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Water Law as a Watershed Endeavour: Federal Inactivity as an Opportunity for Local Initiative

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While the federal government has steadily lightened its regulatory role over aspects of federal jurisdiction that influence provincial water management, this jurisdictional space has provided opportunities for sub-national arrangements that address environmental protection. First Nations, provincial and local governments are creating collaborative ecosystem-based management regulations and initiatives that respond to the ecological governance imperatives of planning at a watershed scale, protecting environmental flows, linking decisions about land and water, and adaptive management. Ecological monitoring, watershed-scale planning, decision-making resulting from treaties, protection of riparian areas and watersheds, and water law reform in the west all feature prominently in these sub-national approaches. Any federal action in the future that affects water will be challenged to support these appropriately scaled regulations and decision-making.

Alors que le gouvernement fédéral a, de manière constante, allégé son rôle de réglementation dans des matières relevant de sa compétence et ayant une influence sur la gestion provinciale des eaux, ce vide juridictionnel a permis la signature d'arrangements infranationaux ayant traits à la protection environnementale. Les Premières Nations ainsi que des gouvernements provinciaux et locaux mettent sur pied une réglementation et des initiatives en vue d'une gestion des écosystèmes fondée sur la collaboration répondant ainsi aux impératifs de la gouvernance écologique liés à la planification à l'échelle du bassin versant, à la protection des flux environnementaux, à la concordance des décisions concernant le sol et l'eau et à la gestion adaptative. La surveillance écologique, la planification à l'échelle du bassin versant, la prise de décision découlant de traités, la protection des bandes riveraines et des bassins versants ainsi que la réforme du droit sur l'eau qui a été mise en uvre dans l'ouest du pays ont toutes largement contribué à ces approches infranationales. À l'avenir, toute action du gouvernement fédéral ayant un impact sur l'eau sera contestée en vue de favoriser cette réglementation à l'échelle plus appropriée et les prises de décision qui y sont rattachées.

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*54 I. INTRODUCTION

While the overt federal resiling from environmental law in the past three years has been acute, [2] a more longstanding federal exit has been experienced in the realm of water law. Within the unclear constitutional jurisdiction of water law

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the federal government raised expectations of federal action on water conflicts and quality by enacting the *Canada Water Act* in 1970, [3] and followed up with the Federal Water Policy in 1987. [4] However, since that time the federal government has not exercised meaningful authority over water, and has decreased funding and regulatory activities in areas of federal jurisdiction, such as fish habitat protection, that implicate water. [5] Over a similar time period the water yield in Southern Canada where 98 percent of the population resides decreased an average of 8.5 percent, or 3.5 cubic kilometres, per year, which is almost the same amount of water that is supplied to Canada's residents in a year. [6]

***55** This long, slow waning of federal involvement, or the promise thereof, over 25 years has created the opportunity for other levels of government and local organizations to adapt, at some scales and in some regions, within provincial water allocation and protection regimes. [7] Examples from across Canada, such as the Riparian Areas Regulation under the *Fish Protection Act* in British Columbia (B.C.), [8] provincial drinking water source protection in Ontario, Quebec's *Loi affirmant le caractère collectif des ressources en eau et visant à renforcer leur protection*, [9] and Indigenous involvement in fisheries management and environmental flows all demonstrate the local or sub-national taking up of jurisdiction over water quantity and quality while the federal promise of national attention to this fundamental ecological condition--water--abates.

The purpose of this paper is to explore sub-national responses to the jurisdictional vacuum for water. [10] What I mean by vacuum is the space between comprehensive integrated watershed-based management that ensures healthy socio-ecological systems and provincial water allocation regimes that have focused primarily on facilitating the diversion of water. Using examples of Indigenous, provincial, and local government law from across Canada, I argue that many jurisdictions have capably, if incompletely, surpassed federal action on water management, and that it is these watershed-based approaches to water governance that have the potential to address conflicts about water quality and quantity over the long term when adaptation will be a key legal and ecological principle guiding water management.

I am not asserting that there is no role for federal action on water, [11] or that there is not a role, for example, for mandatory federal drinking water ***56** standards, [12] particularly for First Nations communities. [13] Indeed, some areas of federal authority, such as the regulation of fisheries, have prompted effective sub-national action. [14] And others, such as the *Species at Risk Act*, [15] have the potential to influence provincial water allocation decisions. [16] However, as the "cooperative approach" to federal-provincial water management, except in some interjurisdictional contexts, diminishes, [17] most water management will most appropriately be carried out at the watershed-scale using governance structures ***57** that are responsive and adaptive. [18] Sub-national entities are developing best practices that can address ecological health and water use conflicts over the long term. A renewed direct federal role in local decision-making may hinder these initiatives and impede their creative watershed-based and adaptive solutions.

Several factors are driving these sub-national approaches to water management. Provincial water law regimes that mediate conflicts between water users and water users and the environment, and purport to offer security in access to water, are largely outdated. They are failing to protect the hydrological systems on which they are based and no longer guarantee the quantity of water promised under licence. [19] Those responsible for managing water, such as local governments, are questioning decisions made through provincial water law regimes or on the Crown landscape over which they have no jurisdiction but that have a significant impact on their ability to prevent flooding or deliver drinking water. [20] Finally, Indigenous communities, incompletely accounted for under colonial water allocation and their Aboriginal rights to water virtually absent from recognition under treaty or assertions of aboriginal rights, [21] are ***58** increasingly challenging water management decisions made under colonial law and asserting an aboriginal right to water. This is particularly prevalent in B.C., [22] however there is evidence of it across Canada. [23] These water law and management issues are arising in Canada at the same time as longstanding water disputes elsewhere in North American

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and the world are resolving in favour of watershed-based, multi-party negotiated agreements where legal entitlements and jurisdiction are, to an extent, left at the door. [24]

***59** Water management and governance solutions also manifest in complex evolving watershed-scale law and policy reform, [25] which build on the ecosystem-based approach to the regulation of natural resources. Described more fully in Part III, this jurisdictional space is grounded in the following four principles or best practices of environmental governance. The first principle is that planning and management occur at a watershed scale. [26] The watershed, as an ecological unit, is the appropriate scale at which to plan and evaluate ecosystem function and the human activities permitted within that ecosystem given the capacity of the watershed. The second is protecting environmental flows, [27] which are the quantity, quality and timing of water needed to maintain healthy ecosystems. Third, effective law and governance integrates decision making for land and water. [28] Land use decisions about other natural resources such as forestry or urban development have watershed-wide impacts and alter hydrological function. Finally, an ecosystem-based approach to water governance incorporates adaptive management to changing hydrological conditions. [29] Irrespective of global climate change, hydrology varies seasonally and interannually; therefore legal and governance structures must be responsive to these fluctuations but also the "new normal" of more extreme seasonal variation of drier summers and wetter winters. [30]

Therefore, if there is to be a federal role in water management in the future it will require legal innovation that pushes performance-based standards and processes to a watershed scale based on integrated watershed planning, the vehicle through which the four water governance principles are brought together. [31] Creativity in this realm could include national drinking water ***60** quality standards that mandate source protection and operating procedures, federal environmental flow standards, maximum imperviousness or watershed disturbance standards, and minimum density standards for growth management.

Part II of this paper briefly canvases the waning federal involvement in water management, points to the federal role in international trade as an area that may increase in importance in the future, and highlights recent federal interference in devolution of authority that implicate treaty rights in the Northwest Territories as an uncharacteristic foray into domestic water management. Part III provides examples of indigenous, provincial, and local government law and initiatives that address water use conflicts, environmental flows and watershed governance. The conclusion in Part IV emphasizes that watershed-scale best practices in water law challenge any federal action to foster appropriately scaled decision-making and implementation.

II. THE FEDERAL ROLE IN WATER

Flowing from the constitutional ambiguity for water management, the federal government has not had an explicit freshwater management role except in interjurisdictional water issues, even though implementation and operationalization of agreements tend to be left to sub-national parties or delegates. The federal influence on water has been located largely within federal regulatory jurisdiction. This includes prohibitions on harming federal aspects and permitting activities to occur that affect water. While the federal interjurisdictional, including international, role will continue, its regulatory review and permitting functions are decreasing due to law reform, funding cutbacks, and the failure of federal watershed activities to provide solutions for conflicts over water use.

A. Constitutional Ambiguity

Jurisdiction for water is not addressed in Canada's constitutional documents. [32] As a fugitive resource that flows between jurisdictions, [33] it defies tidy division between federal, provincial, and Aboriginal jurisdictional responsibilities. Typically, the ability to manage water has derived from ownership or regulatory jurisdiction over land. [34] Most constitutional analyses ***61** of water begin with presumed provincial ownership by virtue of s. 109 of the *Constitution*

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Act, *1867* where ownership of land is vested in the original provinces. [35] Thus, provincial "ownership" of public lands gives provinces the ownership rights to fresh water and the fish therein. [36] The federal government has limited ownership interests in water on federal lands, Indian reserves, [37] and enumerated public works. [38] Western provinces reinforce this constitutional assumption by declaring ownership over and use of all water in streams and groundwater within their territorial jurisdictions. [39]

Provincial legislative authority over water is derived from several constitutional heads of power, which include property and civil rights in the province, [40] local works and undertakings, [41] municipal institutions, [42] and generally all matters of a local or private nature. [43] Provinces have virtually complete regulatory authority over domestic water management and are responsible for permitting the use of water under licence.

Federal jurisdiction affects provincial management of water if it involves a federal constitutional power such as inland fisheries, [44] navigation and shipping, [45] ***62** or federal works and undertakings. [46] In addition, the federal government has constitutional authority over interprovincial and international waterways and flows, [47] and can assert some regulatory authority over other constitutionally ambiguous issues, for example environmental assessment, where the courts have found complementary jurisdiction. [48] Finally, the potential exists to invoke the federal peace, order and good government authority. [49]

While federal staff are not involved in day-to-day decisions about water management, certain routine provincial or local government decisions are shaped by federal interests. This is seen most clearly in the application of federal jurisdiction over fish and its expression through the *Fisheries Act*. In theory, a local government cannot approve an application for land development, such as the paving over of a fish bearing stream, nor can the provincial government approve a use of water, that would harm fish. It is these tentacles of federal authority that have most directly shaped provincial water management.

B. Federal Law and Policy: A Brief Overview

Historically, federal activity in the area of water law and management can be characterized in three ways: governance agreements, water-centred national law and policy, and subject matter regulation. First, it has entered into interjurisdictional legal agreements to establish water governance structures across borders. For example, in the domestic sphere, Canada, Alberta, Saskatchewan, and Manitoba established the Prairie Provinces Water Board in 1948 to give advice on water allocation between the three prairie provinces. The parties signed the Master Agreement on Apportionment in 1969 to commit to a formula for water sharing of eastward flowing rivers that crossed provincial boundaries. [50] Canada, Quebec and Ontario established the current Ottawa River Regulation Planning Board by agreement in 1983 to address conflicts between flow needs for navigation, hydroelectric generation and flood control. [51] ***63** International bilateral examples between Canada and the U.S. include the Boundary Waters Treaty of 1909 that established the International Joint Commission, responsible for collaborative management of boundary or transboundary waters such as the Great Lakes, [52] the 1964 Columbia River Treaty that provides for flood control and downstream benefits for hydroelectric generation in the Columbia Basin, [53] and the 1972 Great Lakes Water Quality Agreement that focuses on pollution in the Great Lakes. [54] Of note is that the implementation of most of these agreements has been left to the sub-national parties. For example, Ontario and Quebec legislation implements the Ottawa River Regulation Planning Board, [55] and BC Hydro is the designated organization, via B.C., that fulfills water management obligations under the Columbia River Treaty. [56]

The second realm of federal activity on water is through national law and policy. For a brief moment the federal government behaved as though it would intervene directly in water management by enacting national policy and law enabling collaborative water management in Canada. The 1970 *Canada Water Act*, still in force, provides for

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provincial and federal cooperation on water management issues, in particular water quality. [57] Part I provides the federal government with authority to design management plans to deal with interjurisdictional waters of national interest, the federal government is not given the authority to implement or run the programs except in federal, interjurisdictional, international or boundary waters. [58] For water quality concerns the *Canada Water Act* provides for a stronger federal role, allowing the federal government to take unilateral action if a water quality management issue of any interjurisdictional water has become of significant "national concern" after "all reasonable efforts" have been made to work with the provinces on finding a solution. [59] To date, the federal government has not taken action pursuant to this section and commentators agree that it is unlikely to be used in the future given provincial interests and the federal government's ***64** preference to defer to provincial jurisdiction--ownership and management--for the regulation of flows. [60] The story is similar with the 1987 Federal Water Policy that set out strategies and policies on water pricing, science leadership, integrated planning, law and public education, [61] however, "... it remains little more than a statement of good intentions that have gone unfulfilled." [62]

Third, and most renowned, the federal government has interacted with water by legislating within its subject matter jurisdiction or pursuant to its peace, order and good government authority on issues that affect water management. In particular, the *Fisheries Act* and *Canadian Environmental Protection Act* provided a degree of oversight to projects that implicated federal fish, works or funding. [63] One longstanding example that showcases the regulatory oversight federal subject matter jurisdiction has for environmental flows related to fish needs and provincial water allocation is the impact of the Kemano hydroelectric project in the Nechako Basin. With a relatively senior water right dating from 1949, during the 1970s the licensee refused federal Department of Fisheries and Oceans requests to provide more environmental flows. One branch of the ensuing litigation concluded with a mandatory injunction requiring the licensee to comply with the federal order. In essence, the court found that federal jurisdiction for fish trumps provincial water allocation:

> These disputes are, in the nature of things, disputes which cannot be swiftly or easily resolved. But someone must have the power to determine the discharges of water that will be necessary. The question is whether the Minister or Alcan should exercise that power. The Minister represents the public interest. The power ultimately must be [sic] his. [64]

The province eventually transferred part of the licensee's water entitlement to the Department of Fisheries and Oceans by agreement, which is a powerful--and permanent--water management resolution in favour of ecological health mediated by federal jurisdiction.

