

Land Use and Watershed Management in Alberta and Beyond

**Walter and Duncan Gordon Foundation Grantee Symposium
September 17, 2007 Calgary Zoo**



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Background

Since its founding in 1965, the Walter and Duncan Gordon Foundation has been dedicated to the development of sound and innovative public policies, founded on values that are fundamental to Canadians, and designed to foster the continuing evolution of a dynamic and independent Canada.

The foundation began funding projects related to environmental protection in 1981 and began funding water projects in 2001. In 2004, the foundation developed a specific programme focusing on Fresh Water Resources Protection, the goal of which is the following:

“To support the development of a comprehensive legal, regulatory, and citizen action framework for the purpose of protecting the quality and quantity of fresh water resources for future generations of Canadians.”

The funding provided through this programme is focused in three major areas — sustainable watershed management, groundwater protection and transboundary water security.

To provide an opportunity for water grantees to learn from each other, the Gordon Foundation held its second Grantee Symposium on September 17, 2007. The day-long symposium was designed to provide a forum for grantees to highlight their work, showcase different approaches and ideas, share information and lessons learned, and meet and network with others doing related work. All of the projects on the program are supported by the Foundation.

The symposium took place at the Tropical Oasis Room, in the Calgary Zoo and was attended by more than 70 grantees, fellowship recipients, advisory group members, staff and trustees. Michael Robinson, CEO of the Glenbow Museum, was the facilitator. The agenda (included as Appendix A) was designed to strike a balance between providing a forum for the many projects being carried out across the country and allowing for interaction and sharing of experiences.

This report provides an overview of the presentations that were made and the discussions that took place.



Morning: Challenges in Alberta and beyond

Brenda Lucas, Programme Manager, Fresh Water Resources Protection, welcomed everybody and announced that the Walter Duncan Gordon Foundation will fund the Sierra Club (Toronto and Edmonton) to use Bullfrog Power as a way of offsetting carbon associated with the forum.

In the morning session, ten Gordon Foundation grantees made presentations on land use and watershed challenges in Alberta and beyond. At the end of each section, questions were taken from symposium participants.

Introduction — The Current Context in Alberta

Water for Life: Implementation of watershed management in Alberta

Danielle Droitsch, Bow Riverkeeper

Danielle Droitsch opened the day with a presentation on the Bow Riverkeeper's perspective on the Water for Life Strategy (WFL). The Bow Riverkeeper is a non-government organization (NGO) with a local, regional and provincial focus on water policy. Droitsch also sits on the Alberta Water Council and the Bow River Basin Council.

In Alberta, the many challenges include the following: watersheds that are driven by glacially fed rivers and then flow into the driest part of the province; significant allocation to irrigation (60–70% of the South Saskatchewan River Basin is allocated to irrigation) ; an extensive plumbing systems of canals and dams; high population growth; increasing land use intensity; highly degraded or threatened river systems; no legal protection for instream flow needs; first-in-time system; a system of “haves” (senior licences) and “have-nots”; a highly uncertain water supply; and emerging water conflicts.

Droitsch discussed some specifics, for example, how the Bow River is the most dammed river in the province, and the increasing allocation that is taking place in the northern part of the province, especially in the Peace and Athabasca rivers. In 2001, total allocations in the South Saskatchewan River Basin exceeded the actual amount of water available. In October 2006, two major river basins in southern Alberta were closed to further licenses. This has created new challenges. For example, the development near Balzac could not get a new licence from the Bow River so it looked north to the Red Deer basin, which is still open. In the end, the Western Irrigation District agreed to a transfer from its Bow River water license.

The Eastern Irrigation District (EID) (at 1.5 million acres it is the largest irrigation district in the province) applied for an amendment to use its water allocation for any purpose. If this is approved, the EID would become a water broker with little or no oversight by the province. The Bow Riverkeeper is concerned about the potential precedent and the likelihood of a water market being set up with little assurance of ecosystem protection and public protection. As proposed, this change would allow EID to bypass existing government regulation under the “transfer system” and would prevent the government from withholding some water for the public good.

Droitsch sees the key solutions for Alberta as advocating integrated resource water management (IWRM), new legislation, regional planning and coordinated decision making. WFL, however, will not accomplish what needs to be done. WFL is watershed planning; however, no governance structure is in place in relationship to government decision making. There is no framework for Watershed Planning and Advisory Councils and no linkage to land-use planning. Several major

hurdles still exist. A coalition of citizen-based organizations has just released a 27-page report on the Water for Life Strategy and recommendations for renewal. It is available at <http://www.bowriverkeeper.org/water-for-life>

**Protecting Inflow Stream Needs: How are we doing and what is the federal government role?
Mike Wenig, Canadian Institute of Resources Law**

Mike Wenig, with the Canadian Institute of Resources Law (CIRL), gave an overview of the implementation of instream flow needs (IFNs). IFNs are flow regimes to protect aquatic ecosystems, but they also act as benchmarks for river system protection. Two recent papers published with Arlene Kwasnaik and Mike Quinn about the extent to which IFNs can be achieved are available at <http://www.ucalgary.ca/~cirl/html/external.html>. In an attempt to document the history of IFNs CIRL looked at three jurisdictional databases (Alberta, federal and inter-jurisdictional). They focused on generic legal rules and *ad hoc* practices. They found there were no adequate provincial or regional databases, no central database of the use of IFN studies in flow management decisions and no central database of flow management decisions. The regional flow management databases were ambiguous. There are no legal mandates to maintain IFNs although the Water for Life Strategy implies policy commitments. Furthermore, no government is taking responsibility for maintaining IFNs. The hurdles included old water licences and ambiguous division of responsibilities.

Wenig maintained that the law is not the major problem, lack of political will is. Fisheries are a federal responsibility, and species survival should be a federal concern. The Fisheries Act could protect aquatic ecosystems, but the policy is unclear and the Department of Fisheries and Oceans should clarify its policy. The federal role, at a minimum, should be to compile a database of IFN studies and uses of IFN studies in river management, conduct policy making on the significance of IFNS in Fisheries Act s.35 decisions, push transboundary river management institutions, and consider minimum standards for water quantity and quality. The federal government should also withhold further oil sands approvals until commitments to establish the IFNs are ensured.



**Water trading: What can we expect in BC and AB?
Randy Christensen, Sierra Legal Defence Fund (Ecojustice Canada)**

Randy Christensen noted that Ecojustice Canada plans to open an office in Calgary in 2008. He explained that water trading is a transaction whereby a license holder relinquishes all or part of an existing water right, usually for money. It occurs where water allocations have been closed (thus new potential licensees are otherwise unable to acquire a license), so will primarily be possible only in western Canada. The benefits are that it provides a mechanism to reallocate water to new users, it can encourage investment in water efficiency, and it allows government to purchase water rights and

dedicate them to instream flow needs. The drawbacks are that it could increase water intensity with less return flow (people can sell rights to licenses that have previously been unused). The move to a market allocation systems raises concerns about equity because water is then driven by market consideration, there is the problem that water might be priced without considering environmental or human needs, less flow means less assimilative capacity and changes in the use of water could create local problems.

