



## Water Sustainability<sup>1</sup>

### A. INTRODUCTION

In June 2008 the provincial government released *Living Water Smart: British Columbia's Water Plan*, its watermark for reforming the way water is used, managed and regulated in B.C. Among the various “government positions” in the document are statements that:<sup>2</sup>

- By 2020, water use in B.C. will be 33 percent more efficient;
- Fifty percent of new municipal water needs will be acquired through conservation by 2020;
- By 2012, government will require all large water users to measure and report their water use;
- Government will require more efficient water use in the agricultural sector;
- By 2012, all land and water managers will know what makes a stream healthy, and therefore be able to help land and water users factor in new approaches to securing stream health and the full range of stream benefits; and
- Government will support communities to do watershed management planning in priority areas.

The government position on water law reform for ecosystem health includes:

- By 2012, water laws will improve the protection of ecological values, provide for more community involvement, and provide incentives to be water efficient;
- Legislation will recognize water flow requirements for ecosystems and species;
- Government will require all users to cut back their water use in times of drought or where stream health is threatened;
- Government will limit all new licences to 40-year terms in areas where there is high demand and pressure on water;
- The Ground Water Protection Regulation will protect the quality and quantity of our groundwater;
- By 2012, government will regulate groundwater use in priority areas and large groundwater withdrawals;
- The Green Building Code will require water-conserving plumbing fixtures such as low flush toilets;
- By 2010, government will mandate purple pipes in new construction for water collection and reuse; and

---

<sup>1</sup> Thanks to Oliver Brandes (Director Water Sustainability Project, Polis Project on Ecological Governance, UVic), Steven Catania (Student, Environmental Law Clinic), Randy Christensen (Lawyer, Ecojustice), and Linda Nowlan (Lawyer) for their analysis of this topic.

<sup>2</sup> Province of B.C., *Living Water Smart: British Columbia's Water Plan* (Victoria: Province of BC, 2008).

- Government and First Nations' treaty water negotiations and other related agreements support providing a clean and safe domestic, agricultural and industrial water supply for First Nation communities.

The provincial government introduced this water plan against a backdrop of unresolved water ownership and the statistical reality that in many watersheds water allocations have exceeded the available water, compromising ecosystem health and challenging the water licensing regime in B.C. Water use in this province is following the global trend where water withdrawals are increasing at a rate that exceeds human population growth.<sup>3</sup> Canadians are the second most per capita consumptive users of water in the world, a close second behind the U.S. and using at least twice as much as people in Europe.<sup>4</sup> The direct link between rate of use and price of water is evident in B.C. where water costs are one of the lowest per unit of water in the world.<sup>5</sup>

The rising water consumption in B.C. is mirrored by increasing water shortages. Over a decade ago eight percent of the 300 classified aquifers in BC were found to be at risk due to heavy use.<sup>6</sup> In the South Okanagan, 235 of 300 streams are fully recorded, which means there is no additional water available for new water licences.<sup>7</sup> Water shortage became so acute in central B.C. in the summer of 2009 that the provincial government proclaimed section 9 of the *Fish Protection Act* in force, enabling the Minister to make temporary orders for water licensees to curtail their use irrespective of the precedence of water licences for the purpose of protecting fish populations.<sup>8</sup>

The fulcrum of this water use and ecosystem health impasse is the provincial *Water Act*, a statute dating from the early part of the 20<sup>th</sup> century designed to facilitate industrial and agricultural uses of water. It mandates a centralized provincial regime where water management is driven by applications for extractive uses and largely applies a one-size-fits-all governance approach to water taken from B.C.'s 291,000 watersheds.<sup>9</sup>

As water crises are increasing, both from ecosystem and consumptive use perspectives, there are a number of fundamental questions now facing the reform of water governance and

---

<sup>3</sup> Katz, D. Going with the Flow: Preserving and Restoring Instream Water Allocations, in Gleick, Peter H. et al. (eds.) (2006) *The World's Water 2006-2007: Biennial Report on Freshwater Resources* (Island Press: Washington DC) at 30.