C. Contemporary Federal Role

Federal activity related to water law and management has declined over the last few decades. While engagement in interjurisdictional agreements and the ***65** threat of claims under international free trade agreements are still prevalent, federal regulatory action, once the mainstay of direct influence on provincial water management, is unreliable. One, a recent federal attempt to amalgamate land and water boards in the Northwest Territories established pursuant to treaties amounted to an uncharacteristic--and failed--attempt at unilateral water governance reform.

The federal government still has a role in interjurisdictional and international agreements and programs. Most recently, the multiple parties to the Great Lakes Water Quality Agreement amended it in 2012. Domestically, the governments of Alberta and the Northwest Territories just concluded the second bilateral agreement [65] under the multilateral Mackenzie River Basin Transboundary Waters Master Agreement, in which the federal government had a role related to their devolving relationship with the Territory. [66] Of note is that the federal government largely still relies on delegating its interests or implementation authority to provinces or territories, or relies on sub-national entities to take action. As discussed above, BC Hydro is the management agent for the Columbia River Treaty and the B.C. provincial government

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is the lead entity for the ongoing Columbia River Treaty Review process. [67] Ontario, Quebec and eight US states are largely responsible for implementing agreements for the Great Lakes. [68]

In this domestic context, the threat of potential claims under international trade agreements continue to arise and will likely play a greater role in the future. Any dispute resolution under the North American Free Trade Agreement's (NAFTA) requires federal involvement. Most recently, the drought in B.C. motivated a citizen petition to increase water rents in light of the miniscule payments made by water bottling companies. [69] While provincial government officials responded positively, [70] some commentators raised the spectre of NAFTA claims if rates were high enough to be viewed as the province ***66** "selling" water as a commodity. [71] The lack of specificity and hyperbole in the media about the impact of NAFTA demonstrates how little popular understanding there is and the deep concern about the implications of international trade agreements on water sovereignty. [72] Although the impact of NAFTA on provincial water management has not been adjudicated, many academics have analyzed various elements of this question and two points bear attention in the context of this article. [73] The flurry of applications for licenses for bulk water export in the late 1980s and early 1990s during NAFTA negotiations drove the federal government and provinces to prohibit bulk water exports. [74] The federal government amended the *International Boundary Waters Treaty Act* to prohibit the bulk removal of boundary and transboundary water. [75] While these laws have not been tested under NAFTA, domestic provincial licensing regimes have not attracted scrutiny. Second, even though definitions in NAFTA and other international trade agreements to which NAFTA refers capture all water, the parties clarified that NAFTA does not apply to water in its natural state i.e. water flowing in a river. [76] Therefore, based on the intention of the ***67** parties the trade agreement cannot compel the licencing of water. Finally, as changing hydrological conditions require adaptive management, it is likely that a provincial order to reduce taking water will attract scrutiny under NAFTA in the future where the licensee is a US or Mexican non-domestic licence holder. [77]

It is clear that federal regulatory law has influenced significant water management decisions and planning processes resulting in watershed restoration. [78] However, over the past decade the impact of federal jurisdiction on decisions that relate to water has waned. Since 2012 Fisheries and Oceans Canada has issued significantly fewer approvals and undertaken enforcement activities pursuant to the amended *Fisheries Act*, [79] and the *Canadian Environmental Assessment Act, 2012*, has decreased assessment activities by 90 percent. [80] It is important to note that the *Fisheries Act* now relies on proponent self-assessment of whether there are potential impacts to fish that can be avoided or mitigated, and it is only if those impacts will result in serious harm to fish that the proponent need make an application for authorization. [81] At the same time, other federal environmental legislation that could have an impact on sub- ***68** national water management has not reached its potential. For example, the *Species At Risk Act* applies to aquatic species but there have not been any orders to increase environmental flows as part of critical habitat. [82] Instead, critical habitat protection statements (CHPS) are relying on protection provided by the weakened *Fisheries Act*. The CHPS for the Nooksack Dace fish states, "[w]here water withdrawals result in dewatering of riffles to the extent that there is a harmful alteration, disruption or destruction of fish habitat section 35 of the *Fisheries Act* offers protection." [83]

For notable new provincial-level policies and plans that have a direct impact on fisheries, the federal government has remained uninvolved. For example, although a comprehensive study recommended specific environmental flow rates during the South Saskatchewan River Basin planning process, the federal government acquiesced to the Province of Alberta setting weaker flow requirements. [84] While it may provide scientific and other expertise, it has not influenced important water management regulation.

Finally, although the federal approach to water management has been increasingly hands off, recently it attempted to restructure treaty-based watershed-management entities to "streamline" development approvals in the Northwest Territories. In *Tlicho Government v. Canada (Attorney General)*, [85] the Supreme Court of the NWT issued an injunction

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suspending the federal government's initiative in the *Northwest Territories Devolution Act* to amalgamate the four NWT land and water boards in the MacKenzie Valley.[86] The <<Unknown Symbol>> Government sought the injunction to prevent the elimination of the Wek'èezhìi Land and Water Board (WLWB), a joint management body with jurisdiction over land, water and waste deposit decisions in the Wek'èezhìi Management Area, a portion of <<Unknown Symbol>>traditional territory.[87] The amalgamation of the land and water boards would dilute <<Unknown Symbol>> decision-making authority by decreasing the number of <<Unknown Symbol>> appointees from 50 percent on the WLWB to ***69** less than 10 percent on the Valley-wide board,[88] and remove the guarantee of decision-making authority within its territory as the chair would appoint panels of any three members to make decisions on specific applications.[89] The <<Unknown Symbol>> argued that the federal legislation violated the terms of the *Land Claims and Self-Government Agreement Among the <<Unknown Symbol>> and the Government of the Northwest Territories and the Government of Canada* executed on August 25 2003,[90] which are protected treaty rights under s. 35 of the *Constitution Act, 1982*. The court found that there was a serious constitutional issue to be tried relating to the interpretation of the land claims agreement and the validity of moving away from regionally-based boards in the four different treaty areas to one amalgamated super board with less representation from each community.[91] In finding that that the Tlicho would suffer irreparable harm,[92] the court ruled that the balance of convenience favoured the <<Unknown Symbol>>. It was in the public interest to maintain the status quo as the WLWB would have to be rebuilt if the federal action was found to be unconstitutional in the future.[93]

This recent move is uncharacteristic of the typical federal "watching brief" approach and the waning federal regulatory influence on water management. It is also contrary to the myriad sub-national watershed initiatives that are taking up the call for adaptive watershed management. Indeed, it is a good example of exactly the kind of federal action that would detract from effective hydrological problem solving in the future by taking decision-making out of the watershed and tinkering with aboriginal or treaty rights to a management function.

III. WATERSHED INITIATIVES

From a legal perspective and given the large provincial role in land and water management, the federal role has been incomplete. It has typically focused on one element of ecosystem protection, such as fish or fish habitat under the *Fisheries Act*,[94] or approving, with conditions, specific proposals for land development under the various federal environmental assessment statutes.[95] Even if there was a strong federal role, federal intervention within its constitutional jurisdiction is somewhat of a blunt instrument within a watershed and socio-ecological system that changes from season-to-season. Management decisions that require current environmental conditions are neither ***70** approvals for a project before an activity occurs, nor enforcement activities for harm done.[96] Real time adaptive management will rely on ecosystem-specific collaboration through long-term planning and regulation.[97] Key to an adaptive approach in the water realm is the ability to revise water allocations under licence as hydrology changes. If precipitation decreases year-over-year in a watershed there may no longer be enough water to satisfy all licenced water diversions. As many provincial water regimes were premised on perpetual licences with no end date, water law regimes have not typically contemplated adapting water licences over time.

Watershed-based initiatives are better placed to address ecosystem conditions in two ways.[98] First, they occur at a scale that makes possible long- ***71** term planning. All the water users are connected in a watershed, which provides a basis for, at best, collaborative problem-solving and, at worst, regulatory compliance. Long-term plans can be prospective. Their focus need not be "do as little harm as possible" but "what needs to happen within this watershed to maintain a healthy socio-ecological system". The implications of new activities can be measured against the waning or modification of older activities within an ecosystem-based management context that promotes the watershed scale and protection of environmental flows. Likewise, First Nations, other governments and stakeholders within a watershed can make season- or drought-specific tradeoffs within the water management framework.

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Second, watershed-based initiatives push decision-making to a regional scale that is, ideally, based on ecological boundaries. Acknowledging that decisions about land and water affect each other, the goal is to create a forum within which decisions about terrestrial and aquatic impacts from local government zoning to provincial forestry permits can be considered. Linking land and water decision-making can also make management more responsive to real time ecological conditions. [99] The complexities of water management and largely unresponsive current structure of legal regimes for water require watershed-scale decision-making to provide timely responses to changing ecosystem conditions and the adaptation needed as climate change intensifies.

The Indigenous, provincial and local government regulatory and governance approaches described below are examples of facets of collaborative watershed-scale decision-making that address the watershed scale, environmental flows, the link between land and water decision-making, and adaptation to changing hydrological conditions. None of them offer a complete regime at this point. However, they all contain elements necessary for moving towards sub-national adaptive forms of water law and management.

A. Indigenous Communities: Partnerships Irrespective of Jurisdiction

From a jurisdictional perspective the assertion of an agreement to collaborative management by Indigenous communities is rapidly changing the landscape of water and watershed law in Canada. First Nations are developing, at the most basic level, coordination and information sharing roles as part of their governance functions, and are asserting aboriginal rights and title within many water management processes. In addition, they are taking on management and decision-making roles for either a specific waterbody or traditional territory. These roles, which redefine what is traditionally understood as shared jurisdiction for water, can be voluntary but often arise as part of interim ***72** measures agreements pre-treaty, pursuant to modern treaties or potentially as grants of Aboriginal title.

Many First Nations have established organizations or programs for watershed protection that create a baseline of ecological and use information, as well as undertake outreach programs and collaborative management. The Unama'ki Institute of Natural Resources represents the five Nova Scotia Mi'kmaq Unama'ki communities in addressing natural resources and environmental concerns. [100] Initiated in 2003, its Bras d'Or Lakes Collaborative Environmental Planning Initiative undertook an environmental management plan for the Bras d'Or lakes and watershed. [101] The Initiative is lead by a steering committee composed of all levels of government, local governments, industry and the non-governmental sector. The United Nations designate the area as a Biosphere Reserve in 2011. [102] On a larger scale, the Yukon River Inter-Tribal Watershed Council is composed of 70 First Nations and Tribes in the Yukon River watershed whose vision is “to be able to drink water directly from the Yukon River”. [103] It offers technical assistance, research, education, and intertribal coordination for its members. Undertaking ecological monitoring and training, it has specific programs related to water quality such as a backhaul program to remove inappropriate materials, such as batteries, from landfills, and assessing drinking water sources.

