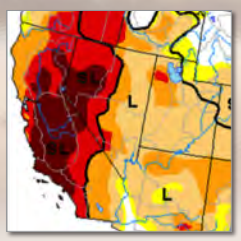
California's Oranges and B.C.'s Apples?

Lessons for B.C. from California Groundwater Reform



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Executive Summary

The B.C. legislature passed the *Water Sustainability Act* (WSA) in April 2014 and it is expected to come into force in early 2016. The WSA has the potential to better protect B.C.'s freshwater resources and integrate the management of previously unregulated groundwater in B.C.'s water law system. This will be the case if the full suite of regulations are developed and enacted, and real emphasis is placed on early and substantial planning in watersheds across the province.

To help inform this new, more integrated water law regime for B.C., important lessons can be drawn from California and its recent law reform efforts—which culminated in the passing of the *Sustainable Groundwater Management Act* (SGMA) in 2014. Naturally, any advice or lessons learned must be considered in light of the different climatic, social, and legal considerations and traditions between the two jurisdictions.

California's Oranges and B.C.'s Apples?

The purpose of this report is to better understand and evaluate recent steps taken in California in light of options available to B.C. Drawing from the California experience, we outline a number of insights that reveal priorities for B.C to ensure a comprehensive and effective approach to sustainable groundwater management. We are not suggesting that B.C. emulate California, but rather learn from the lessons offered by the California experience, both good and bad.

California's *Sustainable Groundwater Management Act*

The key element of the SGMA is the *requirement* for groundwater sustainability agencies to develop "groundwater sustainability plans." The SGMA requires these plans to meet basic sustainability standards and to avoid "undesirable effects." This includes aquifer overdraft, land subsidence, and saltwater intrusion. Clear timelines, targets, and requirements for action are centrepieces of California's approach.

The SGMA is informed by previous state efforts to protect groundwater. Existing California laws set out groundwater management plan requirements and required localities to develop these plans in order to be eligible for certain state water funding, but previously

they did not require adherence to the terms of the plans. An important insight from the California experience is that this *previous failure to require clear performance standards, timelines, and accountability for local agencies limited successful implementation of the groundwater plans.*

Key Insights from the Comparison Between B.C.'s WSA and California's SGMA

- Both B.C. and California are creating frameworks for regulating groundwater pumping rights or allocations.
- Under the SGMA, California delegates and shares significant control and responsibility for water resources, including the implementation of groundwater sustainability plans, with local agencies.
- An important counterbalance to local decisions that might undermine sustainable outcomes in the California regime are mandatory state government-set standards and duties to prepare plans to achieve clear sustainability criteria.
- The SGMA defines sustainability criteria that must be met. Currently, sustainability objectives are not clearly defined in the WSA and there is no minimum performance standard or measure.
- Legally enforceable environmental flow and critical flow protections will be important centrepieces of any successful water allocation regime. However, the WSA only requires that environmental flows and other aspects of sustainability be *considered* while the SGMA mandates that sustainability criteria be *achieved*.
- Compensation for loss of water rights is generally required in California. In contrast, B.C.'s WSA clarifies that compensation is not generally required—except in the context of the impact on water licences associated with local water sustainability plans—because water licences are not legally viewed as a "property" in Canada. This clarification gives B.C. far greater latitude to address and craft innovative solutions in the broader public interest.

Key Findings for British Columbia

The analysis of the two legal regimes demonstrates some differences but also numerous commonalities, and provides a good opportunity for insights that might guide B.C. as it develops and implements a groundwater regime over the coming years. The seven insights identified throughout this report, coupled with the exploration of the California situation, provides four key findings:

1 The Utility of the California Experience in Drawing Lessons for B.C.

The approach to planning as envisioned under the SGMA, as well as the contents of local plans when developed, holds valuable ideas and examples for B.C. These lessons are potentially applicable in the context of B.C. water law, which includes legal instruments such as water sustainability plans, area-based regulations, environmental flow protections, and temporary protection orders.

2 The Time Required to Develop an Effective and Implemented Groundwater Management Plan is Measured in Decades

In California, a long time will have passed between 1) the creation of the first framework for local planning (1991), 2) when the first groundwater management plans are *required* to be in place and operating under the SGMA (2020 and 2022), and 3) when sustainability criteria must be achieved (20 years after being adopted). It is worth considering what is needed to facilitate fast-tracking this evolution in B.C., including, at a minimum, the urgent need to begin piloting groundwater sustainability plans in critical watersheds to test important elements. These pilots

should include drought management, linkage to environmental flows, and the application of minimum standards and water objectives.

3 California Has Produced a Clearer Definition of Sustainability than B.C.

Under the SGMA, California's groundwater resources are to be managed sustainably for long-term water supply reliability, balancing multiple economic, social, and environmental benefits for current and future beneficial uses. The SGMA defines sustainable groundwater management as "the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results." In B.C. these kinds of sustainability criteria will likely reside in water sustainability plans and the provincial water objectives regime. Ensuring these criteria are developed and passed into law in a timely fashion will be necessary to create an effective groundwater management system.

4 Local Control is Important, BUT Must be Guided by Strong State/Provincial Standards

The right legislation is a very important and necessary element of the winning conditions for water sustainability generally. Legislation, however, is rarely sufficient on its own. Rules, laws, standards, and regulations must be clear and need to be enforced with sufficient capacity to ensure the right actions and management happen on the ground (and in the water).

A Glimpse of an Avoidable Future?

California is now facing a historic drought and the consequences of decades of lackluster follow-through on effective and sustainable groundwater management. B.C. does not have to follow this same path. B.C. can learn from the best examples of California's new regime and, by employing a precautionary and proactive approach, can avoid the situation that California is currently facing.

KEY INSIGHTS FROM CALIFORNIA

INSIGHT #1: The lessons from California offer a rich learning opportunity for B.C. and Canada.

INSIGHT #2: B.C. law- and decision-makers can go much further and potentially be more innovative than California to promote the sustainable use and management of groundwater as they develop the regulatory package over the coming years.

INSIGHT #3: Allowing courts to determine water rights—and, thus, water policy—is not an ideal choice. As demonstrated in California, litigation is costly, confrontational, and time consuming. Creative solutions that create a "win-win" for all parties may not be within the court's power to order. As such, a planning approach that brings in all parties and receives support is preferable for many reasons, including the availability of a broader range of innovative solutions.