<sup>4</sup> Brandes, O.M. with K. Ferguson (2003). *Flushing the Future? Examining Urban Water Use in Canada*. (Victoria, BC: The POLIS Project on Ecological Governance – University of Victoria).

<sup>5</sup> Organization for Economic Cooperation and Development (1999). *The Price of Water: Trends in OECD Countries* (Paris: OECD).

<sup>6</sup> Auditor General of BC, 1999.

<sup>7</sup> Allen, D. Understanding Threats to Groundwater in Okanagan Basin: Vulnerability and Sustainability Presentation to Groundwater in the Okanagan Symposium (January 23, 2007), as quoted in Nowlan, L. and K. Bakker, *Delegating Water Governance: Issues and Challenges in the BC Context* (Vancouver, BC: University of British Columbia Program on Water Governance, 2007) at 50.

<sup>8</sup> S.B.C. 1997 c.21. See BC Reg Bulletin # 25. OIC # 410/2009 brings section 9 of the *Fish Protection Act* into force. <http://www.qp.gov.bc.ca/statreg/bulletin/bull2009/bull25.htm>

<sup>9</sup> *Living Water Smart*, at 9.

management. Foremost is recognizing aboriginal rights and title to water and instream flow needs. Looking at examples from the Western U.S., British Columbians must also decide whether the government or First Nations hold an amount of water in trust for ecosystems, or whether all water in a watercourse should be privatized in licences, including licences for instream flows so that parties who hold ecosystem interests can enforce their rights against private interests. The latter approach may necessitate free flowing water licences that are not attached to a specific parcel of land.

The purpose of this backgrounder is to discuss some of the issues raised by the regulatory and ownership regime for water in B.C.. It does not address water quality from a waste management or pollution prevention perspective, but from an ecosystem health perspective of ensuring adequate water is available in any watercourse. Section B sets out the characteristics of the legislated water management regime and the principles upon which it is based. Section C canvases the challenges facing this regime that any water law reform will need to address. Section D invites the reader to consider questions posed in anticipation of the ELC Associates teleconference on Monday November 23.

## **B. CHARACTERISTICS OF WATER OWNERSHIP, USE AND REGULATION IN B.C.**

The principles of water management have not changed since the provincial government enacted the original water legislation in the early 1900's. The historical intent was to facilitate the settlement and development of the province by granting licences to use water. Regional managers have always granted licences absent watershed planning, and without necessarily an understanding of watershed hydrology, ecology and adaptive management. The principles described below are the foundation on which the static water licence regime in B.C. is based.

*Prior allocation* refers to the seniority or priority of a water licence with priority based on the date of the water licence. Older licences take precedence over more recent licences if there is not enough water in a stream to satisfy all licences.<sup>10</sup> An older industrial or irrigation use has priority over a more recent conservation use. The Ministry can limit water use if there is a shortage, however it is important to note that there was no prior allocation for, or reliable measurement of, instream or environmental flows when the provincial government issues many of the water licences in B.C.<sup>11</sup> Instream flows are the seasonal level of water flowing in a stream that is required to maintain the health and function of the system. It is at the discretion of regional water managers to evaluate how much mean annual discharge should be left in a watercourse.<sup>12</sup>

*Appurtenance* means that licences must be attached to a specific parcel of land, a mine or undertaking.<sup>13</sup> There are no freestanding tradable water rights or a water market in B.C.

---

<sup>10</sup> *Water Act*, R.S.B.C. 1996, c. 483 at s.15.

<sup>11</sup> BC Ministry of the Environment, *Stewardship of the Water, Water Allocation* (Victoria: Ministry of Environment, 1993).

<sup>12</sup> Brandes, O. and D. Curran, *Water Licenses and Conservation: Future Directions for Land Trusts in British Columbia* (Salt Spring Island: The Land Trust Alliance of BC, 2008) at 9.