In opposition to widespread industrial development across their traditional territories, some First Nations are making proclamations about their Aboriginal right to water as part of provincial government planning and management processes. For example, Appendix C of the Northeast Water Strategy is a statement by Treaty 8 First Nations on their water interests in northeast B.C. [104] The Strategy is the first attempt at providing a long-term view to water management in the face of rampant oil and gas development, which some Treaty 8 First Nations have opposed on the basis of water quantity and quality concerns. The First Nations have made a strong statement, putting all parties on notice, of their interpretation of their on- and off-reserve treaty rights to water:

> ***73** In accordance with their custom and traditional modes of governance, First Nations communities assert that, as the indigenous peoples of northeastern B.C., they have and continue to exercise Aboriginal and Treaty rights over water management within their traditional territories and they accept their responsibility for keeping water healthy and abundant as traditional stewards

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> of these watersheds ... [T]he First Nations must be equal partners with participating provincial, and federal Crown agencies consistent with government-to-government relationships respecting the design and implementation of water management plans. [105]

The First Nations indicate that they are not opposed to collaborative water management, however, they "... must be involved from the outset in decision-making processes for effective watershed management and planning." [106]

Some First Nations are contributing to water management and fisheries restoration methodologies, and providing ongoing monitoring roles as part of their assertion of Aboriginal rights and title. [107] In the only desert-like climate in Canada, the Okanagan Nation Alliance has worked with Fisheries and Oceans Canada and the Ministry of Environment on the Canadian Okanagan Basin Technical Working Group since 1997 to improve habitat and water flow in the Okanagan River, part of the Columbia River system, for salmon. Identifying a lack of information on flows as a problem, the parties commission the Okanagan Fish and Water Management Tool to monitor and predict water flows, which would enable provincial staff to make real time decisions about flows according to fish needs. [108] This flow regulation, coupled with habitat restoration downstream, has yielded a significant increase in returning sockeye salmon to Osoyoos Lake. [109]

Collaborative decision-making where First Nations have a role in Crown permitting and planning processes is entrenched in protocol agreements and the land claims agreements in the Yukon and Northwest Territories. Several First ***74** Nations on the coast of B.C. also have negotiated protocols that change Crown decision-making for land and water. Whether considered interim agreements as treaties are negotiated or an expression of common law Aboriginal rights, they tend to provide more detail to the requirements to consult First Nations and accommodate Aboriginal rights during provincial decision-making processes. [110] The eight parties, seven First Nations and the provincial government, to the 2011 Coastal First Nations Reconciliation Protocol view the Protocol as "... a bridging step to future reconciliation of those aboriginal title, rights and interests with provincial title, rights and interests." [111] Intended to work towards collaborative decision-making, the Protocol sets out a detailed engagement framework for Crown referrals to First Nations, including under the *Water Act,* [112] as a step towards shared decision making to reduce land and resource disputes. [113] Using similar language, the Kunst'aa Guu--Kunst'aayah Reconciliation Protocol between the Haida Nation and the Province of B.C. also establishes a Haida Gwaii Management Council composed of two members appointed by each party and a jointly appointed chair. [114] The Council has specified decision-making authority, such as the implementation and amendment of the strategic land use agreement, establishment of forestry objectives, and approval of management plans for protected areas. [115]

The land claims agreements in the territories typically included the creation of a land and water board tasked with making some permitting decisions such as approving water licences. Composed of representatives from the federal, territorial and First Nations governments, they behave as administrative tribunals under federal or territorial legislation. [116] Some enabling legislation ***75** also recognizes Aboriginal rights to water, for example for traditional activities such as transportation for trapping. [117]

Although *Xeni Gwet'in First Nations v. British Columbia*, [118] the sole case in Canada to find Aboriginal title, did not include specific claims for water, [119] it is clear that the Xeni Gwet'in Nation and the other First Nations that comprise the Tsilhqot'in National Government are moving forward with land management authority. [120] Most recently, the Yunesit'in and Xeni Gwet'in First Nations declared the Dasiqox Tribal Park or Nexwagwez?an--'it is there for us', in part of the Aboriginal title area, as an "... expression of governance ...": [121]

> A Tribal Park is an assertion of physical space on the basis of Indigenous Law, established throughout Canada as a reaction to the Crown's assumed authority. They ... are also an exercise of Section 35

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> of the Canadian Constitution and are developed and managed by Indigenous peoples to integrate traditional ways of life, rights and responsibilities, with ecologically sound commercial activities. Internationally, Tribal Parks are recognized as Indigenous peoples' and community conserved territories and areas, or ICCAs. [122]

This jurisdictional shift will have implications for water law in some provinces and, at minimum, result in different expressions of jurisdiction and types of authorities throughout watersheds in B.C.

B. Provincial Enabling

As the constitutional entity taking direct responsibility for fresh water, provinces are providing the most comprehensive treatment of watershed-scale and adaptive processes. Several provinces are moving away from province-wide regulations to place-, scale- or ecosystem-based requirements. This attention to jurisdictional scale reflects "... that legal resilience building requires scale- ***76** matching, so that the geographical scale of the regime reflects the social-ecological issues at stake ...". [123] The concern for watershed scale planning, [124] and the protection of fisheries and environmental flow values, which are relatively well-established approaches, is evolving into attempts to adapt entitlements to use water based on changing hydrological conditions and recognize a "right" to water as an ecosystem function.

Many provinces enable watershed-based plans that aim to address conflicts between land and water uses:

> These plans, known variously as water use plans, water management plans, water allocation plans, watershed management plans, or source protection plans, typically attempt to catalogue all human uses of water within a watershed, identify threats to water quality and quantity, and propose mitigation measures to address the threats. [125]

Watershed-scale planning is typically limited to watersheds with specific ecological features, where land and water use conflicts are high, or where a particular use, such as hydro power, has a fundamental impact on an ecosystem. [126] Ontario uses watershed plans most extensively at several scales of authority. In addition to plans promulgated by conservation authorities whose original purpose was to address flooding, Ontario has several specific laws that protect ecological features and require planning. For example, the Oak Ridges Moraine Conservation Plan establishes land use policies to protect ecological features and requires municipalities to develop a water budget and conservation plan. [127]

***77** Both B.C. and Alberta provide for watershed planning as part of the water law regime. [128] Although the B.C. government sanctioned a water planning process for the District of Langley because of concerns over groundwater mining and contamination, it has not approved or implemented the plan by regulation as the *Water Act* empowers it to do. [129] The Alberta plans are more widespread and have resulted in a provincial water allocation order for the Bow, Oldman and South Saskatchewan Rivers, [130] however they too are attracting criticism for their lack of effective implementation. [131] Finally, sector-specific water plans are prevalent in some provinces such as the 23 BC Hydro water use plans that improve environmental flows and address conflicts between water uses in watersheds with sizeable hydroelectric facilities. [132]

Provinces are also increasingly paying attention to environmental flows, which are the volume of water in a waterbody or aquifer needed to sustain baseline ecological conditions. [133] These regulations typically follow two formats, those requiring that decisions on applications for water licences consider environmental flow needs, and enabling provincial staff to make orders that water licensees cease taking water when flows are too low. Ontario and Manitoba decision makers must take into account general criteria such as minimum stream flows and habitat that depends on water flows and levels when deciding on applications for licences. [134] The ability to limit water diversions ***78** based on low flows or risk to aquatic ecosystems includes the provinces of Quebec, [135] Manitoba, [136] and Alberta. [137]

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An example of a comprehensive watershed-based regime in Canada is B.C.'s supplementation of its fish protection mandate with modernization of its water allocation law. The *Water Sustainability Act* (WSA), [138] widely expected to be brought into force with groundwater regulations in early 2016, [139] offers the potential to significantly advance integrated watershed-based management by focusing on environmental flows, and linking land and water decision-making. Except when exempted by regulation, decision makers must consider the environmental flow needs of a stream when evaluating water licence applications for a stream or aquifer. [140] The comptroller may make critical environmental flow protection orders if the minister has made a declaration of significant water shortage, [141] and this order has precedence over water rights. [142] Retrospectively and with a view to adaptation, to address all the existing licenced water allocations licences can be subject to review and amendment starting 30 years after the WSA comes into force. [143]

The WSA promotes the integration of decisions about land and water through the licensing of groundwater, use of water sustainability plans (WSP) and provincial water objectives. The last jurisdiction in Canada to do so, B.C. ***79** will license the use of groundwater by regulation. The WSA applies licensing criteria to aquifers and mandates consideration of the impact of surface and groundwater diversions on connected water sources. [144] The minister may designate an area for the purpose of developing a WSP if the plan will prevent or address conflicts between water users, the needs of water users and environmental flow needs, risks to water quality or risks to aquatic ecosystem health, or identify restoration measures in relation to damaged aquatic ecosystems. [145] The intent is to have watershed- or issue-defined processes where interested parties, including First Nations, local governments, the provincial government, and water users can resolve water quantity and quality issues. Plans are not limited to water allocation but may consider water quality, drought planning, water sharing, changes to existing licences, and anything else set out in the terms of reference. [146] The Lieutenant Governor in Council may, by regulation and pursuant to a WSP, enact regulations to restrict or prohibit a specified use of land or natural resources, or an activity, amend the terms and conditions of water licences, and alter or replace works to use more efficient water use practices. [147] Likewise, the WSA contemplates that pursuant to regulation land use decisions made on the 95 percent of the province that is Crown land in B.C. will be subject to water objectives to sustain water quantity, water quality, and aquatic ecosystems. [148] The intent is for public officers making a specified decision under a specific law to consider the impact of those decisions on water. Local governments may also be required to consider water objectives when preparing or amending regional growth strategies or official community plans. [149]

Of note is that the WSA directly addresses potential claims for compensation for amending water entitlements under licence. It very clearly states that except as provided for in the WSA or by regulation, no compensation is payable and no legal proceedings are maintainable against the government for loss or damage arising from a change of precedence of water rights, a restriction on the exercise of water rights, or the imposition of new terms or conditions in a licence due to the operation of the WSA or a regulation. [150] In an adaptive watershed management context, these provisions, along with the 30 year review and ***80** amendment tool, signal to licence holders that water rights are no longer fixed in time and right, but will be subject to change as the climate and environmental flows change. New water licences in Alberta and Quebec provide for water licence terms of ten years. [151] While any mandatory decrease in water diversions due to environmental flow needs in Alberta requires compensation to the licensee, [152] similar permanent direction to cease withdrawing water in Quebec attracts no compensation. [153]

Finally, some provincial or territorial jurisdictions are approaching water from an environmental rights or public trust perspectives. [154] For example, the Yukon *Environment Act* provides that "[t]he people of the Yukon have the right to a healthful natural environment", [155] and adults or corporations have a right of action in the Supreme Court if "a person has impaired or is likely to impair the natural environment" or "the Government of the Yukon has failed to meet its responsibilities as trustee of the public trust to protect the natural environment from actual or likely impairment". [156] Specifically in the water context, Quebec's *Loi affirmant le caractère collectif des ressources en eau et visant à renforcer*

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leur protection, [157] provides that "[u]nder the conditions and within the limits defined by the law, it is the right of every natural person, for their nourishment and personal hygiene, to have access to potable water." [158] These public trust and environmental rights approaches to water law inject an explicitly anthropomorphic aspect to the purpose of water management and, in some provinces, enable citizens to challenge provincial government decisions that ***81** threaten "healthy" water. On the ground, it is often local governments who bear the brunt of mediating water disputes dealing with drinking water and the impact of land use decisions on water quantity and quality.

C. Local Government Approaches

Local government attention to water management stems from its two primary roles of preventing flooding by attending to drainage and providing the service of drinking water. From engineering, governance and ecological health perspectives local governments are increasingly viewing land and water management from an integrated watershed management perspective, recognizing that they cannot afford bigger pipes, pumps, reservoirs and water treatment to address long term drainage and potable water needs. [159] Local governments are focusing on infiltration-based drainage and in maintaining or restoring healthy riparian ecosystems. [160] Rainwater infiltration directs water into the ground, slows runoff to watercourses, and better mimics natural hydrology. It also recharges aquifers and prevents high rainwater volumes from scouring natural watercourses. It is, in essence, a demand management approach to rainwater: Rather than providing larger pipes to remove peak flows, local governments are attenuating those flows. [161] Source protection for drinking ***82** water, an element of integrated watershed management, is a key recommendation for drinking water regulation post-Walkerton tragedy, [162] including for First Nations. [163]

Key components of integrated watershed management are connecting decisions about land and water, [164] and paying attention to the terrestrial elements of healthy hydrology. In most provinces the provincial government makes decisions about water allocation and flows, while local governments have control over land use and development on the non-Crown landscape. The effect of land use on water and water allocation on land rarely meet in routine decision-making processes. [165] Indeed, communities have traditionally simply looked to the next watershed when their growth and water use outpaced local water supplies. [166] Local governments are beginning to address the water impacts of land use decisions using traditional local government jurisdiction such as zoning and development permit areas.

