



When the Water Dries Up: Lessons from the Failure of Water Entitlements in Canada, the U.S. and Australia

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1. Introduction

Globally, and particularly in western North America, problem-solving about adapting to water scarcity is often challenged (and even halted) when legal entitlements to water are exerted. Like a trump card, existing water entitlements, or “rights” as they are viewed in some places, can undermine attempts at progressive water management approaches that address a variety of changing conditions. These include evolving social priorities for water use and increased scarcity of water resources due to over-allocation or the impacts of a changing climate. In the western North American system, historic or senior entitlements to water take priority over more recent or junior entitlements, irrespective of their location in a watershed, the use to which they are put, and the evolving ecosystem context in which they are found. Usually they also take precedence over ecosystem needs. Absent creating a way to buy back these entitlements to use water, licence holders rely on them, on the one hand, as their guaranteed ongoing water input that supports their investment in land and enterprise and, on the other hand, as their legal shield against water management and governance reforms that may have an impact on existing entitlements.

This reliance on individual legal entitlements to water, however, is somewhat at odds with research on licence holder responses to water scarcity from many jurisdictions in the Western United States and Canada (Oregon and California, Alberta and B.C.), as well as from arid Australia. This research shows that when faced with short- and long-term water scarcity licence holders and others interested in water often forego their legal entitlements in favour of a

negotiated solution in a watershed. This collective action approach is also seen in response to other watershed-based or neighbourly issues, and highlights the gap between law and social norms or community responses to resource scarcity. This split between on-the-ground practice and legal concept in theory is the core of our discussion in this paper and the ensuing workshop.

The conversation about local problem solving for water scarcity is particularly important and timely in British Columbia since the provincial government is nearing the end of the first phase of legislative reform through its *Water Act* modernization process. Over the past three years the provincial government has consulted widely on updating B.C.'s 100-year-old *Water Act*, receiving over 1,500 submissions from citizens and representatives from different sectors that use water across the province.¹ At the same time, numerous academic and non-governmental organizations have been generating a large body of work that contributes to knowledge on water governance and management. The result is an ongoing published dialogue between policy-makers, stakeholders, and the academic community.² There have also been a number of multidisciplinary and stakeholder events to generate knowledge, explore alternative solutions, and initiate action.³ Uncharacteristic of water law and management circles—where the general focus is usually around operational aspects of water supply—a core part of this dialogue is about water governance.⁴

Numerous submissions to the *Water Act* modernization process and other documents address water licences and entitlements, and many organizations view maintaining precedence under the prior allocation regime as the way to ensure a secure supply for their sector.⁵ With increased

¹ British Columbia Ministry of Environment. (2010). *Water Act Modernization: Report on Engagement*. Retrieved from http://livingwatersmart.ca/water-act/docs/wam_report-on-engagement.pdf.

² See, for example, Bankes, N. (2010). Policy Proposals for Reviewing Alberta's Water (Re)Allocation System. *Journal of Environmental Law and Policy*, 20(2), 81-126; Brandes, O. M. (2005). At a Watershed: Ecological Governance and Sustainable Water Management in Canada. *Journal of Environmental Law & Practice*, 16, 79-97; Brandes, O. M. & Curran, D. (2009). *Setting a New Course in British Columbia – Water Governance Reform Options and Opportunities*. Victoria, Canada: Polis Project on Ecological Governance, University of Victoria. Retrieved from <http://poliswaterproject.org/publication/272>; Christensen, R., & Nowlan, L. (2011). *Comparison: Proposed Water Sustainability Act (2010) Against ENGO Statement of Expectations (2009) and Living Water Smart (2008)*. Vancouver, Canada: Ecojustice. Retrieved from <http://poliswaterproject.org/publication/398>; Brandes, O.M., Nowlan, L., & Paris, K. (2008). *Going with the Flow? Evolving Water Allocations and the Potential and Limits of Water Markets in Canada*. Ottawa, Canada: Conference Board of Canada. Retrieved from [http://www.conferenceboard.ca/temp/720a557f-4417-4ad0-ae54-12d1386afab3/08-183_GoingWithTheFlow\(658\)_WEB.pdf](http://www.conferenceboard.ca/temp/720a557f-4417-4ad0-ae54-12d1386afab3/08-183_GoingWithTheFlow(658)_WEB.pdf); Nowlan, L., & Bakker, K. (2007). *Delegating Water Governance: Issues and Challenges in the BC Context*. Vancouver, Canada: Program on Water Governance, University of British Columbia. Retrieved from <http://www.tonydorcey.ca/597/Posts/FBCwatergovernancefinal2.pdf>; British Columbia Ministry of Environment. (2010). *British Columbia's Water Act Modernization: Policy Proposal on British Columbia's New Water Sustainability Act*. Retrieved from http://livingwatersmart.ca/water-act/docs/wam_wsa-policy-proposal.pdf; and British Columbia Ministry of Environment. (2009). *British Columbia's Water Act Modernization Discussion Paper*. Retrieved from <http://livingwatersmart.ca/water-act/discussion-paper.html>.

