, and dips south across the 49th parallel into Glacier International Peace Park in Montana. Unlike many other basins, the Oldman watershed, located in a semi-arid ecosystem, is strongly dependent on its snow-fed headwaters for its annual flow. The main tributaries of the Oldman River are the Livingston, Crowsnest, Little Bow, Castle, Waterton, Belly and St. Mary's Rivers, which in turn are supplied upstream by numerous small streams, springs and wetlands. The Oldman River joins the Bow River to create the South Saskatchewan River upstream from Medicine Hat.

Our watershed is home to 161,400 rural and urban residents. There are about 70 small towns, villages and hamlets, as well as the City of Lethbridge. The watershed encompasses 28,000 km² and has an average population density of just less than 6 people per km².

Land-use activities in the headwaters of the Oldman basin can have substantial impacts on the health of the entire watershed. The western portion of the watershed consists of fescue grasslands while the central and eastern portions consist of dryer mixed grass areas and some native prairie vegetation. This same region is characterized by concentrated urban and industrial development, dry land farming and intensive livestock agriculture. About 33% of the watersheds' land cover is agricultural, 29% is forested and 17% is native vegetation.

The Oldman Watershed Council integrates its activities through knowledge, research, partnerships and education as they relate to water management, water quality, and land-use practices in the following key areas:

1. By providing responsible information and input into watershed management planning activities that reflects the needs of stakeholders in the Oldman Watershed.
2. Increasing awareness and understanding of the Oldman Watershed among residents and stakeholders and encouraging commitment and responsibility to water quality and water use.
3. Refining and expanding knowledge of water-related conditions and processes throughout the Watershed.
4. Promoting sustainable land use practices that protect the Watershed.
5. Reducing contaminants, such as microbes, nutrients and pesticides, that enter surface water and groundwater in the Oldman Watershed.

If you would like to find out more, contact us at:

Oldman Watershed Council

**100, 5401-1st Avenue South
Lethbridge, Alberta T1J 4V6**

**Phone: (403)382-4239 or
(403)381-5801**

Fax: (403)381-5765

Email:

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leda@oldmanbasin.org**

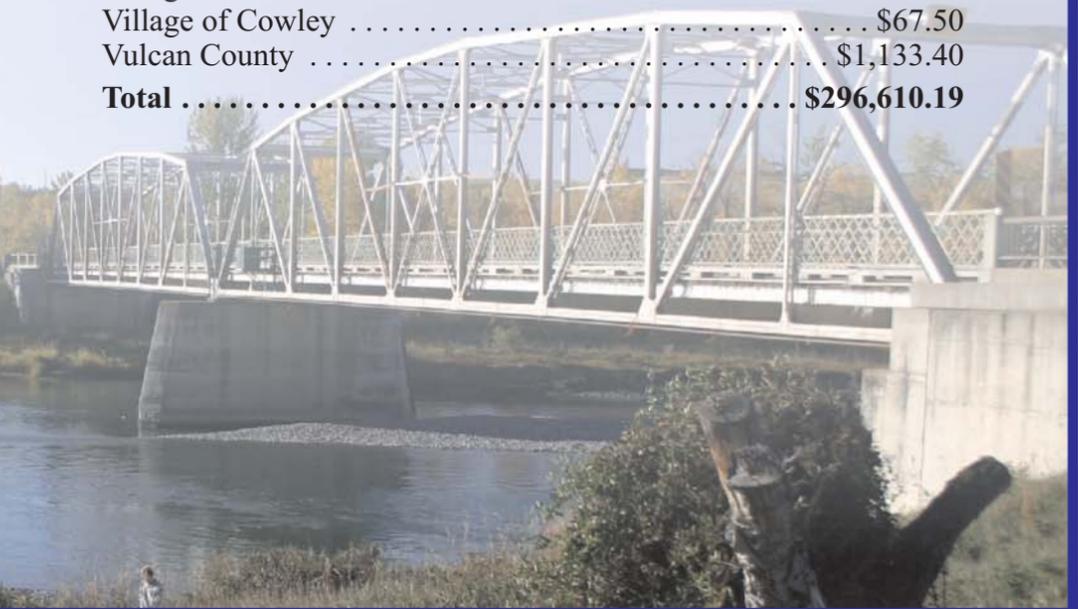
Web: www.oldmanbasin.org

2006/2007 In-kind Contributions

Agriculture and Agri-Food Canada – PFRA	\$4,225.00
Alberta Agriculture and Food	\$61,785.00
Alberta Conservation Association	\$2,800.00
Alberta Environment	\$39,880.00
Alberta Environmental Farm Plan	\$3,150.00
Alberta Ingenuity Centre for Water Research	\$525.00
Alberta Pork Producers	\$875.00
Alberta Sustainable Resource Development	\$4,500.00
Cardston County	\$287.50
Chinook Health	\$6,118.75
City of Lethbridge	\$2,700.00
County of Lethbridge	\$2,450.00
Cows and Fish	\$3,150.00
Ducks Unlimited Canada	\$4,450.00
Fisheries and Oceans Canada	\$6,007.50
Lethbridge College	\$200.00
Lethbridge College/Red Crow Training Project	\$5,370.00
MD of Pincher Creek	\$2,225.00
Individual	\$7,470.00
Partners in Habitat Development	\$105.00
Piikani Public Works	\$437.00
Rogers Sugar	\$315.00
Southern Alberta Group for the Environment	\$8,690.00
St. Mary River Irrigation District	\$1,800.00
Taber Irrigation District	\$2,600.00
University of Lethbridge	\$4,500.00
Total	\$176,615.75

2006/2007 Cash Contributions

Alberta Agriculture and Food	\$84.50
Alberta Environment	\$225,000.00
City of Lethbridge	\$45,975.70
County of Lethbridge	\$6,553.80
District of Ranchland	\$100.00
Leavitt Irrigation District	\$142.89
Lethbridge Northern District	\$3,000.00
Magrath Irrigation District	\$391.00
Municipal District of Pincher Creek	\$1,918.20
Municipal District of Taber	\$1,000.00
Municipal District of Willow Creek	\$1,873.60
St. Mary River Irrigation District	\$4,990.89
Town of Cardston	\$1,042.50
Town of Coaldale	\$1,831.20
Town of Coalhurst	\$447.90
Town of Nanton	\$552.30
Town of Picture Butte	\$3,402.00
Town of Pincher Creek	\$1,099.80
Town of Stavely	\$136.50
Town of Vulcan	\$528.60
Village of Barnwell	\$328.80
Village of Cowley	\$67.50
Vulcan County	\$1,133.40
Total	\$296,610.19



Oldman Watershed Council



Board of Directors

The Oldman Watershed Council Board of Directors is comprised of 13 representatives from various organizations, with 4 members at large. Each Board member serves a 2 year term. The Board for the time period of March 2006 to March 2007 included the following members:

ORGANIZATIONAL REPRESENTATIVES

INDUSTRY

Greg Nikles – was raised on a dryland farm in the Lomond area where water was a very precious commodity. He currently lives in Lethbridge with his wife and 2 children. Greg is presently employed with Rogers Sugar as an Agriculturist since 1995 and prior to that he worked for Agriculture Canada.

MUNICIPALITIES

Barbara Lacey – was born and educated in Britain and qualified as a Medical Practitioner in London, England. She immigrated to Canada in 1968 with her husband and two children and settled in Lethbridge. Barbara worked first as a Family Physician and then as the Medical Officer of Health for the City of Lethbridge. Following her retirement in 1995, she was elected to Lethbridge City Council and is now serving her fourth term.

Brian Hammond – was born in Pincher Creek and raised on the family farm. He was a teacher in Calgary and Pincher Creek until 1998 when he retired. Brian has a small farm and is a rural resident of the MD of Pincher Creek. He was first elected as Councilor for the MD in 1999. He served as Reeve from 2000 - 2004 and is currently serving as Councilor.

HEALTH

Sean Robison – was raised in Taber and he completed a Bachelor of Environmental Science from the University of Lethbridge in 2000. He continued his education at Concordia University College of Alberta in Edmonton with a focus in Environmental Health. Sean received his designation as a Certified Public Health Inspector with the Canadian Institute of Public Health Inspectors in 2002. Recently, Sean accepted a term position with Chinook Health as Public Health Drinking Water Officer. Sean will be spending the next 2 years auditing drinking water systems in the Chinook Health Region.

FEDERAL GOVERNMENT

Shane Petry – has held several different positions in the resource management, land use and biology fields. He has attended both Lethbridge Community College and the University of Lethbridge as well as the University of Northern British Columbia. Shane has worked in numerous places throughout Canada including the northern Yukon and eastern Canada. In 2001, Shane moved his family back to Lethbridge and is currently the senior biologist and manager of the local office of Fisheries and Oceans Canada.

PROVINCIAL GOVERNMENT

Cheryl Dash – Cheryl is currently Team Leader for the Environmental Awareness Team in Environmental Management with Alberta Environment (AENV), Southern Region. She has been involved with the Oldman River Basin Water Quality Initiative since 1996 and helped to transition the Initiative into an official not-for-profit organization - The Oldman Watershed Council. She was a member of the Milk River Watershed Council Canada during its development. She is involved with several projects including the Prairie Conservation Forum, South Saskatchewan River Basin Water Management Plan and Environmental Education Initiatives in southern Alberta. Cheryl has a background in physical geography, biological sciences and early childhood development.

Brent Paterson – is the current Head of the Resource Sciences Branch with Alberta Agriculture and Food in Lethbridge. He coordinates applied research, development, and technology transfer programs related to irrigation development, management of limited water resources, and soil and water quality. He has worked on irrigation and water management projects in a number of countries, including Pakistan, Egypt, India, China, Iran and Ethiopia.