For example, zoning that controls for what purpose land can be used and how much of that use is allowed on a parcel can protect source and head waters by minimizing development and maintaining a natural landscape. In water supply areas some local governments are mandating large lots with very little private use, such as one single family dwelling, and establishing maximum impervious standards to ensure water can infiltrate back into the ground where it ***83** falls, thus minimizing the potential for water quality risks and maintaining existing hydrology. [167] Likewise, in Ontario conservation authorities can influence land use based on riparian health; development adjacent to watercourses and wetlands is prohibited except where the Essex Region Conservation Authority determines that it will not affect flooding, erosion, dynamic beaches, pollution and the conservation of land. [168]

Other local governments are preserving land as a way to protect water and riparian areas. In B.C., local governments may enact development permit areas (DPAs) to establish objectives to promote water conservation. [169] Properties designated in such an area cannot be subdivided, buildings constructed or land alteration commenced without first obtaining a development permit that may include requirements for landscaping, siting of buildings, form and exterior design of buildings, specific features in the development and equipment and systems external to buildings. [170] Coupled with a local governments' authority over drainage, [171] DPAs can limit impermeable surfaces (or maximize permeability) and mandate rainwater be captured and infiltrated on each site. [172] Local governments also require the site-based infiltration or a low impact development approach through subdivision regulation. [173]

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***84** More broadly, local governments are using their jurisdiction over environmental protection and providing services to re-create riparian habitat to address water quality and quantity issues in developed watersheds. The health of riparian habitat and source protection is a key factor in preserving and improving water quality and fish habitat. On the quantity side, attenuating the speed of storm water in highly channelized systems is necessary to restore degraded watercourses and riparian habitat, and to control flooding. [174] Local governments are prohibiting development within a defined terrestrial setback from riparian areas, [175] and requiring replanting of vegetation. [176] They are also acquiring riparian properties to mitigate the impact of works that degrade riparian habitat. Local governments, such as the City of Kelowna, create "habitat banks" by paying for or requiring landowners to make a cash contribution towards approvals for the alteration or destruction of habitat and then using those funds to purchase riparian properties that are restored to their natural condition. [177] These properties both improve the riparian corridor, ***85** particularly wetlands, and can be allowed to flood and used for rainwater management in severe storm events. Retrofitting developed watercourses addresses the dual issues of ecological health and flooding hazards.

Returning to a topic where many advocate for mandatory federal standards, local governments are beginning to use their land use jurisdiction to protect drinking water sources. The most comprehensive model in Canada is the expanded jurisdiction of conservation authorities in Ontario who collectively govern in an area that covers 90 percent of the population of the province. [178] In addition to broad powers to regulate the use of water and waterways subject to ministerial approval, [179] conservation authorities must develop source protection plans that identify and mitigate against drinking water threats. [180] This is perhaps the most compelling example of the move to watershed-based approaches to water law, and also revitalizes the interplay between provincial and federal jurisdiction over water and local decision-making.

IV. CONCLUSION

It may be unfair to characterize federal inaction in the areas of water law as waning because it never attempted to achieve any specific environmental protection goals. It is indisputable, however, that the recent dwindling federal role in environmental management has removed some longstanding federal legal threats that positively influenced the behaviour of sub-national governments and delegated authorities. In particular, the *Fisheries Act* acted as the stick that has shaped land development and water diversion applications in many watersheds. It also spurred provincial and local government innovation in riparian protection that has had a constructive impact on water quantity and quality.

Rather than wish for a strong federal role in the future, given the narrow focus of federal environmental assessment to date and the shortcomings of application-driven environmental protection, [181] the movement towards watershed-based collaborative planning and regulation may be timely in an era requiring adaptive water management. Climate change means that the historic hydrological baseline relied upon by all levels of government for infrastructure planning and water management is irrelevant. [182] Indigenous communities are ***86** asserting rights to water and collaborative management of it, and beginning to use their own Indigenous laws to define what watershed stewardship means. [183] They are requiring that a territorial scale be applied to long term planning and environmental management.

These destabilizing--both ecologically and politically--influences steer towards, once again, the scale of environmental law. Application-driven, point-in-time, facility-specific permitting can no longer be justified in an ecologically shifting era of Aboriginal rights and title. Water governance requires long term planning that links the impacts of land and water use decisions to watershed health and the viability of water diversion over the long term. Watershed plans can also assist a community to plan for conflicts in water use in times of shortage so that dispute resolution structures are put in place before the streams run low. Current hydrological uncertainty requires a more flexible and responsive water management regime, of which adaptive plans are a key component.

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While jurisdiction and scale may be morphing, it is important not to romanticize local control. Sub-national approaches still suffer from the same shortcomings that are found in most environmental and water law, as seen in the B.C. and Alberta water management planning results. These include lack of monitoring and enforcement, an inability to adapt permitted human uses such as the volume of water that may be diverted under licence to changing ecological conditions in a timely way, and atomistic decision-making where the impact of land use decisions on water are not accounted for, let alone having a comprehensive understanding of surface and ground water interactions. Any local governance and water law that provides for watershed-based decision-making must be nested within the larger shared Aboriginal-provincial-federal authority. Several provincial water law regimes already provide for collaborative management, which is developing in the water sector as a viable approach.

Without falling into a utopian attitude of wishing for a comprehensive federal role in water management, "... any federal policy must be correlated to and preferably integrated with provincial, territorial, and First Nations interests ...". [184] As scale and jurisdiction adapt it is important to ask if a new federal role could make an effective difference in ecosystem-based, adaptive watershed management. An instructive example is an European Union (EU)-style directive for *good ecological status* that member states must implement at a watershed level ***87** using appropriately scaled sub-national institutions. [185] The EU Water Framework Directive couples ecological health with watershed-based collaborative governance through the creation of River Basin Districts, Competent Authorities and River Basin Management Plans. As arguably the most harmonized area of EU environmental policy, [186] a "simple" performance-based environmental quality standard for water coupled with scale-appropriate institutions (Districts and Authorities) and instruments (Plans) provides the means to integrate decision-making, address water quality and quantity issues, and take a long-term view of changing hydrology.

Federal performance-based standards that apply differently in each watershed could include national drinking water quality standards that address source protection and operating procedures, federal environmental flow standards, maximum imperviousness or watershed disturbance standards, and minimum density standards for growth management. [187] Federal jurisdiction could establish key ecological baselines that influence local planning and decision-making. While there would need to be the potential for federal enforcement in order to be effective, these performance-based laws could establish the overall ecological framework for water management but rely on local watershed-based implementation. Much like the role of the *Fisheries Act*, enforceable federal standards could create a water balance in each province and territory, as well as drive water management and governance to an appropriately responsive scale.

Footnotes

a1 Deborah Curran is the Hakai Professor in Environmental Law and Sustainability, University of Victoria Faculty of Law. Thanks to Oliver Brandes, POLIS Water Sustainability Project, and Linda Nowlan, West Coast Environmental Law Association, for ongoing research and intellectual collaboration in the area of water governance and law. Special thanks to the Tula Foundation for funding that made this research possible, and to the Hakai Institute whose constellation of integrated environmental programs provide an interdisciplinary foundation for this work.

1 J Owen Saunders, *Interjurisdictional Issues in Canadian Water Management* (Calgary: Canadian Institute of Resources Law, 1988) at 1.

2 This law reform is detailed in Rodney Northey, "The Fading Role of Alternatives in Federal Environmental Assessment" forthcoming 29 JELP 2016. Martin Olszynski, "From 'Badly Wrong' to Worse: An Empirical Analysis of Canada's New Approach to Fish Habitat Protection Laws (2015) 28(1) J. Env. L & Prac. 1.

3 R.S.C. 1985, c. C-11.

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4 Environment Canada, *Federal Water Policy* (Ottawa: Environment Canada, 1987), online: < http://powi.ca/wp-content/uploads/2015/01/Federal_Water_Policy_ENG.pdf>. Of note is that the Federal Water Policy is no longer available on the Government of Canada website.

5 For a discussion of the "uneasy federalism balancing" for water in the United States see Robin Kundis Craig, "Adapting Water Federalism to Climate Change Impacts: Energy Policy, Food Security and the Allocation of Water Resources" (2010) 5 *Environmental and Energy Law and Policy Journal* 183. It is interesting to note that academic scholarship about a federal role in water has waned since the 1980s as well.

6 Statistics Canada, *Freshwater Supply and Demand in Canada*, Human Activity and the Environment: Catalogue No 16-201-X (Ottawa: Ministry of Industry, 2010), online: < http://www.gov.mb.ca/waterstewardship/licensing/wlb/pdf/water_statistics/sc_human_activity_and_the_environment_2010_freshwater_supply_and_demand_in_canada.pdf> at 5.

7 Expressed differently, this evolution from national to sub-national focus also reflects the longstanding federalism debate on the merits of federal involvement in water management that posits strong federal standards against provincial autonomy. See J Owen Saunders & Michael M Wenig, "Whose Water? Canadian Water Management and the Challenges of Jurisdictional Fragmentation" in Karen Bakker, ed, *Eau Canada: The Future of Canada's Water* (Vancouver: UBC Press, 2007) 119 at 120-122.

8 S.B.C. 1997, c. 21.

9 S.Q. 2009, c. 21. In English the law is titled *An Act to affirm the collective nature of water resources and provide for increased water resource protection*.

10 This paper does not specifically address water quality law, such as substances regulated by the *Canadian Environmental Protection Act, 1999*, SC 1999, c 33 and related provincial environmental protection or waste management statutes. Drinking water is discussed only in the context of source protection, not drinking water standards.

11 There is a long and current literature on the need for federal water law and policy. Most recently, Rob de Loë in "Invited Commentary: Canada Needs a National Water Strategy" 33(4) Canadian Water Resources Journal 309 (2008) cited the Canadian Chamber of Commerce, Conference Board of Canada, Council of Canadians, Pollution Probe, the Gordon Water Group, Friends of the Earth and the Canadian Water Resources Association as groups advocating for a national water strategy. See also TJ Morris, DR Boyd, OM Brandes, JP Bruce, M Hudon, B Lucas, T Maas, L Nowlan, R Pentland & M Phare, The Gordon Water Group of Concerned Scientists and Citizens, *Changing the Flow: A Blueprint for Federal Action on Freshwater* (Toronto: Walter and Duncan Gordon Foundation, 2007).

12 Steve E Hrudy, *Safe Drinking Water Policy for Canada: Turning Hindsight into Foresight* CD Howe Institute Commentary No 323 (Toronto: CD Howe Institute, 2011), online: < http://www.cdhowe.org/pdf/Commentary_323.pdf>; David R Boyd, *The Water We Drink: An International Comparison of Drinking Water Quality Standards and Guidelines* (Vancouver: David Suzuki Foundation, 2006), online: < http://www.davidsuzuki.org/publications/downloads/2006/DSF-HEHC-water-web.pdf>.

13 David R Boyd, "No Taps, No Toilets: First Nations and the Constitutional Right to Water in Canada" (2011) 57:1 McGill Law Journal 81; Randy Christensen, Nancy Goucher & Merrell-Ann Phare, *Seeking Water Justice: Strengthening Legal Protection for Canada's Drinking Water* (Toronto: Forum for Leadership on Water, 2010), online: < http://www.flowcanada.org/sites/default/files/documents/WaterJustice_report%20-FINAL.pdf>; Constance Macintosh, "Testing the Waters: Jurisdictional and Policy Aspects of the Continuing Failure to Remedy Drinking Water Quality on First Nations Reserves" (2007) 39 Ottawa L Rev 63; and Expert Panel on Safe Drinking Water for First Nations, *Report on the Expert Panel on Safe Drinking Water for First Nations* (Ottawa: Minister of Public Works and Government Services Canada, 2006), online: < http://publications.gc.ca/collections/Collection/R2-445-2006E2.pdf>. There are widespread criticisms of the federal government's new *Safe Drinking Water for First Nations Act*, S.C. 2013, c. 21, including Union of British Columbia Indian Chiefs. Letter to Honourable John Duncan dates November 16, 2010, online: < http://www.afn.ca/uploads/files/water/10-11-16.pdf>; Forum for Leadership on Water, *Briefing Note re: Bill S-11 First Nations Safe Drinking Water Act*, October 6, 2010, online: < http://www.flowcanada.org/sites/default/files/documents/FLOW%20BN%C20*o*n%20S-11_7Oct2010%20%C28complete%29.pdf>.