³ See, for example, Living Rivers Trust Fund. (2008). *Collaborative Watershed Governance Initiative: Report on a Workshop, November 19-20, 2008*. Retrieved from <http://www.livingrivers.ca/dox/Workshop%20Summary%20report%20final.pdf>; Gibbins, R., & Sommerfeld, L. (2011). *Wave of the Future: Water Policy in Western Canada*. Calgary, Canada: Canada West Foundation. Retrieved from http://cwf.ca/pdf-docs/publications/Wave_of_the_Future_August_2011.pdf; Sandford, R. (2011, October-November). Securing Our Water Future. *Northern Voices, Southern Choices: Water Policy Lessons for Canada National Discussion Series Tour*; Pacific Business and Law Institute conference. (2012, January 24-25). *A Water Gathering: Collaborative Watershed Governance in BC and Beyond – Skills Workshop*. Vancouver B.C.; Fresh Outlook Foundation. (2012, February 28). Workshop on “Sustainable Water Management”. *Building Sustainable Communities Conference*, Kelowna, B.C.

⁴ National Round Table on the Environment and Economy. (2011). *Charting a Course: Sustainable Water Use by Canada's Natural Resource Sectors*. Retrieved from <http://nrtee-trnee.ca/wp-content/uploads/2011/11/charting-a-course-eng.pdf>

⁵ See, for example, the submissions to the *Water Act* modernization process from the B.C. Agricultural Council and the B.C. Cattlemen's Association under *Water Act Modernization Submissions: Stage One Engagement – Stakeholder Group Submissions*: Government of British Columbia. (2011). *Living Water Smart: Water Act Modernization Submissions*. Retrieved from <http://livingwatersmart.ca/water-act/submissions/>

interest from the federal Department of Fisheries and Oceans Canada, environmental organizations, and First Nations in maintaining instream water flows for fish, the sectors that hold the most senior water licences (such as agriculture and mining) underscore the importance of their existing entitlements. At the same time, new high-value uses for urban domestic consumption, high-value agricultural crops (such as grapes for the wine industry), and run-of-river microhydro are seen as well-resourced competitors for water entitlements. Add the uncertain hydrological impacts of climate change to the equation and it is not surprising that licence holders wish to strongly uphold the value of prior allocation when faced with an uncertain and increasingly variable future supply.

The purpose of this discussion paper is to canvas some of the issues raised by this challenge of fixed water entitlements as hydrology and social priorities change across B.C. and in times of water scarcity when community behaviour indicates the potential for a high degree of cooperation. The intent of this discussion is to explore what lessons can be learned for law and policy reform from situations where the realities of the competing priorities of fixed rights, and the need for flexible solutions, are addressed locally and where problems are solved in watersheds and along specific reaches of streams. Some of the points contained in this discussion paper will be new to participants and undoubtedly controversial, thus meeting the overarching goal of stimulating discussion at the workshop.

Section 2 sets out some of the specifics of the water licence and priority regime in B.C. and raises two issues that are having a fundamental impact on the seniority system: aboriginal rights and title and the need to ensure instream ecosystem flows. Section 3 presents a case study where these challenges have been overcome on paper; it provides the example of the Klamath Basin Agreements as a recent, complex and comprehensive approach to resolving problems with water scarcity that is instructive for communities in B.C. An important lesson from this situation is that the cultural or social norms of a community are often more powerful drivers of innovative problem-solving than the specifics of law. Section 4 discusses how this practical response to water shortages, that of cooperation beyond legal entitlement, could inform the *Water Act* modernization process. Finally, Section 5 invites the reader to consider questions posed in anticipation of the discussion at the Workshop on Water Entitlements taking place Tuesday June 12, 2012.