All the provinces have considered water trading. British Columbia, Manitoba and Saskatchewan have all expressed interested, but it is Alberta that has the biggest interest, and amendments to the Water Act began in the late 1990s. Christensen noted that there is a provision for a discretionary 10% conservation holdback, but this is not happening in all cases. In the case of the Balzac transfer, the Western Irrigation District will now use pipelines rather than canals to reduce evaporation losses, and the water saved will go to the developer. Whether there will be a conservation holdback applied in this case is not known.

Christensen observed that the real problem in Alberta is the irrigation districts and their interest in amending their licenses. This is a problem because we do not know how the water will be used, and there is no potential for a conservation holdback. If these transfers proceed, it will rob the system of public oversight. Christensen urged the forum to watch the Eastern Irrigation District transfer. Some groups hope to challenge this and ensure that it goes through proper channels.

Climate change impacts on management of the South Saskatchewan River Basin Shelly Lobay-Minarik, 2006 Water Policy Fellow

Shelly Lobay-Minarik, 2006 Water Policy Fellow, gave a presentation on the impacts of climate change on the management of the South Saskatchewan River Basin with a focus on the legal perspective. First of all there are considerable challenges including instream flow needs gaps, changes in precipitation, changes in river flows, reduced water availability, insufficient science and floods.

The inter-jurisdictional character of the South Saskatchewan River Basin (SSRB) adds to its overall vulnerability. The problem lies with the limitations inherent in the SSRB's current governance framework. The governance structure means that it is an intergovernmental agreement, it is an institution (Prairie Provinces Water Board), it is a constitution, it is legislation (Canada Water Act), it is conflict resolution (courts) and it is cooperative federalism. Lobay-Minarik also noted that under the Master Apportionment Agreement (MAA), each province has to pass 50% of its water to its neighbour, minus what needs to go to the U.S. The MAA is an intergovernmental agreement, but its legal status is uncertain, and there is no conflict resolution mechanism, in contrast to the U.S. and Australia.

Lobay-Minarik commented that the underlying questions are what is the adaptive capacity of these instruments to deal with change, especially climate change? What is the goal for managing the SSRB? Does the governance framework assist or create blocks? The integration of the watershed means managing the watershed on a watershed basis and managing water quality and quantity together.

Lobay-Minarik shared two conclusions: 1) the current governance framework in the SSRB prevents adoption of an Integrated Water Resource Management framework because of provincial government boundaries. The SSRB is boundary focused and not watershed focused. It does not involve all sectors

with an interest in water and does not have citizen participation. Transboundary conflict resolutions are weak, and there is no mechanism for public involvement, although this might be the time to develop such a mechanism. 2) Discussion about the application of the Doctrine of Equitable Apportionment in Canada needs to begin. The crux of this doctrine is Article 5.

Addressing climate change in Alberta's watershed management **Dave Schindler, University of Alberta**

Schindler summarized the effects of oil sands development and climate change on the Athabasca River. The Athabasca River starts at the Athabasca Glacier, which has disappeared about 25% since records have been kept. The real problem is downstream from Fort McMurray. Similar to southern Alberta, northern Alberta has also arid areas (Fort Chipewyan could have a similar landscape to Calgary in 50 years according to climate change scenarios). Downstream of Hinton, water yield has declined about 50% in the past 30 years.

Schindler noted that there are no long-term records for water flow below the oil sands, only for Fort McMurray, which is upstream. Projections indicate that flows in the winter months could become really low. Oil sands developments are currently taking about 7% of the flow; as new developments become active, as much as 40% of the Athabasca River's winter flow could be used. It might be necessary to shut down oil sands operations in the winter.

Schindler observed that an IFN study was to be completed by 2005 but is still not done. It is clear that even without oil sands projects the river is jeopardized in the winter and even at high flow times there are problems. Seventy-six percent of allocations from the Athabasca River go to oil sands projects, which return less than 10%. Schindler projects that the oil sands developments will require too much water to sustain the Athabasca River and the Athabasca Delta. He maintained that studies need to also be done of the chemical releases from the oils sands, and measures must be taken to reduce water use.



The need for integration: Land use planning and watershed management **Steven Kennett, Pembina Institute**

Steven Kennett addressed the need to integrate land and water usages and the problem of cumulative effects. In governance terms, this means we are making decisions that are cumulatively leading us to an unintended and perhaps undesirable future. We do not have an integrated system that goes from broad policy to a planning policy down to a rights/allocations policy down to a project-specific regulation planning policy. We also have fragmentation because we make decisions that are not

linked. There is fragmentation between sectoral silos, e.g., Alberta Environment looks after water and air, Sustainable Resource Development looks after land use and Alberta Energy looks after land-use related activities.

Kennett noted that we understand now that this incremental approach is not working. The Water for Life Strategy, the Land-Use Framework (an initiative of the Sustainable Resources Development but supposedly inter-ministerial), the Environmental Sustainability Act (an Alberta Environment regulatory framework for cumulative effects management not yet released) and the Clean Air Strategic Alliance are sectoral strategies that need to be integrated.

Kennett noted that given that the pace, intensity and extent of development in the province (e.g., oil sands are projected to go from one million barrels a day to five million a day), we need a governance structure to sew all these sectoral strategies together. There is nothing wrong with thinking about water and land separately, but at some stage we need to pull them together and set priorities. We need to deal with the total effects of activities such as forestry, recreational activities, oil sands, roads and pipelines that create secondary effects on land and water and not just focus on reducing intensity.

The key piece is Integrated Regional Planning. New legislation is needed and plans that are binding within the decision-making hierarchy. Kennett observed that we need to think about the planning process and the tools for cumulative effects management. It is not just about integrating communication; it's about structural hardwired integration into management of resources.

Group Discussion

In response to a question, Schindler expressed his view that public opinion is shifting in Alberta. Farmers and ranchers are discovering that they are the targets of oil and gas development. The power base is shifting and this is being underestimated. Unfortunately, these landowners tend not to trust environmental organizations. A fundamental issue was articulated that it is difficult to articulate the real nature of the problems: many assume that the Energy and Utilities Board can "fix" the problems on a project-by-project basis, but this is not sufficient. Regional planning is critical. It was noted that the Southern Alberta Land Trust Society has just completed a study in rural Alberta that indicated that people were concerned about the pace of development.

The presenters were asked if they viewed integration as a goal in itself or a means to an end. They commented that it is the environmental community's job to articulate an overarching vision for land and watershed management, but it needs to be done in such a way that the public has a real stake in realizing it. A question was raised about whether the federal government needed to force better integration and consideration of cumulative effects, and the suggestion was made that little will change if the federal government continues to issue approvals. Kennett pointed out that there is plenty of unexercised jurisdiction at both the federal and provincial levels. Lobay-Minarik pointed out that perhaps a test case that needs to be solved in the courts could help.