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14 See section IIIB below and specifically the discussion of the Riparian Areas Regulation of the B.C. *Fish Protection Act*, S.B.C. 1997, c. 21. Due to law reform and decreased funding, the fish enhancement impact of the *Fisheries Act* has significantly waned. Olszynski, *supra* note 2.

15 S.C. 2002, c. 29.

16 Nigel Bankes, "Protecting Listed Aquatic Species under the Federal Species at Risk Act: The Implications for Provincial Water Management and Provincial Water Rights", (2012) 24 JELP 19.

17 The historic approach to water management has characterized as cooperative federalism in the context of the constitutional ambiguity of jurisdiction over water. Saunders, supra note 1 at 3-4. The inter-jurisdictional contexts referred to here are inter-provincial and international.

18 See also the call for increased cumulative effects regulation in light of the 2012 amendments to the federal environmental assessment regime. Northey, supra note 2; Robert Gibson, Meinhard Doelle, and A John Sinclair "Next Generation Environmental Assessment for Canada: Basic Principles and Components of Generic Design" forthcoming 29 JELP 2016.

19 See, for example, Deborah Curran, "Leaks in the System: Environmental Flows, Aboriginal Rights and the Modernization Imperative for Water Law in British Columbia" forthcoming JELP 2016; Linda Nowlan, "CPR for Canadian Rivers: Law to Protect and Conserve Environmental Flows in Canada" (2012) 23:3 JELP 237; Reed D Benson, "Alive but Irrelevant: The Prior Appropriation Doctrine in Today's Western Water Law" (2011) 83 University of Colorado Law Review 675; Karen Bakker, ed, *Eau Canada: The Future of Canada's Water* (Vancouver: UBC Press, 2007); David R Percy, "The Limits of Western Canadian Water Allocation Law" (2004) 14 JELP 315; and Nigel Bankes, "Water Law Reform in Alberta: Paying Obeisance to the 'Lords of Yesterday', or Creating a Water Charter for the Future" (1995) 49:Winter Resources 6.

20 The term "Crown land" is used in this paper as shorthand for the significant portion of each province over which provincial governments claim ownership and jurisdiction. The term does not reflect the unresolved aboriginal rights and title to that landscape, as well as to water, which change the nature of that land and Crown authority for it.

21 Historic treaties are silent on the issue of water. Some modern treaties provide modest entitlements. For example, the Nisga'a Treaty incorporates Nisga'a Nation rights to water within the colonial water law regime. The Crown owns the water and retains regulatory authority over water with existing water licences remaining in force. The Nisga'a Nation receives a water reservation of 300,000 cubic decametres of water per year--approximately one percent of the annual average flow of the Nass River--that can be turned into water licences with a priority date of 1996. *Nisga'a Final Agreement*, Nisga'a First Nation, Government of Canada, Province of British Columbia, 27 April 1999, at 3.122-3.124. The 2009 Maa-Nulth Treaty contains similar provisions in Chapter 8. *Maa-Nulth First Nations Final Agreement*, Maa-Nulth First Nations, Government of Canada, Province of British Columbia, signed on various dates 2008-2009. Finally, the 2007 Tsawwassen Treaty does not create water rights but secures their membership in the Greater Vancouver Regional District and ability to participate in the Greater Vancouver Water District. *Tsawwassen First Nations Final Agreement,* Tsawwassen First Nation, Government of Canada, Province of British Columbia, 6 December 2007, at 17.1-17.2. For overviews of this topic see Merrell-Ann Phare, *Denying the Source: The Crisis of First Nations Water Rights* (Rocky Mountain Books, 2009) and also Kenichi Matsui, *Native Peoples and Water Rights* (McGill-Queen's University Press, 2009).

22 See, for example, *Thomas v. Rio Tinto Alcan Inc.*, 2015 BCCA 154, leave to appeal refused 2015 CarswellBC 2965 (S.C.C.) (First Nations asserting aboriginal title in the Nechako River claiming nuisance and breach of riparian rights relating to impacts from a dam and reservoir); *Halalt First Nation v. British Columbia (Minister of Environment)*, 2012 BCCA 472, leave to appeal refused 2013 CarswellBC 2083 (S.C.C.) (challenge to a provincial environmental assessment permit for three drinking water wells adjacent to a Halalt First Nation reserve that tap into the aquifer under the reserve, which is also hydrologically connected to the Chemainus River); *Harry v. British Columbia (Assistant Regional Water Manager)*, 2013 CarswellBC 431, 74 C.E.L.R. (3d) 218 (Environmental App. Bd.) (objection by the Xwemalhkwu First Nations to the commercialization of fresh water in the area, the water licence's impact on Aboriginal rights, and long-term environmental consequences); *Dickie v. British Columbia (Assistant Regional Water Manager)*, 2012 CarswellBC 3900, 73 C.E.L.R. (3d) 229 (Environmental App. Bd.) (Fort Nelson First Nation's appeal of a water licence for storage, for water use for hydraulic fracturing, based on the Crown's failure to uphold its duty to consult and assess the impacts on the environment and on treaty rights); *Anderson*

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v. British Columbia (Assistant Regional Water Manager), 2002 CarswellBC 2565 (Environmental App. Bd.) (Lower Nicola Indian Band alleging the Crown's failure to consult on a water licence application); *Edwards v. British Columbia (Assistant Regional Water Manager)*, 2014 CarswellBC 635, 86 C.E.L.R. (3d) 96 (Environmental App. Bd.) (Sekw'el'was a.k.a. Cayoose Creek Indian Band application for a stay of a conditional water licence for domestic municipal purpose based on its direct and adverse effect on the appellants' Aboriginal title, rights and interests in fish-bearing Seton River); *Lake Country (District) v. British Columbia (Assistant Regional Water Manager)*, 2013 CarswellBC 3496 (Environmental App. Bd.) (Okanagan Indian Band concerned about lack of notice of water licence applications and their issuance).

23 See section IIIA below, and, in particular the discussion of the Bras d'Or Lakes Collaborative Environmental Planning Initiative and Monique Passelac-Ross & Karin Buss, "Water Stewardship in the Lower Athabasca River: Is the Alberta Government Paying Attention to Aboriginal Rights to Water?" (2011) 23:1 JELP 69.

24 See, for example, the resolution of the water conflicts in the Klamath Basin that straddles Oregon and California: Holly Doremus & A Dan Tarlock, *Water War in the Klamath Basin: Macho Law, Combat Biology, and Dirty Politics* (Washington, DC: Island Press, 2008); Glen Spain, "Dams, Water Reforms and Endangered Species in the Klamath Basin" (2007) 22:1 *Journal of Environmental Law & Litigation* 49, and the agreement to "share the shortage" in the Athabasca Basin: Arlene Kwasniak, "Instream Flow and Athabaska Oil Sands Development: Contracting Out/Waiver of Legal Water Rights to Protect Instream Flow--A Legal Analysis" (2010) 48:1 Alberta Law Review 1.

25 Examples of this include the extensive law reform over the past 20 years in Australia's Murray-Darling Basin. Penny Carruthers & Sharon Mascher, "The Story of Water Management in Australia: Balancing Public and Private Property Rights to Achieve a Sustainable Future" (2011) 1 Property Law Review 97; Lee Godden, "Water Law Reform in Australia and South Africa: Sustainability, Efficiency and Social Justice" (2005) 17:2 Journal of Environmental Law 181. The European Union's Water Framework Directive is also illustrative (see Section IV below).

26 See the text and references accompanying note 98 and 124.

27 See the text and references accompanying note 133.

28 See the text and references accompanying note 163-165.

29 See the text and references accompanying note note 97.

30 Regulators and water managers are using this term to reflect the shift in baseline ecological conditions, which are much less predictable and varied. See, for example, the Cowichan Valley Regional District's "Living the New Normal" initiative for flood and drought management, online: < http://cvrdnewnormalcowichan.ca>. For academic treatment of this lack of ecological baseline into the future see Robin Kundis Craig, "'Stationarity is Dead'--Long Live Transformation: Five Principles for Climate Change Adaptation Law" (2010) 34 Harvard Environmental Law Review 10; PCD Milly et al, "Stationarity Is Dead: Whither Water Management?" (2008) 319:5863 Science 573.

31 See text and references accompanying note 124.

32 *The third schedule of the Constitution Act, 1867* (UK), 30 & 31 Vict, c. 3, reprinted in RSC 1985, App II, No 5 provides for the federal ownership of canals with lands and water power connected. Otherwise, water is not addressed.

33 The starting point is the common law principle that resources such as water and fish cannot be owned in their natural state due to their fugitive nature. One must have possession to assert ownership and rights to water accrue as a use right of land-based right to the owner of land underlying or adjacent to the water. Anthony Scott, *The Evolution of Resource Property Rights* (Oxford and New York: Oxford University Press, 2008) at 55-126. Courts have confirmed this view that transfers of land "... undoubtedly pass the water rights incidental to those lands". *Burrard Power Co. v. R.* (1910), [1911] A.C. 87 (Jud. Com. of Privy Coun.) at p. 94.

34 For a constitutional analysis of water in Canada see Steven A Kennett, *Managing Interjurisdictional Waters in Canada: A Constitutional Analysis* (Calgary: Canadian Institute of Resources Law, 1991) and Saunders, *supra* note 1.

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35 Essentially the same rights were granted to the prairie provinces by the *Natural Resources Transfer Agreements*, *Constitution Act,* 1930, 20-21 Geo V, c 26 (UK), Schedule 2, s 1. David R Percy, *The Framework of Water Rights Legislation in Canada* (Calgary: Canadian Institute of Resources Law, 1988).

36 This constitutional assertion of ownership is complicated in many watersheds where Aboriginal rights and title are unresolved, particularly in British Columbia, or where First Nations challenge the extent of treaty rights protection by s 35 of the *Constitution Act, 1982*, being Schedule B to the Canada Act 1982 (UK), 1982, c. 11. Likewise, to date no First Nation has asserted an Aboriginal right to a specific volume of water.

37 Ownership of water under and on Indian Reserves is unsettled law in Canada. For example, the Province of B.C. asserts that when it transferred Indian reserves to the Federal Government in 1938 it did not include water in those land transfers. For a comprehensive discussion of the legal basis for this disagreement in *obiter* see *Halalt First Nation v. British Columbia (Minister of Environment)*, 2011 BCSC 945 at paras 512-562, reversed 2012 CarswellBC 3629 (C.A.), leave to appeal refused 2013 CarswellBC 2083 (S.C.C.).

38 *Constitution Act*, *supra* note 32, s. 108.

39 In B.C., s. 2 of the *Water Act*, R.S.B.C. 1996, c. 273 reads: The property in and the right to the use and flow of all the water at any time in a stream in British Columbia are for all purposes vested in the government, except only in so far as private rights have been established under licences issued or approvals given under this or a former Act. Similar wording is found in the Alberta *Water Act*, S.A. 2000, c. W-3, s. 3 and Manitoba *Water Rights Act*, C.C.S.M., c. W-80, s. 2.

40 *Supra* note 32, s. 92(13).

41 *Supra* note 32, s. 92(10).

42 *Supra* note 32, s. 92(8).

43 *Supra* note 32, s. 92(16).

44 *Supra* note 32, s. 91(12).

45 *Supra* note 32, s. 91(1).

46 *Supra* note 32, ss. 91(29) and 92(10). Other federal authority that may directly restrict provincial water management include Canals, harbours, rivers, and lake improvements (s. 108), Indians, and lands reserved for Indians" (s. 91(24)), Taxation (s. 91(3)), trade and Commerce (s. 91(24)), public debt and property (s. 91(1A)), criminal law (s. 91(27)), and peace, order, and good government (s 91) can have indirect impacts on provincial water management.

47 Section 91(2) and *Citizens and the Queen Insurance Cos of Canada v Parsons* 4 SCR 215, s. 92(10) by virtue of not being provincial works and undertakings, and national emergency or national concern doctrines of the peace, order and good government power under s. 92.