INSIGHT #4: The element of California water law that may be most pertinent to B.C. is the process for developing sustainable groundwater management plans. There is a strong resemblance between this process and what is envisioned with the water sustainability plans authorized under B.C.'s *Water Sustainability Act*.

INSIGHT #5: B.C.'s new water law structure will enhance the opportunities for sustainable management and provide real opportunities to better manage groundwater use in the province.

INSIGHT #6: Comprehensive planning and the potential for shared governance will be critical to ensuring more local control and clear roles in decision-making for groundwater.

INSIGHT #7: Clear performance standards, timelines, and accountability for local decision-making bodies are critical to ensuring successful watershed or aquifer plans.

INTRODUCTION

Context, Report Organization, and Key Lessons

The British Columbia Context

The B.C. legislature passed the *Water Sustainability Act*[1] (WSA) in April 2014 and it is expected to come into force in early 2016. The WSA achieves historic milestones, including better protecting B.C.'s freshwater resources and better integrating the full water cycle by incorporating groundwater regulations into B.C.'s water law system. The WSA significantly improves the Province's over 100-year-old previous *Water Act*,[2] which was the primary statute for governing water in the province and regulating water use. Positive changes enabled by the WSA include the licensing and regulation of groundwater, improved planning and governance provisions, better monitoring of water use, and formalized protections for environmental flows.

B.C.'s WSA will likely be implemented in stages as key regulations are developed and passed, starting with a new groundwater licensing regime for the province. This report focuses on some important considerations for the provincial government, as well as the broader freshwater community, including those affected by the WSA such as First Nations, local government, stewardship groups, business and industry sectors, and local decision-making bodies. These considerations will be critical as B.C.'s groundwater licensing and management scheme is developed and implemented and supporting regulations associated with promoting ecological protection, sharing and delegating decision-making to more local bodies, and creating enforceable water sustainability and drought plans (watershed plans) are created.

We certainly realize there are many differences between British Columbia and California, but we nonetheless believe there is a golden opportunity for B.C. to learn and benefit from many of the water sustainability developments occurring in this jurisdiction to the south. The situation in California might be oranges to B.C.'s apples when it comes to what is specifically needed in the regulation of groundwater, but it does offer fruit for thought as B.C. embarks on the long and complex path of developing and implementing a comprehensive groundwater law regime. In particular, through this report we have sought to harvest insights from how California has developed its regime and translate these to make them relevant to the B.C. context.

The California Context

In September 2014, the California legislature passed the *Sustainable Groundwater Management Act* (SGMA).[3] The SGMA was passed in response to an unprecedented, multi-year drought, which has caused widespread groundwater over-drafting and even subsidence, collapse, and contamination of some groundwater basins.

Prior to California's SGMA there was no comprehensive approach to regulating the extraction and use of groundwater, but California did have several decades of experience with promoting water basin-level planning. Because of the severity of the ongoing drought, California was required to give serious and urgent consideration to addressing groundwater management. The results are a major leap forward with significant potential for the sustainable management of groundwater. California is now poised to become a continental leader in groundwater management with an effective and innovative planning and legal regime.

What B.C. Can Learn from the California Experience

In our view, B.C. can draw valuable lessons from the ongoing, multi-year drought in California and the State's legislative responses. With a thorough understanding of both the parallels and differences between the two places, the recommendations put forth in this report are based on the experiences of California. Naturally, any advice or lessons learned must be considered in light of the different climatic, social, and legal considerations and traditions between the two jurisdictions.

Our research is further informed by a March 2015 webinar that focused on this same topic, hosted by the University of Victoria's POLIS Water Sustainability Project.[4] The webinar provided updated information and analysis on the California situation and explored the topic in some detail with over 75 participants from across Canada and leading experts from California. This report can be viewed as a companion piece to that webinar. While it is centrally focused on law reform options and opportunities for B.C., it also provides critical background and insights for the rest of Canada, as groundwater regulation is becoming an increasingly important priority across the country.

Purpose and Report Organization

The primary objective of this report is to better understand and evaluate recent steps taken in California in light of options available in B.C. Drawing from the California experience, we outline a number of potential priorities for B.C. to ensure a comprehensive and effective approach to sustainable groundwater management, as articulated in our four key findings. Particular attention is paid to the question of whether groundwater reform in B.C. can, or *should,* follow a similar path. In other words, we are not suggesting that B.C. emulate California, but rather learn from the lessons offered by the California experience, both good and bad.

To achieve this objective the report is organized into four sections, which are followed by a resource appendix. This opening section provides the overview and context. The next section summarizes in more detail the groundwater provisions associated with the new WSA and the noteworthy elements of California's SGMA. The third section offers a detailed analysis by comparing the key provisions of each act and, finally, the concluding section summarizes our key findings and suggests a number of potential priorities for B.C. to achieve a comprehensive approach to regulating groundwater as part of the new WSA. Throughout the report, seven key insights are identified. These are drawn out to inform the final findings and conclusions. In addition to the body of the report, a resource appendix provides a list of further reading and information.

OVERVIEW

California and B.C.'s Groundwater Law Regimes

Apples and Oranges?

B.C. and California's experiences are starkly different in some ways, yet both bear fruit for law reform. Annual precipitation and population pressure are notable differences, and the private property rights system is another crucial difference (see box *Water as Property: Key Legal Differences Between Canada and the U.S.*). California is much more of an agricultural powerhouse than B.C., producing almost half of U.S.-grown fruits, nuts, and vegetables.[5] In addition, California is in the midst of a major statewide crisis. The extent of this crisis is unlikely to occur at the same scale in B.C. in the foreseeable future, but it is certainly possible in given regions, such as the interior or the North. Despite these differences, a number of important similarities also exist between California and B.C., including:

- confederated political systems with federal, provincial or state, and local authorities all having similar roles;
- first-in-time, first-in-right as the governing principle for the water allocation systems;
- longstanding groundwater use that was previously unregulated or regulated only after court proceedings (in some parts of California);
- "sustainability" is central in both systems as an impetus for reform and measure of outcomes;
- both intend to create management regimes with significant local decision-making and control;
- both have central agricultural regions which are economically and socially important and where water scarcity can be severe (although California agriculture is bigger in absolute terms and relative national importance);
- seasonal precipitation patterns influence water management approaches;
- the percentage of groundwater as percentage of total water use is similar;[6]
- both have federal endangered species legislation (the *Species at Risk Act* in Canada and *Endangered Species Act* in the U.S.) that could impact water management and governance;
- both are seeking to create modern groundwater regulation regimes in light of climate concerns, a changing hydrologic cycle, and increased public attention regarding the importance of water;

- both are committed to undertaking comprehensive policy and regulation development in the coming year; and
- both encompass the traditional territories of Canadian First Nations or U.S. Tribes, which may assert indigenous water rights.