2. Legal Entitlements and Water in British Columbia

A central characteristic of the regulatory state at both the federal and provincial levels is the government's granting of entitlements or rights to use parts of the environment.⁶ Whether it is the usufructory entitlement to extract water from a specific body of water at a designated time of year in support of agricultural, industrial, or domestic uses, or the right to harvest an approved volume of wood fibre from a specified area of Crown land to supply a pulp and paper mill, licence holders (individuals, corporations, cooperatives, local governments, and First Nations) rely on these legal entitlements: they guarantee an amount of input from the environment that allows the licence holder to carry out their desired activity. This regime also

⁶ Doelle, M., & Tollefson, C. (2009). *Environmental Law: Cases and Material*. Toronto, Canada: Carswell; Paehlke, R., & Torgerson, D. (Eds). (2005). *Managing Leviathan: Environmental Politics and the Administrative State 2nd Edition*. Peterborough, Canada: Broadview Press.

provides the government with revenue in the form of resource rents or royalties. There are many ways to protect these rights in law from encroachment by others including by the seniority of the right, as in the case of water, or volume and territory, as is found in forestry permits.

It is important to note that it is the government that creates these legal entitlements (licences, leases, tenures, permits, rights-of-way, easements, etc.) that may be viewed in law as property rights in some cases. As recently stated by the B.C. Court of Appeal relying on law from the Supreme Court of Canada:

Simply put, the property rights of persons subject to provincial legislation are what the legislature determines them to be. While a statutory definition of rights may incorporate common law concepts in whole or in part, it is open to the legislature to redefine or revise those concepts as may be required to meet the objectives of its legislation.⁷

The government is free to change the way in which these entitlements are used through additional legislation or regulation. It is also able to cancel the entitlement or refuse to renew it and, depending on the quality of the entitlement, may have to provide compensation. A simple example is the regulation of land through zoning. Ownership of land is arguably the most well recognized type of property. In addition to establishing the system for the creation of private property through the land title system, western provinces also delegate to local governments the ability to regulate how that land may be used. Called zoning, this ability to regulate land uses and how much of that use can occur (the density of the use) places parameters around how most private property owners can use their land.⁸ Zoning is valid if enacted properly even if it has the effect of devaluing property values, and no compensation is owed from a local government to a private landowner.⁹ In the water realm, this conditional nature of entitlement is legislated in section 6 of the *Water Act*,¹⁰ which provides that the ability to use water under a licence is always subject to the other provisions of the *Act* and regulations, orders of the comptroller and engineer, and the rights of licensees who have precedence.

In Canada, and indeed across North America, a number of differing systems and principles exist to allocate water. Provinces have primary responsibility for the regulation of groundwater and surface water, with water generally owned and managed by the Crown.¹¹ In the east the concept of riparian rights is the primary organizing system. Fundamentally this system does not provide ownership rights, but instead merely rights of access to water for “reasonable” domestic uses, such as drinking and bathing, and some irrigation. In the Atlantic Provinces and Ontario, statutes modify riparian rights and their associated permitting regimes, creating a kind of regulated riparianism. Quebec has a similar hybrid riparian system that has been adapted to its

⁷ *Bryan's Transfer Ltd. v. Trail (City)*, 2010 BCCA 531 citing *Re Giffen*, 1998 CanLII 844 (SCC, 1998) 1 S.C.R. 91 at 106.

⁸ See, for example, section 903 of the *Local Government Act*, R.S.B.C. 1996 c. 323 that authorizes local governments, both regional districts and municipalities, to regulate the use, density of the use, siting, size, and dimension of land, buildings and other structures, as well as the location of the uses on the land and with buildings and other structures.

⁹ Section 914 of the British Columbia *Local Government Act* says that no compensation is owed where property values change as a result of the enactment of community plans, zoning, or permits issued under that part of the Act. The exception to that rule is where land is designated solely for a public use.

