Water Licences and Conservation: Future Directions for Land Trusts in British Columbia

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Report Summary

Instream flows, sometimes called environmental flows, are the base water flow in streams that sustain ecological processes. If the cumulative impacts of flow modification and other human disturbances on freshwater systems alter streams beyond critical limits, the ecological integrity and self-sustaining productivity of the aquatic ecosystem becomes severely compromised. In some areas of the province dangerously low flow levels have been reached. For example, in the South Okanagan 235 out of 300 streams are fully recorded, which means there is no additional water available for new water licences.

The purpose of this report is to explain the water management regime in British Columbia in the context of ecosystem health to assist land trusts to evaluate how best to protect instream flows, or the quantity of water in a stream, for conservation.

Water Use Regulation
Both surface and groundwater is vested in the provincial Crown (provincial government). This ownership is subject to aboriginal rights and title claims protected under the Canadian *Constitution Act, 1867*, and it is important to note that the vast majority of aboriginal rights and title claims to water in BC have not been finalized and are not factored into the water licensing regime and ecological needs for instream flows.

The province does not regulate the use of groundwater, and in much of the province there is little consideration of the interaction between groundwater and surface water when the Ministry of Environment approves water licences. There is no comprehensive understanding of the cumulative effects of groundwater use on surface water hydrology.

To use water in BC a user must obtain a licence under the *Water Act* from the Ministry of Environment, Water Stewardship Division. Licences are held for a variety of purposes, including domestic, agricultural, industrial and conservation. There are over 43,000 licences on more than 17,000 water sources in BC. The Ministry of Environment now restricts water licensing (prohibits or restricts the issuance of new licences because sufficient water is no longer available for human use) on more than 25 percent of those water sources, with the South Okanagan and East coast of Vancouver Island most heavily restricted.

Water licences establish a hierarchy for water use and are conditional in many ways. They are subject to the seniority of older licences: earlier licences take precedence over more recently granted licences when water shortages arise. Rights held under licences are subject to the rules in the *Water Act* and regulations, the terms of the licence, and orders made under the *Water Act*.

Principles of Water Licensing
Water licensing is based on several principles that affect for what purposes land trusts can use water.

Prior allocation is how the seniority or priority of a water licence is determined. Priority is based on the date of the water licence with older licences taking precedence over more recent licences if there is not enough water in a stream to satisfy all licences. 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.

Appurtenance means that licences must be attached to a specific parcel of land. Those entitled to

apply for a water licence include an owner of land (person entitled to possession or with a substantial interest in the land), a mine, the Crown, a utility, and a local government. Land trusts cannot apply for water licences on land that they do not own unless they have an interest in the land that allows them to use the land, for example a lease. Likewise, others cannot apply for a water licence on land owned by a land trust unless they have an interest in land that would allow them to use the land. However, the land to which a water licence is attached does not have to be adjacent to a water source. Landowners can secure, for example, an easement over Crown (public) or private land to convey water to their property.

Purpose means that a water licence may be held for a variety of purposes, including conservation. The conservation purpose means 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. Many land trusts and provincial and federal government agencies hold water licences for conservation and other purposes. Community organization may hold water licences under section 8 of the *Fish Protection Act*, which is not yet law, for streamflow protection purposes.

Associated works are a requirement of each licence. "Works" include anything to divert, store, confine, conserve, or use water, and changes in and about a stream. "Changes in and about a stream" means any modification to the nature of a stream including the land, vegetation, natural environment or flow of water within 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, in essence rendering water licences for conservation purposes instream flow allocations.

Use it or lose it requires that a licence holder use the water allocated under the licence. If the 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. The Ministry may also require a licence holder to make a statement detailing how they have used the water. This provision is a sobering threat to licensees who do not beneficially use water under a licence; however this provision is rarely used.

Pay for use means that the licence holder must pay an annual water rent charge based on the volume of the licence. For licences held for conservation purposes that fee will decrease dramatically in the next year from $0.008 to $0.001 per 1000 cubic metres. This is in contrast to, for example, the agricultural sector where annual water rents for irrigation are increasing from $0.50 per 1000 cubic metres in 2007 to $0.60 in 2008. Licences for storage cost $25. While there are some rental remissions or exemptions from paying annual water rents for licence holders such as the government, First Nations using water on reserve, and licence holders that give up some rights for a public purpose, there are no blanket exemptions for specific uses like conservation.

If a land trust purchases property that has a water licence attached, the land trust may abandon or give back the water licence to avoid paying the annual rent. However, unless the water system where the licence is held has a water allocation restriction or water reservation, or a Ministry agency is willing to take on the responsibility of maintaining the works, abandoning the licence will not protect the water for instream uses. The water will become available for reallocation and the instream need will have to be defended against each application for a licence on that water system.

Water Management

This review of the principles of the water use regime in BC show that water licensing does not

adequately address instream flows because it focuses on reacting to water licence applications rather than planning for long term ecosystem health. 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.

Under the existing water management regime, land trusts and other conservation organizations can hold water licences for conservation purposes, transfer water licences to the provincial government, and become involved in allocation decisions. However, 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. A Water Management Plan can deal with conflicts between users and instream flow requirements, and place restrictions on well drilling. There are currently no Water Management Plans in the province, but the Ministry of Environment is in the middle of two multi-year water planning processes in the Fraser Valley (Langley) and the Okanagan.

Conservation organizations can encourage the provincial government to reserve water, which, in effect, takes the water out of the amount available for allocation to new licences. They can also encourage the provincial government to dedicate sensitive streams, and to proclaim section 8 of the *Fish Protection Act* that enables community organizations to apply for water licences for streamflow protection purposes. Finally, under the federal *Fisheries Act* the federal Department of Fisheries and Oceans can also limit water rights where water use becomes harmful to fish.

Water Management Reform

BC is long overdue for legislative change that addresses conflicts between water users and ensures adequate instream flows for ecological processes. Several immediate steps can better set the stage for water management reform, including gathering sufficient data on water withdrawals from surface and groundwater systems, developing an understanding of ecological needs for water and the connection between ground and surface water, and improving enforcement of licensing conditions such as allowable amount of water extracted.

At minimum, water law reform should include regulating the use of groundwater, mandating instream flow requirements, and bringing water governance and planning to a local watershed level.

1. Introduction: The Context

1.1 Water and Ecosystem Health

Water is an indicator of ecosystem health and function. Streams,[2] including rivers, lakes, creeks, springs, ravines, and wetlands, include not just the water flowing through them, but the food webs and nutrient cycles that operate within their beds and banks, the sediment loads they carry, the deltas they form near their terminus, and even parts of the coast or inland seas into which thy empty.[3] Streams are a complex mix of physical structures that include plants, animals and insects that together are needed to ensure full function. They are complex systems that do critical, yet complicated work.

These ecosystems provide a wide variety of goods and services to the human economy. Collectively, these benefits are referred to as ecological services, defined as "the conditions and processes through which natural ecosystems, and the species that make them, sustain and fulfill human life."[4] In addition to providing water for drinking – fundamental for human survival – these systems also supply agricultural, industrial and municipal uses, sustain wildlife, and maintain instream services such as flood control and purification of human and industrial waste. Over the long term, healthy freshwater systems are critical for sustaining these services for future generations and to maintain the ecological capacity to adapt to environmental changes such as global climate warming.[5]

Aquatic ecosystems and species have evolved according to the rhythms of natural flow variability. This natural variability, however, challenges water resource management approaches that seek predictability of flows and the control of downstream flooding.[6] Modern water management also emphasizes extraction that interrupts flow regimes and reduces the water available for ecosystem services and function.

The purpose of this report is to explain the water management regime in British Columbia from an ecosystem health perspective to assist land trusts to evaluate how best to protect instream flows for conservation. The report addresses water quantity concerns and water quality only insofar as quantity affects quality.[7] Part 1 provides a brief overview of the importance of water for ecosystem

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[2] Section 1 of the *Water Act*, R.S.BC 1996 c.483 defines "stream" as including natural watercourses or source of water supply, whether usually containing water or not, and a lake, river, creek, spring, ravine, swamp and gulch.

[3] Postel, S. and B. Richter (2003). Rivers for Life: Managing Water for People and Nature (Washington, D.C.: Island Press).

[4] Daily, G.C. (ed.) (2007). Nature's Services: Societal Dependence on Natural Ecosystems (Washington, D.C.: Island Press).

[5] Baron, J.S., N.L. Poff, P.L. Angermeier, C.N. Dahm, P.H. Gleick, N.G. Harriston, R.B. Jackson, C.A. Johnstone, B.D. Richter, and A.D. Steinman (2002). Meeting Ecological and Societal Needs for Freshwater. *Ecological Applications*, 12(5): 1247-1260. See also Chapter 1 of the Green Bylaws Toolkit for statistics on the benefits of wetlands and other ecosystems www.greenbylawstoolkit.ca.

[6] Richter, B.D., J.V. Baumgartner, R. Wigington (2003). Ecological Sustainable Water Management: Managing River Flows for Ecological Integrity. *Ecological Applications*, 13(1): 206-224.

[7] Legislation that addresses water quality includes:

- *Environmental Management Act*, S.BC 2003 c.53 and the regulations under that Act, such as the Agricultural Waste Control Regulation BC Reg. 131/92 and Municipal Sewage Regulation BC Reg. 129/99. This Act regulates the discharge of waste into watercourses and establishes a system of permitting for waste discharges, including for municipal sewage;
- *Drinking Water Protection Act*, S.BC 2001, c.9 and the Drinking Water Protection Regulation BC Reg. 200/2003 that addresses potable water standards and monitoring for drinking water suppliers, and prohibits

health and points out some challenges to conservation approaches given the current water management regime in BC. Part 2 explains the key principles underlying how water is managed in the province and highlights how those historic principles do not necessarily consider water conservation needs. Part 3 discusses immediate opportunities to promote water conservation, and Part 4 sets out some longer-term law and water management reform options for land trusts to help promote instream flows and a water conservation mandate.

Discussions of water conservation usually refer to using water more efficiently and to approaches that decrease the amount of water used after it has been taken from the hydrological system. In that sense, the goal is to free up water for use by other non-ecosystem uses. In this report, we refer to water conservation in the context of leaving water in hydrological systems to enhance ecological function, promote resilience and fully meet instream flow needs for ecosystem health.

1.2 Instream Flows

At their most basic level, *instream flow* (sometimes called environmental flow) is water flowing in a stream. The concept of instream flows implies a level of water required to maintain the health and function of the system. There is usually more than one flow level, to account for seasonal and annual differences in flow, that a stream needs to stay healthy.

Groundwater is also important to surface and instream flows. It discharges into streams to sustain base flows and moderate water temperature, particularly in the low flow summer season and at a time most critical for fish populations.[8]

To preserve aquatic and riparian systems, the following basic characteristics, processes and functions of stream ecosystems require protection:[9]

- *magnitude* – the amount of water moving past a fixed location at any given time;
- *frequency* – how often a flow of a given magnitude is observed over a given time interval;
- *duration* – the period of time associated with specific flow conditions;
- *timing* – the regularity with which a given flow condition occurs (e.g. annual peak flows); and,
- *rate of change* – how quick a flow changes from one condition to the next.