ACADEMIA

Andy Hurly – is an Associate Professor in the Department of Biological Sciences at the University of Lethbridge where he has taught and conducted research since 1991. His research interests involve two areas - animal behaviour and ecosystem ecology. Andy and his wife live on the banks of the Oldman River near Fort Macleod, and thus he is interested in maintaining a healthy and economically viable river ecosystem for himself and his neighbours.

NOT-FOR-PROFIT ORGANIZATIONS

Don Watson – is employed as the Head of Habitat Retention, Alberta, Ducks Unlimited Canada (DUC). Don has worked for over 24 years with non-government and government agencies and has worked as a field biologist for DUC in the Bow River, Cypress Hills, Clear Lake and Milk River Ridge landscapes. Don has volunteered with the Breeding Bird Survey, TD/Canada Trust Friends of Environment advisory board in Lethbridge and is a long standing volunteer for the Ducks Unlimited Lethbridge Chapter.

Cheryl Fujikawa – has had training in medical science, microbiology, zoology and botany. She came to Lethbridge in 1978, and currently is teaching at Lethbridge Community College. She has also worked for the University of Lethbridge, the Provincial Government, the University of Alberta and CUSO. She has been a member of the Southern Alberta Group for the Environment for 13 years.

IRRIGATION SECTOR

Ron Renwick – received his degree in Agricultural Engineering from the University of Saskatchewan in 1972. He started working for the St. Mary River Irrigation District (SMRID) in 1983 as their District Engineer and has been their General Manager since 2002. He has a strong interest in Water Management Issues on the Southern Tributaries and manages to find time to ski in the Waterton backcountry almost every weekend throughout the winter.

AGRICULTURAL PRODUCERS

Bruce Konynenbelt – Bruce and his two sons have a hog grower/finisher operation and also background 4,000 calves a year on the farm at Nobleford where he was born and raised. He has been a director of Alberta Pork Producers for 5 years and one of his roles is chairman of the Sustainable Environment Committee.

FIRST NATIONS

Vacant

MEMBERS AT LARGE

Duane Climenhaga – graduated with a degree in Agricultural Engineering from the University of Saskatchewan in 1966. He has extensive Water Resource and Municipal Government experience having worked as a senior manager in local government and numerous international and domestic Water Resource projects. He lives in Lethbridge and continues to be interested in Water Resource issues.

Keith Francis – was born in 1929 and was raised in the Taber area. He has been farming on irrigated land his entire life. In 1969 he was elected to the Taber Irrigation District (TID) Board of Directors and was elected as Vice-Chairman of the TID board in 1973 and has served as the Chairman of the Board since 1975. He has also served on the Alberta Irrigation Projects Association.

Gerhardt Hartman – was born in 1940, in LaFleche, SK. He graduated from High School in 1957 and received his Bachelor of Science in Agricultural Engineering from the University of Saskatchewan in 1961. He has been involved in soil and water conservation and farm irrigation most of his career. He retired in 1997.

Lorne Fitch – grew up on a mixed farm in west central Alberta. He pursued a career as a fish and wildlife biologist for 35 years, working mostly in Alberta but also in western Canada and with some international experience. His interest in the aims and objectives of the Oldman Watershed Council include being a landowner, with property near the headwaters of the basin and, as a citizen concerned about the future of the watershed. Lorne holds a position with the Cows and Fish program as the Provincial Riparian Specialist, and is also an Adjunct Professor with the University of Lethbridge. Lethbridge is his home base.

Oldman Watershed Council Milestones

1991

- The Province began to review its water management policy and legislation with the intent of updating old legislation to make sure Alberta's water is managed and conserved for today and for the future.

1997

- The Oldman River Basin Water Quality Initiative (Initiative) was formed in response to concerns expressed in the community about protecting water quality in the Oldman River Basin.

1997 – 2001

- Efforts focused on collecting data (water quality and land use), interpreting and analyzing it (exploring land use and water quality relationships at a Basin scale), and pursuing work on beneficial management practices.

1998 – 2002

- The Initiative's Action Plan emphasized the importance of three types of activities to be carried out during that five year period.
 1. Collecting baseline information on water quality and how to improve it;
 2. Classifying land use, and;
 3. Communicating the activities of the Initiative.

1999

- Alberta Environment initiated a Water Management Planning Process that looked at water demand and supply and the aquatic environment throughout the South Saskatchewan River Basin (SSRB).

2001

- Support was expressed for continuing the Initiative for another 5 years at the Stakeholder meeting held with Initiative partners.
- The Initiative was recognized with the Special Emerald Award, presented by the Alberta Emerald Foundation for Environmental Excellence. The award recognized the Initiative's progress in involving a range of stakeholders to address water quality concerns.

2003

- A five year Strategic Overview (2003-2008) was initiated. The emphasis of the initiative during the next 5 years would shift toward understanding Best Management Practices (BMPs) and encouraging practice change. Equal priority was to be given to rural areas and to urban areas across the Basin.
- A mission was created.

Mission: To improve surface water quality in the Oldman River Basin through partnerships and the implementation of sustainable land use and water management practices

- The Council identified the following three goals.

1. To reduce contaminants, such as microbes, nutrients and pesticides, entering surface water and groundwater in the Oldman River Basin.
2. To increase awareness among residents and stakeholders in the Oldman River Basin, and to encourage commitment and responsibility for water quality.
3. To refine and expand knowledge of water-related conditions and processed throughout the Oldman River Basin.

2004

- A waterwise garden project was initiated at Wilson Middle School.
- A survey created by the Urban Team went out to residents. The survey was sent to over 2000 households to determine yard care practices, knowledge of stormwater, and understanding of water quality in the City of Lethbridge.
- The Oldman River Basin Water Quality Initiative merged with the Oldman River Basin Advisory Committee (BAC) to become the Oldman Watershed Council. The OWC will carry on the work of the Initiative and the BAC and also act as the Oldman Watershed Planning and Advisory Council as define by the Alberta Governments Water for Life Strategy. The Council will deal with water quality, effects of land use on the watershed and aquatic ecosystem, water conservation, research and beneficial management practices, water management planning priorities, state of the basin reporting, and surface and groundwater vulnerability.
- A new mission was created.

Mission: The OWC seeks to maintain and improve the Oldman River Watershed through partnerships, knowledge, and the implementation and integration of sustainable water management and land use practices.

2005

- The State of the Watershed team was created to organize the State of the Watershed report. Preparations for the report began.