An audience member suggested that there is also lots of effective work at the local level, and that the "shared governance" approach is actually eroding the responsibility of governments. She called for good dialogue about the role of the federal government and suggested that rather than more laws, what is needed is more enforcement.

The presenters were asked what question they would ask at the next all-candidates meeting in a provincial election. Their responses were as follows:

- What are the minimum levels of instream flow needs that must be protected; what is your bottom line?
- How many people do you foresee us having in this province? What is our model? Southern California or Alberta as we know it?
- How can you guarantee to the public that the cumulative impacts are not going to be damaging?
- When are we going to have a process in Alberta for people to take control of the future rather than just have it happen to them?
- What level of protection will you give to the headwaters?
- And a federal question: How will you deal with bulk water exports?

Groundwater Focus

Oil and gas impacts, knowledge gaps and the need for protection in Alberta

Mary Griffiths, Pembina Institute

Mary Griffiths' presentation drew upon two recent studies by Pembina Institute: a study on the impacts of oil and gas impacts on groundwater called *Troubled Water, Troubling Trends* and the Rosenberg's international forum on water policy.

The principle that groundwater and surface water quality must be preserved is part of the Water for Life Strategy. The long-term objective is to understand the state of the quality and quantity of Alberta's groundwater supply. The then-Minister of the Environment established advisory committee on water use practice and policy.

According to Griffiths, rural Albertans are worried about water being taken to get oil out of the ground, including the recovery of bitumen. Natural gas production, especially shallow coalbed methane, also poses potential risk to shallow aquifer. Ninety percent of rural Albertans rely on groundwater. Nearly 2/5 of groundwater allocations (not use) are for oil extraction and processing. Given that only 7% of oil sands are shallow enough to get out of the ground, the rest must be extracted using steam assisted gravity drainage (SAGD), and this raises many concerns about groundwater.



The Pembina Institute recommends a wetlands policy to help keep groundwater recharged and the strict implementation of the 2006 policy that requires companies to look for alternatives to fresh water. Also groundwater monitoring should be improved, and industry should be required to pay fees for fresh water to be dedicated to water management and research. Because water is free, industry

does not have incentive to look for alternatives. Therefore, the Pembina Institute recommends that industry should pay fees.

Also the government does not know how much groundwater is drawn from rural and domestic use. The Pembina Institute recommends expanding the definition of regulated groundwater; improving the knowledge of non-saline groundwater and making a commitment to long-term funding. She noted that the Rosenberg forum also recommended groundwater management districts; the licensing of all groundwater users; developing capacity to detect change in water levels on a continuous basis; improving early-warning monitoring; reviewing the first-in-time, first-in-right system; and developing a comprehensive data management system.

Salmon interactions, impacts and implications **Craig Orr, Watershed Watch Salmon Society**

Craig Orr began his presentation by commenting that although people in British Columbia love their fish, this doesn't always translate into protection. There has been a fairly intensive focus on instream flows for salmon in the last few years; this occurred because some citizens examined BC Hydro's practices and found that they were taking sometimes more than 50% of the water that had been allocated to them.

It was apparent to the Watershed Watch Salmon Society that it needed to study groundwater issues. They conducted a review of groundwater salmon interaction in British Columbia and followed up with a major workshop with U.S. hydrogeologists. It became obvious that British Columbia has some of the worst legal protection for salmon and groundwater in North America.

The Watershed Watch Salmon Society undertook a study that examined the dry areas where salmon spawn in the interior of British Columbia. They found that salmon are very temperature sensitive and that some salmon breed in areas where groundwater is percolating up because the water is cooler for them. Groundwater is therefore very important in maintaining the right temperature for the salmon.

However, there are several threats to groundwater in the province because of climate change, development, corrupt science and indifference. Orr noted that we need to address these key threats through mobilization and synergy involving science, mapping of groundwater resources, media and legal alliances, and alliances with First Nations.



Local engagement in Ontario

Mario Levesque, 2006 Water Policy Fellow

Mario Levesque presented his case study on structuring groundwater policy changes in Hamilton. His focus was on the power dynamics and finding an approach that would inspire change.

He found that there has been limited public consultation and notification of water permit applications and renewals. Another problem was periodic yet persistent groundwater shortages, especially in Carlisle. The typical response has been to drill more wells rather than reduce demand.

Levesque's theory is that people affected by the resource should be directly involved in creating their own governance or approach through group interaction. Groups, for example local community groups, should be allowed to represent stakeholders, and all these groups have a different role to play. Frequent collaboration develops stronger bonds. Stakeholders and the nature of their linkages have to be identified because this will give clues on how to structure groundwater policy changes.

He observed that Hamilton has several groups that could be interested in groundwater — a total of 88 in all, including community groups, environmental organizations and horticultural groups. He presented a diagram that showed current collaboration among these groups and the weak interaction between local and regional groups and local groups and government. He analyzed what the roles of these different groups are and how change is hindered by lack of interaction. There is a huge need for education and information; this is often done by better by local groups than government.

He concluded that change will be driven by the community at large and that nested institutional arrangements are needed. However, strategic links are missing, and unless these links are formed and strengthened, groundwater policy change will remain elusive.

Local engagement in Quebec

Patrick Henry, H₂O Chelsea

Patrick Henry presented on the H₂O Chelsea Project, a partnership to protect water resources, based in Chelsea, a suburb of Quebec City. The project looked at lakes, streams, well water quality and quantity, and community education. Everyone in Chelsea has a well and a septic system; it is impossible to build a wastewater system because of the Canadian Shield. A local approach to developing a good groundwater program is needed.

Henry commented that there are some water protection initiatives in places such as a septic tank emptying program, a wetland protection bylaw, a minimum lot size to minimize well and septic tank density, and a ban on the aesthetic use of pesticides.

The H₂O Chelsea Project was a scientific measurement of well quality and quantity. Twelve hundred homes participated in testing the water quality of their wells; this allowed H₂O Chelsea Project to map out areas of concerns and identify hotspot areas of bacterial contamination. There is still not enough data to determine if the current and project level of groundwater use is sustainable. The study used a questionnaire and a water census.

H₂O Chelsea can now determine if there are actual groundwater problems or if the problem is with the well. Henry added that the group is working to publicize and transfer its research, monitoring, and educational resources to interested communities. The monitoring protocols, datasheets, training manuals, and databases are accessible on the Adopt our Program page at www.h2ochelsea.ca. They

are also working on a water resource mapping portal tool to allow people to communicate on how to work with municipal governments to initiate some of these issues.

Group Discussion

Dave Schindler observed that water quality is also an issue for salmonids in Alberta.

Levesque was asked if the different levels of government understand that they are not connecting. Levesque responded that they think they are, but his study indicates they are not. There has been no response from key people at City Hall, and the focus is not on collaboration. Hamilton has the highest user of water per capita in the country. The tool he used to assemble his data but could be used by other communities to express relationships and connections.