Of these five characteristics, magnitude of flow is the most critical concern. Low flow can mean reduced stream and wetland habitat and a disconnection of a river from its floodplain. This can threaten fish and wetland wildlife, lead to invasion of exotic species, and diminished opportunities

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contaminating or tampering with a domestic water system, a drinking water source, a well recharge zone or an area adjacent to a drinking water source;

- *Fish Protection Act*, S.BC 1997, c.21 prohibits the construction of new dams on designated protected rivers, provides for the designation of sensitive streams, and allows the government to establish objectives for riparian protection; and
- Riparian Areas Regulation, BC Reg. 376/2004 requires designated local governments to conduct a riparian impact assessment to determine where development may occur adjacent to riparian areas.

Legislation that regulates activities on Crown land, such as forestry and mining, also addresses water quality.

[8] Anderson, D. (2004). Lemieux Creek Water Availability Study (Victoria: Land and Water BC) at i.

[9] Poff, M.L. et al. (1997). The Natural Flow Regime: A Paradigm for River Conservation and Restoration. *BioScience, 47*, 769-84.

for recreational uses and pollution assimilation.[10] Securing adequate instream flows is a priority for ensuring the resilience of streams and ecosystem health overall.

Aquatic and riparian ecosystems are particularly sensitive to changes in water quality and the hydrological cycle. Human manipulations such as building infrastructure for diverting water, cooling and reservoirs, as well as water withdrawals for agriculture, urban and industrial uses, can have significant effects.[11] If the cumulative impacts of flow modification and other human-induced disturbances on freshwater ecosystems alter the flow regimes beyond critical limits, the ecological integrity and self-sustaining productivity of the aquatic ecosystem become severely compromised[12] – a concept referred to as *resilience*.[13] Reduced resilience can have significant impacts including increased vulnerability to permanent (and severe) ecosystem degradation and systemic collapse.

In the context of increasing population and water use in general, the adequacy of the water licensing or allocation regime in BC and its ability to adapt to the changing needs of aquatic ecosystems that provide water use values are called into question.

1.3 Water Use in Canada & British Columbia

Water use in British Columbia is mirroring the global trend where water withdrawals continue to rise at rates that exceed human population growth.[14] Canadians are heavy users of water – second in the world behind the United States in per capita use and two to four times more consumptive than the average European.[15] The rate of use in Canada continues to rise while use in many other developed countries, including the United States, is decreasing. Rate of use and price of water are directly linked – consumers in BC pay one of the lowest prices per unit of water in the world.[16]

This water use situation is exacerbated in Canada and BC because most of the available freshwater is not where most of the population lives. About 60% of Canada's freshwater drains northward, while almost 90% of Canadians live in the extreme south near the Canada-US border.[17]

Evidence of increasing water challenges can be seen across Canada and in BC. Between 1994 and 1999 one quarter of all Canadian municipalities reported water shortages as a result of high

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[10] 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.
[11] See for example Postel and Richter, *supra* note 3; Annear, T., I. Chisholm, H. Beecher, A. Locke, P. Aarrestad, C. Coomer, C. Estes, J. Hunt, R. Jacobson, G. Jobsis, J. Kauffman, J. Marshall, K. Mayes, G. Smith, R. Wentworth, C. Stainaker (2004). *Instream Flows for Riverine Resource Stewardship – Revised Edition* (Ashland, Ohio: Instream Flow Council); and, Gleick, P. (1998). Water in Crisis: Paths to Sustainable Water Use. *Ecological Applications* 8(3), 571-579.
[12] Poff, *supra* note 9.
[13] Walker, B. and D. Salt (2006). Resilience Thinking: Sustaining Ecosystems and People in a Changing World (Washington, D.C.: Island Press).
[14] Katz, *supra* note 10.
[15] 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).
[16] Organization for Economic Cooperation and Development (1999). The Price of Water: Trends in OECD Countries (Paris: OECD).
[17] Statistics Canada (2006). Population of Census Metropolitan areas. http://www40.statcan.ca/l01/cst01/demo05a.htm

consumption, drought or infrastructure problems.[18] In 1999 eight percent of the 300 classified aquifers in BC were found to be at risk due to heavy use.[19] In 2003 severe droughts affected much of the Okanagan Valley and Vancouver Island, and in 2006 the Town of Tofino, on BC's "wet" coast almost ran out of water at the height of the tourist season. Finally, 235 of 300 streams in the South Okanagan are fully recorded, which means there is no additional water available for new water licences.[20]

These statistics emphasize that even in British Columbia water scarcity is emerging as a legitimate concern. Factors such as increasing agriculture and industrial use, growing urban communities and the uncertainty associated with climate change will only increase the water challenges ahead. The question is whether the water management regime in BC, governed by the *Water Act* and regulations, is able to respond in a timely and watershed-specific manner.

1.4 Water Management in British Columbia

Both surface and groundwater is vested in the Crown, which in BC usually means the provincial government.[21] This ownership is subject to aboriginal rights and title claims protected under section 35 of the Canadian Constitution.[22] 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.[23] This could have a significant impact on existing allocations in the future.[24]

The *Water Act* establishes the regime for water use. To use water in BC a user must obtain a licence from the Ministry of Environment, Water Stewardship Division. There are over 43,000 licences on more than 17,000 water sources in BC.[25] The Ministry of Environment now restricts water licensing (prohibits or restricts the issuance of new licences because sufficient water is no longer available for human use) on more than 25 percent of those water sources, with the South Okanagan and East coast of Vancouver Island most heavily restricted.[26]

Licences are held for a variety of purposes, including domestic, agricultural, industrial and conservation. Unrecorded water (water that is not allocated under a licence or special legislation, or reserved for other purposes such as fish habitat) may be used, without licence, for firefighting,

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[18] Environment Canada (2004). Threats to Water Availability in Canada (Burlington Ontario: National Water Research Institute) at 94-95.
[19] Auditor General of BC, 1999.
[20] 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 (2007). *Delegating Water Governance: Issues and Challenges in the BC Context* (Vancouver, BC: University of British Columbia Program on Water Governance) at 50.
[21] *Water Act*, *supra* note 2 at s.2 and *Water Protection Act* R.S.BC 1996 c.484 s.3.
[22] *The Constitution Act, 1982*, being Schedule B to the *Canada Act 1982* (U.K.), 1982, c. 11.
[23] Nowlan, L. (2004). Customary Water Laws and Practices in Canada, (Food and Agriculture Organization: Rome, Italy) http://www.fao.org/legal/advserv/waternews.htm. http://www.fao.org/legal/advserv/faoiucncs/canada.pdf.
[24] The Province of BC has reports on the history of water rights of individual Indian Bands in the province. These reports document recommendations of the Indian Reserve Commission, Order 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.
[25] Nowlan and Bakker, *supra* note 20 at 42.
[26] *Ibid*.

domestic or mining purposes.[27] However, unrecorded water may be subject to a licence in the future, therefore most water users obtain licences to secure use rights.

Licences establish a hierarchy for water use with the earliest licences taking precedence over users of unrecorded water and more recent licences when water shortages arise. Rights held under licences are not absolute. They are subject to the rules in the *Water Act* and its regulations, the terms set out in the licence, orders of the comptroller and engineers designated under the *Water Act*, and the rights bestowed on all licences that have precedence or seniority.[28]

Applicants for a water licence must provide notice of the application, for example to other licensees or affected landowners, if the comptroller or regional water manager requires it.[29] Riparian owners, water licence applicants and licensees who feel that their rights would be infringed if a new licence was granted are entitled to file an objection to an application.[30] The regional water manager may hold a hearing to canvas the objections.[31]

British Columbia is the only province in Canada and one of the last jurisdictions in the world that allocates water not to regulate groundwater resources.[32] Specifically, section 1.1 of the *Water Act* directs that the sections of the Act dealing with licensing, diversion and use of water do not apply to groundwater unless the provincial government enacts a regulation to that effect. There are no regulations enacted under that section. Sections 68-82 of the *Water Act* and the *Groundwater Protection Regulation* address the registration and licensing of well drillers, and the safety of wells.[33]

Because groundwater is unregulated, there is no integration of decisions about surface water allocations under water licences and their implications for groundwater. Likewise, the impact of groundwater extractions on streams is not understood - there is little monitoring of groundwater extraction or understanding of the cumulative effects of groundwater use on surface water hydrology.[34] This lack of integration is particularly important where streams are recharged primarily from groundwater in the summer. As groundwater is drawn down, streams dry up because there is no longer an adequate water table to support both the extractive use and the natural hydrology. When the Ministry refuses to grant a water licence to a landowner due to lack of water in a stream, the applicant landowner can drill a well 5 metres away from the stream and extract groundwater with essentially no regulation of the location of the well or amount of water used.

The *Fish Protection Act* does enable the comptroller and regional water manager to modify or refuse applications for water licences on a small number of sensitive streams. However, the provincial

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[27] *Water Act*, *supra* note 2 at s.42. See also *Steadman v. Erickson Gold Mining Corp* (1989), 35 BCL.R. (2d) 130 (BCCA).
[28] *Ibid* at s.6.
[29] *Ibid* at s.10(1) and Water Regulation BC Reg 204/88 at s.3.
[30] *Ibid* at s.11(1).
[31] *Ibid* at s.11(2-3).
[32] Nowlan, L. (2005) *Buried Treasure: Groundwater Permitting and Pricing in Canada* (Toronto: Walter and Duncan Gordon Foundation).
[33] BC Reg. 299/2004.
[34] Anderson, *supra* note 8 at i and Nowlan, *supra* note 32 at X and XI. For more information see http://www.env.gov.bc.ca/wsd/plan_protect_sustain/groundwater/index.html. There is some aquifer monitoring and a network of observation wells across the province.

government has designated only 15 streams, all of which flow into the ocean on the south coast or into the Fraser River.[35]

Finally, the *Water Protection Act* regulates bulk water exports from BC and prevents the comptroller or regional water manager from issuing further water licences to remove water from BC or to construct a large scale project capable of transferring water from one major watershed to another major watershed.[36]

This summary of the water quantity management regime in BC shows that the focus of the *Water Act* is on regulating human uses of water and resolving disputes between water users. While the Act and regulations are silent on the need to maintain instream flows for ecosystem function, regional water managers do regularly refuse licences because of concern about water flows.[37]

1.5 The Challenge of Water Conservation

The principles of the *Water Act* remain largely unchanged since the Act's enactment in the early 1900's. It has not been updated to reflect the growth of water use in the province, current ecological conditions, and the values of water for other functions, such as instream flows and recreation. In addition, historic allocations were not necessarily based on adequate instream flow data. There is not a "one size fits all" approach to calculating instream flows requirements or how much water is flowing in a stream.[38] While this allows regional water managers, as the local decision-makers, to retain some flexibility to respond to regional conditions, it also results in non-transparent decision-making about water allocations:[39]

> Currently, delegated water governance arrangements in the province are characterized by a patchwork of jurisdictions, legal authority, differing governance models, and mandates. This situation has resulted because most of the models have evolved in an ad hoc fashion, with little coordination between different levels of government or governmental bodies.

A 1993 Ministry of Environment report identified the following shortcomings of the water management regime in BC. It is:[40]

- Based on reacting to licence applications rather than water conservation planning - The *Water Act* limits the roles of the comptroller, regional water managers and engineers to

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[35] *Fish Protection Act*, S.BC 1997 c.21. The *Sensitive Streams Designation and Licensing Regulation* BC Reg. 89/2000 designates the following streams: Black Creek, Chapman Creek, Englishman River, French Creek, Fulford Creek, Goldstream River, Kanaka Creek, Lang Creek, Little Qualicum River, Little River, Nathan Creek, Salmon River, Silverdale Creek, West Creek, and Whonnock Creek.