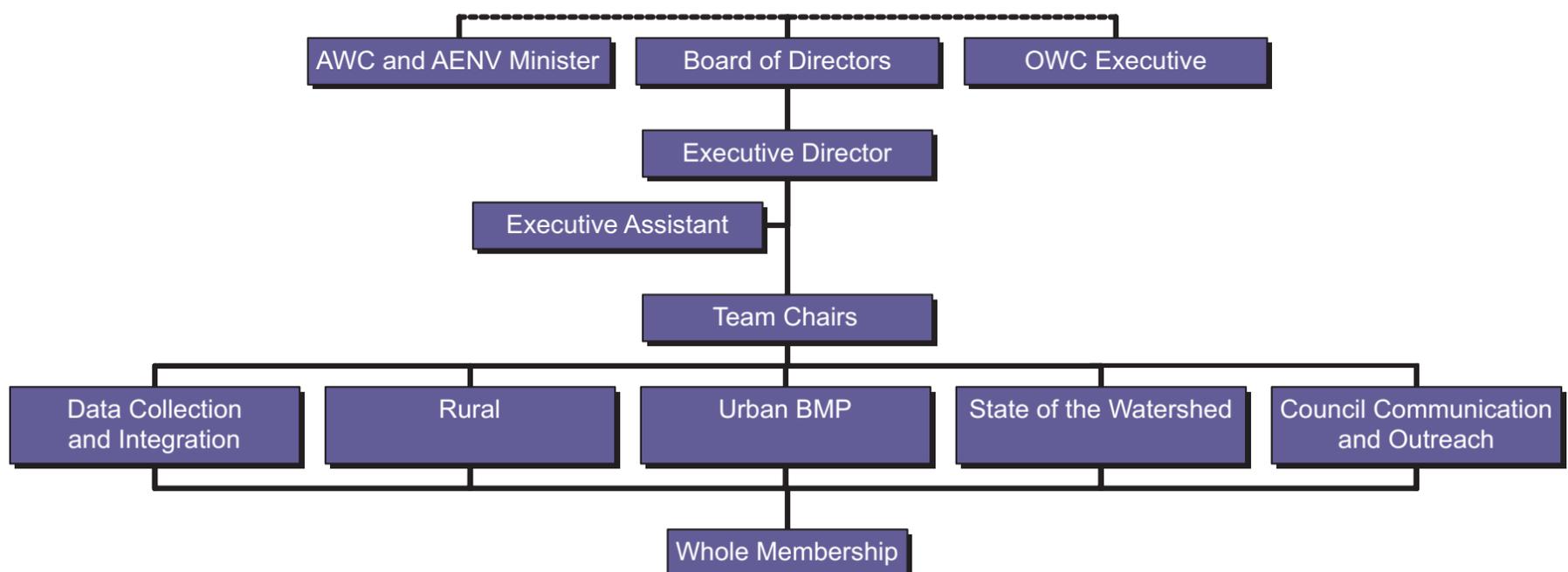
2006

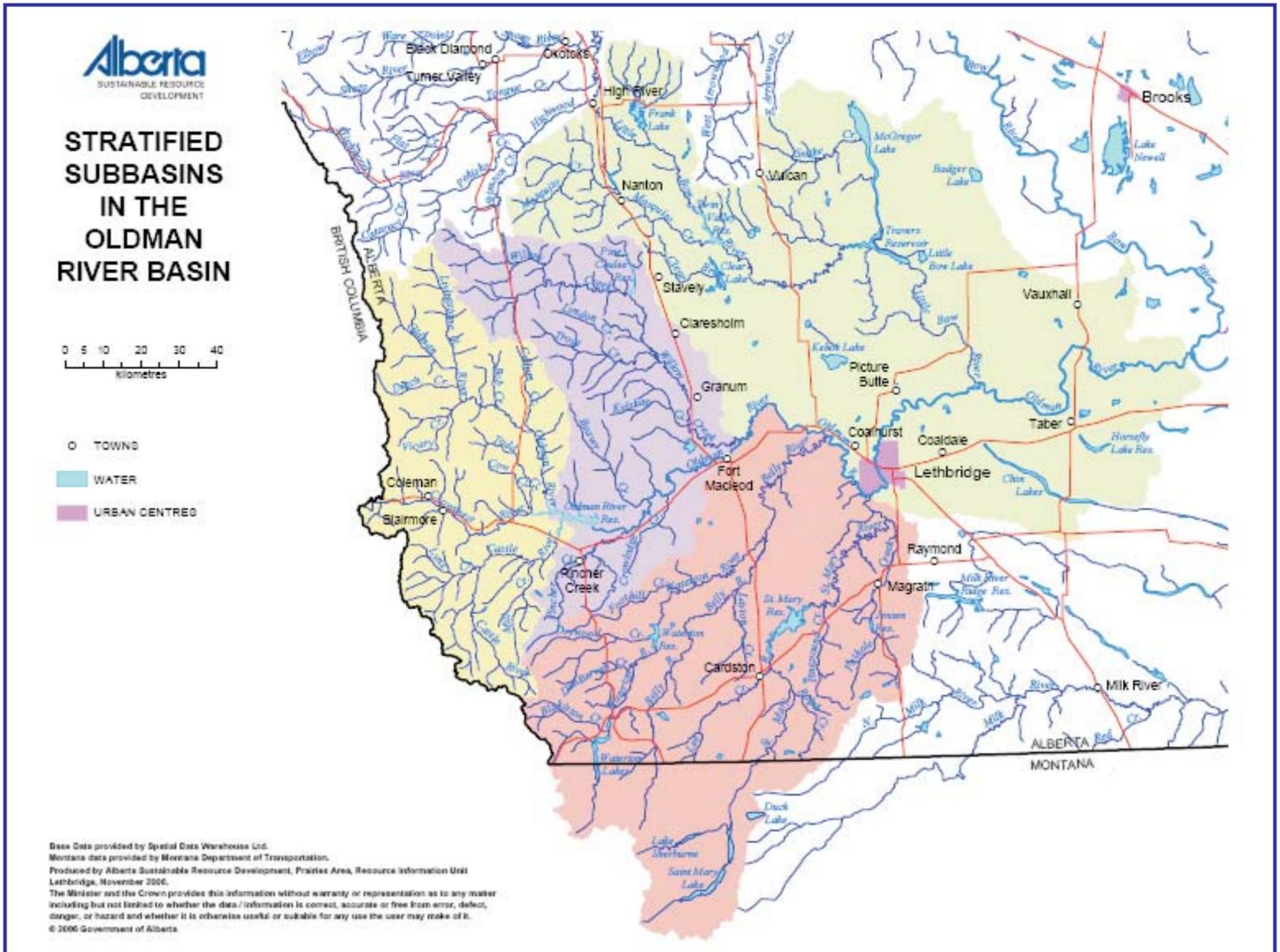
- Five new goals were created to reflect the intent of the OWC.

The Oldman Watershed Council will integrate its activities through knowledge, research, partnerships and education as they relate to water management, water quality, and land use practices in the following key areas:

1. We understand our watershed.
2. Residents are well informed and actively engaged.
3. Basin stakeholders have defined the desired outcomes for the Oldman Watershed that will form the basis for the Integrated Watershed Management Plan (IWMP).
4. The Oldman Watershed Council and stakeholders put into action the capacity and commitment to achieve defined outcomes.
5. Practices that are beneficial to the health and function of the Watershed are adopted.

OLDMAN WATERSHED COUNCIL





State of the Watershed Project Update

- by Shane Petry
- additional team members - Jocelyne Leger, Andrew Hurley, Brent Paterson, Doug Kaupp, Lana Robinson, Brian Hammond, Kent Bullock Wendell Koning, Stephanie Palechek

The Oldman Watershed Council, State of the Watershed Project (SOW project) is moving ahead at full steam. The project, which will give the Council a snapshot in time of the current health of the Oldman River watershed as well as some indications of trends in water quantity/quality and land use in the basin, has entered the report writing phase.

For those needing a refresher, the SOW project has the following objectives:

1. To describe the current state of the watershed with regards to its ecology, land use practices and water quality/quantity,
2. To identify and evaluate issues and emerging trends in the ecological functions and land use practices relative to water quality and quantity, and
3. To identify knowledge gaps and provide insight into filling those gaps.

Some folks may recall from our last update, the project began with taking stock of the information that we have relating to the Oldman River watershed in the form of a literature review. While the literature review was being undertaken the SOW team worked on a detailed terms of reference and table of contents for the report that will be generated as part of the project.

One of the considerations that the SOW team had was how to work with the entire Oldman River watershed. Essentially, the question is

how do we look at ecological functions, land use and water quality/quantity issues in the whole watershed. The team decided that one way was to stratify the Oldman River watershed into groups of sub-basins (groups of creeks and rivers) in order to look at a group of similar streams such as foothills sub-basins like Willow and Pincher and Beaver creeks. The map you see is the final product from the SOW team.

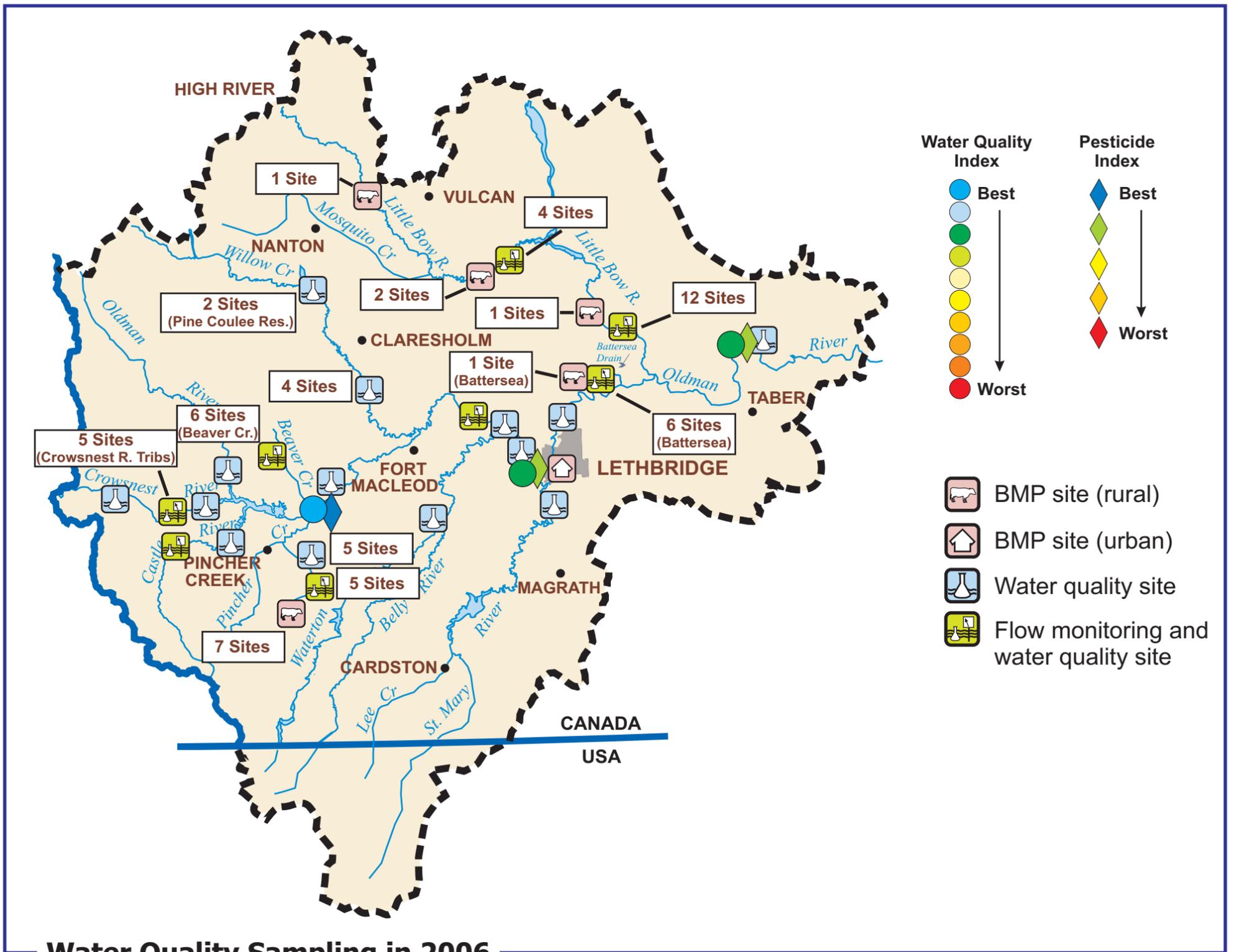
Once the map, terms of reference and table of contents were complete the SOW team began a competitive process and released a request for proposals to a number of consulting companies around Alberta.