Luncheon Slide Show & Chat “Engaging Future Leaders” Karen Kun with Bob Sandford

Bob Sandford’s book *Water, Weather and the Mountain West* (published by Rocky Mountain Books) will be released soon. For the last two years, Bob has been working with Karen Kun, Director of Waterlution Inc. and publisher of *Corporate Knights* magazine, to offer residential workshops in Alberta to young professionals between 20 and 35 years of age. These very successful “Future of Water” retreats have brought young Canadians together to learn from local resource people about water-related issues. Waterlution plans to expand the program nationally over the next year (please see www.waterlution.org for further details).



Afternoon: Solutions

In the afternoon session, ten Gordon Foundation grantees made presentations on land use and watershed solutions. At the end of each section, questions were taken from symposium participants.

Demand Management (DM) and Water Soft Paths (WSPs)

The opportunities of Water Soft Paths: A national overview David Brooks, Friends of the Earth Canada

David Brooks presented on the opportunities of water soft paths. Put most simply, water soft paths are a concept that depends upon resolving modern supply-demand issues for fresh water by reducing demand rather than by increasing supply. Brooks noted that the term “sustainable development” and

the concept of soft paths emerged simultaneously in the mid 1970s when we became more aware that, as Margaret Atwood puts it, “the economy is a wholly owned subsidiary of the environment”. I left this quote out Brenda because it definitely wasn’t Margaret Atwood who said this. It was Herman Daly, former economist at the World Bank. So if we leave it in, we should correct it. Soft paths are a vision that is a process, an analytical methodology and a planning tool.

According to a recently completed study, by applying water soft paths Nova Scotia could cut water use by over 50%, and Ontario could absorb heavy industrial growth with no new water through at least 2103. Further, urban water use could be reduced by 45% even with 50% growth in population, dietary changes could cut water use by one-third to one-half and fully recycling pulp and paper mills in Ontario could cut water use by 95%.

Brooks noted that water soft path analysis can be done, despite methodological problems, and quantitative results can incorporate climate change, instream flow needs and equity issues. He also noted that every land-use decision is a water-use decision, and therefore the two must be considered together. According to Brooks, water metering is imperative but is difficult to implement because of the perception that metering and charging for water use will lead to privatization. He closed by suggesting that no jurisdiction and no establishment in Canada should look for new water supplies until it has, first, adopted and enforced water demand management options, and, second, explored an alternative plan based on a backcast incorporating water soft path options.



An application of WSP concepts: Defeating a pipeline in Manitoba **Glen Koroluk, Manitoba Eco-Network**

Glen Koroluk provided some background on Lake Winnipeg, the 10th largest freshwater lake in the world with six sub-basins flowing into it. There are several significant water quality issues in the watershed, including eutrophication and flooding. He described a recent proposal to send water from the Sandilands aquifer in southeastern Manitoba by pipeline to communities in the south-central region to protect against potential water shortages. It was proposed by the Pembina Valley Water Cooperative, which already has a vast pipeline network in Manitoba.

This Sandilands aquifer is a unique area; it is a water source for five watersheds and an ecological gem. The cooperative’s rationale was drought susceptibility, water supply for new customers, population growth and livestock demand. The Manitoba Eco-Network communicated with groups and media and in a public hearing. In the hearing the network made three points: they noted there was insufficient information on the sustainability of the Sandilands aquifer complex, they called for the project to be measured against Manitoba’s policies and laws regarding watershed planning, and they

advanced that communities serviced by the cooperative should no longer rely on withdrawing water from a new source but embrace demand management.

The Manitoba Clean Environment Commission (CEC) decision in February 2007 was to reject the proposal based on inadequate information about the sustainability of proposed aquifer withdrawals. The CEC also recommended developing a basin-wide plan including associated aquifer plans that included water budgets and sustainable yield estimates, and more investigation into water-supply alternatives, e.g., desalinization, demand management and spring off-stream capture. Koroluk concluded by noting that the pre-election timing helped to secure a good decision. But he noted that it sets a good benchmark for other water proposals; there was a lot of support from academics, lawyers and grassroots advocates.

WSP as an alternative in Saskatchewan: Do we need more dams? Darrin Qualman, Saskatchewan Environmental Society

Darrin Qualman began with an overview of the “irrigation mania” that has been part of the province’s history and the traditional agricultural vision that water is the oil of the 21st century. The latest plan started with the Highgate Dam, and there are plans to build 20 more reservoirs and diversions in the south (mostly from the North Saskatchewan River) at a cost of \$20-30 billion. The rationale behind these dams is a food-based industry strategy to create economic growth.

Irrigation policy and practice are key to water policy in Western Canada. Qualman observed that in the face of irrigation mania, water soft paths are the only idea that makes sense. Urban and industrial users will accept boundaries — they only want to flush so much waste so often. Irrigation-centred models, however, are not similarly bounded; water usage can increase several fold. Water soft paths ask the question why? And the answer is that there is no “enough” limit on food production so there is no obvious limit to irrigation expansion. Qualman recommends not asking “why” but “to whose benefit?” and “if no dams and irrigation, then what?” These are difficult questions because they raise issues of equity; how do we ask some to forego irrigation if others have that privilege?

Qualman noted that Golders Associates gave its assessment of the Highgate dam this last week and it did poorly, similar to the Meridian Dam.

WSP opportunities and potential for application in the forestry sector Liz Hendriks, 2006 Water Policy Fellow

Liz Hendriks did her Water Policy Fellowship with Friends of the Earth Canada on the applicability of the soft path on the forestry sector in Ontario. She found that there was a major gap in academic knowledge about the industrial use of water, which is a challenge for all water research.

The pulp and paper industry accounts for 3% of Canadian GDP. The mills, found in both populated and non-populated areas of the country, are one of the largest users of water. There is a strong link between energy use and water use; there tends to be an inverse relationship depending on the technology.

Hendriks observed that water soft paths must understand the systems of influence, e.g., technology, market forces, policy and regulation, and trade. The current context of market forces

includes the boom and bust cycle, the high Canadian dollar, increased international competition and high energy costs. Industry has to respond with reinvention, e.g., looking at different products and centralization, i.e., a shift to super mills and major mergers, which could give water soft paths a chance.

She noted that one system of influence is policy and regulation and that industrial water policy needs more stringent reporting methods. Avenues for action include water-use efficiency initiatives (which could come from the federal government), recognizing self-supplied users in the broader watershed and full pricing. The federal initiative on endocrine disruptors and biodiversity is on the list of focuses.

Demand management and BC communities: Local promotion and implementation of green infrastructure

Susan Rutherford, West Coast Environmental Law

Susan Rutherford opened with a description of the work of West Coast Environmental Law, which includes legal work and outreach and education. She is involved with the Livable and Sustainable Communities program and works with local government and community groups who care about the impact of development and green infrastructure initiatives, including both natural and engineered systems (e.g., city bike lanes, permeable parking, connected greenways and rainwater catchments).