¹⁰ *Water Act*, R.S.B.C. (1996, c.483). Retrieved from <http://www.canlii.org/en/bc/laws/stat/rsbc-1996-c-483/latest/rsbc-1996-c-483.html>

¹¹ See, for example, section 2 of *Water Act* R.S.B.C. (1996, c.483).

civil law tradition. The approach in the northern Territories can be characterized as “authority management,” where government delegates responsibility for allocation decision to various regional or resource boards or bodies.¹² In the west, however, statutory modifications have virtually displaced the common law riparian right rules in favour of a priority allocation system based on the date on which the licence was acquired.¹³

The historic and well-recognized precedence or seniority of entitlement in western North American water law is called the doctrine of prior appropriation, also known as first in time first in right (in the United States) or prior allocation (in Canada), and stands in contrast to riparian rights. Although originally a common law doctrine emanating from U.S. case law,¹⁴ prior allocation is one of the oldest pillars of the Canadian regulation of natural resources. In B.C. the provincial government codified prior allocation in water legislation in 1939,¹⁵ and it is currently found in section 15 of the *Water Act*. Section 15 provides that where two licences authorize the diversion of water from the same stream they take priority according to the date of precedence, i.e. date of issue, stated in the licence. Western provinces developed this system to support the public policy goal of promoting economic development and the settlement of land. It was an effort in the late 1800s to create certainty and security for investment in improvements to land, primarily to pioneers settling agricultural land and to gold miners.

However, as noted above, the provincial government may limit the exercise of these water entitlements, irrespective of seniority, through regulation. Two examples of how existing legal tools can curtail licensed entitlements without compensation and without regard to seniority are illustrative in the B.C. context. The first is found in section 23 of the *Water Act*. Popularly known as the “use it or lose it” doctrine, that section allows the comptroller or regional water manager to cancel a licence, in whole or in part, if the licence holder does not make beneficial use of the water for the purpose and in the manner authorized by the licence for a period of three years or more. The second example is the ability of the Minister of Environment under the *Fish Protection Act* to make an order regulating the use of water by licensees where, because of drought, the flow of water in a stream threatens the survival of a fish population.¹⁶ This provision has been used recently to order one licence holder to cease diverting water for a 13-day period in mid-September 2009 on the Nicola River in the southwest interior of B.C.¹⁷

In addition to the provincial government’s ability to curtail the use of water under a licence without compensating licence holders, two additional issues significantly call into question the reliability of the prior allocation regime in B.C. going forward. These issues are aboriginal rights

¹² Brandes, O.M., Nowlan, L., & Paris, K. (2008). *Going with the Flow? Evolving Water Allocations and the Potential and Limits of Water Markets in Canada*. Ottawa, Canada: Conference Board of Canada. Retrieved from [http://www.conferenceboard.ca/temp/720a557f-4417-4ad0-ae54-12d1386afab3/08-183_GoingWithTheFlow\(658\)_WEB.pdf](http://www.conferenceboard.ca/temp/720a557f-4417-4ad0-ae54-12d1386afab3/08-183_GoingWithTheFlow(658)_WEB.pdf)

¹³ Percy, D.R. (1988). *The Framework of Water Rights Legislation in Canada*. Calgary, Canada: Canadian Institute of Resources Law; and Lucas, A.R. (1990). *Security of Title in Canadian Water Rights*. Calgary, Canada: Canadian Institute of Resources Law, suggest that limited riparian rights continue to exist notwithstanding the statutory vesting of water rights in the Crown and that a possibility exists that domestic use rights could be enforced against senior licence holders.

¹⁴ This is a common law doctrine arising from a series of U.S. cases such as *Yunker v. Nichols*, 1 Colo. 552 (1872), *Coffin v. Left Hand Ditch Co.*, 6 Colo. 443 (1882), and *Wyoming v. Colorado* 259 U.S. 419 (1922).

¹⁵ British Columbia Ministry of Environment. (n.d.). *Water Act Modernization: British Columbia’s Water Law Framework*. Retrieved from <http://livingwatersmart.ca/water-act/framework.html>

¹⁶ Fish Protection Act, S.B.C. (1997, c.21, s.9.).