<sup>13</sup> *Water Act*, at s.13(c).

Those entitled to apply for a water licence include an owner of land, a mine, the Crown, a utility, and a local government. Water licence applicants with land that is not adjacent to a watercourse can secure, for example, an easement over Crown or private land to convey water to their property.

*Purpose* refers to the enumerated purposes for which a water licence may be held, including domestic, irrigation, industrial, mining and conservation.<sup>14</sup> Conservation under the *Water Act* is a relatively recent use, which is the use and storage of water or the construction of works in and about streams for the purpose of conserving fish or wildlife. “Storage” means collecting, impounding or conserving water. A conservation use does not give the licensee an instream flow right. There must be a use or storage of water for fish or wildlife purposes.

*Associated works* are required under each licence. “Works” include diversion, storage, confinement, conservation, or use of water, and changes in and about a stream.<sup>15</sup> “Changes in and about a stream” means any modification to the nature of a stream or any activity or construction within the stream channel that has an impact on a stream. Works can be minimal, such as depositing coarse woody debris in a stream to create fish habitat. The Environmental Appeal Board has refused to order the granting of water licences for conservation purposes (water flowing in a stream for wildlife purposes) where there is no diversion or use of the water, or for the purpose of protecting the water from future users.<sup>16</sup>

*Use it or lose it* means that a licence holder must use the water allocated in the licence. Where water is not beneficially used for the purpose set out in the licence for three consecutive years, the Ministry of Environment may cancel the licence.<sup>17</sup> This provision discourages voluntary conservation and encourages waste where a licensee, for example a farmer, will irrigate in excess to maintain the right to use the water allocated.

*Pay for use* requires all licence holders to pay an annual water rent charge based on the purpose and volume of the licence. The fee for conservation licences in 2008 was \$0.001 per 1000 cubic metres whereas an agricultural licensee had to pay \$0.60 for the same volume.<sup>18</sup>

Finally, *property in water* refers to the provincial Crown’s assertion of ownership of both surface and groundwater.<sup>19</sup> The legislation states that surface water is vested in the

---

<sup>14</sup> *Water Act*, at s.1.

<sup>15</sup> *Water Act*, at s.1.

<sup>16</sup> See, for example, *Harvey v. British Columbia (Assistant Regional Waste Manager)*, BC EAB Decision, 2004-WAT-008(a), November 19, 2004.

<sup>17</sup> *Water Act*, at s.23.

<sup>18</sup> Water Regulation, BC Reg. 204/1988 Schedule A.

<sup>19</sup> *Water Act*, at s.2 and *Water Protection Act* R.S.BC 1996 c.484 s.3.

2(1) The property in and the right to the use and flow of all the water at any time in a stream in British Columbia are for all purposes vested in the government, except only in so far as private rights have been established under licences issued or approvals given under this or a former Act.

3(2) The property in and the right to the use, percolation and any flow of ground water, wherever ground water is found in British Columbia, are for all purposes vested in the government and are conclusively deemed to have always been vested in the government.

government except where private rights have been established under licence. Groundwater is “deemed to have always been vested in the government.”

Overlaid on these principles of water management are a variety of ways that interested parties can provide input into water management processes. These include:

- Holding water licences for conservation purposes if there is a use or diversion of water associated with the conservation;<sup>20</sup>
- Transferring water licences to the Crown to, in effect, retire the water licences to a government agency that will hold the allocation for conservation purposes;<sup>21</sup>
- Becoming involved in allocation decisions, for example riparian owners or existing licensees providing comments on applications for new water licences;<sup>22</sup>
- Encouraging water reservations where the Crown may reserve water for itself or a future use;<sup>23</sup>
- Encouraging the dedication of sensitive streams as permitted under the *Fish Protection Act*;<sup>24</sup>
- Encouraging the provincial government to bring into force streamflow protection licences pursuant to section 8 of the *Fish Protection Act* (not yet proclaimed in force);
- Becoming involved in water management plans that can alter licence allocations, of which there is only one draft in the province (in Langley Township);<sup>25</sup>
- Becoming involved in regional water boards and other institutions.