INSIGHT #1

The lessons from California offer a rich learning opportunity for B.C. and Canada.

Despite broader institutional and contextual legal differences, these similarities are striking. As such, we believe California's groundwater reform experience offers valuable lessons for B.C. It is rare for two jurisdictions with this level of similarity to be undergoing such significant changes at the same time, and it creates rich learning opportunities. For reasons explored below, a key area of overlap and

Water as Property: Key Legal Differences Between Canada and the U.S.

Generally, the United States differs from Canada in its approach to water rights. In the U.S., water rights are much more established as property rights. In states such as California, few types of private property are more valuable than the right to divert and use water from lakes, rivers, and streams. Like other forms of property, these water rights are protected by the U.S. constitution (under the "takings clause" of the Fifth Amendment). This requires federal, state, and local governments to pay "just compensation" when they take private property for public use. This concept of "takings" includes both the physical taking of property and also the subtler notion of "regulatory taking." Regulatory taking occurs when government regulation limits the uses of private property to such a degree that it reduces the value of the property or imposes economic burdens on a property owner. In this case, courts will determine whether and to what extent compensation is due. In the U.S. there is an active debate whether interference with water rights is a physical or regulatory taking, however a number of courts in California have concluded that interference with water rights is generally seen as a physical taking.[7]

As a result of this legal foundation, the law in California has evolved to develop some powerful public interest protections to offset concerns with water rights as property rights. These protections include the "public trust doctrine." The public trust doctrine requirement that water users may not create a public nuisance, coupled with existing endangered species protections, together work to limit some of these property right protections to ensure broader social priorities.[8] These facets of the legal regime are important to understanding the current situation and proposed reforms in California. We recognize they represent significantly different approaches and, in some cases (such as with the public trust doctrine), they offer a significant and powerful tool for the protection of fresh water that may not exist in B.C. In other ways, the locked-in nature of the private property regime creates barriers to actions that might otherwise protect critical water sources.

The important observation for B.C. is that many more options exist to sustainably manage fresh water by virtue of the fact that:

1. water entitlements are explicitly treated more as a public good rather than private property in B.C.; and
2. the new *Water Sustainability Act* is clear that the need for compensation associated with regulation in the context of the broader public and environmental interest is expressly limited.

These important legal differences ensure that B.C. is not similarly limited in the range of sustainable water management decisions it might pursue.

INSIGHT #2

B.C. law- and decision-makers can go much further and potentially be more innovative than California to promote the sustainable use and management of groundwater as they develop the regulatory package over the coming years.

source of insight relates to the need for more sophisticated planning efforts: "groundwater management plans" in California and "water sustainability plans" in B.C.

As with any comparative law exercise, it is critical to be cognizant of similarities and differences and not simply project from one place to another. Instead, we draw from the most important lessons and learnings to provide "proof of possibility" and grounded options and guidance for B.C. While B.C. is unlikely to face a multi-year provincewide drought like what California has experienced, much of what California is facing offers a genuine glimpse into what could be the future for some of B.C.'s watersheds and regions—especially if we fail to act now to ensure a more sustainable water future going forward.

It is worth emphasizing that the WSA adopts an explicit "no compensation" principle that, in combination with a more flexible legal system that better integrates regulation, will allow B.C. to take an adaptive approach to water management that recognizes hydrological and environmental changes over time.[9] In fact, B.C. law- and decision-makers can go much further and potentially be more innovative than California to promote the sustainable use and management of groundwater as they develop the regulatory package over the coming years. California offers some valuable insights, but from our analysis it appears that the range of solutions there are inhibited and potentially limited by a more rigid approach to water as property and other legal and political constraints. California's solutions aren't the best possible solutions, rather they are the legally permissible and achievable solutions given its context. B.C. has much more space to innovate under its more flexible approach to water entitlements and legal regime (see box *Water as Property: Key Legal Differences Between Canada and the U.S.*).

California Drying

Snow pack in California has historically renewed the state's water reservoirs each spring. In 2015 snow pack has been measured at just eight per cent of usual levels. Reservoirs sit mostly dry, with 38 million residents downstream wondering where the water will come from for activities like showering, doing dishes, and drinking. In times such as these, California has traditionally relied upon groundwater pumping to make up the shortfall.

California State Capitol, Sacramento, 2015

However, on a statewide scale, California has been depleting more than 12 million acre-feet of total water yearly since 2011. These extraction rates are excessive and certainly unsustainable. Wells are running dry. In some areas of the Central Valley of California, the land is sinking by one foot or more per year. "With the weather that's happening in California, climate change is not a hoax," said Governor Brown. "We're dealing with it, and it's damn serious."[10] The implications to the economy, the environment, and communities are significant.

California's Current Situation and the *Sustainable Groundwater Management Act*

California is currently in the midst of the worst drought in its recorded history (see box *California Drying*).[11] The impacts have been significant and widespread: drying up of surface water bodies; unprecedented rates of groundwater extraction and well drilling; well failure; land subsidence; reduced or completely eliminated water allocations for farmers; and loss of municipal water supplies in some communities. This crisis was one of the main factors that led to the creation of the SGMA in 2014.

There have been a range of policy and legal options created in response to the drought conditions, including calls for voluntary water reductions, imposition of fines for wasting water, passage of a "water bond" to expand storage facilities in the state, waiving of water quality guidelines, and the already-mentioned passage of new groundwater legislation. Just recently, Governor Jerry Brown issued an historic order requiring a 25 per cent cut in water use in cities and towns statewide.[12] This will likely result in mandated municipal cuts ranging from 10 per cent to 35 per cent, depending on current water use.[13] The cuts, while significant, only apply to 20 per cent of California's overall water use (primarily municipal) and do not address the remaining 80 per cent of water that is used for agricultural purposes. As such, this announcement has been met with criticism, but the inadequate nature of the response is explained, in part, by the limitations on State actions because of the private property rights held by the agricultural sector (see box *Water as Property: Key Legal Differences Between Canada and the U.S.*).[14] The announcement does, however, send a powerful message about how critical the situation has become.