¹⁷ British Columbia, Order of the Minister of Environment, Fish Protection Act, September 17 2009 (on file with author).

and title, and changing hydrology due to climatic, land development, and water allocation conditions in some watersheds.

2.1 Aboriginal Rights and Title to Water

The establishment of some Indian Reserves in the 1800s by the Indian Reserve Commission came with an allotment of water that has been disputed by the Province of B.C.,¹⁸ and some Indian Bands hold senior water rights under the provincial government licensing system.

More fundamentally, the *Constitution Act 1982* protects aboriginal and treaty rights.¹⁹ Indigenous communities possess, as yet, largely undefined aboriginal rights and title that underlay and are a burden on significant portions of the Crown landscape and resources.²⁰ Unlike the U.S. where the Winters Doctrine recognizes a Tribal right to water,²¹ First Nations in Canada, and in particular in B.C., are only beginning to explore their aboriginal right to water.²² These aboriginal rights have never been factored into provincial water allocation regimes and create uncertainty as to the precedence of existing licences as, if proven, would likely predate any licence issued under the colonial legal regime. Aboriginal rights to water will be particularly challenging to factor into watersheds that are already over-allocated or where hydrology is changing, leading to water scarcity due to land uses and climate change.

2.2 Water Allocation in a Changing Environment

Over the past ten years the long-standing licensing of water in the environment has begun to fail in some areas for a variety of reasons. Lack of understanding of ecological processes has led to over-allocation of water entitlements. This problem is seen most starkly in areas of low precipitation such as the Okanagan Valley where 235 of 300 streams are fully recorded, which means there is no additional water available for new water licences.²³ In B.C. there are over 43,000 licences on more than 17,000 water sources, and of those water sources 25 per cent have restrictions on new water licensing due to insufficient water availability.²⁴

¹⁸ See, for example, the description of the Namgis First Nation's water rights in British Columbia Ministry of Environment, Lands and Parks. (2000). *First Nations Water Rights in British Columbia: A Historical Summary of the Rights of the Namgis First Nation*. Victoria, Canada; and Union of B.C. Indian Chiefs. (1991). *Indian Water Rights in British Columbia: A Handbook*. Vancouver, Canada.

¹⁹ *The Constitution Act, 1982*, being Schedule B to the *Canada Act 1982* (UK) (1982, c 11, s.35.)

²⁰ Claims for aboriginal rights and title are numerous, but are most broadly discussed in *Delgamuukw v. British Columbia*, 3 S.C.R. 1010 (1997); *Haida Nation v. British Columbia*, 3 S.C.R. 511 (2004); *Tsilhqot'in Nation v. British Columbia*, BCSC 1700 (2007); *Ahousaht Indian Band and Nation v. Canada (Attorney General)*, BCCA 425 (2011).

²¹ Hopley, S., & Ross, S. (2009). Aboriginal Claims to Water Rights Grounded in the Principle Ad Medium Filum Aquae, Riparian Rights and the Winters Doctrine. *Journal of Environmental Law and Policy*, 19(3). 225-266; McCool, D. (1987). Precedent for the Winters Doctrine: Seven Legal Principles. *Journal of the Southwest*, 29(2), 164-178; Pozniak, K. (2006). Indian Reserved Water Rights: Should Canadian Courts "Nod Approval" to the Winters Doctrine and What are the Implications for Saskatchewan if they Do? *Saskatchewan Law Review*, 69(1), 251-268.

²² Phare, M-A. (2009). *Denying the Source: The Crisis of First Nations Water Rights*. Surrey, Canada: Rocky Mountain Books. One of the first cases to examine an aboriginal right to water is the recent case of *Halalt First Nation v. British Columbia (Environment)*, BCSC 945 (2011).

²³ Allen, D. (2007). Understanding Threats to Groundwater in Okanagan Basin: Vulnerability and Sustainability. In Nowlan, L. & Bakker, K. (2007). *Delegating Water Governance: Issues and Challenges in the BC Context*. Vancouver, Canada: Program on Water Governance, University of British Columbia.

²⁴ Nowlan, L., & Bakker, K. (2007). *Delegating Water Governance: Issues and Challenges in the BC Context*. Vancouver, Canada: Program on Water Governance, University of British Columbia.