Even with these participation opportunities, this review of the water use regime in BC shows that water management through water licensing does not adequately address instream flow needs and focuses on reacting to water licence applications rather than planning for long term ecosystem health.<sup>26</sup> The Ministry of Environment has little ability to revoke or decrease the amount of water in a licence outside of the Water Management Plan process. The *Water Act* does not require decision-makers to take into account instream uses or water quality, and there is no process to update licences as new standards for conservation become the norm.

---

<sup>20</sup> While use and diversion are required in B.C., many jurisdictions in the U.S. do not require this, allowing, in effect, private instream rights. The ability to enforce such private ecosystem rights in a large system like the Fraser River has been raised. See, for example, King, M.A. 2004. “Getting Our Feet Wet: An Introduction to Water Trusts” 28 *Harvard Environmental Law Review* 495; Kwasniak, A. (2006). Quenching Instream Thirst: A Role for Water Trusts in the Prairie Provinces, 16 *Journal of Environmental Law and Practice* 211; King, M.A. and S.A. Fairfax (2005) Beyond Bucks and Acres: Land Acquisition and Water. 83 *Texas Law Review* 1941.

<sup>21</sup> *Water Act*, ss. 16 and 19.

<sup>22</sup> Water Regulation, BC Reg. 204/1988 at s.3.

<sup>23</sup> *Water Act* at s.44. See the list of existing water reservations in BC [http://www.env.gov.bc.ca/wsd/water\\_rights/reserves\\_restrictions/cabinet/reserves.pdf](http://www.env.gov.bc.ca/wsd/water_rights/reserves_restrictions/cabinet/reserves.pdf).

<sup>24</sup> *Fish Protection Act* at ss. 6-7.

<sup>25</sup> *Water Act* at Part 4.

<sup>26</sup> BC Ministry of the Environment, *Stewardship of the Water, Water Allocation* (Victoria: Ministry of Environment, 1993).

## C. ISSUES

The characteristics of water management and law in B.C. outlined in Part B raise a number of environmental quality, water ownership and management issues. The provincial government has recognized some of these in part by committing to a *Water Act* modernization process that will address the following themes:<sup>27</sup>

- Protecting stream health and aquatic environments;
- Improving water governance arrangements;
- Introducing more flexibility and efficiency in the water allocation system;
- Regulating ground water use in priority areas and for large withdrawals.

While these themes respond to a number of important issues, success depends on their ability to address aboriginal water rights and title, the lack of water data in B.C., and the need for even basic monitoring and enforcement. Part C briefly canvases these issues, in addition to instream flows, water governance, groundwater regulation and the rights of existing users.

### 1. Aboriginal Water Rights and Title

Crown property in and the right to use water are subject to aboriginal rights and title claims protected under section 35 of the Canadian Constitution.<sup>28</sup> It is important to note that the vast majority of aboriginal rights and title claims to water have not been finalized and are not factored into the existing water allocation regime and instream flow calculations.<sup>29</sup> This will have a significant impact on allocations under the *Water Act* in the future.<sup>30</sup>

Modern treaties have not transferred significant water rights to the indigenous parties to the agreement. For example, the Nisga'a Treaty allocates only one percent of the Nass River flow to the Nisga'a Nation.<sup>31</sup>

Finally, the water rights or ownership attached to Indian Reserves has largely not been tested. On July 29<sup>th</sup> 1938, the Province of British Columbia conveyed 1221 reserves to the Dominion of Canada.<sup>32</sup> In British Columbia Order-In-Council No. 1036, the provincial government set out the terms of conveyance, which provides that the Province can occupy “water privileges” for mining or agriculture for which it must pay reasonable

---

<sup>27</sup> Linda Nowlan, personal communication November 12 2009.

<sup>28</sup> *The Constitution Act, 1982*, being Schedule B to the *Canada Act 1982* (U.K.), 1982, c. 11.