INSIGHT #3

Allowing courts to determine water rights—and, thus, water policy—is not an ideal choice. As demonstrated in California, litigation is costly, confrontational, and time consuming. Creative solutions that create a "win-win" for all parties may not be within the court's power to order. As such, a planning approach that brings in all parties and receives support is preferable for many reasons, including the availability of a broader range of innovative solutions.

Before discussing the features of California's new groundwater legislation, it is useful to describe some of the characteristics of California's water allocation system to provide the necessary context for this new regulation.

Water Allocation in California

As already mentioned, California's water law system, which is premised on a water-rights-as-property-rights framework, is more rigid than B.C.'s.[15] In practical terms, this means California is often hamstrung and limited in its responses regarding new water management and governance approaches that might be available.

Like in B.C., the people of California own all the water in the state.[16] Water rights in California provide the right to reasonable and beneficial use of the water, not ownership of the water. The public interest in water is protected in a number of ways. Article 10, Section 2 of the

California constitution requires that all uses of the state's water be both reasonable and beneficial. It places a significant limitation on water rights by prohibiting the waste, unreasonable use, unreasonable method of use, or unreasonable method of diversion of water.[17] This has similarities to B.C.

In California water use is also overtly subject to the "public trust doctrine" and recognition of the "human right to water." The public trust doctrine is a legal doctrine that imposes responsibilities on state agencies to protect trust resources associated with California's waterways, such as navigation, fisheries, recreation, ecological preservation, and related beneficial uses. In 2012, the California legislature passed *Assembly Bill 685*, which requires state agencies to consider the human right to water when "revising, adopting, or establishing policies, regulations, and grant criteria" that impact water used for domestic purposes.[18]

Digging Deep on Groundwater Rights in California

California does not have a state program or permit system to regulate the extraction of groundwater. However, it does currently recognize three primary types of groundwater rights: overlying, appropriative, and prescriptive.

Overlying rights are part of property ownership. The general rule in California is that landowners have the right to extract groundwater as long as that groundwater is put to a reasonable and beneficial use there. Groundwater use is governed by the doctrine of "correlative rights and reasonable use," under which every landowner in the basin has a right to extract and use groundwater and that right is correlative with the rights of all the overlying landowners in the basin. Those correlative rights are not quantified until the basin is adjudicated (see sidebar *What is a Water Rights Adjudication?*).

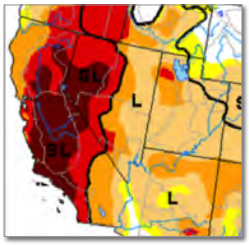
Appropriative rights are not based on land ownership, but on the extraction and beneficial use of groundwater. Any party that does not own land overlying the basin and uses water; or who owns overlying land but uses the water extracted there elsewhere (i.e. on non-overlying land); or who sells the water to the public generally/exports water outside the basin is an "appropriator"—and not an overlying user.

If all groundwater producers collectively take more groundwater than is recharged to the basin over the long term (commonly called "overdraft") and there are adverse impacts to the basin—such as declining water levels, decreased water quality, or land subsidence—then the basin enters a condition of "adversity" between all interested persons. If that adversity lasts for a period of longer than five years, then all overlying and appropriative rights are transformed into **prescriptive rights** based on their pumping during the initial five-year period.

What is a Water Rights Adjudication?

In California, many longstanding water uses or "rights" are not quantified, but rather are claimed or exercised in the absence of an objection by other parties. However, in cases of conflict between competing users—including both groundwater and surface water—one or more of the competing claimants sometimes initiates formal "adjudications."

Either the courts or the State Water Rights Control Board can conduct adjudications (depending on circumstances). Adjudications normally result in an enforceable order allocating water in the basin where the conflict is occurring. However, the process can take years or even decades. The rules of groundwater use do change once a groundwater basin is adjudicated. Basically, a local agency is created or appointed to manage groundwater when groundwater use rights are quantified. Adjudications may result in some water uses being restricted or eliminated and often involve changing water uses to help resolve the conflict.



Counterbalancing these strong public protections for water, water rights in California are also given strong legal recognition as property rights as already introduced.

California's system for surface water rights recognizes both riparian rights and appropriative rights (like B.C.'s first-in-time, first-in-right system (FITFIR)). A riparian right is the right to divert, but not store, a portion of the natural flow for use based on the ownership of property adjacent to a natural watercourse. Under the "prior appropriation" doctrine, a person may acquire a right to divert, store, and use water regardless of whether the land on which it is used is adjacent to a stream or within its watershed. Hence, the rule of priority between appropriators (users) is "first in time is first in right," with the oldest water right holder getting all its water before the next, in order of date, until everyone gets the water they are licensed; if there is no more water available, junior licences are cut off in order of reverse seniority.

The necessary local agencies to oversee the complex legal rules associated with water allocations and groundwater (see box *Digging Deep on Groundwater Rights in California*) and help manage groundwater have been developing and evolving over many years. Some agencies were created after lengthy court adjudication processes (see sidebar *What is a Water Rights Adjudication?*), while others were created through legislative authority.

In the early 1990s, California passed legislation that allowed local agencies to create formal groundwater management plans.[19] In 2002, the California legislature enacted requirements that, in order to receive certain funds, local agencies would have to create groundwater sustainability plans that met criteria that prevented particular harm or impacts.[20] Importantly, while local agencies had to have a plan in place to receive funding, there was still no requirement that the plan be binding or enforced. This non-binding approach all changed with the passing of the recent SGMA legislation.

The *Sustainable Groundwater Management Act* of 2014

What is known as the SGMA is actually a package of three bills: *Senate Bill 1168* instructs local agencies to create management plans; *Assembly Bill 1739* establishes that the state government can intervene if the local groups don't produce sufficient management plans; and *Senate Bill 1319* seeks to allay some concerns of farmers by postponing the State's action in certain places where surface water has been affected by groundwater pumping.