The context of the Green Infrastructure project is the opportunity for local government action on policy and infrastructure affecting water demand. Many of the smaller local governments do not have planners or legal counsel; there is a gap in resources and capacity. Available partners include other groups interested in the issues and the legal niche (local government law and policy).

The approach to the study was to research and publish tools including a green building guide and a green infrastructure guide, outreach to local government and citizens, outreach through partnerships, building through example and showcasing innovation. Local governments are very interested.

She commented on some themes that she had seen in this work: finding success through leaders and champions, setting goals, backcasting, integrating goals and processes, using expertise and advisory committees, building success incrementally and monitoring progress. Rutherford has observed a huge surge of interest, increased legal and policy capacity for local government action and more examples of pilots or full-scale implementation.

Group Discussion

The presenters were asked which level of government should be involved and what politicians should do to implement a soft path approach. Responses included the following:

- Local governments need to think like a watershed — and understand the limits of water availability.
- Start locally and give them the power to get things done.
- In Saskatchewan, focus at the provincial level because new water legislation is coming up that needs to tie together supply expansion with an examination of demand management and soft path.

- In Manitoba, look at the local/municipal level, but regulatory changes would have to happen provincially.
- So much could be done in the urban areas — there’s a lot of low-hanging fruit there.
- Get instream flow requirements by assumption first and analysis afterwards.

A participant asked why metering was good but privatization bad and where this sentiment came from. David Brooks responded by noting that water management is inherently a public responsibility, but he questioned why, if private companies can run the pumps better, this is an option that is virtually non-discussable.

The question was raised about the difference between soft paths and demand management. The response was that soft paths are similar in some ways, but they also look at the institutional barriers and question the fundamental growth ethic. They challenge us to consider the “satisfied” approach rather than the “take-as-much-as-you-can” approach.

Watershed Approaches

Source water protection implementation in Ontario and opportunities and considerations for elsewhere

Rick Smith, Environmental Defence

Rick Smith discussed the Clean Water Act in Ontario. The incoming government promised years ago to fulfill the O’Connor (Walkerton) recommendations, including source water protection. Source protection committees are now being established. In 2008, source water protection regulations will be established. In 2009, the assessment report will begin to be submitted to government and early implementation begins. From 2009-2012, source protection plans will be approved and implemented.

The Clean Water Act structure is rooted in existing entities — the existing Conservation Authorities grouped into Source Protection Authorities. Each authority has a committee, which are being formed now. Then each region will come up with terms of reference and a source protection plan. Smith noted that the challenge is that there are 19 Source Protection Authorities across Ontario, and each one has a committee with representation from the environmental community. Each one will have a semi-autonomous process, which could have bad or good results.

Environmental Defense and the Canadian Environmental Law Association successfully advocated for an environmental nongovernmental organization representative on each Source Water Protection Committee, and they are working with the Ontario Environmental Network to facilitate that representation through the Water Guardians network they created.



Smith noted that it took about two years to get the Clean Water Act passed. It will take over six years to implement it, and it will need to be kept on track. The very structure that the environmental community supported will now present it with huge ongoing organizational challenges. The Clean Water Act is somewhat hostage to electoral changes (which could take place this October). He concluded by commenting that implementation would tell the tale. The Clean Water Act is not an end in itself but a framework for organizing.

Developing a prairie “Statement of expectations for water management” Lindsay Telfer, Sierra Club Prairie Chapter

Lindsay Telfer described the Prairie Citizens Water Directive, a collective call to action for the sustainable management of water across the Prairie Provinces. It is a statement of expectations for water management that is based on the Ontario Statement of Expectations for Watershed-based Source Protection. The prairie coalition is the Sierra Club Prairie Chapter, the Manitoba-Eco Network, the Saskatchewan Environmental Society and the Bow Riverkeeper.

Telfer noted that the purpose of the coalition was to unite their region with collective expectations for watershed management. They wanted to build a citizens’ grassroots movement and connect citizens with some shared visions. The coalition developed a detailed draft paper, with a vision statement and thematic areas with specific expectations. In the fall of 2007, the coalition is launching a series of 10 public forums across the Prairie Provinces to build a broad base of grassroots support and to strategize on action steps to promote implementation. Then the coalition will revise the draft based on what they hear and move on implementation.

The draft document is available at http://www.sierraclub.ca/prairie/water_forum.htm.

Group Discussion

The question was asked about how a seat was secured for environmentalists on the Source Protection Committees in Ontario. Jessica Ginsburg of the Canadian Environmental Law Association responded that the first draft of the act was released without reference to environmental NGOs that had been committed to the process. Ginsburg and others sat down with the minister to change the language of the regulation. The environmental groups involved were primarily small-scale grassroots groups and some that were not exclusively environmental non-governmental organizations. They drafted a Terms of Reference document with vision, objectives, goals, operating procedures and responsibilities, and this proved to be the key organizational tool. The challenge is that most of the details were pushed into the implementation period so they now need to coordinate across the province as committees form and begin working. The government now wants to continue to deal with one coordinated network because it is easier for them than to deal with all the groups.

When questioned about resource challenges, Smith noted that if the Conservatives come to power, they might not tear up the act but will likely starve it of resources. One area of concern is that the Source Protection Committees have not been funded, nor has funding been increased for the Conservation Authorities. [Note: the Liberal Party won a second majority in Ontario on October 10, 2007.]

Engaging Nationally

Pollution Probe National Dialogue Outcomes Rick Findlay, Pollution Probe

During 2006, Pollution Probe held five workshops across Canada engaging about 400 people, including non-governmental organizations; academics; federal, provincial and municipal governments; industry; and First Nations. A report of the series was published in April 2007.

Key messages included the shift from a top-down jurisdictional approach to a more bottom-up demand-driven approach. This includes shared responsibility and the belief that the needs of the watershed should be looked after by all levels of government along with a distributed approach to information management. A need for much greater government investment in water management and the connection between good science and good policy were also key messages, along with the importance of the precautionary principle and the need to value water in non-economic ways.

Findlay commented that Canada needs to engage internationally and adapt to changes in climate as we develop watershed plans across the country. This will require vision and leadership along with a national water strategy and a national water council. He concluded by stating that we need a new approach to water management in Canada.

Pollution Probe will soon be releasing a 10-page document on its vision and approach. Findlay noted that we have the answers; what is needed is mobilization toward a new water approach and a tie-in with government, industry and academics. We have national consensus; it's time to codify it and proceed.

National assessment; water allocation and water security in Canada Rob de Loë, University of Guelph

Rob de Loë explained that water allocation is the rules and procedures through which rights to use scarce water resources are assigned. These water allocation systems are critical determinants of water security by which is meant sufficient water of good quality available for social, economic and cultural uses while adequate water is available to sustain and enhance important ecosystem functions.