<sup>29</sup> Nowlan, L., Customary Water Laws and Practices in Canada, (Rome: Food and Agriculture Organization of the United Nations, 2004) [www.fao.org/legal/advserv/FAOIUCNcs/Canada.pdf](http://www.fao.org/legal/advserv/FAOIUCNcs/Canada.pdf)

<sup>30</sup> The Province of BC provides some history of water rights of individual Indian Bands in the province. These reports document recommendations of the Indian Reserve Commission, Orders in Council, *Water Act* Board of Investigation rulings, and licensing decisions of the comptroller and regional water managers. These documents also contain some information about stream flows records and groundwater use. See [http://www.env.gov.bc.ca/wsd/water\\_rights/search\\_water\\_rights/firstnations.html](http://www.env.gov.bc.ca/wsd/water_rights/search_water_rights/firstnations.html).

<sup>31</sup> Nisga'a Final Agreement, s.122 <http://www.ainc-inac.gc.ca/al/ldc/ccl/fagr/nsga/nis/nis-eng.asp>

<sup>32</sup> Cole Harris, *Making Native Space: Colonialism, Resistance and Reserves in British Columbia* (Vancouver: University of British Columbia Press, 2002), at p. 261.

compensation.<sup>33</sup> There is nothing in the conveyance that allows the province to take water for industrial or urban uses.

## **2. Technical Data Needs**

As *Living Water Smart* acknowledges, we can't manage what we don't measure.<sup>34</sup> Licensees and all levels of government acknowledge that there is insufficient data on how much water exists in watersheds, the amount available for withdrawal, and how much water is withdrawn from surface and groundwater systems.<sup>35</sup> There is inadequate monitoring of water use and recharge. In addition, there is little watershed-specific work underway to better understand the interaction between surface and ground water and the basic requirements for maintaining ecosystem health.

## **3. Monitoring & Enforcement**

Without reliable technical data and the ability to monitor water use it is difficult to enforce licence conditions, particularly volume of use.

## **4. Instream Flows**

The existing water regime is premised on extractive uses of water with inadequate understanding of base flow requirements and no watershed planning to reconcile competing uses and impacts on hydrology. Licensing is also static in its application. Many water volume allocations do not have an expiry date, which prevents the adaptive management approach necessary in this era of climate change. Modern water governance regimes, such as in South Africa, specifically take instream flows into account and reserve water for ecosystem function.<sup>36</sup> B.C. will also need a way to reallocate water volumes to ecosystem needs given the overallocation of water to extractive uses in some regions in the province.

## **5. Water Governance**

Water governance under the *Water Act* focuses narrowly on the allocation of available water. This approach fails to assess the interactions between groundwater and surface water, and does not account for the myriad land-based decisions made by the Crown, local governments and other landowners that fundamentally affect the quality and quantity of water available for allocation. This is equally true for more urbanized areas under the land use planning control of municipalities and the provincial Crown landbase. While water management planning is enabled under Part 4 of the *Water Act*, to date the provincial government has approved only one pilot project in the Township of Langley. That plan is

---

<sup>33</sup> O.I.C. 1036/38, 29 July 1938.

<sup>34</sup> At 53.

<sup>35</sup> For example, Ted vander Gulik, Ministry of Agriculture and Lands freely admits that no farmer in the province can reliably report how much water he or she has used. Personal communication, September 12 2009.

<sup>36</sup> Backeberg, G.R. (2005) Water Institutional Reforms in South Africa, *Water Policy*, 7: 107-123.

still in draft form, and Township council rejected the number one recommendation of the planning consultants, to meter groundwater use.<sup>37</sup>

Support exists for governance at the watershed scale, the generally accepted scale for water management.<sup>38</sup> A watershed-based system could include regional institutions such as First Nations and water boards to facilitate integrated land and water planning to better reflect actual ecosystem function and local approaches to adaptive management.