[36] *Water Protection Act*, supra note 21 at ss.5-7.

[37] See, for example, the Environmental Appeal Board decision of *Moon v. British Columbia (Assistant Regional Water Manager)* 9 C.E.L.R. (3d) 218, [2004] BCW.L.D. 923 where the Board upheld a decision of the Assistant Regional Water Manager in the Cariboo to refuse an application for four licences based on water allocation planning for the region. A trapper in the area had registered opposition to the licence citing low flows and concern about beaver habitat.

[38] Livia Meret, Solicitor, Resource, Environment and Land Law Group, Ministry of Attorney General. Personal Communication February 1, 2008.

[39] Nowlan, L. and K. Bakker, Delegating Water Governance: Issues and Challenges in the BC Context (Vancouver, BC: UBC, 2007) at 42.

[40] BC Ministry of the Environment (1993). *Stewardship of the Water, Water Allocation* (Victoria: Ministry of Environment).

reacting to applications and stream conditions and does not provide watershed or water use planning to ensure adequate instream flows and prevent conflicts between users [however, see Water Act amendments allowing Water Management Plans, described under section 3.3 below];

- Lacking instream flow requirements – The *Water Act* and regulations do not give direction to decision makers to consider instream requirements, water quality, or ecosystems protection when making allocation decisions;
- Conservation is based on some ecosystem elements, not ecosystems as a whole – conservation as a use under the *Water Act* is limited to conserving fish and wildlife;
- Lacking adaptive management – The *Water Act* does not provide for changing water allocations or mandated works, nor does it allow for iterative ecosystem-based adaptive management as environmental conditions change. There is no ability to require existing licensees to meet new standards for use and conservation;
- Blind to First Nations customary water rights – The *Water Act* does not recognize indigenous customary water rights that may be protected under the Canadian Constitution and the common law requirement to consult with First Nations when aboriginal rights and title may be affected;
- Use of groundwater is unregulated – The *Water Act* explicitly states that the licensing regime does not apply to groundwater.

Monitoring of how much water is used under each licence has shown that some licensees use more than their licences permit,[41] and some licences are only partially used. Stream morphology, typography and the expense of monitoring technology make it difficult to monitor all stream flows and users.[42] Large licences are most likely to be monitored. Hydrological regimes are also changing because of increasing urbanization and climate change. Impervious surfaces in a watershed prevent water from recharging aquifers and entering streams at a tempered rate, and changing climatic conditions in most regions in BC are causing both winter flooding and summer drought.

Given the existing data on water flows across the province and the large number of drainages on which the Ministry of Environment has already placed restrictions, the challenge in water conservation will be to rethink the existing allocation of water under licences to reflect the need to first secure instream flow requirements. Once ecosystem requirements are understood then the competing needs for other uses can be factored into the changing flow regimes due to urbanization and climate change, as well as more complete use or overuse by existing licensees.

Before exploring the opportunities for conservation under the existing *Water Act* regime and possible reforms, Part 2 sets out in more detail the principles upon which the existing licensing system is based, including holding water licences for conservation purposes.

[41] For example, a 1996 report by Ward & Associates Ltd. documents BC Hydro's violation of the terms of its water licences by using more than allocated. Ward & Associates Ltd. (1996). Water Releases at the Cheakamus Power Plant: A Review of Licenced Operation Diversions, June 1996, in *Water Diversion and Storage at Ten Sites: Review of Licenced Operations Progress Report*.

[42] Livia Meret, Solicitor, Resource, Environment and Land Law Group, Ministry of Attorney General. Personal Communication December 18, 2007.

2. Water Management in BC: Key Concepts

Several key concepts form the basis of the existing water management regime in British Columbia. These include:
Prior allocation – determining the priority of a water licence based on the date of the water licence;
Appurtenance - licences must be attached to a specific parcel of land or undertaking;
Purpose – licences may be held for a variety of purposes, including conservation;
Associated works – licences require the licence holder to undertake "works";
Use it or lose it – if the water is not used for three years the licence holder may lose the licence; and
Pay for use – the licensee must pay annual water rent charge based on volume of the licence.

A person must not divert, extract, use or store any water from a stream except in accordance with a licence obtained under the *Water Act* or *Water Protection Act*.[43] Licence conditions typically include:

- the name and location of the stream from which water may be taken or stored;
- the location of the intake on the stream;
- the priority date of the licence;
- the purpose(s) for which the water may be used;
- the maximum quantity of water that may be used or stored;
- the time of the year during which the water may be used;
- the property where the water is to be used and to which the licence is attached;
- authorization to construct works to divert and convey the water from the stream to the place of use; and
- other clauses that define the special terms for a particular use.

The following parties may obtain a water licence:[44]

- Owner of land;
- Owner of a mine;
- Municipality;
- Improvement or development district;
- Water users community;
- Crown (provincial and federal governments) or a party responsible for administering land, a mine or other property of the federal or provincial governments;
- Water districts, including the Greater Vancouver Water District;
- BC Hydro; and
- Holders of a certificate of convenience under the *Public Utilities Act* or *Water Utility Act.*

Thus, senior and local governments can hold water licences through various ministries and administrative institutions. An "owner" of land means a person who is entitled to possession of, or a substantial interest in, land, a mine or undertaking. This may include a person who holds a long term lease that grants a right of possession to land.

[43] *Water Act*, *supra* note 2 at s.4.
[44] *Ibid* at s.7.

2.1 Prior Allocation

2.1.1 Priority of Water Licences

The priority of one licensees' right to divert water over another's in the same stream is based on the seniority of the dates on the water licences.[45] Licences obtained earlier in time have priority over those obtained at a later date. This principle of prior allocation is in contrast to water law in the western United States where priority is based on prior appropriation or "first in time, first in right" where earlier use has priority over later use. In BC it is earlier or older licences that have priority.

Where two licences take precedence from the same date, it is the ranking of the purpose for water use that determines seniority.[46] The ranking, from highest to lowest, is: domestic, waterworks, mineral trading, irrigation, mining, industrial, power, hydraulicking, storage, conservation, conveying and land improvement purposes. In a list of twelve purposes, conservation is third from lowest rank. Two licences have equal precedence when they have the same date, for the same use, for the same stream.

It is the comptroller or regional water manager who determines the precedence of any licence issued,[47] and any licence issued after June 21 1995 must state its date of precedence.[48]

See Appendix B for examples of water licences.

2.1.2 Water Allocation Decisions

Water allocation decisions are based on available data about the mean annual discharge from drainages (creeks, streams, brooks, rivers and natural water bodies such as lakes, ponds, and wetlands) as recorded in the BC Water Resources Atlas[49] and Water Inventory Data Management System.[50] Existing licences and water allocations on specific streams can be searched in the Water Rights Information system.[51]

Regional water managers aim to maintain a certain percent of annual stream discharge at all times, but this goal is not formally required and is left to the discretion of each regional water manager.[52] Water use under new licences can be limited to certain times of year to reflect low flows from June to September. The best public example of this approach is that of the Vancouver Island Region of the Water Stewardship Division, Ministry of Environment. The Vancouver Island Region has taken a provincial instream flow policy and applied it to specific drainages in its Water Allocation Plans to give direction to the regional water manager when making allocation decisions, as follows:[53]

> Maintaining the natural stream environment and instream uses is of paramount importance for present and future generations. Maintaining water for the fisheries resource is a key factor in maintaining instream

[45] *Ibid* at s.15(1).
[46] *Ibid* at s.15(2).
[47] *Ibid* at s.12(3).
[48] *Ibid* at s.13(a).
[49] See http://www.env.gov.bc.ca/wsd/data_searches/wrbc/index.html.
[50] See http://www.env.gov.bc.ca/wsd/data_searches/widm/index.html.
[51] See http://www.env.gov.bc.ca/wsd/water_rights/water_rights.html.
[52] Larry Barr, Regional Water Manager Water Stewardship Vancouver Island, Ministry of Environment. Personal communication November 7, 2007.
[53] See the fifteen Water Allocation Plans at http://www.env.gov.bc.ca/wsd/water_rights/wap/index.html that each set out this instream flow policy and apply it to the drainages in the area covered.

flow requirements for water quality, wildlife, recreational, aesthetic and cultural values. The Ministry of Environment Provincial policy is:

In situations where a water allocation decision will significantly impact instream uses of water, the comptroller or regional water manager may refuse the application or include water licence conditions to protect the instream use.

Instream fisheries flow requirements are based on a provincially modified version of the Tennant (Montana) Method. The following table summarizes the modified Tennant (Montana) Method used within the [Area of Vancouver Island] Water Allocation Plan.

Modified Tennant (Montana) Method Instream Flow Requirements)
MAD = mean annual discharge

Flows	Description
30-60% MAD	Excellent spawning/rearing
20-30% MAD	Good spawning/rearing
10-20% MAD	Fair spawning/rearing
5-10% MAD	Poor spawning/rearing
>5% MAD	Severely degraded spawning/rearing

In drainages where fish are present, the minimum flow required to sustain the fisheries resource for fair spawning and rearing habitat is 10% of the Mean Annual Discharge (MAD). Therefore, the Regional policies to implement the Provincial policy are:

The minimum flow required to sustain the fisheries resources for spawning and rearing is 10% of the Mean Annual Discharge (MAD); unless a more rigorous analysis indicates a different minimum flow requirement.

For streams where the natural mean monthly flow falls below 10% of the MAD, extractive demands should only be allowed for the period of months when the mean monthly flow is above 60% of the MAD.

For streams where the mean 7-day average low flow falls below 10% of the MAD, extractive demands should only be allowed for the period of months when the mean monthly flow is above 60% of the MAD. Where the mean 7-day average low flow remains above 10%, then the 7-day low flow amount above 10% MAD is available.

Withdrawals from natural water bodies (lakes, ponds, swamps and marshes) supporting natural fisheries resources shall not reduce the shoal area more than 10%. [emphasis in original]

The data in these Water Allocation Plans for Vancouver Island and the projected demand for water in the future is a more transparent and comprehensive approach to water management than is found in other regions of the province. However, the importance placed on maintaining instream flows is for protecting fish habitat, not ecosystems, and does not use a watershed-wide approach to hydrology.

The Ministry of Environment maintains lengthy records of the drainages where there are possible water shortages or that are fully recorded. The chart titled "Water Allocation Restrictions Registers in the Water Rights Information System, as at August 16, 2007" details 94 pages of restrictions on different drainages for all regions of BC.[54] Staff consider any water allocation restriction when

[54] Water Allocation Restrictions registers in the Water Rights Information System, as at August 16, 2007 http://www.env.gov.bc.ca/wsd/water_rights/reserves_restrictions/cabinet/restrictions.pdf.

making water licensing decisions, and can refuse new licences or grant them for small-scale domestic use only.

The comptroller (person who is designated by the provincial government as the Comptroller of Water Rights) or regional water manager have broad discretionary powers under the *Water Act* to refuse, amend or grant all or part of an application for a water licence, require additional information, require the applicant to provide security, and issue a conditional or final licence on the terms the comptroller or regional water manager considers appropriate.[55] However, once a licence is issued and the licensee abides by the licence and legislation, the comptroller and regional water manager have a very limited ability to change the water allocated under that licence (see section 2.1.3 below).