The Oldman Watershed Council and SOW team are very pleased to have recently awarded the SOW contract to a team of consultants that includes:

- Mainstream Aquatics – Project Managers
- Northwest Hydraulics
- Alberta Research Council – watershed mapping
- MPE Engineering
- Wendy Devent – Editor
- Bonnie Hofer – Report design and layout

Given the magnitude of the task at hand, timelines associated with the completion of project are December of 2007. If you have any questions about the Oldman Council SOW project please feel free to contact Stephanie Palechek, Executive Director of the Council at 382-4239.

Partnering organizations on the SOW project team include: Fisheries and Oceans Canada, Alberta Sustainable Resource Development, Alberta Agriculture and Food, Alberta Environment, University of Lethbridge, Southern Alberta Irrigators and the City of Lethbridge.



Water Quality Sampling in 2006

Data Collection & Intergation (DC&I)

- by Wendell Koning
 - additional team members - Livio Fent and Janelle Villeneuve
 - new members: Jollin Charest, Brian Hills, Leda Kozak, Adam Minke, Barry Olson, and Brad Taylor

The DC&I team has once again been active on a variety of fronts. Our work includes both geospatial analyses and surface water quality monitoring. We attempt to relate what we find in the water (good/bad) to adjacent land uses in order to focus management decisions regarding land use and water quality protection.

Geospatial projects:

Regarding our geospatial work, two projects continued from other years, namely the refinement of the AGRASID soils database, and the refinement of the groundwater vulnerability map. These are being done in the Lower Little Bow basin and the Battersea Drain. Both projects are nearing completion.

A third geospatial project, started in the previous fiscal year, is the Oldman watershed delineation and hydrocoding project. Essentially, additional layers of data are being added to small watershed units, so that one can, for example, focus on a small sub-watershed within a larger watershed. This project is expected to be completed in 2007-08.

Data Access and Management is the final geospatial project to describe. This project involves developing and contributing to a web-based Information Portal which will be accessible to the

public, containing much watershed related data and reporting mechanisms. This project is also very near completion and will greatly benefit data dissemination and use in the Oldman basin.

The latter two projects are being headed by Alberta Environment staff, with input from members of the DC&I team.

Surface water quality monitoring projects:

There are a number of monitoring projects undertaken by Alberta Environment staff, with DC&I input; the most routine is the monthly monitoring at the three LTRN (Long Term River Network) site stations (Oldman River near Brocket, at Hwy 3 and at Hwy 36). Many years of data have now been collected at these three sites and this work allows us to monitor for trends and supply data for various management needs in making resource based decisions.

Monthly monitoring was also carried out at various sites in the Little Bow River, both upstream and downstream of the new Twin Valley Reservoir, to assess conditions within the reservoir and impacts on the river. Similarly, monitoring continues in Willow Creek and the relatively new Pine Coulee Reservoir (since spring 1999) in order to track water quality conditions in the reservoir and monitor impacts of the reservoir on Willow Creek. Work includes not only water chemistry, but also monitoring of river sediments and stream macrophytes.

Other monitoring included installing temperature data loggers in various sites, including the Southern Tributaries and the Castle, Crowsnest and upper Oldman rivers. And realtime temperature data (reported via satellite connection) was recorded at one site each in the upper Oldman and Crowsnest rivers and in Pincher Creek. Stream

temperature is an important fisheries concern.

Waterborne microbial pathogens: Microbial pathogens are a concern in surface waters across Canada. In 2003-04 there was weekly monitoring for Giardia and Cryptosporidium at the City of Lethbridge Water Treatment Plant (WTB) intake (sampling raw river water) and other river sites. This program has been greatly expanded (since 2005-06) with federal and provincial agencies working closely together in what is called the NAESI (National Agri-Environmental Standards Initiative) project. The primary goal of NAESI is to develop scientific-based standards for waterborne pathogens in agricultural watersheds across Canada. The development of these standards is intended to promote agricultural sustainability, enhance environmental water quality, and protect public health from waterborne disease. In 2006-07, sampling was carried out (biweekly, open water season) at nine Oldman River and tributary sites, including 2 Little Bow River sites. The samples were analyzed for the presence of seven waterborne pathogens: Campylobacter spp., Salmonella spp., E. coli, Aeromonas spp, Cryptosporidium spp. and Giardia spp. Water samples were analyzed for a suite of conventional water quality variables such as turbidity and nutrients. A draft report will be coming out in December 2007.

The Southern Rockies Watershed project:

In 2003 a very significant forest fire occurred in the Crowsnest Pass (the Lost Creek fire). Researchers from the University of



- by Doug Kaupp and John Byrne
- additional team members - Cheryl Bradley, Susan Dakin, Deirdre Coburn, Dorothy Lok, Cheryl Fujikawa, Kingsford Amoah, Leslie Wensmann, Cecily Smith, Sylvia Campbell, Darren Beazer, Leda Kozak, Stephanie Palechek

During 2006-2007, the Urban Team benefited from the involvement of representatives from six partner organizations - Alberta Environment (Dorothy Lok), Alberta Ingenuity Centre for Water Research (Deirdre Coburn), Chinook Health (John Byrne), City of Lethbridge (Kingsford Amoah, Sue Dakin, Doug Kaupp), Fisheries and Oceans Canada (Leslie Wensmann) and Southern Alberta Group for Environment (Cheryl Bradley, Sylvia Campbell, Cheryl Fujikawa, Cecily Smith). Stephanie Palechek and Leda Kozak of OWC provided administrative assistance.

The Urban Team met seven times between April 1, 2006 and March 31, 2007. Team members assessed their activities and accomplishments since the Team's inception in February, 2003, implemented the current work plan, developed a work plan for 2007-2008 and made a presentation to the OWC annual general meeting in March, 2006.

There are three key components of the Urban Team's work - 1) education program, 2) structural and operational activities and 3) water quality monitoring.

Education Program

Most of the Urban Team activities in 2006-2007 were regarding the education program component. Focus of the education program planning has been on four key initiatives:

1. **A workshop on municipal leadership in protecting stormwater quality and conserving water.** The multi-stakeholder workshop was delivered May 30, 2006. The final report has been compiled and was presented to the OWC Board on March 2, 2007.
2. **Working with retailers to profile environmentally friendly lawn and garden products.** University of Lethbridge marketing students have been solicited to define a project of mutual benefit to OWC and to the retailer which uses a community based social marketing approach.

Alberta have been monitoring the effects since the fire. Their work encompasses water quality, flows, bank stability, geomorphology, riparian vegetation regrowth, local meteorology, and benthic invertebrate community and biomass. Timber harvest companies, provincial and federal agencies, and the OWC contributed funds and in-kind support to the researchers.

New Plans:

Starting in late fall 2006, and into Jan-Mar 2007, the DC&I team began reorganizing. Members are being added to the team, bringing new, diverse and beneficial skills to the team. Plans for the future include:

- a) act on recommendations in the State of the Watershed Report;
- b) continue to report on monitoring activities;
- c) facilitate the exchange of research and monitoring information being carried out in the Oldman basin;
- d) incorporate additional biological monitoring (fish, aquatic insects, algae, aquatic weeds) into DC&I discussions; and
- e) investigate creating an "Ecological Risk Index" for Oldman Watershed.

We are moving beyond the current water quality focus, to a larger view of the aquatic ecosystem, and now we have team representatives that live or work not only in the mid to lower basin, but also in the upper basin. All is good, as we move forward in the Council.

Urban Team Annual Report

3. **Demonstrating environmentally friendly lawn and garden practices.** A 'Great Garden Search' project was begun to define criteria for environmentally friendly gardens and identify gardens that can be used as demonstration sites. Working with Communities in Bloom to create a Semi-Arid award category.
4. **A display aimed at homeowners.** Display materials were developed to provide information on stormwater system function, promote water conservation and link water quality to lawn and garden practices. A joint display of the Urban Team, City of Lethbridge and the Environment Week Committee was installed at the Lethbridge Home and Garden Show on March 21-24, 2007. Volunteers and staff from Urban Team organizations helped to man the display.

Structural and Operational Activities

With respect to the structural and operational activities component, the City of Lethbridge continued with an increased frequency of catch basin cleaning, including stormwater retention ponds in the design of new subdivisions.

Water Quality Monitoring

With respect to water quality monitoring component, the City of Lethbridge has established a subcommittee to assist in finalizing a stormwater management monitoring program.

Other Activities

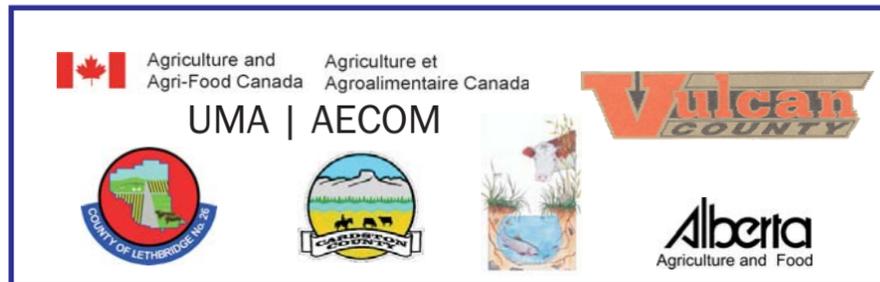
Some other activities of Urban Team members in 2006-2007 include:

- Made presentation on community survey to the ARPA Workshop in Red Deer April 26, 2006.
- Town of Cardston sponsored a "Yellow Fish Road" program in spring 2006.
- Contributed a poster regarding the community survey to the Water in the City conference in Victoria BC September 18/19, 2006.
- Contributed to the Bioengineering workshop to restore the river bank at Paradise Canyon, October 25/26, 2006.
- Participated in strategic planning & work planning for OWC February 2, 2007.