## 6. Regulating Groundwater

Twenty five percent of BC residents rely on groundwater for drinking water, and it is an integral part of hydrological systems that maintain summer surface water flows for fish and wetland species.<sup>39</sup> Groundwater is still unregulated in B.C., a situation that allows landowners in overallocated basins to drill a well adjacent to a stream for which they cannot secure a water licence.<sup>40</sup> This places additional stress on watershed hydrology and contributes to declining water tables, reduced surface water flows and salt water intrusion on the coast. Many groundwater users will not welcome licensing, and the initial allocation of groundwater licences will be fraught with uncertainty of proof of use, volume, and availability of water.

## 7. Existing Licensees

Finally, existing licensees, particularly those with seniority and allocation of significant volumes in increasingly arid areas like the Okanagan and Eastern Vancouver Island, have little incentive to change the existing water management regime. Many licences endure in perpetuity as long as they are used, and can only be temporarily restricted through an order under the *Fish Protection Act*. If the provincial government revises water allocations, licensees will be requesting compensation. In the absence of reforming the entire water management system due to aboriginal rights and title issues, many licensees with vested rights will work to maintain those rights given their priority in a watershed.<sup>41</sup>

---

<sup>37</sup> Curran, D. *et al*, Groundwater Bylaws Toolkit (Kelowna: Okanagan Basin Water Board, 2009) at 53.

<sup>38</sup> See for example: Bakker, K. (ed.) (2007) *Ean Canada: The Future of Canada's Water* (Vancouver: UBC Press); Brandes et al. *At A Watershed: Ecological Governance and Sustainable Water Management in Canada* (Victoria: The POLIS Project on Ecological Governance, University of Victoria, 2005); and Nowlan, L. and K. Bakker, *Delegating Water Governance: Issues and Challenges in the BC Context* (Vancouver, BC: University of British Columbia Program on Water Governance, 2007).

<sup>39</sup> Nowlan, L. *Buried Treasure: Groundwater Permitting and Pricing in Canada* (Toronto: Walter and Duncan Gordon Foundation, 2005) at 30.

<sup>40</sup> Section 1.1(1) of the *Water Act* excludes the application of Parts 2 and 3 of the *Water Act* to groundwater unless, by regulation, they are made applicable to groundwater in B.C. or a part of B.C. (s.1.1(2)). Parts 2 and 3 of the *Water Act* deal with licensing. No regulation is in force under this section.

<sup>41</sup> This view has been expressed, in particular, by the agricultural community in near-urban areas. Personal communication, Lorraine Bennest, orchardist, Summerland B.C. and former Councillor, District of Summerland. September 12 2009.

## **D. DISCUSSION**

This paper is a modest attempt to identify some of the issues associated with the outdated water regime in B.C., and to suggest some fundamental principles necessary for long term ecosystem functioning. To this end, we invite Associates to consider the following questions at our next teleconference on Monday November 23 from 4pm to 6pm:

### **1. Ecosystem Flows**

As the provincial government seeks input into how to better protect instream flows, what approach to water management would best serve the large and small watersheds in B.C.? Should the government reserve a percentage of water in each basin for ecosystem needs, or should water allocated for instream flows be captured in a third party licence with responsibility placed on the licensee to enforce the ecosystem water allocation? How might a market in water licences affect ecosystem conditions?

### **2. Aboriginal Rights and Title**

Land has consumed much of the discussion about aboriginal rights and title to date. Water is another important aspect of title and rights that challenges the provincial Crown's assertion of ownership of water and the jurisdiction to manage it. How can First Nations' water rights become integral to the *Water Act* modernization process? Are there areas of concurrence between First Nations' and public interest environmental law principles for this process and outcomes?

### **3. Water Governance**

At what scale should water or watershed governance address watershed planning, land use, and water allocation? Are there examples of existing governance structures that can assess land activities and consumptive water uses with a baseline of meeting ecosystem needs? Can a centralized provincial regime adequately respond to the ecological conditions in 219,000 watersheds, or is there a local or regional governance approach that would better facilitate adaptive management?