Finally, engineers designated under the *Water Act* have considerable discretion to undertake or require activities to occur that can affect water allocations in the short-term. An engineer may:[56]

- Close or lock any works;
- Order the alteration, replacement, repair, maintenance, improvement, sealing of any works;
- Order the restoration or remediation of any changes in and about a stream;
- Order the installation of or install a measuring or testing device, and provision of data from it;
- Regulate and make orders on the diversion (rate and time), storage, distribution and use of water;
- Order a person to cease putting substances such as sawdust, timber, gravel, and refuse into a stream;
- Order a person to remove from the stream a substance or thing that person has put in or permitted to get into a stream; and
- Take measurements of water in a stream or ground water.

2.1.3 Water Licence Amendment, Suspension, Cancellation and Transfer

Water licences may be amended to change the rights held, such as extending the time period for constructing works and using water beneficially, correcting an error in the licence and authorizing the use of water for a purpose other than that listed in the licence.[57] Regional water managers will give new priority dates when licences are substantially amended or several licences are consolidated.[58]

The *Water Act* does not provide for regional water managers or the Ministry of Environment to amend water licences when stream systems are overallocated. The comptroller or regional water manager may increase or decrease the amount of water authorized to be diverted or stored only if it appears that the volume was erroneously estimated when the licence was issued.[59] Transfers and amendments to water licences do not necessarily affect the priority of the licence.

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[55] *Water Act, supra* note 2 at s.12(1).
[56] Under section 2 of the *Water Act*, *supra* note 2 at s.1, an "engineer" means a professional engineer employed by the government or a government corporation and designated in writing by the comptroller as an engineer and includes a regional water manager. An engineer's authority is found in s.88.
[57] *Ibid* at s. 18(1).
[58] Larry Barr, Regional Water Manager Water Stewardship Vancouver Island, Ministry of Environment. Personal communication November 7, 2007.
[59] *Water Act, supra* note 2 at s.18(1)(i).

The reasons why a comptroller or regional water manager may suspend or cancel a licence include:[60]

- Failure of the licensee to use the water as allowed by the licence or pay the annual rentals for three years (see section 2.5 below);
- Failure of the licensee to construct the works required by the licence within the time allowed;
- Failure of the licensee to pay water bailiff fees for six months;
- Failure to comply with the *Water Act*, regulations, terms of the licence;
- Failure to comply with an order of the comptroller, regional water manager or engineer; and
- Making a material misrepresentation in an application or information provided to the comptroller or regional water manager.

Water licences automatically transfer to new owners when land, mines or undertakings are sold.[61] Transfers from one licensee to another can pose problems in drainages where an existing licensee has not been fully using the licenced allocation of water. For example, when the Ministry of Environment requested further studies before making a decision on an application by the Sunshine Coast Regional District to secure a water licence for a new development, the Regional District purchased a senior licence instead. The water under the senior licence had not been used for some 30 years and the transfer potentially allowed the Regional District to avoid the further studies necessary for a new licence application. The Ministry put the transfer on hold when community members appealed the regional water manager's decision.[62]

2.2 Appurtenance

A water licence belongs, or is appurtenant, to the land, mine or undertaking of the licensee and the appurtenancy must be adequately described in the licence.[63] On the sale or transfer of the land or mine, the water rights pass to the new owner.[64]

A person cannot apply for a water licence that will be attached or appurtenant to another person's land unless the applicant is entitled to possession of the land, for example under a lease. Non-riparian landowners can apply for licences and once granted then seek an easement over Crown or private land to convey the water to their property. Licensees have a right to expropriate land that is required to construct, maintain or operate works authorized by the water licence.[65] This often happens over Crown land, and a licensee can construct works on or flood Crown land as part of a licence.[66] Licensees who do not own land adjacent to a stream may also, under the terms of their licence, alter or improve a stream channel or construct fences, screens and fish or game guards across streams for the purpose of conserving fish or wildlife.[67]

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[60] *Ibid* at s.23(2).
[61] *Ibid* at s.16.
[62] "*Hotel Lake" McClusky, et.al. v. Assistant Regional Water Manager*, BC EAB Decision 2004-WAT-0003(b) and 0004(a), August 9, 2005.
[63] *Water Act, supra* note 2 at s.13(c). The *Water Act* defines an "undertaking" as a project for the diversion, carriage, use and sale of water or power produced from water the use of which is referred to in the application or licence, and includes all land and other property acquired or to be acquired in connection with the project, and the general scheme for the acquisition, maintenance and operation of the works.
[64] *Ibid* at s.16(1).
[65] *Ibid* at s.27.
[66] *Ibid* at s.26.
[67] *Ibid* at s.5(d-e).

If a land trust purchases property that has a water licence, the land trust may abandon the water licence to avoid paying the annual rent. However, unless the watershed has a water allocation restriction or water reservation, abandoning the water licence will not protect the water for instream uses. The water will become available for reallocation and the instream need will have to be defended against each application for a licence on that water system. This is also the case if a land trust wanted to donate the water it held under a licence to the Ministry of Environment to increase instream flows, unless a government agency desired to use and maintain the water licence and works.[68] In addition, the land trust would still be liable for damages resulting from failure of the works associated with the abandoned water licence,[69] so the works would need to be removed.

2.3 Purpose

Licences may be held under the *Water Act* for the following purposes:[70]

- Conservation - use and storage of water or the construction of works in and about streams for the purpose of conserving fish or wildlife;
- Domestic - use of water for household requirements, sanitation and fire prevention, the watering of domestic animals and poultry and the irrigation of a garden not exceeding 1012 square metres adjoining and occupied with a dwelling house;
- Industrial – any use of water designated by regulation as an industrial use;
- Irrigation - beneficial use of water on cultivated land and hay meadows to nourish crops;
- Land Improvement - diversion or impounding of water to protect property, to facilitate the development of a park or the reclamation, drainage or other improvement of land or to carry out a project of a similar nature;
- Mining – use of water under head for recovering mineral from the ground or from ore, or for moving earth, sand, gravel or rock;
- Power - use of water in the production of electricity or other power;
- River Improvement Purpose - clearing and improving the bed, channel and banks of a stream to facilitate the driving and booming of timber;
- Storage - collecting, impounding and conserving of water; and
- Waterworks - carrying or supplying water by a municipality, improvement district, development district or person for the use of the residents of an area in BC.

The comptroller or regional water manager may issue a licence for up to three purposes.[71]

The Ministry's and appeal tribunal's interpretation of the definition of "conservation purpose" under the *Water Act* requires a landowner to obtain a licence if he or she wants to, for example, enhance fish habitat.[72]

The conservation purpose is defined narrowly in the *Water Act*, and means the use and storage of water or the construction of works in and about streams for the purpose of conserving fish or

[68] Livia Meret, Solicitor, Resource, Environment and Land Law Group, Ministry of Attorney General. Personal Communication December 18, 2007.
[69] *Water Act, supra* note 2 at s.25.
[70] *Ibid* at s.1.
[71] *Water Act, supra* note 2 at s.7.
[72] See, for example, *de Montreuil v. British Columbia (Assistant Regional Water Manager)* BC Environmental Appeal Board 2003-WAT-006(a) where the panel concluded that the landowner must obtain a licence for conservation purposes if he wanted to continue to rely on water from Greig Creek for fish conservation purposes.

wildlife.[73] "Storage" means collecting, impounding or conserving water. Wildlife can include raptors, threatened species, endangered species, game or other species of vertebrates, which would allow conservation uses if a species is listed under the *Wildlife Act*.[74] "Use" of water is undefined in the *Water Act*, but the few courts cases considering the term use have discussed beneficial use in the context of the use for which the licence was granted.[75] These uses are usually for extractive activities involving removing water from the system or for hydropower.

These definitions restrict the ability to use water licences for broad conservation purposes because they contemplate water conservation for fish and wildlife purposes only. This precludes obtaining licences for other conservation purposes such as habitat and ecosystem restoration (unless related to fish or wildlife), the storage or use of water to conserve plant communities, and general ecosystem health of, for example, wetlands.

However, a water licence obtained for conservation purposes that includes works in and about streams for the purpose of conserving fish and wildlife can, in function, act like an instream flow licence because the works applied for could be very minimal, such as the deposit of coarse woody debris in the stream, depending on the specific situation (see section 2.4 for further discussion).

Water licences obtained for land improvement purposes can also include water being diverted or impounded to facilitate the development of parkland or for the reclamation of land. This does not include, for example, water used to grow hay to feed cattle so they do not forage on native grassland. The *Water Act* would consider that use an irrigation use. Likewise, instream micro-hydro facilities to prevent fossil fuel use would be considered a utility use.

Section eight of the *Fish Protection Act* that is not yet in force enables community organizations to hold water licences for streamflow protection purposes (see section 3.6 for further discussion).[76] Because of this section, even though it is not yet law, a court would likely not look favourably on a challenge to the *Water Act* arguing that judicial interpretation of "conservation purpose" and/or "use" should include instream flow licences.

Finally, the only way to remove water from the licensing system so that it cannot be taken up for non-instream purposes is by reserving the water. The provincial cabinet may reserve to the government for any purpose all or part of the unrecorded water in a stream from being taken or licenced.[77] This provision can be used where there is uncertainty about the ecological impact of existing allocations on a stream. While there are water reservations for conservation purposes, many relate to future municipal, waterworks and other consumptive uses.[78]

2.4 Associated Works

The *Water Act* requires that each licence specify what works must be constructed to fulfill the purpose of the licence. For a "conservation purpose," water must be used or stored (requiring

[73] *Ibid* at s.1. See also Water Licences: Purpose Definitions – May 1999 (last updated Jan 4 2006) http://www.env.gov.bc.ca/wsd/water_rights/water_rental_rates/cabinet/purpose_definitions.pdf.
[74] *Wildlife Act*, R.S.BC 1996 c. 488 at s.1.
[75] See, for example, *Wagner* v. *Oliver (Town)* 2003 BCCA 38; 38 M.P.L.R. (3d) 237; 179 B.C.A.C. 293 (BCCA); *Re: Florence Silver Mining Co.* (1921) 29 B.C.R. 558, 60 D.L.R. 575 (BCSC-BCCA).
[76] *Fish Protection Act*, S.B.C. 1997 c.21.
[77] *Water Act*, supra note 2 at s.44.
[78] See the list of existing water reservations in BC http://www.env.gov.bc.ca/wsd/water_rights/reserves_restrictions/cabinet/reserves.pdf.

works to fulfill the use or storage), or works constructed to conserve fish or wildlife.[79] In addition, the comptroller or regional water manager must ensure that every licence is for the diversion, extraction, use or storage of water,[80] and the licence must set out how the licensee may construct, maintain and operate the works authorized under the licence or construct fences, screens and fish or game guards across streams for the purpose of conserving fish or wildlife.[81]

"Works" means:[82]

(a) anything capable of or used for
  (i) diverting, storing, measuring, conserving, conveying, retarding, confining or using water,
  (ii) producing, measuring, transmitting or using electricity,
  (iii) collecting, conveying or disposing of sewage or garbage, or
  (iv) preventing or extinguishing fires,
(b) booms and piles placed in a stream,
(c) obstructions placed in or removed from streams or the banks or beds of streams,
(d) changes in and about a stream;
(e) access roads to any of the above works; and
(f) wells and their associated works.