In other watersheds water has not been over-allocated but changing climatic conditions and land uses are altering hydrology such that water availability is decreasing. Unfortunately, as a historic regime that did not contemplate changing hydrology, climate, or emerging priorities for water use, the *Water Act* is based on outdated assumptions about ecology (and a static or stationary climate). It does not provide for adapting water licences due to changing conditions and thus offers minimal protection for watershed or aquifer health.²⁵

An emerging social priority that is driven by an increasing understanding of hydrology is the need to protect instream water flows. Understanding the ecological context and the priority of ensuring basic ecosystem protection generally requires a more flexible and adaptable water management system, especially in the light of hydrological uncertainty and the cumulative impacts from development and resource use in a watershed. At a minimum, this system is able to respond to high levels of variance year to year, or even season to season. A priority for at least minimal protections for ecosystem needs for water will further impact the ability of the government to ensure entitlements based on historical priorities.²⁶ In some parts of the province, such as the eastern portion of Vancouver Island, this priority to ensure a base environmental flow is already the informal practice, and is a notable practice as water scarcity continues to increase.

3. Responses to Scarcity: The Example of the Klamath Basin

A recent western example of stakeholders and First Nations in a watershed moving beyond the enforcement of legal entitlements to implement a workable solution to water scarcity is that of the Klamath Basin Agreements of 2010.²⁷ These agreements, between 45 different organizations and agencies including the Klamath Tribes, the Pacific Coast Federation of Fishermen's Associations, the Klamath Water Users Association (agricultural water rights holders), PacifiCorp (the utility owning several dams generating hydroelectricity), federal agencies, and the states of California and Oregon, followed decades of litigation and conflict over water rights in that region.

The Klamath River and Basin straddles the Oregon-California border and flows from southeastern Oregon into northwestern California. Arid in the Upper Basin and drought prone, historically it is the third most productive salmon basin in the United States. However, over-allocation of water, changing hydrology, and the impact of several dams on the River had led to water shortages and other problems for all water users. There was insufficient water and habitat for salmon, resulting in stark declines of 90 per cent in salmonid and other fish species that resulted in multiple listings and litigation under the federal *Endangered Species Act*. Agricultural users served by significant water diversions in the Upper Klamath Basin no longer had a secure supply of water due to water scarcity and reduced water delivery aimed at leaving

²⁵ Section 18 of the *Water Act* allows the regional water manager to amend and substitute licenses, however this power does not allow for amendment to address instream environmental flow needs.

²⁶ For a more detailed discussion see Brandes, O.M., & Maas, T. (2006). *What we govern and what governs us: Developing sustainability in Canadian water management*. Victoria, Canada: POLIS Project on Ecological Governance, University of Victoria. Retrieved from <http://poliswaterproject.org/publication/28>

²⁷ For information about the Klamath Basin Agreements see www.klamathrestoration.org and edsheets.com/Klamathdocs.html. See also Spain, G. (2007). Dams, Water Reforms, and Endangered Species in the Klamath Basin. *Journal of Environmental Law and Litigation*, 22(1), 111.

water in the river for fish. Indigenous communities lost access to wild salmon and jeopardized their health by eating fish from the ecologically compromised river. Finally, the dams in place since 1917 were contributing to water quality and public health concerns due to sedimentation and the spread of a type of toxic algae in the hydroelectric dam reservoirs that bioaccumulates in fish.

The 20 years of litigation about the availability of water in the Basin centred around the agricultural community attempting to enforce its state-level water rights against federal endangered species regulation and tribal water rights. In several cases the court found that water required for endangered species and tribal water rights “...take precedence over federal water contracts supported by state water law.”²⁸ However, even with additional flows in the river for fish in drought years at the expense of agricultural production, the long-term issues of habitat restoration and fish population recovery were not being addressed through litigation about water rights. In addition, the most senior water rights in the basin, those belonging to the Klamath Tribes of Oregon, had never been adequately satisfied with water allocations from the state of Oregon.