Rural Team Update

- by Andrea Kalischuk
- additional team members - Jamie Puchinger, Tim Romanow, Dennis Lastuka, Gerhardt Hartman, Bill MacMillan, Alan Passoli, Dwayne Rogness, Michael Gerrand, Greg Hale, Stephanie Palechek

The Rural Team works directly with rural stakeholders in the Oldman Watershed by providing support to existing rural initiatives and building capacity among rural residents through team meetings and forums throughout the watershed. The Oldman Watershed Council Rural Team is a group of agricultural extension specialists, industry representatives, and producers. The Rural Team includes representatives from Cows and Fish, Cardston County, County of Lethbridge, Vulcan County, UMA, Agriculture and Agri-Food Canada, and Alberta Agriculture and Food.



Environmental Farm Plan

The Alberta Environmental Farm Plan (EFP) Company is a non-profit company that helps farmers and ranchers identify environmental opportunities and challenges on their own land. The mission of the EFP is to facilitate the awareness and adoption of environmental stewardship practices by Alberta farmers and ranchers. The Oldman Watershed Council Rural Team has provided financial support for Environmental Farm Plan (EFP) workshops in each municipality within the Oldman Watershed (Cardston, Vulcan, and Lethbridge Counties, and Municipal Districts of Ranchland, Foothills, Pincher Creek and Willow Creek).



Holding the Reins: Landowners Summit for the Oldman Watershed

The Rural Team hosted a 1-day workshop on January 23, 2007 in Fort Macleod for rural landowners and watershed groups. More than 70 participants stayed for the day to hear from the Honorable David Coutts and guest speakers about what to do when industry comes knocking at your door, past and future water supplies in the Oldman River Basin, what to expect with the end of new water applications in the Oldman River Basin, and land uses and landscapes of the southern foothills study. The day also provided an opportunity for rural watershed groups within the Oldman River Basin to share their progress and network. Copies of all the presentations from the Holding the Reins workshop can be found on the OWC website: www.oldmanbasin.org.



Producers at Holding the Reins in Fort Macleod – January 23, 2007

Survey of Rural Residents to Identify

The Rural Team administered a questionnaire to about 80 rural residents throughout the Oldman Watershed Basin to identify rural concerns and to gather information on the role rural stakeholders would like the Rural Team to pursue. The majority of respondents were cattle producers (72%), grain producers (32%) or acreage owners (13%) from: Cardston County, Vulcan County, County of Lethbridge, Piikani Reserve, or the municipal districts of Ranchland, Foothills, Pincher Creek, or Willow Creek.

Respondents identified the most negative issues impacting the Oldman River Basin as oil and gas (30%), coal bed methane development (28%), off highway vehicle use (18%), and forestry (11%). Environmental issues of concern included water quality (39%), land use management (37%), and water quantity (15%).

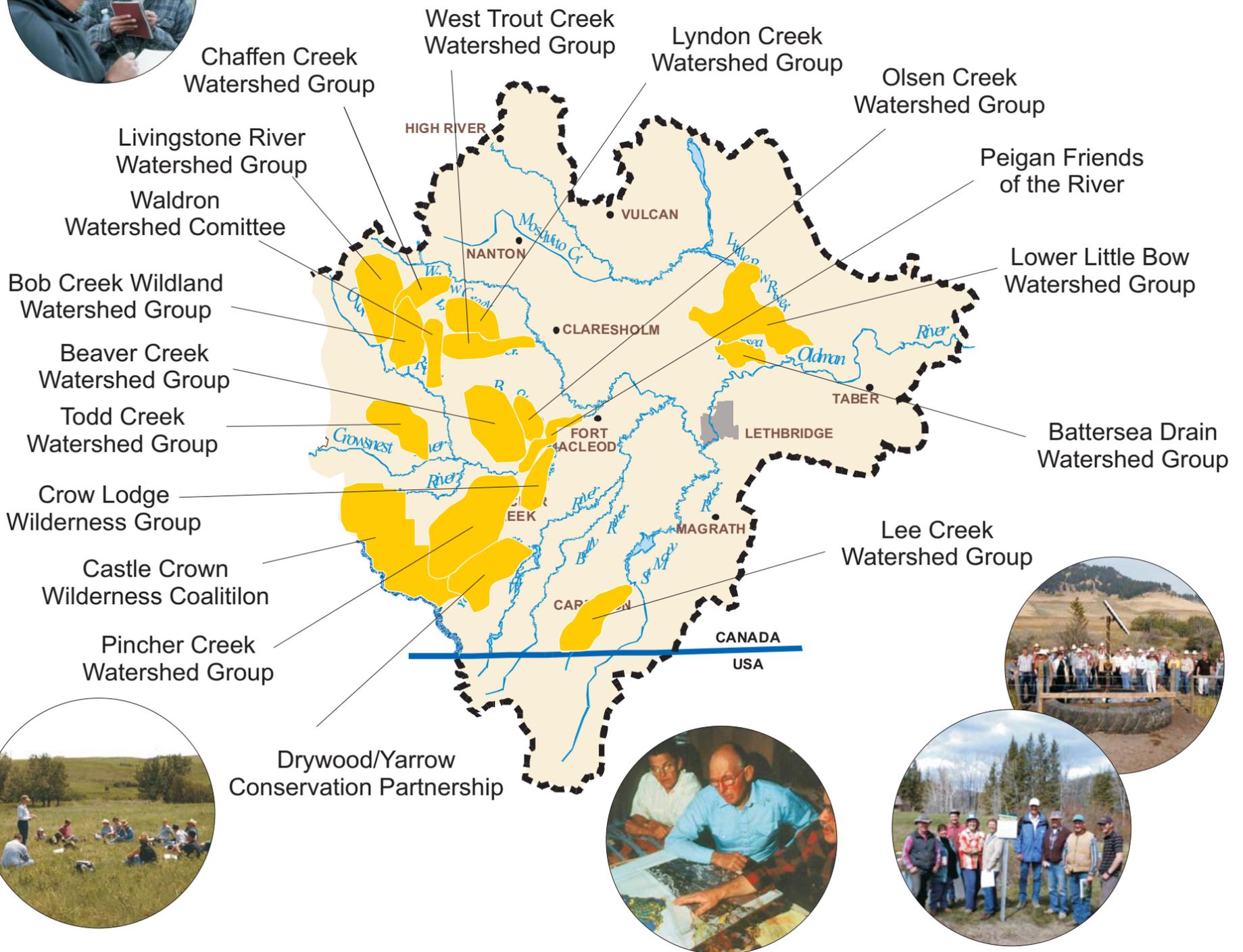
The top challenges facing producers include finances (37%), urban encroachment (24%), government regulations (20%), and time (16%). Beneficial management practices (defined as practices that benefit the environment that meet or exceed legal requirements) are a challenge for producers to implement because of the costs (41%), lack of knowledge (13%), and time (10%).

Producers would like the OWC Rural Team to provide technical assistance, funding for watershed group activities, and support for watershed group development.



Rural Watershed and Landowners Groups

The Oldman Watershed Council Rural Team has provided financial support to rural watershed and landowner groups in the Oldman Watershed. Groups that have received support include the: Beaver Creek Watershed Group, Pincher Creek Watershed Group, Lee Creek Watershed group, Drywood Creek Watershed Group, and the Chief Mountain Group. Finances have helped to support ground-roots initiatives including: riparian weed control programs, information sessions on coal-bed methane and wind energy development, and tours of watershed and beneficial management practices (BMP) demonstration sites.



Future Direction of the Rural Team

The Rural Team will continue to build capacity among rural residents and with all OWC stakeholders. The headwaters of the Oldman River basin are within the rural landscape, and this landscape is under unprecedented environmental pressures from recreation, forestry, agriculture, and oil and gas development. Rural landowners are the stewards of these landscapes; however, an informed and collective will of all Oldman Watershed residents will be required to ensure the long-term sustainability and protection of the Oldman headwaters.

Join the Rural Team!

The Rural Team is looking to build capacity with industry groups, including oil and gas, forestry, recreational groups, and other interested groups or individuals. Please contact the Oldman Watershed Council at (403)382-4239 to join or for more information.

Coming Event: Holding the Reins II

The Rural Team will hold its annual workshop in February 2008. Please check out the Oldman Watershed Council for more information in late 2007 (www.oldmanbasin.org).

OWC Communications and Outreach

- by Janna Casson
 - additional team members - Vic Brown, Neil Thrussell, Cheryl Dash, Andrea Hohne, Maureen Elko, Leda Kozak, Stephanie Palechek

The Communication and Outreach Team was busy planning various events and activities this past year. Some of our activities included our Annual General Meeting (AGM), our annual Stakeholders Meeting, development and production of an Oldman Watershed Council booklet and initial planning of a Water-wise Garden book.

There were 120 people that attended and enjoyed an awesome meal at the AGM this year at the Lethbridge Lodge. The working teams within the Oldman Watershed Council (OWC) provided information on their work and activities over the past year and what they will be doing in the future year. Team presentation highlights included the Rural team workshop entitled "Holding the Reins" held in January 2006, DC & I team water monitoring 2006 results and the BMP Evaluation project introduction, Urban team resident stormwater survey results, and State of the Watershed team report progress. The keynote speaker was the Honourable Rob Renner (Alberta Minister of Environment) who gave a fantastic presentation on environmental (greenhouse gas and water) initiatives in the province of Alberta. Also, Karen Emde gave a great presentation on watershed protection and protection of the public's health.

The Stakeholders Meeting was held in Pincher Creek this year and there were over 80 people in attendance.