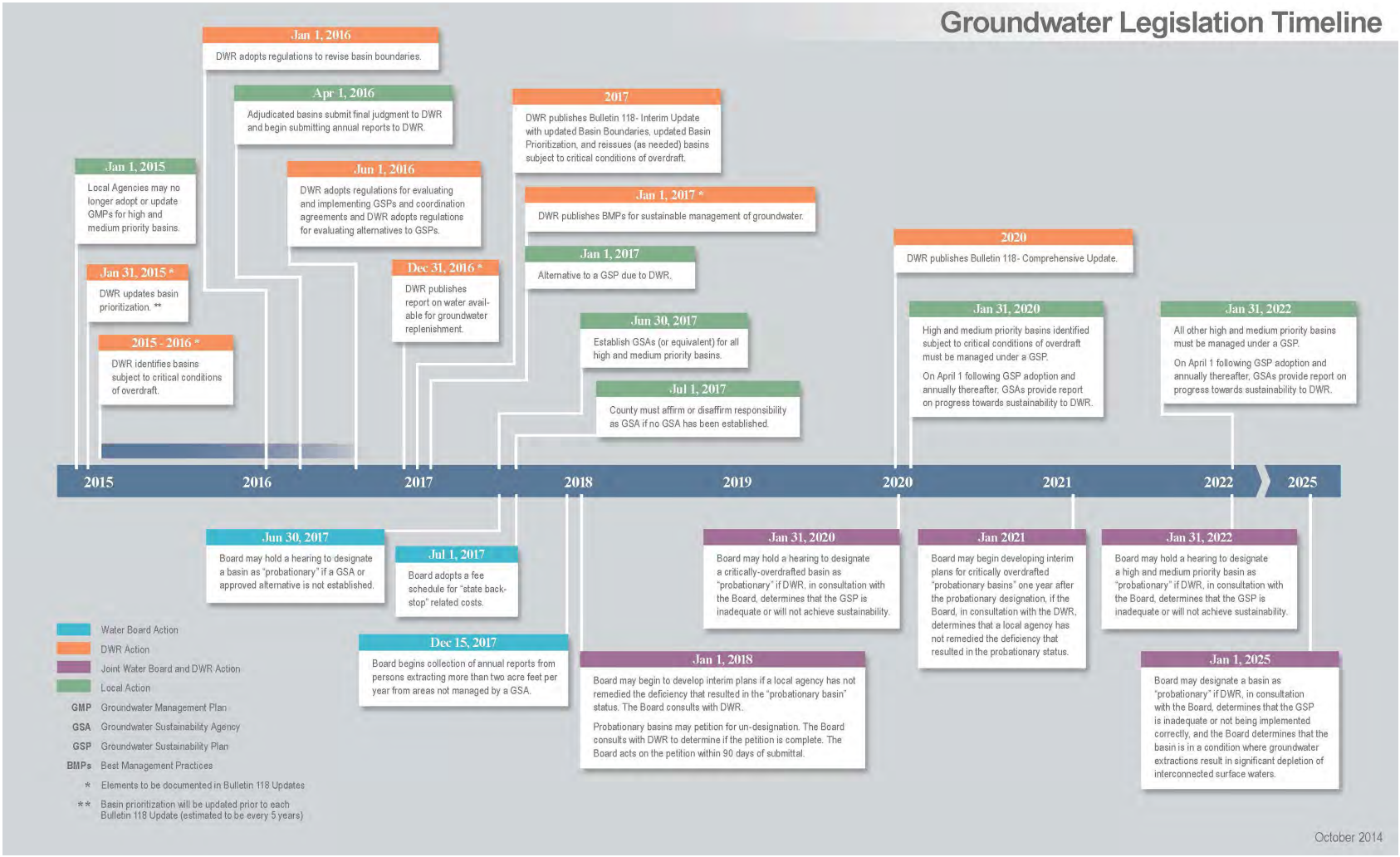
The SGMA authorizes the establishment of "groundwater sustainability agencies." A groundwater sustainability agency is not necessarily a completely new entity, but rather a designation that can be adopted by one or a combination of existing local bodies.[21]

The SGMA grants broad powers to sustainability agencies, including the authority to:

- allocate groundwater supplies between users within their boundaries; and
- regulate, limit, or suspend groundwater extractions.

An agency may adopt rules, regulations, ordinances, and resolutions related to groundwater management, and has significant options related to groundwater monitoring and the construction and operation of new and existing wells. A sustainability agency may impose fees to fund the cost of a sustainability program, including a mix of permit fees, groundwater extraction fees, and property taxes.

California's Legislation Timeline



Source: California Office of Planning and Research. (2014). *Groundwater Legislation Timeline*. Retrieved from http://opr.ca.gov/docs/GW_Legislation_Timeline_11x17_100914.pdf

What Makes the SGMA So Important?

The key element of the SGMA is the requirement for groundwater sustainability agencies to develop "groundwater sustainability plans." The SGMA requires the plans to meet basic sustainability standards and to avoid "undesirable effects," such as excessive aquifer overdraft, land subsidence, and saltwater intrusion.

The SGMA required that the State establish an initial high, medium, low, or very low priority for each of the 515 groundwater basins in the state (excluding the 26 that were previously subject to court adjudications). Under this designation, only high- and medium-priority basins will be subject to sustainable groundwater management mandates.

The California Department of Water Resources has already categorized each of the basins (with 127 designated as high or medium priority, which together account for 90 per cent of all groundwater extracted in the state).[22]

If the state later elevates a low- or very low-priority basin to medium or high priority, that basin will also have to establish a groundwater sustainability agency within two years and adopt a groundwater sustainability plan within five years.

When Will the SGMA Happen?

Basins designated as having critical conditions of overdraft must be managed under groundwater sustainability plans by January 31st, 2020.[23] For all remaining high- and medium-priority basins, the deadline comes two years later, on January 31st, 2022 (see box *California's Legislation Timeline*).[24]

Within twenty years of the date when a groundwater sustainability plan is implemented, a basin is supposed to achieve "sustainability." Sustainability means that extraction will be limited to the basin's sustainable yield, which is measured by the prevention of certain deleterious results, including chronic lowering of water levels (short-term lowering during drought is permitted), reductions in groundwater storage, saltwater intrusion, deteriorating water quality, land subsidence, and impacts on other beneficial uses.