"Changes in and about a stream" (item (d) above) has a very broad definition, and means any modification to the nature of a stream including the land, vegetation, natural environment or flow of water within a stream, or any activity or construction within the stream channel that has an impact on a stream. A person requires approval from the provincial government to make changes in and about streams, and local and senior governments may only make changes in and about streams with approval or in accordance with an approval, regulations, a licence or an order.[83]

In 2004 a regional water manager of the Ministry of Environment refused to approve an application for a water licence where the applicant sought to hold a licence for water flowing in a stream. The applicant sought to preserve water flowing through a pond for wildlife survival purposes. The applicant appealed and the appeal board denied the appeal, stating:[84]

> By the definition in section 1 of the Act, a licence for "conservation purpose" is only required when works are contemplated or there will be some diversion and use. In this case, none of these apply. Consequently, since no use or diversion of the water is sought and no works are to be constructed, no water licence is required by the Act; moreover, there is no basis for the issuance of a licence for "conservation purpose".[85]

The appeal board also refused to entertain protecting water for instream flows through a licence against future licence applications and unlicensed uses. The appeal board noted that the *Water Act* regime of licences provides for the use, diversion and/or storage of water. It does not set out integrated management planning; it is legislation that establishes a licensing process for water use

[79] *Water Act, supra* note 2 at s.1.
[80] *Ibid* at s.13.
[81] *Ibid* at s.5.
[82] *Ibid* at s.1.
[83] *Ibid* at s.9.
[84] *Harvey v. British Columbia (Assistant Regional Waste Manager)*, BC EAB Decision, 2004-WAT-008(a), November 19, 2004.
[85] *Ibid* at para 18.

and licences are required only where there will be works constructed.

While licences for instream flows are not contemplated under the *Water Act*, the requirements under a licence for "works" may be fairly minimal. Small changes in and about a stream could be allowed through a water licence for conservation, which would protect the water under licence and not create significant maintenance and operating costs for the licence holder.

2.5 Use It or Lose It

If a licensee does not beneficially use water as authorized by a licence and for the purpose set out in the licence for three consecutive years, the comptroller or regional water manager may revoke the licence.[86] While no cases in BC have defined "beneficial use," courts and tribunals discuss beneficial in the context of the use defined by the licence.[87] Beneficial use for conservation purposes is the use and storage of water, in associated works, for the purpose of conserving fish or wildlife. The comptroller or regional water manager may also require a licensee to make a written statement about how the water has been used beneficially.[88] This "use it or lose it" provision is rarely used.[89]

2.6 Pay for Use

The cost of water licence applications and annual water rental rates is found in Schedule A of the *Water Regulation*.[90] The water licence application fee for conservation and land improvement purposes is $150, and amendments to licences are $100. The annual rents payable for a licence held for conservation purposes are as follows:

Conservation Purpose	Annual Rental $
Storage of water	25
Use of water - per 1000 cubic metres 2007 2008 2009	 0.007 0.008 0.001
Construction in and about streams	25

Of note is that the annual fee for conservation purposes will significantly decrease in 2009, making it more affordable for land trusts and other conservation organizations to hold water licences for conservation purposes. This is in contrast to, for example, the agricultural sector where annual water rent is increasing from $0.50 per 1000 cubic metres in 2007 to $0.60 in 2008 for irrigation.

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[86] *Water Act*, *supra* note 2 at s.23.
[87] See, for example, *de Montreuil*, *supra* note 72 where the panel concluded that the landowner had put the water to beneficial use for domestic purposes as defined in the *Water Act*. See also *Kamloops Cooper Co. v. Kamloops (City)* 7 C.B.R. 17, [1925] 2 W.W.R. 733, 35 BCR. 243, [1925] 3 D.L.R. 896 where the City's beneficial use of the water was to generate hydro electricity; *Wagner* v. *Oliver (Town)* 2003 BCCA 38; 38 M.P.L.R. (3d) 237; 179 B.C.A.C. 293 (BCCA); *Re: Florence Silver Mining Co.* (1921) 29 B.C.R. 558, 60 D.L.R. 575 (BCSC-BCCA)..
[88] *Ibid*, s. 22.01. See the Beneficial Use Declaration form at http://www.env.gov.bc.ca/wsd/water_rights/cabinet/beneficial_use_declaration.pdf.
[89] Although rarely used, they are used. See, for example, *de Montreuil*, *supra* note 72.
[90] BC Reg. 204/1988.

If a water licence application is for the use of water for more than one purpose, the application fee is the combined total of fees that the landowner would have to pay if she or he was making separate applications for each purpose.[91] Each licence sets out a water rental due date and water rentals are payable for each purpose for which the licence was issued in advance on that date, whether or not the water was used within the rental period.[92] The rent is payable whether or not the water use is authorized by a licence.[93]

Finally, the licence holder must pay the rent to the comptroller who can enforce the rent provisions of the licence in court.[94] The comptroller or regional water manager may cancel licences of licensees who fail to pay their water rents for three years.[95] Although there is a general appeal mechanism for decisions made under the *Water Act*, this decision may not be appealed.[96]

There is no discretion in the legislation to allow a licence holder to apply for an exemption from paying the annual rent, or for the comptroller to grant such an exemption. While there are some rental remissions granted by regulation, meaning licence holders such as the government, First Nations using water on reserves and licence holders that give up some rights for a public purpose do not pay the annual rent, there are no blanket exemptions for specific uses like conservation.[97] Rental remissions are granted by regulation. Conservation organizations could advocate for an amendment to the Water Regulation for a rent remission for licences held for conservation purposes.

In summary:

The exercise of every right held under a licence is always subject to the *Water Act* and the regulations, the terms of the licence, the orders of the comptroller and the engineer and the rights of all licensees whose rights have precedence

Older water licences, including those obtained by land trusts when land is purchased, take priority over newer water licences. If a land trust is granted a water licence for conservation purposes that water licence would be subordinate in priority to all licences that the comptroller or regional water manager have granted in the past for that drainage.

There is no current ability under the *Water Act* to hold a licence for instream flows, based on the Ministry's interpretation of conservation purpose. All licences held for conservation purposes must involve physical works, as set out in the licence. However, land trusts may apply for water licences for conservation and undertake minimal works to maintain the water for instream uses, e.g. fish protection.

A person cannot apply as a landowner for a water licence that will be attached or appurtenant to another person's land, unless they have a right of possession or substantial interest in the land.

If a land trust purchases property to which a licence is appurtenant the land trust may abandon the water licence to avoid paying the annual rent. However, unless the drainage system is fully allocated

[91] *Ibid*, s.5.
[92] *Ibid*, s.7(10).
[93] *Ibid*, s.9.
[94] *Water Act*, *supra* note 2 at s.100(3).
[95] *Ibid* s.23(2).
[96] *Ibid* s.92.
[97] Water Regulation, *supra* note 88 at s.13.

and there is a water allocation restriction on the system, this will not protect the water for instream uses. The water will become available for reallocation to another licensee or applicant.

There is no discretion for the regional water manager to exempt a licensee from paying the annual water rent charge. Licensees can be exempted only by regulation.

This review of the principles of the water use regime in BC show that water licensing does not adequately address instream flows and focuses on reacting to water licence applications rather than planning for long term ecosystem health. Currently 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.

3. Existing Conservation Options

There are many existing actions that conservation organizations can pursue to address water conservation under the *Fish Protection Act*, *Water Act* and other non-regulatory planning processes.

3.1 Hold Water Licences for Conservation Purposes

Land trusts, other organizations, individuals and governments can and do hold water licences for conservation purposes. In the Western United States this approach has emerged as a market-based approach to protecting instream flows and ecosystem health (see case studies in Appendix B). This approach essentially privatizes water so that it is either held for extractive uses by landowners and others, or for instream uses by conservation groups or governments. Many water trusts and other conservation organizations in the western U.S. states work with government agencies that also hold instream water right for conservation to achieve watershed health goals.[98]

Although relying on water licences to achieve water conservation can be beneficial in the short term, as a long term strategy it has a number of flaws. For large watersheds, such as the Fraser River or Okanagan Basin, it is very difficult to achieve cooperation amongst all the licence holders to achieve conservation goals. Relying on water licences to achieve conservation goals could work in small watersheds where the system is relatively discrete, but for larger systems it would be challenging. This approach also relies on private organizations to take care of some of the provincial government responsibility for water stewardship. Responsibility for environmental protection, including water stewardship, shifts away from government and towards individuals and other potentially less accountable institutions.

It is clear from the experience in the western U.S. states that when senior government amends legislation to remove this requirement for works or some beneficial use of the water, communities create water trust organizations to preserve instream flows.[99] These legislative amendments also specifically allow licensees to transfer their licences, for example when a water trust purchases a senior licence, and change uses without losing the priority or seniority of the licence.[100]

While acquiring licences with significant seniority has been a primary strategy of land and water trusts in the western United States, this approach is more limited in BC because of the requirement that works be associated with licences held for conservation purposes. There is also no independent market for water in BC, meaning that water licences cannot be bought and sold irrespective of the land or undertaking to which they are attached. Land trusts would have to purchase land to which a senior water licence is appurtenant to secure the water right. In most cases, given the limited resources of land trusts and the cost of land, acquiring senior water rights (and the land to which they are appurtenant), is prohibitive. Ongoing costs include annual water rents, maintaining works, and ensuring that water is beneficially used annually.

[98] King, M.A. 2004. "Getting Our Feet Wet: An Introduction to Water Trusts" 28 *Harvard Environmental Law Review* 495.
[99] Kwasniak, A. (2006). Quenching Instream Thirst: A Role for Water Trusts in the Prairie Provinces, 16 *Journal of Environmental Law and Practice* 211.
[100] King, M.A. and S.A. Fairfax (2005) Beyond Bucks and Acres: Land Acquisition and Water. 83 *Texas Law Review* 1941.

3.2 Transfer Water Licences to the Crown

There are a variety of senior government agencies, such as the Ministry of Environment Fish and Wildlife Branch and the federal Fisheries and Oceans Canada, which hold licences for conservation purposes. Land trusts may be able to transfer water licences to the Crown in some circumstances. This approach is case- and site-specific, being dependent on a Crown agency's willingness to accept the cost and liability associated with maintaining the works.[101]

3.3 Become Involved in Allocation Decisions

The *Water Act* requires the comptroller or regional water manager to notify landowners who hold water licences and other licensees, riparian owners, and other applicants of new applications for water licences.[102] These parties have thirty days to file an objection to the application if they feel that their rights would be prejudiced by a new licence.[103] The comptroller or regional water manager may hold a hearing on the matter.

Conservation organizations can provide submissions on applications for new water licences and provide information to the decision-makers on the state of the drainage or stream and their experience with water use and availability. This approach can help preserve land trust licensee water rights, but may not ensure adequate instream flows.

3.4 Encourage the Reservation of Water

There are water reservations across the province in favour of a variety of government agencies.[104] In effect, the province reserves the water to itself or for other public or utility uses in the future. While some reserves are for public interest purposes, most of them are for consumptive uses such as water supply and waterworks. Many are for hydro. Land trusts can identify the watersheds or stream systems that need secure instream flows and encourage the Ministry of Environment to reserve those flows for public interest (conservation) purposes.

3.5 Encourage the Dedication of Sensitive Streams

Sections six and seven of the of the *Fish Protection Act* enable the province to designate streams as sensitive streams where the designation will contribute to the protection of fish populations at risk because of inadequate water flows or the degradation of fish habitat. This designation gives the comptroller or regional water manager additional powers to require information from applicants and require mitigation for water licences on designated sensitive streams. The Minister may also direct that a recovery plan be prepared for a sensitive stream.