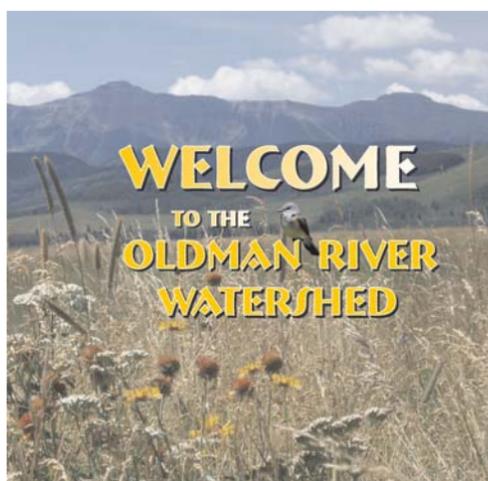


Members from the stakeholders meeting toured the Lost Creek fire area and into the Crowsnest Pass.

Inspirational presentations were given by the Beaver Creek and Pincher Creek Watershed groups on their activities the previous year and future activities. There were also presentations on

the Pincher Creek Wetland, the Irrigation District Water Quality study, and the OWC Strategic Plan. The highlight of the day was the field trip to the Crowsnest Pass to see the Southern Rockies Watershed Project hydrometric and climate station sites. Dr. Uldis Silins gave us plenty to think about with his description of the Lost Creek Fire and how this fire affected water quality and quantity parameters in the area.

The C&O team finished developing a booklet entitled "Welcome to the Oldman River Watershed". The booklet includes information on the Oldman Watershed Council, Oldman watershed boundaries, flora and fauna, water quality and quantity, water users, research, and how individuals can get involved with improving our watersheds.



A general information booklet on the Oldman River Watershed has been developed and is available online at: www.oldmanbasin.org

The team has also been putting together a Water-wise garden book based on the experience of organizing, developing and planting the Wilson Middle School Water-Wise Garden planted in May 2005. The book will include information on water-wise garden planning, choosing plants, garden features (e.g. sundials, benches, stepping stones, water features etc.), garden signage, and water conservation.

Other activities we were involved in:

- TD Shoreline Cleanup – We linked up with the Helen Schuler Coulee Centre and volunteers from SMRID, LNID, Agriculture and Agri-Food Canada, and the Paul Bohnert family in the Great Canadian Shoreline Cleanup at the Helen Schuler Coulee Centre in September 2006.
- Presentations – Promoted awareness and education on the OWC and what is going on in the Oldman Basin through presentations/displays at numerous conferences, meetings and trade shows throughout the basin.
- Postcards – Finished our Summer in the Watershed photo contest last year. There were 113 entries for the Summer contest and the winning photo was taken by Jill Tyson of the wagon trails near the original Fort Whoop-Up.
- Newsletters – We sent out quarterly newsletters throughout the year to update members on events and upcoming meetings throughout the basin.

We welcome any people interested in becoming involved with our team. If you are interested in joining our team, please contact:

Oldman Watershed Council at (403)382-4239 or www.oldmanbasin.org

NEW INTERPRETIVE SIGNS INSTALLED AT SUNRIDGE – the Communications and Outreach team participated and supported the development of interpretive signs at the new storm water pond in Sunridge – West Lethbridge, to increase knowledge of stormwater systems and function.



Didymosphenia germinata:

A Nuisance Species in Alberta and An Emerging Global Invasive

Article submitted by: Michael S. Bryski, Water Management Operations, Alberta Environment

The diatom *Didymosphenia germinata* (Lyngbye) M. Schmidt (1899) has historically been described as a rare, yet widely distributed diatom normally found in moderately flowing, cool to cold-water montane and boreal forest rivers in Europe and North America. Over the last decade *D. germinata*, also known as Didymo, has emerged as a nuisance, bloom-forming species in North America and most recently, New Zealand. In the late 1980s, first report of Didymo bloom events in streams on Vancouver Island were suggestive of a new genetic variant. Unlike other algae that form blooms under eutrophic or degraded conditions, blooms of Didymo are not associated with elevated nutrient levels or poor water quality. In fact, blooms of Didymo generally occur under oligotrophic conditions in habitats similar to those historically described. The biological mechanism(s) involved in this apparently new growth habit remain unknown, but the macroscopic biomass growing on submerged substrates mainly consists of extracellular stalk material produced by the diatom. Scouring events brought on by heavy rainfall or spate are usually effective in removing the stalk material from substrates, which is then commonly mistaken as sewage waste by the public.

Although there are no documented report of Didymo in Alberta rivers, it is likely that historical populations of the previously described type-specimen existed in low abundances based on its known montane and boreal habitat preferences. The occurrence of nuisance blooms were first notice anecdotally in the late 1990s in the upper Bow river in Banff National Park. By the early 2000s, anglers and provincial scientists noticed blooms on lower reaches of the Bow river near Calgary and the Oldman river, below the Oldman dam. In 2004-05, a University of Calgary research group (A. Kirkwood, L. Jackson and E. McCauley) documented the occurrence, distribution and bloom development of Didymo in the Red Deer and Bow rivers. The flow regimes and water quality contrasts between these otherwise comparable rivers was useful in clarifying why Didymo was present in both rivers, but conspicuous and bloom-forming in the Bow River only. In particular, the variation of discharge and water turbidity were significantly different between the two rivers, and were also important in predicting the presence/absence of Didymo. Also, a significant negative correlations between Didymo biomass and mean discharge indicated that low discharge velocities were associated with bloom events. Although all the sites that were in close proximity to dams had detectable Didymo populations, it appears that flow regime (natural or otherwise) is the mechanism controlling bloom development.

In 2006, the U of C research group coordinated with M. Bryski from Alberta Environment to expand Didymo sampling throughout the eastern slopes of the South Saskatchewan River basin. Rivers and creeks in this seasonal survey included: Bow, Red Deer, Little Red Deer, Ghost, Kananaskis, Jumping Pound, Canyon, Prairie, Elbow, Little Elbow, Highwood, Livingstone, Oldman, Dutch, Belly, Waterton, and St. Mary. Sample processing is currently ongoing, but preliminary results show that Didymo bloomed during the study period in all rivers with the exception of: Little Red Deer, Ghost, Prairie, Canyon and Livingstone. Due to limited funding in 2007, minimal field studies will be performed by the U of C group, but may be continued in some capacity by Alberta Environment and/or Alberta Sustainable Resource Development. Current research is focusing on the 2004-2006 dataset to:

- 1) Determine the important environmental drivers that promote Didymo bloom events in Alberta, and
- 2) Develop an Ecological Niche Model that used the Alberta Environment ArcHydro database to predict spatial "hot-spots" for future invasions and/or bloom events.

Did You Know?

- *D. germinata* is not generally considered an indication of degraded water quality, even though the algal mats can cover large areas of stream bed.
- *D. germinata* is also known as Didymo or rock snot.
- *D. germinata* contains chlorophyll, which enables it to make its own food from the sun.
- *D. germinata* can spread in a single drop of water.

Some concerns include:

- *D. germinata* affects the taste and odor of water, however does not appear to affect the safety of drinking water.
- Swimmers have occasionally complained of itchy eyes after swimming in areas downstream of large *D. germinata* mats.
- Fisheries concerns include reduced rearing habitat for salmonids, gill irritations and clogging, and displacement of some fish species.
- Clogging of water intakes.

Vocabulary:

Diatom – microscopic unicellular marine or freshwater algae having cell walls of silica.

Didymosphenia germinata – dense mats of algae growing in streams. Usually attached to rocks by a gelatinous stalk that forms mats when growing in high densities.

Eutrophic – having waters rich in phosphates, nitrates, and organic nutrients that promote a proliferation of plant life, especially algae.

Oligotrophic – waters that are relatively low in nutrients and can not support much plant life.

Substrate – the base on which an organism lives.

References:

Dictionary.com

Wikipedia online encyclopedia

http://www.env.gov.bc.ca/wat.wq/didy_bcstrms.html

www.issg.org/database/species/ecology.asp?si=77S&fr=1&sts

Samples of didymo collected during a study of rivers in the South Saskatchewan River basin. Results of these studies will provide a baseline to help identify correlations between biomass and the physical and chemical factors that are likely to contribute to it's growth.



FLOOD- A Five Letter Word

Lorne Fitch, P. Biol.
Provincial Riparian Specialist
Alberta Cows and Fish program

Gordon Lightfoot, the icon of Canadian folk music, intones, "when the skies of November turn gloomy" as a warning to ships plying the waters of Lake Superior, even big iron ore carriers. In land locked and generally water short Alberta Lightfoot's words don't have the same cachet, but recent storm events have begun to sensitize us. The floods of 1995, 2002 and 2005 (with both spring and fall flooding, as if once a year isn't enough) have made us start to search the skies of late May and early June for signs of impending doom. Spring rain used to fill our prairie souls with joy; now the same rain, especially when it persists for days, fills us with a sense of angst.

Is there a reason for concern this spring, or are we over these "floods of the century"? Why do we have these large floods and is there anything we can do about them? With recent experiences we've started to look at a flood as a four-letter word. Are we justified in thinking of this phenomenon in such harsh terms? We need to talk about this to see if "flood" is a four or a five-letter word.

Floods happen and they reoccur in a predictable nature in Alberta as the accumulated snow of winter meets the rising air temperature of spring. Water turns from a solid state to a liquid one and that transformation is faster than the earth's absorption rate. That's especially evident when heavy rain accompanies or follows snowmelt. The surplus water swells the thousands of tiny drainages and coalesces in the smaller streams. Those hundreds of small streams feed the larger streams and rivers, as gravity pulls water from higher elevations lower. A wave of water rolls downstream, filling the channel and often spilling into the adjoining low-lying areas. Most of these "floods" go by and we hardly notice, short of some brownish water that can thwart the efforts of anglers and possibly with a greater than detectable taste of chlorine in the tap water.