By December 31st, 2016, the State must publish its best estimate of how much water is available for groundwater replenishment in California. By the following day, January 1st, 2017, the State has to publish best management practices for sustainable groundwater management.

The SGMA approach is informed by previous efforts to protect groundwater. Existing California state laws set out groundwater management plan requirements and required localities to develop these plans in order to be eligible for certain state water funding, but they did not require adherence to the terms of the plans.[25] As a result, most localities or groundwater management districts have such plans. The requirements to prepare plans is a key difference from B.C.[26]

INSIGHT #4

The element of California water law that may be most pertinent to B.C. is the process for developing sustainable groundwater management plans. There is a strong resemblance between this process and what is envisioned with the water sustainability plans authorized under B.C.'s Water Sustainability Act.

B.C.'s *Water Sustainability Act* AS IT RELATES TO GROUNDWATER

B.C.'s *Water Act* (the legislation which is amended and will be replaced by the new *Water Sustainability Act*) has been the primary statute governing the diversion of surface water for over a century. Although the act has evolved over time, the general approach to water allocation

has not substantially changed. Although the *Water Act* was previously amended to allow its application to groundwater with the appropriate regulation by the provincial cabinet,[27] this never actually occurred. Over the last 10 years, only relatively minor efforts to ensure minimum standards for well construction and qualification of groundwater practitioners have been made, including reporting that the well has been drilled.

However, in 2008 the B.C. government announced plans to "modernize" the *Water Act* to address the water needs associated with a growing population, expanding development, and changing climate. After a lengthy public consultation process, the B.C. legislature passed *Bill 18, the Water Sustainability Act* in April 2014. The WSA addresses a range of water allocation and management issues, including groundwater regulation and local planning.[28]

Once the WSA is brought into full effect through regulation, large groundwater users in B.C. will be licensed and regulated. Key elements and provisions of the new regime include:

- affirmation of Crown ownership of groundwater;[29]
- a prohibition against diverting water from an aquifer without a licence,[30] and, it is anticipated that large groundwater users in certain priority areas will be licensed initially.[31] However, existing groundwater users may continue to use water, but must apply for a licence when required;[32]
- exemption, generally, of domestic groundwater users. However, they will be encouraged to register their use to ensure they maintain a priority date;[33] and
- many already-existing aspects of the old *Water Act* and related legislation will now include aquifers or diverting groundwater under the WSA. For example, "reservations" of water that are not currently needed, but likely needed for future use, may occur for both streams and aquifers.[34]

INSIGHT #5

B.C.'s new water law structure will enhance the opportunities for sustainable management and provide real opportunities to better manage groundwater use in the province.

A number of new provisions will permit the regulation or limitation of groundwater use in certain situations. The WSA requires decision-makers to impose mitigation measures if, among other things, groundwater use will have a significant adverse impact.[35] In situations where there is a declared water shortage,[36] the provincial comptroller of water rights may make critical environmental flow protection orders.[37] Where the Minister of Environment considers flow conditions threatening to the survival of a population of fish, she may limit diversions, including groundwater withdrawals, from aquifers that are hydraulically connected to the stream.[38]

Groundwater licensing authority will remain with the Province. It will be exercised through regional offices with the potential for customized and more locally appropriate regulations depending on particular priorities and contexts. But, other parts of the WSA contemplate future shared or delegated governance arrangements contained in water sustainability plans[39] or shared governance provisions.[40]

The creation of cabinet-approved water sustainability plans is a critical feature of B.C.'s new regime and offers an important outlet for implementing the necessary sustainable groundwater management approaches in law. The WSA allows the provincial government to make an order to establish a local water planning process for an area or proposed development if the plan will assist in:

1. preventing or addressing conflicts between water users;
2. balancing the needs of water users and environmental flow needs;
3. mitigating risks to water quality or aquatic ecosystem health; or
4. identifying restoration measures in relation to damaged aquatic ecosystems.

The intent is to have a watershed or regional process where interested parties, including local governments, the provincial government, water users, First Nations, and local stakeholders, can come to an agreement about priorities for freshwater management and governance. Plans are not limited to water allocation but may also consider water quality, drought planning, water sharing, changes to existing licences, and anything else set out in the terms of reference.[41] While local participants determine the contents of a plan, the approval of the plan will ultimately be done at the level of provincial cabinet. It is important to note that similar planning provisions exist under B.C.'s *Water Act* and *Drinking Water Protection Act*, but these have never been successfully used.

INSIGHT #6

Comprehensive planning and the potential for shared governance will be critical to ensuring more local control and clear roles in decision-making for groundwater.

New provisions to promote innovative shared and delegated governance arrangements also complement these planning provisions. The WSA explicitly empowers the Minister of Environment to delegate a range of authorities and decision-making functions associated with the act to more local (perhaps watershed-based) entities. These powers are a potentially useful avenue to better enable both local planning and decision-making in the context of groundwater.

ANALYSIS

Comparison of Key Provisions in B.C.'s *Water Sustainability Act* and California's *Sustainable Groundwater Management Act*

In the table below, key provisions and approaches of the WSA and the SGMA are compared. This comparison highlights similarities between the two laws and potential opportunities for B.C. to apply lessons from California to its groundwater regulation regime.

Key Insights from the Comparison

- **Both B.C. and California are creating frameworks for regulating groundwater pumping rights or allocations. The WSA has emergency provisions to protect critical flows, which are not found in the SGMA.**
- **Under the SGMA, California delegates and shares significant control and responsibility for water resources, including the implementation of groundwater sustainability plans, with local agencies.**
- **An important counterbalance to local decisions that might undermine sustainable outcomes in the California regime are mandatory state government-set standards and duties to prepare plans to achieve clear sustainability criteria.**
- **The SGMA defines sustainability criteria that must be met. Currently, sustainability objectives are not clearly defined in the WSA and there is no minimum performance standard or measure.**
- **The WSA only requires that environmental flows and other aspects of sustainability be *considered* while the SGMA mandates that sustainability criteria be *achieved*.**
- **The WSA clarifies that compensation for loss of water rights is not generally required—except in the context of the impact on water licences associated with local water sustainability plans—because water licences are note legally viewed as "property" in Canada. In contrast, compensation is generally required in California. This gives B.C. far greater latitude to address and craft innovative solutions in the public interest.**