In the Sensitive Streams Designation and Licensing Regulation, the Provincial Government has designated only fifteen streams as sensitive. There are no recovery plans for these streams. Land

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[101] Livia Meret, Solicitor, Resource, Environment and Land Law Group, Ministry of Attorney General. Personal Communication December 18, 2007.
[102] Water Regulation, *supra* note 90 at s.3.
[103] *Water Act*, *supra* note 2 at s.11.
[104] *Ibid* 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.

trusts can work with the provincial government to designate additional streams as sensitive, and encourage the Ministry of Environment to develop recovery plans for each of these streams.[105]

3.6 Encourage *Fish Protection Act* Provisions be Brought Into Force

Although not in force, section 8 of the *Fish Protection Act* allows the Lieutenant Governor in Council (provincial Cabinet) to direct that water licences for streamflow protection purposes be issued. These licences are available only to organizations that have a community-based interest in the stream for which the licence is issued. The licence must still require the licensee to undertake works in relation to fish and fish habitat at designated locations on a stream. The application process for these licences is through the Minister. No appurtenancy is required, which means conservation organizations would not have to own land or an undertaking to qualify to hold this type of licence.

Streamflow protection licences could allow local organizations to have an impact on a specific reach of a stream to improve fish habitat conditions. However, they involve an onerous application and approval process through the Minister and Cabinet (not through the regional water manager as is the case with other water licences), and it appears that the annual water rental charges would still apply. The Minister may also cancel the licence without compensation if cancellation is considered to be in the public interest, unlike other licences where cancellation is for cause such as a breach of licence conditions. Finally, streamflow protection licences place responsibility on conservation organizations to protect fish and fish habitat in designated points on streams but may not adequately address the larger problems with water allocation and watershed governance that have an impact on those reaches of streams.

3.7 Become Involved in Water Management Plans and Watershed Management Plans

Part 4 of the *Water Act* enables the Minister to designate an area for the purpose of developing a water management plan if the plan can assist in addressing or preventing conflicts between water users, conflicts between water users and instream flow requirements, or risks to water quality.[106] Plans can take into account fish, fish habitat and other environmental matters.[107] Water management planning may consider instream flows, ground water and surface water runoff that is not in a stream.[108] Those responsible for preparing the plan have considerable powers to evaluate the state of a watershed or region. They may order licensees to provide information, and undertake investigations, tests and surveys.[109] If the Provincial Government approves a plan, the government may then enact a regulation requiring that staff making decisions about water under the *Water Act* or other legislation must consider the plan, and restricting new or amended licences or other authorizations.[110]

This water management planning authority can be an integrated vehicle to address water supply issues on a watershed or regional basis. Within a planning context it allows the Ministry of Environment to gather accurate data on actual water use and craft a plan that takes into account ecosystem health. It provides a framework for taking into account the entire hydrological regime, which includes groundwater, and better understanding watershed-specific conditions. It can include

[105] For more information see http://www.env.gov.bc.ca/habitat/fish_protection_act/index.html.
[106] *Water Act*, *supra* note 2 at ss.62-67.
[107] *Ibid* at s.62(2).
[108] *Ibid* at s.63(4).
[109] *Ibid* at s.63(8).
[110] *Ibid* at ss.64-65.

long-term goals for redressing overallocation and ensure that licensing decisions are made with instream requirements in mind. There is currently only one water management planning process underway in the province in Langley, the focus of which is groundwater and the development of a pilot licensing system.[111]

The provincial government has adopted fifteen Water Allocation Plans in the Vancouver Island Region and one in the Lemieux Creek area of the Southern Interior Region.[112] These are not Water Management Plans as contemplated by the *Water Act*, but are approved by the regional water managers and assist staff in those regions to make decisions about water licence applications.[113] The plans set out instream flow requirements for fish in the drainages within the area under each plan, and indicate how much water is available for future allocations. The federal Department of Fisheries and Oceans and provincial fisheries staff believe the instream flow policy is working well. Most of the plans are approaching fifteen years in age and the Ministry is hoping to update them with the added participation of First Nations on Vancouver Island.[114]

The Ministry of Environment is currently undertaking a comprehensive study in the Okanagan following the drought years prior to 2004 in recognition that more information is needed to determine whether there is any water left to allocate in the region. The project is modeling supply and demand for the region and will generate several scenarios that Ministry staff can use when making decisions about water licences. The anticipated completion date is 2009. The Ministry is deferring decisions on applications for larger water allocations while decisions on applications for smaller amounts of water depend on the purpose of the licence, where the drainage is located, and knowledge about existing allocations. Most of the sub-basins in the Okanagan are already fully allocated.[115]

Finally, forestry legislation currently designates 461 community watersheds in BC for which the provincial government has developed watershed plans.[116] While the watershed planning process does not fully involve the public, technical working groups composed of licensees and resource specialists provide advice to the process. Conservation groups, as licensees and experts, could become involved in these community watershed plans.

Land trusts and conservation organizations can work to initiate and participate in the development of regional water management plans that will assist in better understanding the state of water allocation and use in a watershed or region, and provide decision-makers with direction on protecting instream flows. This is a necessary long-term approach to water management in BC, even though it will not address short-term instream flow needs.

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[111] Wenda Mason, Manager Major Projects, Water Stewardship Division, Ministry of Environment. Personal communication November 16, 2007.

[112] The Water Allocation Plans date between 1994 and 2000 and are for the following areas in the Vancouver Island Region: Alberni Inlet; Chase to Nanoose; Chemainus River; Denman and Hornby Islands; Englishman River; Gabriola, Valdes, Thetis and Kuper Islands; Lasqueti Island; Long Beach; Nile Creek to Trent River; Outer Gulf Islands; Quennell-Holden; Qualicum River; Saanich-Victoria; Saltspring Island; and San Juan River. All of the Water Allocation Plans can be found at http://www.env.gov.bc.ca/wsd/water_rights/wap/index.html.

[113] Larry Barr, Regional Water Manager, Water Stewardship Vancouver Island, Ministry of Environment provided this information about how the Water Allocation Plans function. Personal communication November 7, 2007.

[114] Larry Barr, Regional Water Manager Water Stewardship Vancouver Island, Ministry of Environment. Personal communication November 7, 2007.

[115] Wenda Mason, Manager Major Projects, Water Stewardship Division, Ministry of Environment. Personal communication November 16, 2007.

[116] Nowlan and Bakker, supra note 20 at 40-41.

3.8 Become Involved in Regional Water Boards and Other Institutions

There are many region-specific boards and planning processes in BC that address water use. They range from legislated boards and trusts to local multistakeholder watershed groups that address water use conflicts in a drainage. The Columbia Basin Management Plan has a unique status in BC as being the only planning document that the comptroller and regional water manager must consider when making allocation decisions. [117]

Regional organizations that address water management include:[118]

- Okanagan Basin Water Board;
- Columbia Basin Trust;
- BC Hydro Water Use Plans;
- CRD Regional Water Supply Commission
- Clayoquot Central Region Board;
- Abbotsford-Sumas Aquifer Task Force and Abbotsford-Sumas Aquifer Stakeholder Group;
- Fraser Basin Council;
- Nechako Water Council;
- Salmon River Roundtable; and
- Peace River Watershed Council.

The involvement of land trusts in watershed organizations is important for setting a conservation-based agenda for macro plans that gives direction to decision-makers about instream flow needs. Some of these planning processes or bodies can also develop the information about stream flows and water use that is needed to understand watershed characteristics and set long-term goals. However, these processes and boards do not have jurisdiction over allocation decisions and will not redress overallocation in the near future.

3.9 Encourage Enforcement of the Fisheries Act

Fisheries and Oceans Canada (FOC) has authority under the *Fisheries Act* to prevent works and undertakings that result in the harmful alteration, disruption or destruction (HADD) of fish habitat.[119] Better enforcement of water use that results in a HADD upholds water conservation goals and can support water licence allocations.

In summary:

There are a variety of ways that land trusts – as licensees, landowners, and conservation organizations – can participate in water licensing or planning processes. Some of these existing processes aim to address long-term water use conflicts and allocations. However, it is not clear that under the existing legislation any of them is able to deal with the overallocation of water under existing licences.

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[117] *Water Act*, *supra* note 2 s.12(2).
[118] For a description of each of these organizations see Nowlan and Bakker, supra note 20 at pp. 50-59.
[119] R.S.C. 1985 C. F-14, s.35.

4. Future Reform Options to Promote Conservation

As outlined in the previous chapters the current water management and licensing regime in British Columbia does not adequately protect ecological health or ensure the basic instream flow needs that provide the foundation for functioning watersheds and aquatic ecosystems.[120] Chapter 3 demonstrates that a number of immediate opportunities exist to improve conservation of water resources, however most of those actions will not necessarily result in comprehensive solutions or robust and lasting protection of British Columbia's watersheds and aquatic ecosystems. This chapter suggests some of the ways that land trusts and other conservation organizations can engage with the provincial government to reform water management.

The following foundational areas must be addressed to improve water management and decision-making for conservation and for the benefit of the public interest:

(a) *Ensure basic technical data* – "What gets measured – gets managed." There is insufficient data on how much water is withdrawn from surface and groundwater systems, inadequate reliable (not just voluntary) monitoring of the amount of water used and returned under existing water licenses, and the amount of water available for withdrawal.

(b) *Develop a better understanding of basic ecological needs and linkages between ground- and surface water* – Although understanding the interaction between ground and surface water and basic water requirements for ecosystem health is complex, this information is vital as it provides the foundation that enables decisions about how much water must be left in the system and how much water is available for other uses.

(c) *Improve enforcement* – Infractions of many environmental laws and regulations (including water) are not enforced in BC. Enforcement of the *Water Act* enhances water resource protection. This approach requires additional designated staff and a commitment to following through on prosecutions.

(d) *Enhance oversight and accountability* – Water management in BC is multijurisdictional and relatively uncoordinated. Numerous agencies, departments, and assorted levels of government have varying responsibilities for water. No one entity is responsible for ensuring water is managed for the broad public interest (which includes conservation). Policies from different agencies can be contrary to one another. Establishing an arms length independent oversight mechanism for managing water resources in the province will increase the provincial government's accountability. This function can be part of the Auditor General or Ombudsman's offices, or incorporated into an expanded role of the Forest Practices Board to formally include provincial water resources.

Although these priority areas will only indirectly affect conservation and the protection of water resources, they are the foundation of effective management and good decision-making. Taken together they are important parts of good governance for water. In addition to addressing these

[120] A number of recent water policy and governance reviews support this general conclusion, for example see Nowlan and Bakker, *supra* note 20; and Brandes, O.M. and J. O'Riordan. (2007) *Water Policy in BC: Directions and Possibilities for the BC Real Estate Association* (Victoria: BC Real Estate Association), available at www.waterdsm.org.

primary areas the following reforms identify broader opportunities to promote conservation and the long-term health and sustainability of water in British Columbia

4.1 Regulate the Use of Groundwater

Twenty five percent of BC residents rely on groundwater for drinking water.[121] Groundwater is also critically important for irrigation and manufacturing processes, and is intimately linked to the health of river, stream, wetlands and lake systems throughout the province. Even with its fundamental importance to ecosystem health, groundwater remains largely unregulated in BC. Unrestrained groundwater withdrawals place pressures on hydrological systems resulting in falling water tables, reducing flows in streams and wetlands, interferences with wells, salt water intrusions and potential shifts in groundwater divides. In some cases, groundwater extraction is the only source of additional water as surface water rights have been fully exploited. Given the unregulated nature of groundwater, this will inevitably lead to conflicts between water users and the eventual degradation of aquifers and the surrounding environment.

Basic information about groundwater and licensing of use across the entire province is urgently needed.