What all floods have in common, the average and the not so average, is that measured over the year, this is the time of greatest volume, highest speed and most energy. All of these features are important to consider and understand flood dynamics. Volume is the easiest one to observe; there is simply a lot more water. That water has to fit somewhere and when the volume exceeds the capacity of the channel (the area between the banks) it climbs out of the restriction into the low lying area called the floodplain. It's a rather clever adaptation to periodic bursts of water and provides a river with a safety valve to temporarily store the excess water, outside of its channel. Because floodplains are only used on infrequent occasions we tend to forget they exist and what role they provide. Like house insurance we hope we will never need it but without it we shoulder tremendous risk. Its worthwhile taking a little

windshield tour after floodwaters have receded to remind ourselves of the outer boundaries of the floodplain. The accumulated flood flotsam and jetsam are the silent messages of the river, telling us where it needs to be after the gales of June come slashing.

Speed and energy are inextricably linked. Water is a heavy substance, a cubic meter of it weighing almost as much as a Toyota Corolla. If you've ever been "bombed" by some trickster with a pail of water, you have instant understanding of the shock of an innocuous liquid hitting with such power. Unlike the pail of water, a river's volume keeps pounding away, and as the speed increases so does the power of that water. A mere doubling of the velocity of the water quadruples its ability to erode; that's a lot of aqueous Toyota Corollas with more horsepower. When the energy of a flood comes rushing down the channel it can be alarming- pounding, grinding and carving away at the bank as it does. This is also where the safety valve of the floodplain becomes apparent, slowing the water down as it escapes the channel. It helps to have a floodplain bristling with trees and shrubs because they blunt the force of that rushing water. Think of it this way: slower water, less energy.

The problem is that floodplains are such inviting places. They lure us with their flat nature, the pleasant umbrella of trees and the proximity to water. The river doesn't use them very often so why don't we develop them? When we do, and the river periodically reoccupies its land, great consternation erupts. Rivers become enemies, they need to be controlled, straightjacketed and made mindful of our developments. We resort to engineering solutions, like channelization, berms, dikes, riprap and straightening, to keep the river off our land. Sometimes those solutions work, or they seem to for a while and then a larger flood tests them and finds the weaknesses. To watch a river work in flood times- probing, pushing, attacking and outflanking the "solutions"-is an exercise in military maneuvering that most generals would envy. There is an axiom, rarely heeded, that says in the tension between water and land, water always wins. Water always wins!

This is cold (maybe wet) comfort to many who live on floodplains. A partial solution might include thinking about not only the volume of water in a flood but also how fast it is delivered to your front door. Water from snowmelt and rainfall used to take longer to get downstream. A survey of your watershed probably will show that collectively we've cleared, cultivated, logged, built roads, paved portions, removed the meanders of streams, blown the beaver dams and drained the wetlands. It's a short and speedy run for water to a basement near you. Those watersheds have lost the retentive capacity to hold, store and slow down run off. In effect we've assisted gravity in the upper portion of the watershed and then tried to fight it downstream. That's a losing proposition. Our efforts might be better placed, working at the watershed scale, with all of our watershed neighbours. We will still have floods but we may be able to moderate the effects. Oh, and let's not build anything else on the floodplain. If we continue to, Gordon may be inclined to pen another classic, maybe called "The wreck of the Alberta landscape". It will be a hit when the skies of May turn gloomy.

www.cowsandfish.org

Upcoming Events

The Oldman Watershed Council would like to announce the following events:

The 4th Annual Stakeholders Meeting

Location-Cardston Civic Center upstairs
Time-meeting from 9:00 am-12:30.
-Lunch and Tour from 12:30-6:00
Register online at www.oldmanbasin.org

Holding the Reins Workshop

Location-Fort Macleod
Date-January 22nd, 2008
Details to be announced.

OWC 4th Annual General Meeting

Location-Lethbridge Lodge
Details to be announced.

Please continue to check our website www.oldmanbasin.org for these details and other events.

What's a Wetland Worth?

Lorne Fitch, P. Biol.
Provincial Riparian Specialist
Alberta Cows and Fish program

It wasn't much of a pond, a puddle in some minds. Most called it a slough, a somewhat demeaning term. It filled in the spring and slowly receded into a sea of foxtail by late summer. The cattle wallowed along the edges and created monstrous hummocks, dangerous to walk on top of and treacherous to navigate otherwise. As I remember it, as summer progressed a patina of duckweed and algae developed. Mosquitoes swarmed out of it, to be met with ferocious dragonflies, the helicopter gun ships of the insect world. There was an olfactory aura surrounding it, rich, earthy and often breathtaking. No cropland was harmed by its spreading waters; the loss of pasture was compensated by a shorter walk for the cows to water and a band of lush, tall grass ringing the pond where the hidden water reached out for their roots. Willows created a near perfect doughnut, putting their roots into the saturated soil and aspen flanked them, in the drier upland. The dead aspen were light enough for a boy to move and assemble into a raft. Dead aspen is a sponge so the voyages were short and always culminated in wet feet, if not other body parts. I yearned for more buoyant material to undertake longer voyages of discovery.

Much of us is water, about 65%. It is said that people born on coasts are subject to an irresistible pull back to water. "The ocean has an old allure", they say, "to draw her exiles back". Since all life began in the primordial soup of ancient oceans its not surprising we have some sort of genetic hard wiring to aid that allure. Even prairie born and raised people display that attraction to water. Whether it was hard wiring, desperation or intrigue, the pond drew me as a kid like no other part of the farm. It also drew the first wave of ducks, mostly mallard drakes, with the unmistakable metallic sheen to their heads. Every so often, in the early mists of morning, one could catch a glimpse of a deer drinking at its margins. A garter snake, surging out of the grass beneath one's feet, generally got the pulse rate racing. Swallows collected mud for their nests built under

the eaves of the barn. There was a cacophony of bird song; wrens scolding, warblers proclaiming their perch was the best and a red tail hawk pair that vocally resented each intrusion into their neighborhood. Yellow birds, grey birds, brown birds and multi colored birds. I wasn't to learn the theory until much later, but I knew if I wanted to see wildlife, the pond was the place. We know now that riparian areas

harbor a disproportionately large share of Alberta's wildlife and that is part of their allure.

Someone with a strong arm could throw a rock across it and at its deepest a person of medium height could have waded with impunity. However, to a small boy its size, depth and workings were unfathomable. It provided the auditory signal of spring, brought by chorus frogs. At our place, it wasn't spring, officially, until their trills were heard. Stealth and patience were required to observe the males with their impossibly inflated sac. An occasional great blue heron taught me those attributes. The transformation of egg clumps to tailed larvae to adults was an independent lesson in biology, but where did they go when the pond dried up? And what creatures made those other swamp noises? Investigation, tinged with a bit of fear showed the pond also had leopard and wood frogs. It was crouching at twilight to observe these other creatures that an orange sunset, reflected and framed in the water, found a permanent home in my memory.

So what is a wetland like that worth? Economically it's hard to put a price tag on it, although we are getting better at valuing the significant ecological goods and services wetlands provide. Could we do without wetlands? No! Beyond all the things we now know that wetlands contribute, that pond provided me with an education, experiences, risks, inspiration, entertainment, connections and appreciation. It was like thousands scattered through central Alberta; most are now gone. How many did we need? As we are slowly beginning to appreciate, most of them. My pond is still there and it is priceless.

www.cowsandfish.org



Water Wise Tips:

- Fill a cup half full and use the water to wet your toothbrush, rinse your mouth and wash you toothbrush.
- Fill the bath half full or take a 5 minute shower.
- Turn the water off while you put soap on your hands, then turn the water back on to rinse your hands off.
- Wash all the Fruits and Veggies when you get home. That way you waste less washing each one separately and they are ready to eat when you want them.
- Put a jug of water in the fridge so that you don't waste water when you run the tap waiting for the water to get cold.
- Ask you mom or dad what plants need to be watered if you are playing with the hose. If you want to jump through the sprinkler, find out what part of the yard needs watering. This way, you can be watering the lawn and having fun in the water.

Did You Know?

- Water regulates the earth's temperature.
- Human brains are 75% water, human bones are 25% water, and Human blood is 83% water.
- A small drip from a faucet can waste as much as 75 litres of water a day. That's enough to overflow a bathtub.
- Two thirds of the water used in a home is used in the bathroom.
- Humans need about 2.3 L of water a day.
- 80% of the earth's surface is water, but only 1% of that water is available for drinking. 97% of that water is seawater, and 2 % is locked in icecaps and glaciers.



"Who Me?" Part of a Watershed?" Don't Flush Yet!

I've got the handle in my hand, ready to flush. My eye catches an announcement in the paper I was reading, in the quiet room of the house. It's for a watershed meeting to be held here in town. As the noise of the toilet flushing echoes, I think, "who, me, part of a watershed?" As I wash my hands I muse, "I live in town, I don't live on a lake or next to a river". Brushing my teeth I say to myself, "I don't fish and I don't raise cattle that drink out of the river". The coffee noisily percolates and I wait impatiently for that first cup. Fortified with a jolt of caffeine I remark, "I don't know what all the fuss is about. Water is water; it comes out of the tap". That reminds me to mix up some orange juice. I use the bottled water, pour it into the juice concentrate, mix and thirstily drink a glass. The water holds the sweetness of Florida sunshine in suspension. The last drops drain out of the glass and my answer is, "No, I don't know why I would be interested in a watershed meeting".