48 *Friends of the Oldman River Society v. Canada (Minister of Transport)*, [1992] 1 S.C.R. 3.

49 *Constitution Act*, *supra* note 32, s. 91.

50 Saunders, *supra* note 1 at 53; Prairie Provinces Water Board, "About Us", online: < http://www.ppwb.ca/information/2/index.html>.

51 Saunders, *supra* note 1 at 61.

52 January 11, 1909, 6 Stat 2448.

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53 Treaty Between Canada and the United States of America Relating to Cooperative Development of the Water Resources of the Columbia River Basin, January 17, 1961. The US brought the Treaty into force in 1964. Nigel Bankes & Barbara Cousins, *The Future of the Columbia River Treaty* (Toronto: Munk School of Global Affairs, University of Toronto, 2012).

54 Protocol Amending the Agreement Between Canada and the United States of America on Great Lakes Water Quality, 1978, as Amended on October 16, 1983 and on November 18, 1987.

55 Saunders, *supra* note 1 at 63.

56 Government of British Columbia, "Columbia River Treaty Review: FAQs", online: < http://blog.gov.bc.ca/columbiarivertreaty/faqs/#faq19> at question 19.

57 *Supra* note 3.

58 *Supra* note 3, ss. 5-6.

59 *Supra* note 3, s. 13.

60 Nowlan, *supra* note 19 at 259; Saunders & Wenig, supra note 7 at 127.

61 *Supra* note 4.

62 Saunder & Wenig, *supra* note 7 at 126.

63 Classic cases addressing jurisdiction related to water include *Interprovincial Co-operative Ltd. v. R.* (1975), [1976] 1 S.C.R. 477*; R. v. Crown Zellerbach Canada Ltd.*, [1988] 1 S.C.R. 401; and *Friends of the Oldman River Society v. Canada (Minister of Transport)*, [1992] 1 S.C.R. 3.

64 *Canada (Attorney General) v. Aluminum Co. of Canada*, 1980 CarswellBC 677, [1980] B.C.J. No. 1910 (S.C.) at para. 15. The federal department renewed the injunction annually until 1985 when the parties proceeded by agreement. Nowlan, *supra* note 19 at 256. The litigation pertaining to this facility continues apace. See, for example, *Carrier Sekani Tribal Council v. British Columbia (Utilities Commission)*, 2010 SCC 43 and *Thomas v. Rio Tinto Alcan Inc.*, 2015 BCCA 154.

65 Mackenzie River Basin Bilateral Water Management Agreement Between the Government of Alberta and the Government of the Northwest Territories (March 18, 2015), online: < http://www.mrbb.ca/uploads/files/general/37//ab-nwt_water_management_agreement_final_signed_2.pdf>.

66 (July 24, 1997), online: < http://www.mrbb.ca/uploads/files/general/19/mackenzie-river-basin-transboundary-waters-master-agreement.pdf>.

67 The Treaty provides that as of 2014 either party can put the other on notice that it will terminate the treaty in ten years. *Supra* note 53 at Article XIX(2); Government of B.C., Ministry of Energy and Mines, "Columbia River Treaty Review", online: < http://blog.gov.bc.ca/columbiarivertreaty/>.

68 *Supra* note 56 [BC Hydro fulfills CBT management] and Marcia Valiante, "Management of the North American Great Lakes" in O Varis, C Tortajada & AK Biswas, eds, *Management of Transboundary Rivers and Lakes* (Berlin: Springer, 2008) 245-268.

69 Andrea Woo, "BC to Review Proposed Groundwater Pricing" *The Globe and Mail* July 14, 2015, online: < http://www.theglobeandmail.com/news/british-columbia/bc-to-review-proposed-groundwater-pricing/article25512023/>.

70 *Ibid.*

71 The Early Edition, "Nestle should not be charged more for water, urges former MLA Judi Tyabji" CBC News July 13, 2015, online: < http://www.cbc.ca/news/canada/british-columbia/nestlé-should-not-be-charged-more-for-b-c-water-urges-former-mla-judi-tyabji-1.3149676>.

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72 Deborah Curran & Oliver Brandes, "Managing BC's Water Resources: We have a long way to go before water rent attract international trade claims" *Vancouver Sun* July 20, 2015, online: < http://www.vancouversun.com/touch/opinion/op-ed/Opinion+Managing+water+resources/11227108/story.html?rel=1515483>.

73 While it is beyond the scope of this paper to explain the continuing controversy surrounding NAFTA's application to the bulk export of water, most provinces have taken steps to ban the export of bulk water. See, for example, B.C.'s *Water Protection Act*, R.S.B.C. 1996, c. 484 that prohibits diverting water for removal from B.C. at s. 4. See Merrell-Ann Phare, "Whose Water is it? Aboriginal Water Rights and International Trade Agreements", (28 October 2013), online: *Policy Horizons Canada, Government of Canada* < http://www.horizons.gc.ca/eng/content/feature-article——whose-water-it-aboriginal-water-rights-and-international-trade%C2%A0agreements>; Allison L Kindle Pejovic, "Fresh Water, Law and Game Theory: Strategies for Navigating the Troubled Waters of a Canada-U.S. Bulk Water Export Conflict" (2010) 36 Queen's Law Journal 203; Joseph Cumming & Robert Froehlich, "NAFTA Chapter XI and Canada's Environmental Sovereignty: Investment Flows, Article 1110 and Alberta's Water Act" (2007) 65 University of Toronto Faculty of Law Review 107; Martin P Olszynski, "The Commodification of Canadian Water: Exploring International Trade Implications" (2006) 69:1 Sask L Rev 221; Nathalie Bernasconi-Osterwalder & Edith Brown Weiss, "International Investment Rules and Water: Learning from the NAFTA Experience" in Edith Brown Weiss, Laurence Boisson de Chazournes & Nathalie Bernasconi-Osterwalder, eds, *Fresh Water and International Economic Law* (Oxford: Oxford University Press, 2005) at 263; and David Boyd, *Unnatural Law* (Vancouver: UBC Press, 2003).

74 Frederic Laserre, "Drawers of Water: Water Diversions in Canada and Beyond" in Karen Bakker, ed, *Eau Canada: The Future of Canada's Water* (Vancouver: UBC Press, 2007) 143-162 at 157-158.

75 R.S.C. 1985, c. I-17. The amendments came into effect in 2001 and 2013.

76 *North American Free Trade Agreement Implementation Act*, S.C. 1993, c. 44, s. 7; The Canada, Mexico, United States Declaration on Water Resources is reproduced in David Johansen, *Bulk Water Removals, Water Exports and the NAFTA* (Government of Canada, Law and Government Division, 2002), online: David Johansen, *Bulk Water Removals, Water Exports and the NAFTA* (Government of Canada, Law and Government Division, 2002), online: < http://publications.gc.ca/Collection-R/LoPBdP/BP/prb0041-e.htm>.

77 Cumming & Froehlich, *supra* note 73. In an unusual scenario, there is one dormant NAFTA claim by Sun Belt Water dating from 1998 for compensation for the revocation of a water licence by the B.C. government for bulk water exports. The Government of Canada website detailing the status of NAFTA claims states that "[no]valid claim has been filed ... there is no Chapter 11 arbitration on this matter." Ministry of Foreign Affairs, Trade and Development Canada, "NAFTA--Chapter 11--Investment", online: < http://www.international.gc.ca/trade-agreements-accords-commerciaux/topics-domaines/disp-diff/sunbelt.aspx?lang=eng>. The Notice of Intent to Submit a Claim to Arbitration can be viewed, online: < http://www.international.gc.ca/trade-agreements-accords-commerciaux/assets/pdfs/disp-diff/sunbelt-01.pdf>.

78 See the discussion in section III on B.C. Hydro's water planning and the enactment of the Riparian Areas Regulation under the B.C. *Fish Protection Act*.

79 R.S.C. 1985, c. F-14. Olszynski, *supra* note 2.

80 S.C. 2012, c. 19. Northey, *supra* note 2. In the non-legal realm, Fisheries and Oceans Canada has played a significant role by providing funding to First Nations and community organizations to undertake research and monitoring on water quality and the status of fisheries. See, for example, the funding available under the Aboriginal Fisheries Strategy and Fisheries Agreements with individual First Nations, online: < http://www.dfo-mpo.gc.ca/fm-gp/aboriginal-autochtones/afs-srapa-eng.htm>.

81 Keith Clarke, Fisheries and Oceans Canada Science Branch, "Developing a national policy to direct instream flow protection strategies for permitting new projects in Canada". Presentation at Flow 2015: Instream Flow Council Conference, April 29, 2015; Fisheries and Oceans Canada, *Fisheries Protection Policy Statement, 2013*, online: < http://www.dfo-mpo.gc.ca/pnw-ppe/pol/index-eng.html>.

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82 *Supra* note 15. Section 58 authorizes the minister to make an order if critical habitat is not protected. For a thorough discussion of the impact of the *Species at Risk Act* on provincial water allocation see Nigel Bankes, "Protecting Listed Aquatic Species under the Federal Species at Risk Act: The Implications for Provincial Water Management and Provincial Water Rights" (2012) 24 JELP 19.

83 Government of Canada, "Nooksack Dace in Canada: Critical Habitat Protection Statement" (undated), online: < http://www.registrelep-sararegistry.gc.ca/default.as-p?lang=En&n=AAE8BAF0-1>.

84 Saunders & Wenig, *supra* note 7 at 128.

85 2015 NWTSC 9.

86 S.C. 2014, c. 2. The *MacKenzie Valley Resource Management Act*, S.C. 1998, c. 25 constitutes the four land and water boards created pursuant to land claims and self-government agreements in the MacKenzie Valley. The *Northwest Territories Devolution Act* replaces the *Northwest Territories Act* to implement provisions of the Northwest Territories Lands and Resources Devolution Agreement, and amends the *Mackenzie Valley Resource Management Act*.

87 *Ibid.* at ss. 132(3) and 136.

88 *Ibid.* at s. 136.

89 *Ibid.* at s. 136.

90 Paragraph 22.3.2 of the land claims agreement creates the WLWB. *Supra* note 85 at paras 6 and 7.

91 *Supra* note 85 at para 64.

92 *Supra* note 85 at para 86.

93 *Supra* note 85 at para 103.

94 *Supra* note 79.

95 These are the *Canadian Environmental Assessment Act*, S.C. 1992, c. 37 and *Canadian Environmental Assessment Act, 2012*, *supra* note 80.

96 Typically, the federal regulatory role involves approvals for projects that will harm the environment in some way, such as under *CEAA*, *supra* note 80, and ss 36 and 36(3) of the *Fisheries Act*, *supra* note 79, or enforcement of offences committed under the *Fisheries Act*.

97 Craig Anthony Arnold, "Adaptive Water Law" (2014) 62 U Kansas Law Review 1043; Ahjond S Garmestani & Craig R Allen, eds, *Social-Ecological Resilience and the Law* (New York: Columbia University Press, 2014); Barbara A Cosens & Mark Kevin Williams, "Resilience and Water Governance: Adaptive Governance in the Columbia River Basin" (2012) 17:4 *Ecology and Society* 3; Jaroslave Mysiak Jaroslav et al, eds, *The Adaptive Water Resource Management Handbook* (London: Earthscan, 2010); National Round Table on the Environment and the Economy, *Changing Currents: Water Sustainability and the Future of Canada's Natural Resource Sector* (Ottawa, ON: National Round Table on the Environment and the Economy, 2010); Dave Huitema et al, "Adaptive Water Governance: Assessing the Institutional Prescriptions for Adaptive (Co-)Management from a Governance Perspective and Defining a Research Agenda" (2009) 14:1 *Ecology and Society* 26; Allan Locke et al, *Integrated Approaches to Riverine Resource Stewardship: Case Studies, Science, Law, People and Policy* (Cheyenne, WY: Instream Flow Council, 2008), particularly at Chapter 11; and JB Ruhl, "Thinking of Environmental Law as a Complex Adaptive System: How to Clean Up the Environment by Making a Mess of Environmental Law" (1997) 34 Hous L Rev 933.