4.2 Mandate Instream Flow Requirements

As outlined in the previous sections the prior allocation system, or "first in time, first in right," does not promote conservation and protect ecosystem health. This system was designed to address the challenges of the late 1880s, specifically to create certainty for investment and promote certain types of development such as irrigation for agriculture and gold mining. It is apparent that this system must now evolve if the water licensing and allocation system is to address the more modern challenges of a changing climate and to protect ecological function of aquatic systems.

Modern allocation and licensing systems explicitly deal with instream flow requirements and are designed to be adaptable and flexible. These systems set an ecological limit as expressed by each hydrological unit (such as the watershed or aquifer). The decision-maker may issue non-permanent licenses based on a portion of the overall assessed available water. For example, the European Union's Water Framework Directive of 2000 obliges all member countries to monitor the quality of water bodies and to take actions to ensure their "good ecological status". It specifically points to the importance of the quantity and dynamics of water flows in rivers and other surface waters (Annex V, 1.1.1) and the need to take into account natural flow conditions for purposes of environmental protection (Article 34). Japan amended its River Law in 1997 to declare conservation of riverine environments a vital part of water management.[122]

Australia and South Africa are also good examples of legal protection for water-based ecosystems. For example, South Africa's *National Water Law* of 1998 established two-tiered water reserves for which allocations are nonnegotiable. The first reserve is for basic human needs such as drinking, cooking and sanitation. The second is to maintain the ecological functions on which humans depend to ensure long term sustainability of aquatic and associated ecosystems.[123] Finally, in

[121] Nowlan, *supra* note 32 at 30.
[122] Tamai, N (2005) Principles and Examples of River Restoration, in *River Restoration in East Asia*, edited by Parish, F., M. Mokhatar, A.R. Abdullah, and C.O. May, (Kuala Lumpur, Malaysia: Global Environment Centre and Department of Irrigation and Drainage).
[123] Backeberg, G.R. (2005) Water Institutional Reforms in South Africa, *Water Policy*, 7: 107-123.

Australia the Council of Australian Governments *Water Reform Framework* of 1994 recognized the need to include the environment as a legitimate user of water when determining water allocation schemes.[124]

The *Water Act* and the licensing regime in British Columbia must evolve into these type of models and, at minimum, must explicitly allow for conservation purposes to be included in existing licences as a valid water use where the water is not taken out of the ecological system.

Given the embedded nature of the existing allocation system and overallocation that currently exists in some regions, reforms must include mechanisms for the comptroller, regional water manager, or regional water boards to designate a portion of licence allocations as instream flows to return adequate flows in compromised ecosystems.

4.4 Reform Water Governance

Water governance reform is also urgently needed to address many of the challenges outlined above. Significant research exists that supports the concept of "delegated" governance to enhance decision-making and to better nest groundwater licensing and ecosystem-based allocations within the context of the watershed – the generally accepted scale for water management.[125] Such a "delegated" system would emphasize watershed-scaled institutions that expand the role of regional water boards to undertake integrated studies and planning to better reflect actual ecosystem function and local solutions. Such a system would re-balance decision making between the various levels of government (regional/local, first nations and provincial and federal).

Fundamentally, such a reformed system would require local governments to ensure that new development has no net impact on the hydrological systems and would balance water use with water availability without degrading the resource. Local governments and institutions would focus on local data gathering, information generation, and engaging stakeholders and community. They would also be empowered to determine the local public interest, balance needs and demands, and resolve water use conflicts. Senior governments (provincial and federal) would ensure that binding principles and guidelines ensure instream flow requirements are met and would harmonize other activities such as forestry, mining and fisheries management. Senior government would also enforce rules, support research and informational needs, provide local capacity for decision-making, and would protect the broader public interest.

There are many good models for water governance reform, so BC does not need to "reinvent the wheel." With the options outlined above as a baseline, it is up to land trusts and other conservation organizations to determine their role in the development of a modern water management system in this province.

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[124] McKay, J. (2005) Water Institutional Reforms in Australia, *Water Policy, 7: 35-52*

[125] See for example: Bakker, K. (ed.) (2007) *Eau Canada: The Future of Canada's Water* (Vancouver: UBC Press); Brandes et al. (2005). *At A Watershed: Ecological Governance and Sustainable Water Management in Canada* (Victoria: The POLIS Project on Ecological Governance, University of Victoria); and, Nowlan and Bakker, *supra* note 20.

Appendix A: Sample Water Licences

WATER MANAGEMENT BRANCH

MINISTRY OF ENVIRONMENT

THE PROVINCE OF BRITISH COLUMBIA—WATER ACT

CONDITIONAL WATER LICENCE

Bernd R. Wendler c/o Ducks Unlimited (Canada) of 2-345 Victoria Street, Kamloops, B.C. V2C 2A3

is hereby authorized to store and use water as follows:

(a) The source of the water-supply is Burnstread Creek.

(b) The points of storage and use are located as shown on the attached plan.

(c) The date from which this licence shall have precedence is 2nd July, 1980.

(d) The purpose for which the water is to be used is conservation.

(e) The maximum quantity of water which may be stored and used is 44 acre feet per annum, and such additional quantity as the Engineer may from time to time determine should be allowed for losses.

(f) The period of the year during which the water may be used stored and used is the whole year.

(g) This licence is appurtenant to the conservation undertaking of the licensee within Lots 10107, 10108, 10110 and South 1/2 of Lot 9249, Cariboo District.

(h) The works authorized to be constructed are dam and nesting islands, which shall be located approximately as shown on the attached plan.

(i) The construction of the said works has been commenced and shall be completed and the water beneficially used on or before the 31st day of December, 1985.

(j) Construction of the dam authorized under clause (h) hereof shall not be commenced until plans of same have been submitted to and approved by the Engineer for the Prince George Water District.

(k) The maximum level to which the water may be raised shall be 96.0 feet, local datum reference, or as determined by the Engineer for the Prince George Water District.

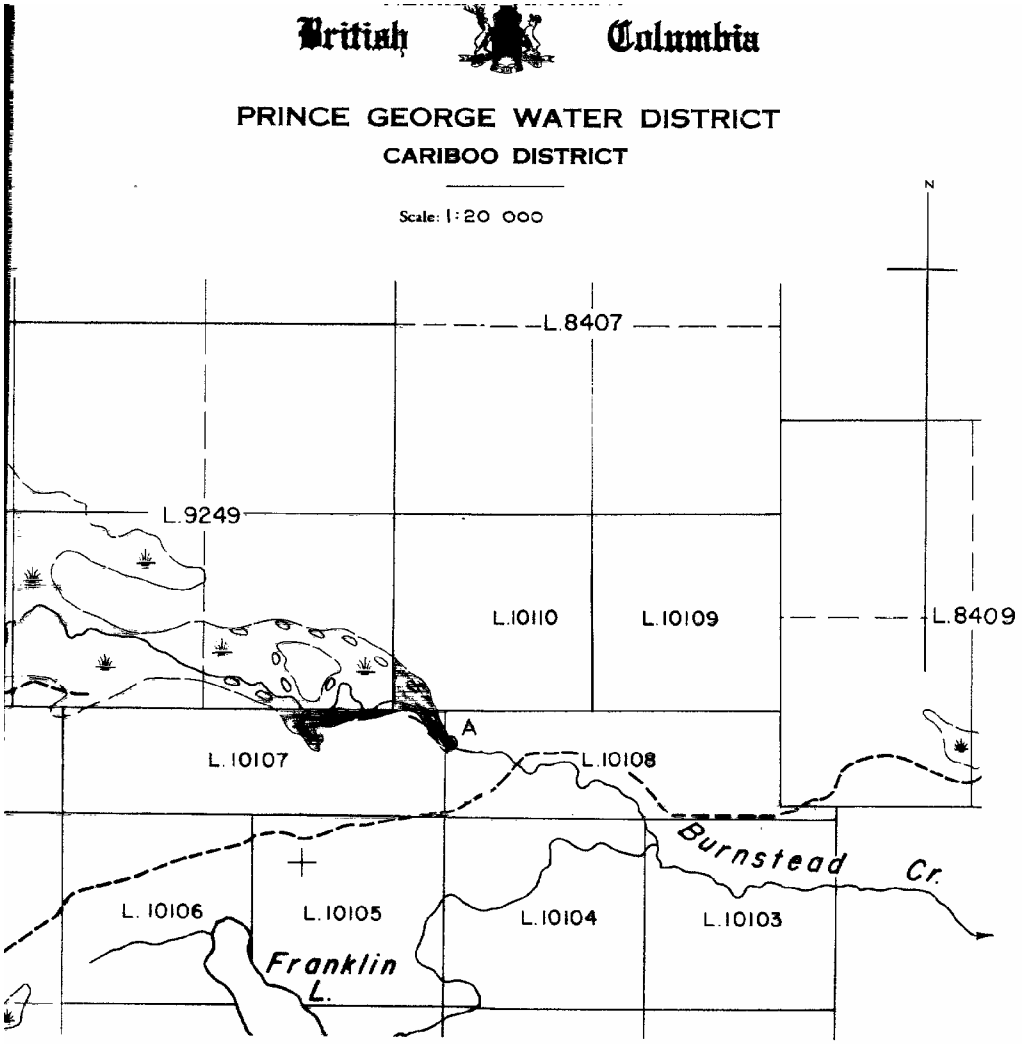
(l) This licence, or any licence issued in substitution thereof, shall expire on the 23rd day of March, 2002.

J. E. Farrell,
Deputy Comptroller of Water Rights.

File No. 0366834 Date issued: 1st February, 1983 Conditional Licence 58102

W-183

ENTERED ON
Map No. 93J.012
By



LEGEND

Point of Diversion ●

W.R. Map 93·J·012

Nesting Islands ○○

Permit over Crown Land

Signature

Date 1st Feb 1983

C.L. 58102

File 0366834

P.C.L. N°. 13445

Vanderhoof Precinct

WATER MANAGEMENT BRANCH

MINISTRY OF ENVIRONMENT

THE PROVINCE OF BRITISH COLUMBIA—WATER ACT

CONDITIONAL WATER LICENCE

The Honourable Minister of Environment Canada, of Parliament Buildings, Ottawa, Ontario; in cooperation with the Canadian Wildlife Service of 277 Winnipeg Street, Penticton, British Columbia

is hereby authorized to divert and store water as follows:

(a) The source of the water-supply is Okanagan River.

(b) The point of diversion is located as shown on the attached plan.

(c) The date from which this licence shall have precedence is 17th November, 1983.

(d) The purpose for which this licence is issued is conservation (habitat enhancement).

(e) The maximum quantity of water which may be diverted and stored is 90 acre-feet per annum.

(f) The period of the year during which the water may be diverted and stored is the whole year.

(g) This licence is appurtenant to the conservation project of the licensee within Lot A of Lot 292, Similkameen Division of Yale District Plan 27827; and that part of Lot 647s and Lot 292, Similkameen Division of Yale District Plan B-3130, lying West of the Okanagan River channel right-of-way (Plan A-1533).

(h) The works authorized to be constructed are diversion structure, pump, pipe, dam and dyke which shall be located approximately as shown on the attached plan.