Regarding the national assessment that the Guelph Water Management Group undertook, de Loë noted that it was a huge enterprise. It provided detailed evaluation around seven key criteria: 1. ecosystem projection; 2. economic protection; 3. equity and participation; 4. integration; 5. water conservation; 6. climate variety and change; and 7. transboundary sensitivity. They found that concerns are being addressed but often incidentally and that specific attention to links between water allocation and water security is needed. Opportunities do exist for policy learning, but one size does not fit all.

de Loë also noted that we are not doing that well regarding taking environmental considerations into account with water allocation, although this is really important. He also questioned whether, in regards to national dialogue, we are ready with the big answers. We do know we have to do something, e.g., implementing a fee schedule for water permits and then using the funds to support a water allocation system, but he questioned whether water security is a national or regional concern. Another huge question is that of aboriginal water governance, which will have profound implications in the future. The provincial government considers them another stakeholder, but the legal direction is contrary to this.

Changing the flow: a Blueprint for Federal Action on Freshwater

Tim Morris, Sierra Club of Canada

Changing the Flow: A Blueprint for Federal Action on Freshwater was a project led by the Sierra Club of Canada and nine main authors, representing advocacy, academics, indigenous, legal and former government employees. The report clearly articulates the emerging water crisis; the old problems that have still not been addressed, e.g., bulk exports, excessive water use and untreated sewage; and the serious new threats, e.g., climate change, energy production and new pollution. Morris noted that, among other things, we need to promote a culture of water conservation and develop world class water science.



The high-level watermark of federal water policy was in 1987. We have effectively had no federal water policy for over two decades. We also have inadequate national capacity. For example, we used to monitor 4,000 water quantity monitoring sites; we now monitor only 2,500. The science personnel at Environment Canada were cut 26% between 1992 and 2007. Environment Canada determined that 300 staff were needed for effective enforcement. In 2003, it had 93.

Morris then asked the audience the following questions:

- Does Canada need a national water strategy?
- Who should lead a national water strategy?
- How do we get there?
- What should be in it?

Audience responses included the following:

We have heard lots about sustainability today, but no one has suggested a specific model we should use. *Panarchy: Understanding transformations in Human and Natural Systems* (Holling and Gunderson) was suggested. We need economic and social structures to bring about clean water.

We should be suspicious of “big bang” solutions. A nested watershed approach would be a good model.

Looking for a single model is not the answer; we need a plethora of models.

The word “national” has been cagily adopted by industry and the provinces. Look no further than the harmonization accord where the provincial governments have dispensed with the federal government. We need a dialogue about the role of the federal government. “Shared governance” is really eroding the responsibility of government.

We need an overall framework to ensure that gaps are being met. There are areas where the levels of government need to have their areas of jurisdiction but other areas e.g., bulk water exports where

provincial governments need to agree. It does not make sense, for example, for water allocation to be done nationally.

There needs to be determination and a national process. “National” and other terms are loaded; perhaps we should say “Canadian” water strategy.

One thing that the federal government has that the provinces don’t have is money. There is a huge opportunity lost in not letting the federal government use the money as incentive, e.g., water metering.

What we haven’t heard in this discussion is politics. Politicians listen to coalitions of interest that are broad and speaking in unison; sadly they will not listen to environmental non-governmental organizations. So we need broad coalitions that cut across sectoral alliances.

Do we need a federal strategy? To answer that question from an Alberta perspective — if the federal government doesn’t get involved, we are not going to see the Alberta government protecting watersheds; the federal government is needed here, but it has to be a made-in-Alberta approach to be politically palatable.

We need to look at solutions in new ways. There are lots of ideas, but little has been done on a large scale. Water allocation is becoming an issue, and if we can persistently voice the same concerns, we might get change.

Appendix A Agenda

Walter and Duncan Gordon Foundation's 2nd Water Forum: LAND USE AND WATERSHED MANAGEMENT in ALBERTA AND BEYOND

Calgary Zoo

Tropical Oasis Room

September 17th, 2007

8:00 a.m. coffee/registration

8:30 opening remarks by the Foundation and facilitator **Michael Robinson**

Morning: Challenges in Alberta and beyond

9:00 **Introduction – The current context in Alberta**

- 10 min Water for Life: Implementation of watershed management in Alberta (Danielle Droitsch, Bow Riverkeeper)
- 10 min Protecting IFNs: how are we doing and what is the federal government role? (Mike Wenig, Canadian Institute of Resources Law)
- 10 min Water trading: what can we expect in BC and AB? (Randy Christensen, Sierra Legal Defence Fund)
- 10 min Climate Change impacts on management of the South Saskatchewan River Basin (Shelly Lobay-Minarik, 2006 Water Policy Fellow)
- 10 min Addressing climate change in Alberta's watershed management (Dave Schindler, University of Alberta)
- 10 min The need for integration: Land use planning and watershed management (Steven Kennett, Pembina Institute)

10:30 **Break**

11:00 **Groundwater Focus**

- 10 min Oil & gas impacts, knowledge gaps and the need for protection in Alberta (Mary Griffiths, Pembina Institute)
- 10 min Salmon interactions, impacts, and implications (Craig Orr, Watershed Watch Salmon Society)
- 10 min Local engagement in Ontario (Mario Levesque, 2006 Water Policy Fellow)
- 10 min Local engagement in Quebec (Patrick Henry, H2O Chelsea)

12:00 **Lunch** Slide show & chat: Engaging future leaders (Karen Kun with Bob Sandford)

Afternoon: Solutions

1:00 Demand Management (DM) and Water Soft Paths (WSPs)

- 10 min The opportunities of Water Soft Paths: A national overview (David Brooks, Friends of the Earth Canada)
- 10 min An application of WSP concepts: Defeating a pipeline in Manitoba (Glen Koroluk, Manitoba Eco-Network)
- 10 min WSP as an alternative in Saskatchewan: Do we need more dams? (Darrin Qualman, Saskatchewan Environmental Society)
- 10 min WSP opportunities & potential for application in the forestry sector (Liz Hendriks, 2006 Water Policy Fellow)
- 10 min DM opportunities & local implementation (Sarah Wolfe, 2006 Water Policy Fellow)
- 10 min DM and BC communities: Local promotion and implementation of green infrastructure (Susan Rutherford, West Coast Environmental Law)

2:15 Break

2:30 Watershed Approaches

- 10 min Source Water Protection implementation in Ontario and opportunities & considerations for elsewhere (Rick Smith, Environmental Defence)
- 10 min Developing a Prairie “Statement of Expectations for water management” (Lindsay Telfer, Sierra Club Prairie Chapter)

3:00 Engaging Nationally

- 10 min Pollution Probe National Dialogue outcomes (Rick Findlay, Pollution Probe)
- 10 min National Assessment: Water Allocation and Water Security (Rob de Loë, University of Guelph)
- 10 min Changing the Flow: A Blueprint for Federal Action on Freshwater (Tim Morris, Sierra Club of Canada)

4:30 pm End

5:00 pm Reception & Dinner

7:00 pm Public Forum – Esso Theatre, Calgary Zoo

WATER HERE, WATER THERE: Can we protect watersheds in the face of future demands in Alberta and beyond?