The incentive for taking a different approach came in 2006 when the water licences for three hydropower dams in the Upper Basin expired. That same year, the federal National Oceanic and Atmospheric Administration also recommended removal of these dams as the best option for restoring the salmon runs. The parties entered into negotiations to try to find a workable alternative to uncertain water supplies, fisheries decline, and conflict throughout the Klamath Basin.

The results of the negotiations are the Klamath Basin Restoration Agreement and the Klamath Hydroelectric Settlement Agreement. The Restoration Agreement focuses on water availability for agriculture and salmon, as well as restoration of habitat for fish. The agricultural community receives less water than what they are entitled to by law, but that amount is set each year as of March 1 at 50 per cent of the forecast for April to September. The Klamath National Wildlife Refuge also receives an allocation of water, as do fish (between 130,000 and 230,000 acre feet). The Restoration Agreement includes restoring over 400 miles of stream habitat for salmon spawning, and establishes the Klamath Basin Coordinating Council, Advisory Council, and a dispute resolution process.

The Hydroelectric Agreement focuses on additional studies, environmental review, and planning for dam removal, as well as a process for determining funding to remove the dams. The cost of dam removal is capped at \$450 million with funding coming from the dam owners PacifiCorp and the State of California.

The Klamath Basin story points to a well-documented aspect of human behaviour: at the appropriate scale, people prefer to cooperate to solve conflicts over entitlements to and the use of resources rather than resort to legal rules and litigation.²⁹ Social norms often override law

²⁸ Spain, G. (2007). Dams, Water Reforms, and Endangered Species in the Klamath Basin. *Journal of Environmental Law and Litigation*, 22(1), 70.

²⁹ See, for example, Cooter, R. (2000). Three Effects of Social Norms on Law: Expression, Deterrence, and Internalization. *Oregon Law Review*, 79(1), 1-22; Ellickson, R. (1991). *Order Without Law: How Neighbors Settle Disputes*. Cambridge, Mass.: Harvard University Press; Ellickson, R. (1993). Property in Land. *The Yale Law Journal*, 102(6), 1315-1400; McAdams, R. (1997). The Origin, Development, and Regulation of Norms. *The Michigan Law Review Association*, 96(2), 338-433.

and are more important for problem solving than are written legal rules. Ultimately, the importance of law and legal entitlements diminishes when individuals are faced with long-term economic and environmental issues:

Collective-action problems pervade all societies as well as ecological systems used by humans. Substantial evidence has accrued during the last several decades that human actors are able to solve some (but definitely not all) collective-action problems on their own without external rules and enforcement imposed from the outside.³⁰

A variety of factors, such as strong leadership, can make cooperation for long-term ecosystem sustainability over short-term economic interests viable for communities in a watershed.³¹ This approach also reflects how the Ministry of Environment attempts to deal with looming water scarcity: Ministry staff request all licensees to cut back on water use before resorting to legal orders or the enforcement of precedence of water licences.³² These practices raise the question, what water management and governance structures can B.C. water law put in place to facilitate this community-based collaboration for resolving watershed- or site-specific water scarcity and long-term water planning issues?

4. Implications for Water Governance and Entitlements under a New Water Sustainability Act

The Klamath Basin example underscores the opportunity that collaboration and planning hold for long-term water management and adapting to changing hydrological conditions. Actual experiences in solving problems of water scarcity point to water law and governance based on adapting use and entitlements over time in the context of watershed planning. Although prior allocation still represents a legal entitlement regime that, even if insecure in times of drought, is viewed by many as the foundation of the rules governing water management in western Canada, it was expressed in some submissions to the *Water Act* modernization process that some key sectors, such as agriculture, would be willing to revisit prior allocation if regional water planning and clear priorities were put into place.

It is important to note that there is remarkably little litigation about prior allocation in B.C., and there has been little discussion of the precedence of water licences before the Environmental Appeal Board in the past fifteen years.³³ The Environmental Appeal Board cases that mention seniority note that licences have precedence as stated in the licence, and that water rights are protected by what is now section 15 of the *Water Act*.

³⁰ Ostrom, E. (2010). Analyzing Collective Action. *Agricultural Economics*, 41(s1), 155-166.

³¹ Volland, B., & Ostrom, E. (2010). Cooperation and the Commons. *Science*, 330(6006), 923-924.