98 For a review of watershed planning regimes in North America see Jason Unger. *Consistency and Accountability in Implementing Watershed Plans in Alberta: A Jurisdictional Review and Recommendations for Reform* (Edmonton: Environmental Law Centre, 2009). More generally see Claudia Pahl-Wostl, Paul Jeffrey & Jan Sendzimir, "Adaptive and Integrated Management

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of Water Resources" in R Quentin Grafton & Karen Hussey, eds, *Water Resources Planning and Management* (Cambridge: Cambridge University Press) 292; Derek Armitage, Fikret Berkes & Nancy Doubleday, eds, *Adaptive Co-Management: Collaboration, Learning and Multi-Scale Governance*, *Sustainability and the Environment* (Vancouver: UBC Press, 2007). In the Canadian context see Nicole Carter, Reid D Kreutzwiser & Rob C de Loë, "Closing the circle: linking land use planning and water management at the local level" (2005) 22:2 *Land Use Policy* 115 ("Carter"); JL Ivey, R C de Loë & R D Kreutzwiser, "Planning for Source Water Protection in Ontario" (2006) 26:3-4 *Applied Geography* 192; Bruce Mitchell et al, "Integrated Water Resource Management: Lessons from Conservation Authorities in Ontario, Canada" (2014) 30:3 *International Journal of Water Resources Development* 460; John-Mark Davies & Asit Mazumder, "Health and Environmental Policy Issues in Canada: The Role of Watershed Management in Sustaining Clean Drinking Water Quality at Surface Sources" (2003) 68 *Journal of Environmental Management* 273 ("Davies & Mazumder"); and Oliver M Brandes, "At a Watershed: Ecological Governance and Sustainable Water Management in Canada" (2005) 16:1 JELP 79 ("Brandes Watershed").

99 This depends on the extent to which legal and governance processes are developed within a watershed. Ignacio Porzecanski, Lynn V Saunders & Mark T Brown, "Adaptive Management Fitness of Watersheds" (2012) 17:3 *Ecology and Society* 29.

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101 Bras d'Or Lakes Collaborative Environmental Planning Initiative, "About the Bras d'Or", online: < http://brasdorcepi.ca>.

102 United Nations Educations, Scientific and Cultural Organization, "Ecological Sciences for Sustainable Development--Bras d'Or Lake", online: < http://www.unesco.org/new/en/natural-sciences/environment/ecological-sciences/biosphere-reserves/europe-north-america/canada/bras-dor-lake/>.

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104 Province of British Columbia, *Northeast Water Strategy* (Victoria: Province of British Columbia, 2015).

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110 *Haida Nation v. British Columbia (Minister of Forests)*, 2004 SCC 73.

111 Coastal First Nations/British Columbia Reconciliation Protocol Amending Agreement, 2011, online: < http://www2.gov.bc.ca/gov/DownloadAsset?assetId=65D0-CE9AEA1B4C3DA033DEC0FA51D6CC> at Whereas 3.

112 *Ibid*, Schedules A and B.

113 *Ibid*, s. 6.2.

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114 Kunst'aa Guu--Kunst'aayah Reconciliation Protocol 2009, online: < http://www.haidanation.ca/Pages/Agreements/pdfs/Kunstaa%20guu_Kunstaayah_Agreement.pdf> at 1.6 and 1.7.

115 *Ibid*, ss. 2.2.1, 2.2.2, 2.2.4.

116 For example, the 1990 Umbrella Final Agreement Between The Government Of Canada, The Council For Yukon Indians And The Government Of The Yukon created the Yukon Water Board (at Chapter 14), which is empowered through the *Waters Act*, S.Y. 2003, c. 19, s. 8. Likewise, the land claims agreements in the Northwest Territories established five regional land and water boards to fulfill regulatory functions. These are the Northwest Territories Water Board (for the Inuvialuit Settlement Region), the Gwich'in Land and Water Board (for the Gwich'in Settlement Area), the Mackenzie Valley Land and Water Board (for the Unsettled Claim Areas in the NWT, Transboundary Projects with the Gwich'in Land and Water Board and the Sahtu Land and Water Board), Sahtu Land and Water Board (for the Sahtu Settlement Area), and the Wekeezhii Land and Water Board (for the Tlicho Government area). Each land claims agreement and the *Mackenzie Valley Resource Management Act*, S.C. 1998, c. 25 establish the land and water boards.

117 *Mackenzie Valley Resource Management Act*, *ibid*, ss. 73-76.

118 2014 SCC 44.

119 At the appellate court level the Tsilhqot'in Nation explicitly excluded private land and underwater or submerged land from its claim. *Ibid.* at para 9.

120 While there are still no specifics, the Tsilhqot'in National Government and Province of British Columbia entered into a "Letter of Understanding" on September 10, 2014 to "work in good faith to develop detailed options [for] ... transition of the Title Area to Tsilhqot'in management, benefit and control", online: < http://www2.gov.bc.ca/assets/gov/business/natural-resource-industries/consulting-with-first-nations/agreements/lou_tsilhqotin_xenigwetin.pdf> at 6a.

121 "Dasiqox Tribal Park: Nexwagwez?an--There for us", online: < http://www.dasiqox.org>. Daybreak Kamloops CBC News, "Dasiqox Tribal Park Draws Opposition from Williams Lake Mayor", July 24, 2015, online: < http://www.cbc.ca/news/canada/british-columbia/dasiqox-tribal-park-draws-opposition-from-williams-lake-mayor-1.3167370>.

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123 Jonas Ebbesson & Carl Folke, "Matching Scales of Law with Social-Ecological Contexts to Promote Resilience" in Ahjond S Garmestani & Craig R Allen, eds, *Social-Ecological Resilience and Law* (New York: Columbia University Press, 2014) 265-292 at 279.

124 For discussion of this change in approach over the past twenty years see Paul A Sabatier et al, eds, *Swimming Upstream: Collaborative Approaches to Watershed Management* (Cambridge, Massachusetts: The MIT Press, 2005); and Quentin R Grafton & Karen Hussey, *Water Resources Planning and Management* (Cambridge University Press, 2011). In the Canadian context, see Oliver M Brandes & Jon O'Riordan, *A Blueprint for Watershed Governance in British Columbia* (Victoria: POLIS Project on Ecological Governance, University of Victoria, 2014); L Nowlan & K Bakker, "Practicing Shared Water Governance in Canada: A Primer" (Vancouver: UBC Program on Water Governance, 2010), online: < http://www.watergovernance.ca/wpcontent/uploads/2010/08/PractisingSharedWaterGovernancePrimer_final1.pdf>; Nicole Carter, Integrated Watershed Management: Moving From Concept to Practice in Ontario 116:11 Mun World 17-20 2006.

125 Nowlan, *supra* note 19 at 265.

126 Although provincially-mandated liquid waste or rainwater and flood planning can be viewed as watershed planning, these types of plans focus on downstream impacts. Watershed plans can address rainwater and flooding but are typically concerned with linking upstream development to downstream impacts, drought and water use conflicts.

127 Oak Ridges Moraine Conservation Plan, s. 25, adopted pursuant to *Oak Ridges Moraine Conservation Act, 2001* S.O. 2001, c. 31 and Ontario Reg 140/02.

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128 Called water management plans in both provinces, in B.C. their legal basis is found in Part 4 of the *Water Act*, R.S.B.C. 1996, c. 483, ss. 62-67 and in Alberta from ss. 9-13 of the *Water Act*, RSA 2000 W-3.

129 As provided for in ss. 64 to 66. Township of Langley, *Township of Langley Water Management Plan: Final Report* November 2009, online: < http://www.tol.ca/Portals/0/township%20**o**f%20langley/engineering/groundwater/Township%20of%C20Langley%C20Water%C20Management%20Plan.pdf?timestamp=1437798395209>.

130 AB Reg 171/2007.

131 See, for example, Giorilyn Bruno, "Planning For the Future of Albertans: Healthy Aquatic Ecosystems and Environmental Flows Protection" (2014) 26:2 JELP 157; Michael M Wenig, *Understanding Local Albertans' Roles in Watershed Planning: Would the Real Blueprint Please Step Forward?* CIRL Occasional Paper #28 (Calgary: Canadian Institute of Resources Law, 2010); Unger *supra* note 98.

132 James Mattison et al, *Water for Power, Water for Nature: The Story of BC Hydro's Water Use Planning Program* (Vancouver: World Wildlife Fund, 2014).

133 For a comprehensive of environmental flow regulation in Canada see Nowlan, *supra* note 19. For the scientific basis of environmental flows see Allan Locke et al, *Integrated Approaches to Riverine Resource Stewardship: Case Studies, Science, Law, People and Policy* (Cheyenne, WY: Instream Flow Council, 2008) and Tom Annear et al, *Instream Flows for Riverine Resource Stewardship (Revised Ed)* (Cheyenne, WY: Instream Flow Council, 2004). Although many provinces provide for issuing water licences for conservation purposes, this approach is subject to the same critique of water licensing in general, namely that it is inflexible and does not adapt to changing ecosystem conditions. See also Nowlan, supra note 19 at 262, for further weaknesses to this approach.

134 Ont Reg 387/04, s 4(2)(1) pursuant to the *Ontario Water Resources Act*, R.S.O. 1990, c. O.40; *Water Rights Act*, C.C.S.M. c. W80, s. 9.1(1). Quebec establishes specific instream flow parameters for fish by policy. Faune et Parcs Quebec, "Politique de debits reserves écologiques pour la protection due poisson et de ses habitats" Avril 1999, online: < http://www.bape.gouv.qc.ca/sections/mandats/chute-allard/documents/DB1.pdf>.

135 *Loi sur la qualite de l'environnment* R.S.Q. c. Q-2, ss. 31.85-86.

136 *Water Rights Act*, *supra* note 39, s. 9.2. Based on scientific information, the minister may suspend or restrict rights under a licence if surface or groundwater levels or environmental flows are insufficient to protect aquatic ecosystems.

137 *Water Act*, *supra* note 39, s. 97(1)(i).

138 S.B.C. 2014, c. 15.

139 Province of British Columbia, "Water Sustainability Act: Updating our current water laws", online: < http://engage.gov.bc.ca/watersustainabilityact/>.

140 *Supra* note 138, s. 15. The decision maker must determine the environmental flow needs of a stream, and can require an applicant to provide information, reports and assessments to be considered. The Minister may make regulations respecting environmental flow needs, including prescribing methods of determining the environmental flow needs of a stream: s. 127(1)(o). Note that the fish protection orders originally authorized under the *Fish Protection Act* are incorporated into s. 88 of the *WSA*. If the minister considers that the flow of water in a specified stream is or is likely to become so low that the survival of a population of fish in the stream may be or may become threatened, the minister may make an order respecting the diversion, rate of diversion, time of diversion, or use, including storage and time of storage, of water from the specified stream, or a specified aquifer hydraulically connected to the stream, regardless of the precedence of the licence.

141 *Supra* note 138, ss. 86-87.

142 *Supra* note 138, s. 22(9).

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143 *Supra* note 138, s. 23.

144 For example, see *supra* note 138, ss. 6 and 15.

145 *Supra* note 138, s. 65.

146 *Supra* note 138, ss. 68 and 73.

147 *Supra* note 138, ss. 75, 78-80.

148 *Supra* note 138, s. 43.

149 *Supra* note 138, s. 43(5).

150 *Supra* note 138, s. 121. There are, of course, two exceptions to the no compensation rule. The Lieutenant Governor in Council may make regulations respecting the payment of compensation by the government (at s. 134) and if a water sustainability plan submitted to the minster recommends a significant change in respect of a licence or drilling authorization, the plan must contain a detailed proposal recommending responsibility for compensating the licensee or drilling authorization holder (at s. 74(2-3)).

151 *Water Act*, *supra* note 39, s. 60(3) and *Loi sur la qualite de l'environnment*, *supra* note 135, s. 31.81, other than for the supply of drinking water to a waterworks system operated by a municipality.

152 *Water Act*, *supra* note 39, s. 158(1).

153 *Loi sur la qualite de l'environnment*, *supra* note 135, s. 31.86.

154 The discussion of a public trust in or right to water is increasing in Canada. See, for example, John C Maguire, "Fashioning an Equitable Vision for Public Resource Protection and Development in Canada: The Public Trust Doctrine Revisited and Reconceptualized" (1997) 7 JELP 1; Bruce Pardy, "Seven Deadly Sins of Canadian Water Law" (2003) 13 JELP 89 ("Pardy"); Ralph Pentland, "Public Trust Doctrine ... Potential in Canadian Water and Environmental Management", POLIS Discussion Paper 09-03, online: < http://poliswaterproject.org/sites/default/files/public_trust_doctrine.pdf>; Sarah Jackson, Oliver M Brandes & Randy Christensen, "Lessons from an Ancient Concept: How the Public Trust Doctrine Will Meet Obligations to Protect the Environment and the Public Interest in Canadian Water Management and Governance in the 21st Century" (2012) 23:2 JELP 175; David Boyd. *The Right to a Health Environment: Revitalizing Canada's Constitution* (Vancouver: UBC Press, 2012); Lynda M Collins & David R Boyd, "Non-Regression and the *Charter* Right to a Healthy Environment" Journal of Environmental and Practice (forthcoming).