This evening forum will be a book launch for *Eau Canada: The Future of Canada's Water* (edited by Karen Bakker and published by UBC Press) with many contributors in attendance. There will be a panel on **Canadians and Americans Working Together to Protect Transboundary Watersheds** moderated by Adèle Hurley with Steve Thompson (National Parks Conservation Association) talking about experiences in the Flathead basin and David Conrad (National Wildlife Federation) talking about experience with Devils Lake. This will be followed by Brad Stelfox's presentation **A Landscape Vision for Alberta: The Delicate Balance between Myriad Demands and Ecological Constraints**. The forum is open to the public.

Appendix B

LIST OF PARTICIPANTS

Lynn Barber

Senior Programme Manager
Friends of the Earth
206-260 St. Patrick Street
Ottawa, ON K1N 5K5
Tel: 613-241-0085
E-mail: barberl@foecanada.org

Meghan Beveridge

Bow Riverkeeper
P.O. Box 3120
Banff, AB T1L 1C7
Tel: 403-762-0591
E-mail: meghan@bowriverkeeper.org

Cheryl Bradley

Lethbridge, AB
Tel: 403-328-1245
E-mail: cebradley@shaw.ca

Oliver Brandes

Research Associate
University of Victoria - POLIS Project on
Ecological Governance
University House 4, P.O. Box 3060
Victoria, BC V8W 3R4
Tel: 250-721-8193
E-mail: omb@uvic.ca

David Brooks

Director of Research
Friends of the Earth
206-260 St. Patrick Street
Ottawa, ON K1N 5K5
Tel: 613-241-0085
E-mail: dbrooks@foecanada.org

Margaret Chandler

Green Fuse Communications
Calgary, AB
Tel: 403-244-2211
E-mail: mchandler@greenfuse.ca

Randy Christensen

Sierra Legal Defence Fund Society
131 Water Street, Suite 214
Vancouver, BC V6B 4M3
Tel: 604-685-5618
E-mail: rchristensen@sierralegal.org

David Conrad

Senior Water Resources Specialist
National Wildlife Federation
1400 16th Street NW
Washington, DC 20036
Tel : 202-797-6697
conrad@nwf.org

Rob de Loë

University of Guelph
Canada Research Chair in Water Management
Department of Geography
Guelph, ON N1G 2W1
Tel: 519-824-4120 x 53525
E-mail: rdeloe@uoguelph.ca

Danielle Droitsch

Bow Riverkeeper
P.O. Box 3120
Banff, AB T1L 1C7
Tel: 403-762-0591
E-mail: danielle@bowriverkeeper.org

Rick Findlay

Director, Water Programme
Pollution Probe
63 Sparks Street, Suite 101
Ottawa, ON K1P 5A6
Tel: 613-237-8666
E-mail: rfindlay@pollutionprobe.org

Lorne Fitch

Provincial Riparian Specialist
 Alberta Riparian Habitat Management
 Society - Cows and Fish
 2nd Floor, YPM Place
 530 - 8th Street South
 Lethbridge, AB T1J 2J8
 Tel: 403-328-1245
 E-mail: lfitch@cowssandfish.org

Aaron Freeman

Policy and Campaigns Director
 Environmental Defence Canada Inc.
 Ottawa, ON
 Tel: 613-564-0007
 E-mail: afreeman@environmentaldefence.ca

Lori Gammell

Senior Community Investment Advisor
 Suncor Energy Foundation
 P.O. Box 38, 112 - 4th Ave. SW
 Calgary, AB T2P 2V5
 Tel: 403-269-8775
 E-mail: lgammell@suncor.com

Alan Gardner

Executive Director
 Southern Alberta Land Trust Society
 P.O. Box 45016
 High River, AB T1V 1R7
 Tel: 1-877-999-7258
 E-mail: info@salts-landtrust.org

Jessica Ginsburg

Special Projects Counsel
 Canadian Environmental Law Association
 130 Spadina Ave., Suite 301
 Toronto, ON M5V 2L4
 Tel: 416-960-2284
 E-mail: jginsburg@ccla.ca

Sue Gordon

Research Hydrogeologist
 Alberta Research Council
 3608 - 33 Street NW
 Calgary, AB T2L 2A6
 Tel: 403-210-5369
 E-mail: Sue.Gordon@arc.ab.ca

Mary Griffiths

Environmental Policy Analyst
 Pembina Institute
 2nd Floor, 10008 - 82 Avenue
 Edmonton, AB T6E 1Z3
 Tel: 780-485-9610
 E-mail: maryg@pembina.org

Michelle Heiser

Watershed Protection Programmer
 Saskatchewan Environmental Society Inc.
 #203 115 2nd Avenue N.
 Saskatoon, SK S7K 3N9
 Tel: 306-665-1915
 E-mail: water@environmentalsociety.ca

Patrick Henry

Municipality of Chelsea, H2O Chelsea
 100, chemin Old Chelsea
 Chelsea, QC J9B 1C1
 Tel: 819-827-1124
 E-mail: h2O@chelsea.ca

Theodore Horbulyk

Assistant Professor
 The University of Calgary
 2500 University Drive N.W.
 Calgary, AB T2N 1N4
 Tel: 403-220-4604
 E-mail: horbulyk@ucalgary.ca

Marc Hudon

Program Director
 Nature Québec
 207-870 ave De Salaberry
 Quebec City, QC G1R 2T9
 Tel: 418-543-9681
 E-mail: hudo@videotron.ca

Steven Kennett

Senior Policy Analyst
 Pembina Foundation for Environmental
 Research and Education
 200, 608 - 7th Street S.W.
 Calgary, AB T2P 1Z2
 Tel: 403-269-3344
 E-mail: stevek@pembina.org

Glen Koroluk

Water Issues Coordinator
 Manitoba Eco-Network Inc.
 3-303 Portage Avenue
 Winnipeg, MB R3B 2B4
 Tel: 204-947-6511
 E-mail: water@mbeconetwork.org

Karen Kun

Waterlution
 50 Old Mill Road, Suite 401
 Oakville, ON L6J 7W1
 Tel: 416-887-4709
 E-mail: karen@waterlution.org

Pat Letizia

Executive Director
 Alberta Ecotrust Foundation
 810, 1202 Centre Street S.E.
 Calgary, AB T2G 5A5
 Tel: 1-800-465-2147
 E-mail: pletizia@albertaecotrust.com

Richard Lindgren

Acting Executive Director
 Canadian Environmental Law Association
 130 Spadina Ave., Suite 301
 Toronto, ON M5V 2L4
 Tel: 416-960-2284
 E-mail: r.lindgren@sympatico.ca

Catherine McVitty

Unilever Canada Foundation
 160 Bloor Street East
 Toronto, ON M4W 3R2
 Tel: 416-415-3164
 E-mail: Catherine.Mcvitty@unilever.com

Allan Northcott

Program Officer
 Max Bell Foundation
 639 - 5th Avenue S.W., Suite 1230
 Calgary, AB T2P 0M9
 Tel: 403-215-7310
 E-mail: northcotta@maxbell.org