TABLE: COMPARING KEY PROVISIONS IN THE WSA AND SGMA RELATED TO GROUNDWATER

PROVISION/APPROACH	GENERAL APPROACH	AUTHORITY AND PROCESS FOR RESTRICTING GROUNDWATER EXTRACTION INCLUDING DROUGHT RESPONSES
BRITISH COLUMBIA'S *WATER SUSTAINABILITY ACT*	Over-allocation of groundwater might be, with cabinet approval, addressed through locally developed water sustainability plans, area-based regulations, and critical environmental flow protections. Under the WSA, B.C. will integrate classes of current and future groundwater users into the existing surface water licensing scheme. Water sustainability plans, area-based regulations, and short-term orders may cover both groundwater and surface water.	Water allocations may be restricted by ministerial order. Water allocations may also be restricted through water sustainability plans, which are locally developed but require discretionary provincial cabinet approval. "Temporary protection orders" that can be used to address drought conditions include "declarations of significant water shortage"; "critical environmental flow protection orders"; and "fish population protection orders."
CALIFORNIA'S *SUSTAINABLE GROUNDWATER MANAGEMENT ACT*	Under the SGMA, local water agencies in basins under stress are required to develop groundwater management plans. The surface water and groundwater management systems are not being integrated under the SGMA. However, groundwater management plans must consider impacts on surface water.	A groundwater management plan may contain measures restricting groundwater extraction. While the SGMA is itself a response to drought conditions, the legislation does not provide specific emergency powers (though drought response measures could be included in local groundwater management plans). Separate from the SGMA, California passed emergency drought legislation.[42]

This comparative analysis reveals that there are broad commonalities between B.C. and California, but there are also significant differences in key areas and the approaches adopted by each jurisdiction. Importantly, B.C.'s WSA has greater flexibility to implement comprehensive changes but it is premised on a largely uncertain system since the regulations and commitments by government to fully resource the implementation of the legislation are not yet confirmed. Also, B.C.'s entire decision-making structure is premised on the discretion of statutory decision-makers or cabinet to trigger action and the discretionary nature of many decisions that will be made by water managers. Funding uncertainties and decision-making discretion create a risk of stalled implementation. Unlike California, B.C. does not have binding timelines or clear standards or performance objectives—at this point.

Perhaps the most important lesson for B.C. from the California experience is recognition of the critical role and need for local watershed bodies (see box *Attitudes About Local Planning and Control in Groundwater Management*).

LICENSING AND PLANNING

ENVIRONMENTAL FLOW PROTECTIONS	COMPENSATION FOR LOSS/DIMINISHMENT OF WATER RIGHTS/USE	ACCOUNTABILITY FOR PLAN ENFORCEMENT
The Province must consider environmental flow needs in licensing decisions, including future groundwater allocations. Water objectives will also contain environmental flow protections and will impact other statutory decisions Other measures are available on a discretionary, ad hoc basis.	The general rule is that there will not be any compensation for changes to water rights.[44] However, provincial cabinet may make rules regarding compensation.[45] Where a water sustainability plan makes a significant change, the plan must recommend responsibility for compensation.[46]	The WSA has penalty- and order-making powers in relation to violations of the statutes. The degree to which conditions and restrictions in water sustainability plans are binding and enforceable will be determined in the provincial cabinet approval process.[48]
The sustainable groundwater management required by the SGMA includes avoiding "surface water depletions that have significant and unreasonable adverse impacts on beneficial uses." Preservation and enhancement are beneficial uses under California water law.[43]	The SGMA is intended to work within existing common law rights to groundwater, that is overlying landowners have rights to the "safe yield" of the groundwater basin below them.[47] There is an argument that as groundwater rights are correlative, limiting groundwater extraction to the "safe yield" should not, in theory, trigger compensation requirements even if a landowner cannot extract at previous rates. However, there is also a long tradition in California, and perhaps a constitutional requirement, to pay compensation for the diminishment of water rights (see box *Water as Property: Key Legal Differences Between Canada and the U.S.).*	The State can intervene when: (i) no local agency is willing to serve as a groundwater sustainability agency; (ii) the groundwater sustainability agency does not complete a groundwater sustainability plan in a timely fashion; (iii) the groundwater sustainability plan is inadequate, and remains so after a review by the Department of Water Resources and efforts to cure the deficiencies; or (iv) the groundwater sustainability plan is being implemented and simply does not work.

In California, these are viewed as crucial to help implement and leverage local knowledge and better balance the various uses and priorities to make appropriate local decisions. Beyond making these kinds of critical decisions, local watershed bodies have an overt and fundamental role in promoting the sharing of water resources between community and First Nations' needs, water for fish and watersheds, agriculture, and industrial uses. They are well understood to be the necessary foundation to actually implement the approaches and principles of California's new legislation, coupled with strong state standards.

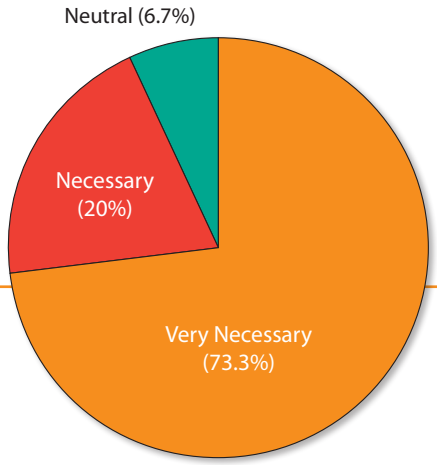
INSIGHT #7

Clear performance standards, timelines, and accountability for local decision-making bodies are critical to ensuring successful watershed or aquifer plans.