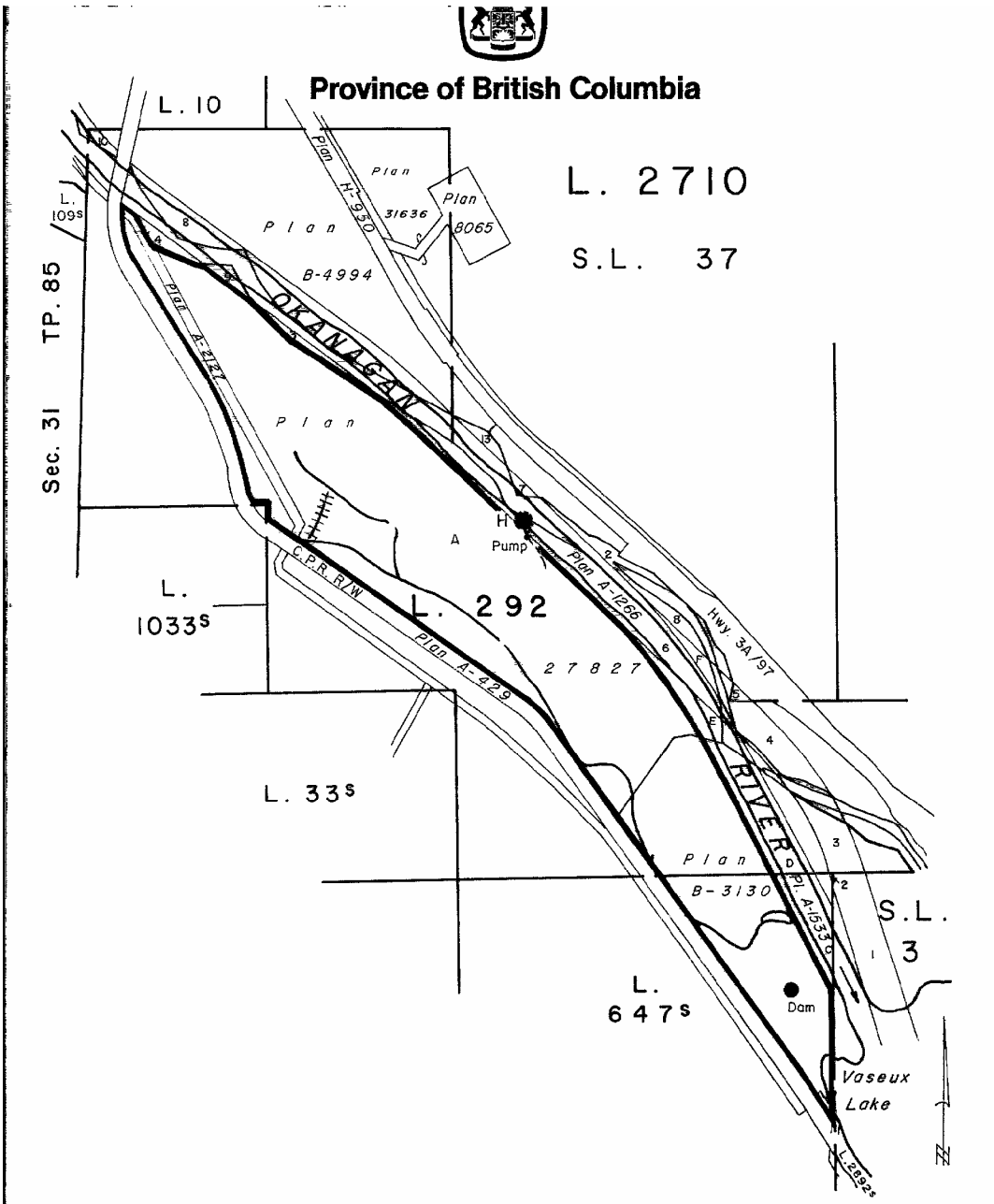
(i) The construction of the said works has been completed and the water beneficially used on or before the 31st day of December, 1986.

(j) Construction of the dam authorized under clause (h) hereof shall not be commenced until plans of same have been submitted to and approved by an Engineer under the Water Act.

(k) The works authorized under clause (h) hereof shall be maintained to the satisfaction of an Engineer under the Water Act and any changes to said works must be approved by an Engineer under the Water Act.

A. Zackodnik, P.Eng.
Regional Water Manager
Southern Interior Region

File No. 8000390 Date issued AUG 2 0 1985 Conditional Licence 62254



WATER DISTRICT :PENTICTON
PRECINCT :FAIRVIEW
LAND DISTRICT :SIMILKAMEEN DIVISION OF YALE

Signature
Date

LEGEND

Scale : 1 : 10 000
Point of Diversion : ●
Map Number : WR 82 · E · 033 · 1 · 1
Pipe : ——— – ———
Permit over Crown Land: ●
Dyke : ++++++

C.L. 62254
File 8000390
P.C.L. 15147

The boundaries of the land to which this licence is appurtenant are shown thus: ▬▬▬

Appendix B: Case Studies of Other Jurisdictions

The western United States historically had a similar water regulation scheme to western Canada, however there has been an increase in the involvement of NGO's in water licensing. The rise of water trusts is generally a result of water legislation being amended by removing the requirement for beneficial use or diversion and allowing for instream use as a valid use of water under a water licence. Amended legislation also has to permit transfer of licences and changes of use without removing the priority of the licence in the system.[126] Water Trusts operate in several western states by acquiring, holding and/or transferring to government licences for instream flows.[127]

In Oregon and Washington water trusts have focused on acquiring licences with very senior priority in high stress or high sensitivity areas.

1. Washington

The water is also publicly owned in Washington with rights granted through licences under a prior appropriation system. There is again a requirement for beneficial use of water pursuant to a licence.[128] One of the most important pieces of water legislation in Washington is the *Trust Water Rights* statute, which allows water right holders to dedicate the water saved from conservation measures to instream use. This legislation was enacted in 1991 and is roughly based on the Oregon legislation. The statute also allowed the state to acquire water rights (by purchase, lease, or gift) for instream use. Guidelines set out how to determine the quantity of water rights that can be transferred to the water trust. Pursuant to this legislation the Washington Water Trust (WWT) acquires existing water rights through purchase, lease or gift.[129]

The trust water rights are managed under the Trust Water Rights Program of the Department of Ecology. The water rights themselves are held by the state.[130] The Department of Ecology can also buy, lease or receive donations of rights and transfer them to instream flows though their Water Acquisition Program.[131]

The amount of water that can be transferred to instream use is limited to the amount of water that has been historically put to beneficial use. This is in contrast to Oregon, where the full amount on the licence can be transferred. This gives rise to one significant problem for the WWT. The determination of what amount has been historically used may lead to the rights of a licence holder being clawed back, and therefore is a risk of converting rights to instream rights.[132]

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[126] King and Fairfax, *supra* note 100.
[127] King, *supra* note 98.
[128] Office of the Attorney General, Washington (2001). An Introduction to Washington Water Law http://www.ecy.wa.gov/biblio/0011012.html.
[129] Washington Water Trust http://www.thewatertrust.org.
[130] *Ibid*.
[131] Washington State, Department of Ecology, Water website http://www.ecy.wa.gov/programs/wr/instream-flows/wacq.html
[132] King, *supra* note 98.

2. Oregon

Water is publicly owned in Oregon, except for where licences are issued, and there are no riparian rights to water. The licences operate under the prior appropriation system. The water laws are similar in that they require beneficial use, the water must in fact be used within a given time period, the licence must be associated with land and the priority is according to date. However, water rights can be transferred to instream use.[133]

The current water licence regime in Oregon is based on landmark 1987 legislation allowing for instream water use as a beneficial use.[134] The legislation also ensures the rights bought or leased retain the priority date of the original right. The Oregon Water Trust (OWT) utilizes the free market to purchase or lease water rights as well as acquiring them by donation. They focus on purchasing rights on streams where their purchase will have significant ecological benefits and where the licence has early priority.[135] Once the water rights are purchased or acquired the water rights are converted to instream rights.[136] The OWT also provides help to licence holders to find lower water use solutions so a portion of their rights can be sold or leased.[137]

The instream water rights are not actually held by the OWT. The OWT acquires the licences and changes the use to instream use, but must then transfer the rights to be held by the state. The legislation allows for instream use as a beneficial use, but a private party cannot hold such a right. The instream rights that were acquired by the OWT are transferred to and held in trust by the Water Resources Department for the benefit of the people of Oregon.[138] The instream rights are then monitored by both the state agency and the water trust. And while the state enforces the rights, the water trust holds them accountable for doing so.[139] This situation involves collaboration between the state and the OWT and is a compromise between private and public control over water conservation.

Academic review of the success of the OWT itself found that its success is related to several key characteristics of the organization. The OWT works with current water licence holders to develop solutions together. In order for this collaboration to work there must be positive dialogue with water licence holders. The OWT has an active community presence in all of the areas in which it works in and this is critical to its ability to negotiate deals.[140] The OWT is also able to have an impact by focusing on small but critical acquisitions as a way to maximize small financial resources.[141] One problem is that cases determining fair market value can be difficult and costly. A solution to this in many cases is leasing the water licence as opposed to outright purchase.[142]

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[133] Oregon Water Resources Department (2006). An Introduction to Water Rights in Oregon http://www.wrd.state.or.us/OWRD/PUBS/aquabook.html.
[134] Neuman, J. (2005) The Good, The Bad, and the Ugly: The First Ten Years of the Oregon Water Trust, 83 *Nebraska Law Review* 433 at 438.
[135] Oregon Water Trust http://www.owt.org.
[136] *Ibid*.
[137] *Ibid*.
[138] King, *supra* note 98 at 506.
[139] King, *supra*, note 98 at 519.
[140] Purkey, A. and C. Landry (2001). A New Tool for New Partnerships: Water Acquisition and the Oregon Water Trust, *Water Law* 12(5).
[141] *Ibid*.
[142] *Ibid*.

3. California

The legal structure in California has one significant and powerful legal tool not available in BC In 1983 the Public Trust Doctrine was recognized; the state had an obligation to protect waters such as the lake in question as far as feasible even where it is contrary to prior water use rights.[143] All water transfers in California can be judicially invalidated because they are inconsistent with the public trust doctrine of use. The public trust doctrine allows the courts in California to subordinate consumptive uses of water to ecosystem maintenance.[144]

More broadly speaking, however, the legislation is also very progressive in terms of environmental protection. Water licences must comply with Fish and Game Codes in order to ensure that the tributaries are sufficiently protected for their public trust values.[145] The California Water Code allows for the transfer and dedication of all or a part of a water right for environmental purposes (s. 1707). Finally, strong environmental legislation in all areas provides means of water protection. For example, effective and well-enforced endangered species legislation has positive effects on aquatic ecosystem maintenance.[146]

4. Alberta

Generally, Alberta has the same prior allocation as the rest of western Canada. The Alberta act specifically states that riparian owners have no rights other than those under the Act. Rights pursuant to licences issue are subject to rules and regulation and licence issuing not the subject of appeal rights.[147] There was a policy change to the basic system, which maintained the basis of seniority, but added the ability to trade water rights on the market.[148]

[143] Trust for Public Land (2003*). The Water Acquisition Handbook: How to Acquire Water for the Environment in California* http://www.tpl.org/tier3_cd.cfm?content_item_id=14718&folder_id=266.
[144] Brans, E. et al. (ed.) (1997). *The Scarcity of Water: Emerging Legal and Policy Responses* (London, UK: Kluwer Law International Ltd.)
[145] Trust for Public Land, sup*ra* note 143.
[146] Bakker, *supra* note 125 at 235.
[147] Lucas, A. (1990). Security of Title in Canadian Water Rights (Calgary: Canadian Institute of Resources Law).
[148] Bakker, *supra* note 125.