155 R.S.Y. 2002, c. 76, s. 6.

156 *Ibid*, s. 8.

157 *Supra* note 9.

158 *Supra* note 9, s. 2.

159 See the University of Victoria POLIS Project on Ecological Governance's Water Sustainability Project publications in this area, including Susanne Porter-Bopp et al, *Peeling Back the Pavement: A Blueprint for Reinventing Rainwater Management in Canada's Communities* (Victoria: POLIS Project on Ecological Governance, University of Victoria, 2011); and Oliver M Brandes, Tony Maas & Ellen Reynolds, *Thinking Beyond Pipes and Pumps: Top 10 Ways Communities Can Save Water and Money* (Victoria: POLIS Project on Ecological Governance, University of Victoria, 2006); Brandes Watershed, *supra* note 98. See also Rob C de Loë, Sandra E Di Giantomasso & Reid D Kreutzwiser, "Local Capacity for Groundwater Protection in Ontario" (2002) 29:2 *Environmental Management* 217.

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160 For general references to local government ecological protection, including the benefits and methods, see Deborah Curran, *Green Bylaws Toolkit* (Victoria: Wetlands Stewardship Partnership, 2007); Mark A Benedict & Edward T McMahon, *Green Infrastructure: Linking Landscapes and Communities* (Washington, DC: Island Press, 2006); James McElfish Jr, *Nature-Friendly Ordinances: Local Measures to Conserve Biodiversity* (Washington, DC: Environmental Law Institute, 2004).

161 The term demand management is typically used in the context of increasing the efficiency of a service, such as providing energy or water, through conservation. It is managing the demand for the service rather than simply meeting supply with more demand. In the watershed and water service context, it has been a key component of a "soft path" to water management: David B Brooks, Oliver M Brandes & Stephen Gurman, *Making the Most of the Water We Have: The Soft Path Approach to Water Management* (London: Earthscan, 2009). See also the current action of many local governments on Vancouver Island that are implementing further water use restrictions related to the Province of B.C.'s categorization of a Level 4 drought in the summer of 2015, "Islanders urged to conserve water", online: < http://www.newsroom.gov.bc.ca/2015/06/islanders-urged-to-conserve-water-1.html>; Comox Valley Regional District, "Comox Valley Water Local Service Areas: Stage 2 Water Restrictions In Effect--June 1, 2015", online: < http://www.comoxvalleyrd.ca/EN/main/departments/water-services/water-restrictions/comox-valley-water-local-servoce-areas.html>; City of Nanaimo, "City of Nanaimo moving to Conservation Level Two Watering Restrictions", online: < http://www.nanaimo.ca/Newsroom/NR150609CityOfNanaimoMovingToConservatio>.

162 Patricia Hania, "Uncharted Waters: Applying the Lens of New Governance Theory to the Practice of Water Source Protection in Ontario" (2013) 24:2 JELP 177; Patricia Hania, "Climate Change and the Protection of Drinking Water in Ontario: An Opportunity to Adopt Adaptive Management?" (2011) 22:2 JELP 167; Davies & Mazumder, *supra* note 98; M-A Bowden & SE Ross, "Everybody but Nobody: The Legal Regime for Drinking Water Management in Saskatchewan", (2001) 11 JELP 361.

163 See, for example, Indian and Northern Affairs Canada, *National Assessment of Water and Wastewater Systems in First Nations Communities: Summary Report* (Indian and Northern Affairs Canada, 2003) at 18 (as watersheds can be contaminated by off-reserve sources and all parties should collaborate to create source water protection plans); Constance Macintosh, "Testing the Waters: Jurisdictional and Policy Aspects of the Continuing Failure to Remedy Drinking Water Quality on First Nations Reserves" (2007-2008) 39 *Ottawa Law Review* 63 at 80-81.

164 See, in general, Craig Anthony Arnold, ed, *Wet Growth: Should Water Law Control Land Use?* (Washington, DC: Environmental Law Institute, 2005) ("Arnold Wet Growth").

165 Craig Anthony Arnold, "Integrating Water Controls and Land Use Controls: New Ideas and Old Obstacles" in Arnold Wet Growth, *ibid* at 34-44; Carter et al., *supra* note 98; and Pardy, *supra* note 154 at 98 and 100.

166 A Dan Tarlock, "We Are All Water Lawyers Now: Water Law's Potential But Limited Impact on Urban Growth Management" in Craig Anthony Arnold, ed, *Wet Growth: Should Water Law Control Land Use?* (Washington, DC: Environmental Law Institute, 2005) 57-94.

167 For example, The Comox Valley Regional District enacted a Water Supply and Resource Area (WS-RA) in its zoning bylaw in 2005 to protect ground and surface water. The zone surrounds Comox Lake, an important part of the regional water supply, the Regional District limits density in this rural zone to one single family dwelling per lot, and establishes a maximum lot coverage on existing lots of all buildings and structures of 35 percent of the total lot area to a maximum of 1000 square metres (10,764.3 square feet). Coupled with the minimum lot size for subdivision being 400 hectares (988.8 acres), the low site coverage and inability to densify in this area aims to maintain existing hydrology and prevent intensive use of the watershed that is key for providing drinking water in the community. Comox Valley Regional District, *Comox Valley Zoning Bylaw, 2005* Bylaw No 2781 (consolidated to July 29, 2014), online: < http://www.comoxvalleyrd.ca/assets/Governance/Bylaws/Planning/Bylaw_revised_2781_CV_zoningbylaw_2005_CONSOLIDATED_25Feb14withBL254_277.pdf>.

168 *Essex Region Conservation Authority: Regulation of Development, Interferences with Wetlands and Alterations to Shorelines and Watercourses* O.Reg 158/06, ss. 2 and 3(1) pursuant to the *Conservation Authorities Act*, R.S.O. 1990, c. C27.

169 *Local Government Act*, R.S.B.C. 1996, c. 323, s. 919.1(1)(i).

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170 *Ibid.* ss. 920(1) and 920(10.1).

171 Jurisdiction over drainage allows local governments in B.C. to require, by bylaw, that an owner of land constructing a paved or roof area manage and provide for the ongoing disposal of both surface runoff and storm water. They may also establish the maximum percentage of a parcel of land that can be covered by impermeable surfaces. These standards may be set for different terrain and development conditions, such as zones, uses, size of paved or roof areas, and different geography, surface water or groundwater conditions. *Ibid.* s. 907.

172 District of Campbell River has a watershed DPA that limits impervious surfaces to ten percent of the site and requires an environmental impact assessment to assess cumulative effects to minimize impacts on surface water and groundwater. Likewise, the District of North Vancouver's guidelines for development permit areas mandates maximizing pervious surfaces to enhance stormwater infiltration. District of North Vancouver, *Official Community Plan* Bylaw 7900 (2011). Schedule B: Part 6 Energy and Water Conservation and Greenhouse Gas Emission Reduction Development Permit Area at 273.

173 The engineering specifications for stormwater (Schedule H) to the District of Saanich's Subdivision Bylaw No 7452 (2005) at 3.5.1 require developments to provide drainage structures that: (1) reduce the rate of post development site runoff to predevelopment levels; (2) improve the quality of site drainage water; and (3) minimize erosion and retain sediment. Generally, see Kim A Stephens & David Reid, *Stormwater Planning: A Guidebook for British Columbia* (Victoria: Province of British Columbia, 2002).

174 See generally, Tom Annear et al, *Instream Flows for Riverine Resource Stewardship* (Revised Ed) (Cheyenne, WY: Instream Flow Council, 2004); Allan Locke et al, *Integrated Approaches to Riverine Resource Stewardship: Case Studies, Science, Law, People and Policy* (Cheyenne, WY: Instream Flow Council, 2008).

175 The Riparian Areas Regulation B.C. Reg. 376/2004 pursuant to s. 12 of the *Fish Protection Act*, *supra* note 8 prohibits designated local governments in the most populous areas of the province from permitting land development within 30 metres of fish bearing streams unless the applicant undertakes a riparian assessment and a qualified professional determines that "... there will be no harmful alteration, disruption or destruction of natural features, functions and conditions that support fish life processes in the riparian assessment area [at s 4(2)(iii)(A)].

176 Enacted the Reglement de l'Aglomération sur la renaturalisation des berges du Lac Saint-Charles Bylaw to restore the riparian area due to water quality concerns Prohibited landowners from clearing the riparian area and required them to renaturalize it While there are many interesting things about this bylaw and the Quebec Court of Appeal's decision in *Wallot c. Québec (Ville)*, 2011 QCCA 1165, leave to appeal refused 2012 CarswellQue 497 (S.C.C.) upholding the bylaw, it shows attention to the connection between land and water at a broader scale. See also the discussion of the Riparian Areas Regulation in s. 3.2.

177 Lanarc Consultants, *City of Kelowna Habitat Conservation Strategy-- Mission Creek Habitat Conservation Bank* June 2007, online: < http://www.kelowna.ca/CityPage/Docs/PDFs%5C%C5CEnvironment%C20Division%5CReport_Aquatic%20Habitat-CompensationBanking.pdf>; Mission Creek Restoration Initiative, "The Restoration Project", online: < http://www.missioncreek.ca/restoration-project/>.

178 Conservation Ontario, "Conservation Authorities of Ontario", online: < http://www.conservation-ontario.on.ca/about-us/conservation-authorities>. There are 31 conservation authorities,

179 *Conservation Authorities Act*, R.S.O. 1990, c. C27, s. 28.

180 *Clean Water Act, 2006*, S.O. 2006, c. 22, s. 22. See also Patricia Hania, "Uncharted Waters: Applying the Lens of New Governance Theory to the Practice of Water Source Protection in Ontario" (2013) 24:2 JELP 177.

181 Northey, *supra* note 2; Olszynski, *supra* note 2.

182 Kundis Craig, *supra* note 30; PCD Milly et al, *supra* note 30.

183 Val Napoleon, "Indigenous Discourse: Gender, Identity, and Community" in Ben Richardson, Shin Imai & Kent McNeil, *Indigenous Peoples and the Law* (UK: Hart, 2009) 233-255; Val Napoleon, "Looking Beyond the Law: Questions About

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Indigenous Peoples' Tangible and Intangible Property" in Cathy Bell & Robert Paterson, eds, *First Nations Cultural Heritage and Law: Reconciliation and Reform*, Companion Volume (Vancouver: UBC Press, 2009) 370-393; Val Napoleon, "Thinking About Indigenous Legal Orders" (West Vancouver: National Centre for First Nations Governance, 2007).

184 Paul Muldoon & Theresa McClenaghan, "A Tangled Web: Reworking Canada's Water Laws" in Karen Bakker, ed, *Eau Canada: The Future of Canada's Water* (Vancouver: UBC Press, 2007) 245 at 250.

185 The European Union's *Water Framework Directive* (Directive 2000/60/EC) ("the WFD") establishes baseline water policy for all 27 member states and requires that, by 2015, all water bodies have achieved *good ecological status*. See also Emilie Lagace, *Shared Water, One Framework: What Canada Can Learn from EU Water Governance* (Toronto: Walter and Duncan Gordon Foundation, 2011); MC Acreman & JD Ferguson, "Environmental flows and the European Water Framework Directive" (2010) *Freshwater Biology* 55: 32-48.

186 The WFD *ibid*, at Preamble and ss 2, 5, 9, 10 and 18. See also Duncan Matthews, "The Ebb and Flow of EC Environmental Instruments: Why the Need for a New Framework Approach to Community Water Policy?", a paper prepared for the panel on New Challenges for EC Environmental Policy at the Sixth ECSA Biennial International Conference, June 2-5, 2009, Pittsburgh, PA. Retrieved from Archive of European Integration (AEI), online: < http://aei.pitt.edu/2331/01/002593_1.pdf>.

187 Eliot Allen, *It's Time to Talk About National Minimum Urban Density Standards* Planetizen May 20, 2015, online: < http://www.planetizen.com/node/77132/its-time-talk-about-national-minimum-urban-density-standards>.

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