Satisfied with my decision I head off to work. It's a lovely morning and I linger beside the car savoring the sunshine. Bird song puts my ears on alert and a flash of yellow captures my eye. I think, "That's a funny looking sparrow". I glance over and see my neighbour sitting on her porch peering through binoculars. She's a bit odd; there have been words over her yard. It's become a wild and untidy place with what looks like weedy plants springing up everywhere. She replanted her lawn to some native stuff and she never waters or fertilizes it. This morning though, the differences over yard care seem to have disappeared and she is visibly excited. She shouts to me that the bird is a yellow warbler, the first of the year. "It's just flown up from South America, almost 9000 km to get here". "Nine thousand kilometers!" I think to myself, "how does a tiny bird manage that feat?" Despite the differences I have with my neighbour this intrigues me and I have to ask how this is possible. "Even though these birds only weigh the equivalent of two twenty five cent pieces they manage that migration by stopping in the rich, treed areas along rivers and streams and around lakes and wetlands. They fuel up on insects and then make the next leap". I'm amazed, these wooded areas must be the bird equivalent of 7-11's.

The morning passes at work. My ears perk up at a news report on the radio of a boil water order in some other community. "Boil water, I wonder what that's about?" says one of my coworkers. "It's not about childbirth, corn or canning", says another. "There's either too much mud in the water and it can't be cleaned, or some bug has got into the water and only boiling it will kill it." The thought of boiling water and mud reminds me its coffee time and I head down to the corner café. The usual crowd is there, dissecting the events of the day. I sit next to the fellow that runs the water treatment plant. When there's a lull in the conversation I ask him about this boil water order. He replies that there are more and more of these to meet drinking water standards. One of the curmudgeons in the group snaps, "So what if the river is muddy and is covered by green scum-can't they filter and treat the water with something? Anyway, don't we get our water from a well?" The treatment plant operator smiles at the opening he's been given. "Yes, we get our water from a well but most communities in Alberta get all of their water from surface sources like lakes or rivers. Even though we have a well you have to think about where that water comes from; it comes from the surface and slowly trickles down. That water comes from a huge area and even though a lot of stuff gets filtered out, there's an increase in some chemicals." "What kind of chemicals?" snorts the curmudgeon. "Well, things like pesticides, herbicides and nitrates, that come from fertilizer or animal manure. Even stuff like the weed and feed you put on your lawn can sneak into the ground water. All of these things, including mud, are hard to remove and can be very expensive, especially for a small town like ours with a limited tax base. Our best, and cheapest, option is protection of the water at its source. That's why many towns are starting to work with the rural counties on watershed protection- its where our water comes from." "But" he said, "there's another side to this- we treat our waste water and put it into the river. There's at

least three communities downstream of us that take water right out of the river." The curmudgeon snorts again and sarcastically retorts, "Should we flush twice for them?" That ended the coffee break!

The phone rings at work; it's a rancher north of town with a side of beef I ordered from him. We agree to meet at my place for lunch. Over sandwiches I tell him about my morning of water, watersheds and birds. He listens intently, with a wrinkle on his brow. He starts to talk. "After 40 some odd years of ranching I thought I knew it all. I'm embarrassed to say there are some things I should have known more about. Back in the 70's I went to a bunch of seminars where they told me I had to be more profitable and efficient." He spat the words "profitable" and "efficient" out. "So I fired up the cat and bulldozed all the willows and poplars off my bottomlands by the big river. And they were right, for a few years I could graze more cattle and it was more profitable. Then the first flood came along. Without the willows and the trees to glue the riverbanks together the river just ate them up. I tried to slow down that erosion, I even got the government to help. We dumped rock, concrete slabs and even old car bodies. Nothing worked; the river ate those up too. I figure I've flushed more than five acres of my best pasture down the river. I wish I had those willows back. If I had it to do again I wouldn't touch that brush next to the river."

The beef is safely stored in the freezer and I decide to walk back to work. Around the corner one of my neighbours, a retired farmer, is trimming his hedge. He's a quiet, thoughtful man and I share some of the day's events with him. "As I get older I see more", he mused. "I grew up fishing, I suspect it kept me out of a lot of trouble", he said, with a mischievous twinkle in his eye. "This river used to have walleye in it and I once caught a 12 pound pike. It's hard to find a fish anymore and that worries me." "But if you want fish, can't you buy fish sticks?" I say, prodding him a bit. "Can't stand them!" he replies, "Fish in the river tell me the place I live is healthy; that's why I'm worried." He's quiet for a moment, thinking about something else. "Fishing and being next to the river helped me see my place in the world. It's about making connections, something that eating fish sticks will never do for you. I want my grandchildren to be able to fish, to make those same connections I was able to make. How can they if we've used up all their chances?"

I almost miss the building where I work; I'm so lost in thought. Waiting for me is a county councilor and I apologize for being distracted by this watershed stuff. She waves off my apology. "Sometimes our thinking is pretty narrow" she recounts, "we are only interested in our own backyards. I used to think, so what if someone drains a mosquito-infested slough 50 km from my back door. How is this going to affect me?" She goes on to say, "The problem is that our backyards are hitched to everyone else's in the watershed. We've got a situation where the folks in the headwaters want more drainage, to get rid of those sloughs that hold all the snowmelt. The people in the middle, especially here in town, have more flooding and bigger floods because the water all runs off too quickly with the sloughs gone. Then, the people at the bottom end of the river complain there's no water left for most of the year." I think to myself that I'm glad to be on higher ground but I do remember the ban on lawn watering during the drought a couple of summers ago. "It's like we're all living in different areas with different ideas about what we want, but we are all part of the same watershed. We've got to figure this out together", she says.

After supper I take a short drive to clear my head. I cross what I thought was a drainage ditch and it strikes me, "No, this is the river!" There's no sign on the bridge and I'll bet many of my neighbours don't realize this is their river. No wonder it doesn't get any respect! We've ignored our river, turned it into one of the back alleys instead of a front street we could be proud of. It's been quite a day. At the last flush of the evening I think, "Me, I'm part of a watershed!" I'm going to go to that watershed meeting, meet my neighbours and get educated about where I live.

Lorne Fitch, P. Biol.
Cows and Fish program

Definitions – of frequently used terms

AGRASID Soils Database – Agricultural Region of Alberta Soil Inventory Database (AGRASID) is a database describing the spatial distribution of soils and associated landscapes within the agricultural region of Alberta.

Basin – a region of land where water drains downhill into a body of water.

Beneficial Management Practices (BMP) – practices that benefit the environment that meet or exceed legal requirements.

Benthic Invertebrate – organisms that live on the bottom of a water body and have no spine.

Biomass – the amount of living matter in an area.

Delineation – describing graphically or verbally.

Diatom – microscopic unicellular marine or freshwater algae having cell walls of silica.

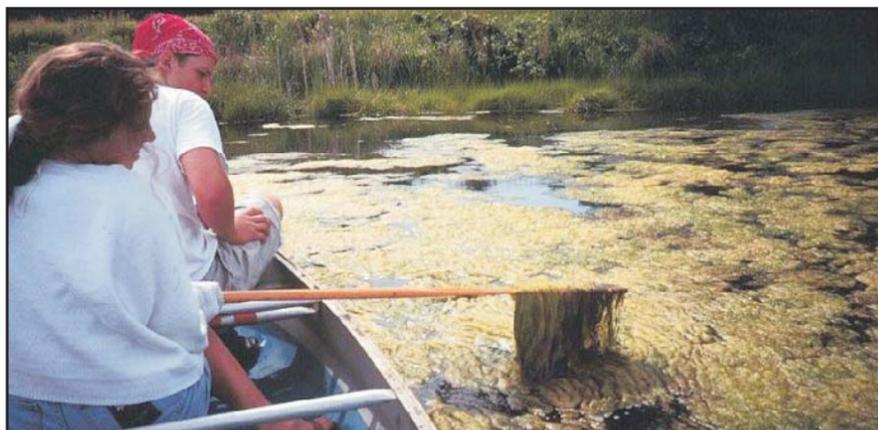
Didymosphenia germinate – dense mats of algae growing in streams. Usually attached to rocks by a gelatinous stalk that forms mats when growing in high densities.



Ecology – the study of the relations and interactions between organisms and their environment.

Ecosystem – the interaction between organisms and their environment.

Eutrophic – waters rich in phosphates, nitrates, and organic nutrients that promote a proliferation of plant life, especially algae.



Fauna – animal life of any particular region or time.

Flora – plant life occurring in an area or time period.

Geomorphology – the study of landforms.

Geospatial – the combination of spatial software and analytical methods with terrestrial or geographic datasets.

Groundwater – water found under the surface of the ground.

Headwaters – where a river starts. The Oldman River starts on the eastern slopes of the Rocky Mountains.



Hydrocoding – used in assessing water at 'pour points'.

Macrophytes – the term "macrophytes" is used for aquatic plants, which can be determined to the species level by the eye.

Microbes – are microorganisms.

Oligotrophic – waters that are relatively low in nutrients and can not support much plant life.

Pathogens – a disease producing agent.

Pesticides – a chemical used to kill plant, fungal, or animal pests.

Riparian Area – the area of land next to water. These areas have moist soils, and therefore, different plants grow in these areas than in the surrounding areas.



Sediments – material coming from weathering rock and carried and deposited by wind, water, or ice.

Semi-arid ecosystem – an area with rainfall of only 25-50 cm per year.

Stewardship – The management of our natural spaces and species in such a way that it can be passed on to future generation intact.

Stormwater – precipitation (rain, snow, hail) that does not get absorbed into the ground.

Substrate – the base on which an organism lives.

Surface Water – all water found on the surface of the earth (e.g. lakes, ponds, sloughs, wetlands, dugouts, rivers, etc.)

Tributaries – A stream or river that flows into a larger river or other body of water.

Turbidity – the cloudiness or haziness of water.

Watershed – Another word for basin. An area of land where all the water flows to the same common area. The common area can be a creek, lake, river, wetland, ocean, etc.