³² J. Mattison, former Comptroller of Water Rights for B.C., personal communication, May 14, 2012.

³³ There are no reported cases dealing specifically with the precedence of licences, with 12 decisions of the Environmental Appeal Board noting the precedence of senior licence holders.

5. Discussion

While there is significant knowledge of the problems with the current regulatory system for water management in western North America,³⁴ in Canada there is still very little interdisciplinary discussion about how governments, licence holders, and communities solve disputes when there is no longer enough water to satisfy baseline ecosystem needs and also licensed consumptive uses, not to mention unaccounted for aboriginal rights.

Reliance on a rights-based view of water as property limits the ability of communities to adopt water management approaches that promote social, economic, and environmental resilience. It can prevent the social adaptation to changing circumstances and impede basin-wide efforts to “share the pain” in times of scarcity. Fixed legal entitlements can also entrench the notion that water markets are the only policy tool that creates flexibility in future water allocation regimes.³⁵ Fundamentally, the simplistic view of water allocation as primarily an enforceable legal entitlement limits serious efforts to reform or update water management and governance, and may ultimately lead to increased conflict between water users in a community, rising individual costs to defend these rights, and loss of watershed and aquifer function over time.

Building resilience within institutions and social structures to adapt to change will inevitably be the foundation for prosperity in an increasingly dynamic and rapidly changing world. In addition to dispute resolution, the outcomes of how, in practice, licence holders and others in a region respond to water scarcity has implications for reforming the *Water Act* and retooling water governance. This emerging Canadian view of how to innovate and move forward on water reforms is in contrast to the discussion in the U.S. that has long addressed the issues of property rights in water and their reform.³⁶ Given that the water regime in Canada is fundamentally different from that in the U.S. because water is owned by the provincial governments, there is an opportunity in B.C. to address the looming conflicts over water scarcity by enabling water governance arrangements that best reflect actual human behaviour in resolving disputes over water and avoid primary reliance on prior allocation.

This discussion paper is a modest attempt to identify some of the issues associated with the legal entitlements to water in an era of increasing water scarcity in advance of the Workshop on Water Entitlements. The purpose of the Workshop is to better understand the nature of water entitlements and to engage in a practical dialogue about how, irrespective of long-held legal entitlements through licences that grant flow-specific priorities over water in a designated body of water, communities have solved scarcity issues.

³⁴ See, for example, Bakker, K. (ed.). (2007). *Eau Canada: The Future of Canada's Water*. Vancouver, Canada: UBC Press; Brandes, O.M., & Curran, D. (2008). *Water Licences and Conservation: Future Directions for Land Trusts in British Columbia*. Salt Spring Island, Canada: The Land Trust Alliance of BC; Sandford, R.W. (2009). *Restoring the Flow: Confronting the World's Water Woes*. Surrey, Canada: Rocky Mountain Books.

³⁵ For a more detailed discussion of water markets in Canada see: Brandes, O.M., & Nowlan, L. (2009). Wading into Uncertain Waters: Using Markets to Transfer Water Rights in Canada—Possibilities and Pitfalls. *Journal of Environmental Law & Practice*, 19(3), 267-287.

³⁶ See, for example, Bruns, B., Ringler, C., & Meinzen-Dick, R. (eds). (2005). *Water Rights Reform: Lessons for Institutional Design*. Washington, D.C.: International Food Policy Research Institute; Curran, D. (2002). Federal Government Must Pay for Water to Protect Species Under the Endangered Species Act. *Ecology Law Quarterly*, 29(2), 421-426; Neuman, J. (2010). Are We There Yet? Weary Travelers on the Long Road to Water Policy Reform. *Natural Resources Journal*, 50(1), 139-166; Wilkinson, C. F. (1989). Aldo Leopold and Western Water Law: Thinking Perpendicular to the Prior Appropriation Doctrine. *Land and Water Law Review*, 24(1), 1-38.

To that end, we invite Workshop participants to consider the following questions in preparation for the discussion on June 12 2012:

1. How do communities and water licence holders respond to failure of water licence entitlements when entitlements are over-allocated and in light of unseeded aboriginal rights and title?
2. What are the implications of these responses for water law reform (regulation and governance) in B.C.?

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