Linda Nowlan

Faculty Research Associate
 University of British Columbia
 Institute for Resources, Environment and
 Sustainability, 439-2202 Main Mall
 Vancouver, BC V6T 1Z4
 Tel: 604-822-6474
 E-mail: lnowlan@ires.ubc.ca

Craig Orr

Executive Director
 Watershed Watch Salmon Society
 1037 Madore Avenue
 corr@telus.net
 Coquitlam, BC V3K 3B7
 Tel: 604-936-9474
 E-mail: corr@telus.net

Darrin Qualman

Water Issues Coordinator
 Saskatchewan Environmental Society Inc.
 #203 115 2nd Avenue North
 Saskatoon, SK S7K 3N9
 Tel: 306-492-4714
 E-mail: darrinq@environmentalsociety.ca

Michael P. Robinson

President and C.E.O.
 Glenbow Museum
 130 - 9th Avenue S.E.
 Calgary, AB T2G 0P3
 Tel: 403-268-4214
 E-mail: michaelr@glenbow.org

Susan Rutherford

Staff Counsel
 West Coast Environmental Law Research
 Foundation
 1001-207 West Hastings Street
 Vancouver, BC V6B 1H7
 Tel: 1-800-330-9235
 E-mail: srutherford@wcel.org

Bob Sandford

Chair
 United Nations Water for Life Decade's
 Canadian Partnership Initiative
 c/o University of Lethbridge
 4401 University Drive
 Lethbridge, AB T1K 3M4
 E-mail: sandford@telusplanet.net

Owen Saunders

Executive Director
 Canadian Institute of Resources Law
 Faculty of Law
 University of Calgary
 Calgary, AB T2N 1N4
 Tel: 403-220-3200
 E-mail: josaunde@ucalgary.ca

David Schindler

Killam Memorial Professor of Ecology
 University of Alberta
 CW 405 Biological Building
 Edmonton, AB T6G 2E9
 Tel: 780-492-1291
 E-mail: d.schindler@ualberta.ca

Hans E. Schreier

Professor
 University of British Columbia
 Institute for Resources and Environment
 417 - 2202 Main Mall
 Vancouver, BC V6T 1Z4
 Tel: 604-822-4401
 E-mail: star@unixg.ubc.ca

Greg Shyba

Executive Director
The University of Calgary
Alberta Ingenuity Centre for Water Research
Earth Sciences 1040
2500 University Drive N.W.
Calgary, AB T2N 1N4
Tel: 403-210-8921
E-mail: gshyba@shaw.ca

Rick J. Smith

Executive Director
Environmental Defence Canada
317 Adelaide Street West, Suite 705
Toronto, ON M5V 1P9
Tel: 416-323-9521
E-mail: rsmith@environmentaldefence.ca

Brad Stelfox

Landscape Ecologist/Landuse Analyst
ALCES Group
Forem Consulting Ltd.
Box 805
Bragg Creek, AB TOL OKO
Tel: 403-949-3008
E-mail: bstelfox@foremtech.com

Carla Stevens

Program Coordinator
Bow Riverkeeper
P.O. Box 3120
Banff, AB T1L 1C7
Tel: 403-762-0591
E-mail: carla@bowriverkeeper.org

Water Programme Advisors:**Jim Bruce**

Canadian Policy Representative
Soil & Water Conservation Society
Ottawa, ON
E-mail: jpbruce@sympatico.ca

Linda Duncan

Environmental Law & Policy
Edmonton, AB T6E 2T1
E-mail: duncan@telus.net

Lindsay Telfer

Prairie Chapter Director
Sierra Club of Canada Foundation
2nd Floor, 6328 104 Street
Edmonton, AB T6H 2K9
Tel: 780-439-1160
E-mail: lindsay@sierraclub.ca

Steve Thompson

Associate Regional Director
National Parks Conservation Association
Northern Rockies Region
PO Box 4485, Whitefish, MT 59937
Whitefish, MT 59937
Tel: 406-862-6793
E-mail: sthompson@npca.org

Shelley Uytterhagen

Program Director
Carthy Foundation
P.O. Box 2554, Station M
Calgary, AB T2P 3G3
Tel: 403-231-7920
E-mail: suytterhagen@loram99.com

Michael Wenig

Canadian Institute of Resources Law
Faculty of Law
University of Calgary
Calgary, AB T2N 1N4
Tel: 403-220-3200
E-mail: mwenig@ucalgary.ca

Adèle Hurley

Director, Program on Water Issues
Munk Centre for International Studies
1 Devonshire Place
Toronto, ON M5S 3K7
Tel: 416-946-8919
E-mail: hurleyut@istar.ca

Joanne Thompson

Senior Hydrogeologist
R.J. Burnside & Associates Limited
16775 Yonge Street, Suite 200
Newmarket, ON L3Y 8J4
Tel: 905-953-8967
E-mail: jthompson@rjburnside.com

Water Policy Fellows:**Alice Cohen**

University of British Columbia
 Tel: 604-221-5493
 E-mail: cohena@interchange.ubc.ca

Cecilia Ferreyra

University of Guelph
 Tel: 519-826-9184
 E-mail: mferreyr@uoguelph.ca

Elizabeth Hendriks

University of Waterloo
 E-mail: hendriks.elizabeth@gmail.com

Mario Levesque

McMaster University
 E-mail: coxlev@quadro.net

Shelly Lobay-Minarik

University of Calgary
 E-mail: dsminari@ucalgary.ca

Tony Maas

University of Waterloo
 Senior Water Policy Advisor
 World Wildlife Fund Canada
 E-mail: tmaas@wwfcanada.org

Korice Moir

York University
 E-mail: koricemoir@yahoo.com

Tim Morris

University of British Columbia
 National Water Campaigner
 Sierra Club of Canada
 Tel: 416-960-9606
 E-mail: tmorris@sierraclub.ca

Bryan Poirier

University of Guelph
 Tel: 519-836-8745
 E-mail: bpoirier@uoguelph.ca

Sarah Wolfe

University of Waterloo
 E-mail: sewolfe@fes.uwaterloo.ca

Foundation Staff:**Patrick Johnston**

President and CEO
 Walter & Duncan Gordon Foundation
 11 Church Street, Suite 400
 Toronto, ON M5E 1W1
 Tel: 416-601-4776
 E-mail: patrick@gordonfn.org

Marjan Montazemi

Programme Manager, Global Citizenship
 Walter & Duncan Gordon Foundation
 11 Church Street, Suite 400
 Toronto, ON M5E 1W1
 Tel: 416-601-4776
 E-mail: marjan@gordonfn.org

Brenda Lucas

Programme Manager,
 Fresh Water Resources Protection
 Walter & Duncan Gordon Foundation
 11 Church Street, Suite 400
 Toronto, ON M5E 1W1
 Tel: 416-601-4776
 E-mail: brenda@gordonfn.org

Foundation Board of Trustees:**Jane L. Glassco**

Toronto, ON

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University Lecturer, International Relations
University of Oxford