### **4. The Practice of Water Law**

Unlike in the United States, currently there is no distinct practice area of water law in B.C. or Canada. Given the changing climate and more variable water flows, combined with more stringent legislation, is the time ripe for water lawyers and a public interest water law focus in the environmental law Bar?

## For More Information:

### *Legislation and Regulations*

*Fish Protection Act*, S.B.C. 1997, c.21

[http://www.bclaws.ca/Recon/document/freeside/--%20f%20--/fish%20protection%20act%20%20sbc%201997%20%20c.%2021/00\\_97021\\_01.xml](http://www.bclaws.ca/Recon/document/freeside/--%20f%20--/fish%20protection%20act%20%20sbc%201997%20%20c.%2021/00_97021_01.xml)

Groundwater Protection Regulation, BC Reg 299/2004

[http://www.bclaws.ca/Recon/document/freeside/--%20w%20--/water%20act%20%20rsbc%201996%20%20c.%20483/05\\_regulations/11\\_299\\_2004.xml](http://www.bclaws.ca/Recon/document/freeside/--%20w%20--/water%20act%20%20rsbc%201996%20%20c.%20483/05_regulations/11_299_2004.xml)

*Water Act*, R.S.B.C. 1996, c.483

[http://www.bclaws.ca/Recon/document/freeside/--%20w%20--/water%20act%20%20rsbc%201996%20%20c.%20483/00\\_96483\\_01.xml](http://www.bclaws.ca/Recon/document/freeside/--%20w%20--/water%20act%20%20rsbc%201996%20%20c.%20483/00_96483_01.xml)

*Water Protection Act*, R.S.B.C. 1996, c.484

[http://www.bclaws.ca/Recon/document/freeside/--%20w%20--/water%20protection%20act%20%20rsbc%201996%20%20c.%20484/00\\_96484\\_01.xml](http://www.bclaws.ca/Recon/document/freeside/--%20w%20--/water%20protection%20act%20%20rsbc%201996%20%20c.%20484/00_96484_01.xml)

### *Articles & Reports*

Bakker, Karen (ed.) *Eau Canada: The Future of Canada's Water* (Vancouver: UBC Press, 2007).

Brandes, Oliver and Deborah Curran, *Water Licenses and Conservation: Future Directions for Land Trusts in British Columbia* (Salt Spring Island: The Land Trust Alliance of BC, 2008)

<http://www.landtrustalliance.bc.ca/research.html>

Brandes, Oliver and Deborah Curran, *Setting a New Course in British Columbia - Water Governance Reform Options and Opportunities* (Victoria: Polis Project on Ecological Governance, 2009)

<http://www.waterdsm.org/publication/272>

Christensen, Randy and Anastasia Lintner, "Trading Our Common Heritage? The Debate Over Water Rights Transfers in Canada" Karen Bakker (ed.) *Eau Canada: The Future of Canada's Water* (Vancouver: UBC Press, 2007)

Nowlan, Linda, *Buried Treasure: Groundwater Permitting and Pricing in Canada* (Toronto: Water & Duncan Gordon Foundation, 2005) <http://www.buriedtreasurecanada.ca/>

Nowlan, Linda, *Customary Water Laws and Practices in Canada* (Rome: Food and Agriculture Organization of the United Nations, 2004)

[www.fao.org/legal/advserv/FAOIUCNcs/Canada.pdf](http://www.fao.org/legal/advserv/FAOIUCNcs/Canada.pdf)

Province of B.C., *Living Water Smart: British Columbia's Water Plan* (Victoria: Ministry of Environment, 2008)

<http://www.livingwatersmart.ca/>

### *Web Sites*

Ministry of Environment, Water Stewardship Division <http://www.env.gov.bc.ca/wsd/>

Program on Water Governance (University of British Columbia) <http://www.watergovernance.ca/index.htm>

Water Sustainability Project (University of Victoria) <http://www.waterdsm.org/>