Attitudes About Local Planning and Control in Groundwater Management

At the March 2015 POLIS webinar on groundwater reform,[49] participants were polled to test their interest in and concern regarding the need for new governance arrangements to help implement a more sophisticated approach to groundwater management in B.C. Thirty of the 78 total webinar participants responded to the question *How necessary are strong local watershed plans and local boards or authorities for the sustainable management of groundwater into the future?*

Although this was an informal and non-representative poll with a relatively small sample size, it does give a sense of what this community of practitioners and researchers thinks in the context of local planning and control for implementing critical groundwater rules and regulations. These poll results also generally line up with similar research in the area of water governance.[50]



CONCLUSION

Key Findings for British Columbia

The analysis of the two legal regimes demonstrates some differences but also numerous commonalities and provides a good opportunity for insights that might guide B.C. as it develops and implements a groundwater regime over the coming years. The seven insights identified throughout this report, coupled with the exploration of the California situation, provides four key findings:

1 The Utility of the California Experience in Drawing Lessons for B.C.

The approach to planning as envisioned under the SGMA, as well as the contents of local plans when developed, holds valuable ideas and examples for B.C. These lessons are potentially applicable in the context of B.C. water law, which includes legal instruments such as water sustainability plans, area-based regulations, environmental flow protections, and temporary protection orders.

At a more foundational level, the California experience—as it has unfolded over recent decades—also serves as a valuable case study on challenges and frustrations that B.C. may face as it embarks on its own process to regulate groundwater. While B.C. and California are both at a stage of recently introducing legislation, California developed its approach prior to enacting legislation. In contrast, B.C. enacted a law that will require the development of its approach to groundwater management.

Unfortunately, the SGMA does not, in our opinion, provide a particularly useful experience from which to draw lessons regarding the general move to license groundwater use and integrate those licences with surface water management in B.C. In California, groundwater extraction will continue to be managed in the context of a water-as-private-rights system within a common law system of correlative rights governed by the concept of safe yield, with the possibility of limitations that may be developed through local planning. B.C. is less constrained by these legal and institutional obligations and thus has more room for innovative options and more aggressive balancing of local groundwater use with recharge rates.

2 The Time Required to Develop an Effective and Implemented Groundwater Management Plan is Measured in Decades

In California, a long time will have passed between 1) the creation of the first framework for local planning (1991), 2) when the first groundwater management plans are *required* to be in place and operating under the SGMA (2020 and 2022), and 3) when sustainability criteria must be achieved (20 years after being adopted). It is worth considering what is needed to facilitate fast-tracking this evolution in B.C., including, at a minimum, the urgent need to begin piloting groundwater sustainability plans in critical watersheds to test important elements. These pilots should include drought management, linkage to environmental flows, and the application of minimum standards and water objectives.

Given the challenges of a rapidly changing climate and increasing urban and resource development, B.C. does not have the luxury of decades for actual implementation. We don't want to wait to feel full effect of climate change and massive extractions on our water resources before having good management system in place.

California's experience included time spent creating, testing, and refining a groundwater planning approach appropriate for its situation. Yet, even in the context of its current crisis of historic proportions, there is not much ability to fast-track watershed or aquifer planning. Therefore, B.C. should spend the necessary time creating and testing a few local plans before it proposes wider-scale implementation. It must *begin* this process of learning-by-doing immediately. The provincial government must increase its understanding of the availability and dynamics of all our water resources—especially groundwater—and develop local watershed planning in these priority areas so that planning is in progress or already in place for dealing with future water challenges.

Finally, the ultimate purpose of watershed planning is not the process, but the outcomes. Getting good outcomes will require well-designed and adequately funded processes, but will also require clear thresholds, strong performance standards, and clear lines of authority and accountability than can be translated into binding laws and regulations.

3 California Has Produced a Clearer Definition of Sustainability than B.C.

Under the SGMA, California's groundwater resources are to be managed sustainably for long-term water supply reliability, balancing multiple economic, social, and environmental benefits for current and future beneficial uses. The SGMA defines sustainable groundwater management as "the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results." These undesirable results are defined as any of the following:

- chronic lowering of groundwater levels (not including overdraft during a drought, if a basin is otherwise managed);
- significant and unreasonable reductions in groundwater storage;
- significant and unreasonable seawater intrusion;
- significant and unreasonable degradation of water quality;
- significant and unreasonable land subsidence; and
- surface water depletions that have significant and unreasonable adverse impacts on beneficial uses.

In B.C., however, there is no clear regulatory



minimum standard or statement of aspirational goals. Generally, there are powers that could be exercised to achieve sustainability, but sustainability is not required. For example, under the WSA there is a requirement that the decision-maker *consider* environmental flow needs in decision-making, particularly around the granting of water licences (which will include groundwater extraction), but there is no requirement to *ensure* environmental flows.

In B.C., these kinds of sustainability criteria will likely reside in water sustainability plans and the provincial water objectives regime. Ensuring these criteria are developed and passed into law in a timely fashion will be necessary to create an effective groundwater management system. These tools, as well as area-based regulations and temporary protection orders, will be deployed on discretionary, *ad hoc* bases.

Experience to date in B.C. suggests that the Province does not generally commit to water resource planning, as evidenced by the lack of formal, enforceable provincial water management or drinking water source protection plans in the province. This must change for the WSA to meet its overarching goal of water sustainability. Similarly, water objectives could also influence an environmental flows regime, but it is anticipated that those objectives under the WSA will only be one of many considerations and, therefore, not necessarily be binding or as robust as needed.

4 Local Control is Important, BUT Must be Guided by Strong Standards

The right legislation is a very important and necessary element of the winning conditions for water sustainability generally. Legislation, however, is rarely sufficient on its own. Rules, laws, standards, and regulations must be clear and need to be enforced with sufficient capacity to ensure the right actions and management happen on the ground (and in the water). Both B.C. and California are on the precipice of a new regime, with many admirable elements in their respective new laws. However, turning those notions into concrete action is the goal—and governments of all stripes are facing increased challenges in achieving changes in the actual management and decisions that lead to more sustainable outcomes.

One of the most important insights from California is the relatively high importance the legislative regime places on enabling—and, indeed, encouraging and requiring—on-the-ground bodies to take responsibility for key aspects, such as planning and implementing the key elements. Local decision-making bodies have the benefit of being able to address specific contextual and historical issues in place, and can also leverage local capacity and expertise to create viable solutions that work.

Functioning local watershed-based decision-making bodies are important for achieving long-term and robust water sustainability,[51] and for providing the necessary capacity and local focus to implement a sophisticated regime to regulate and manage groundwater. In B.C. this will necessarily involve a foundational role for First Nations as part of the local decision-making structure. An important and delicate balance in control that is shared between local bodies and senior governments ensures both legitimacy and accountability. The California regime has clearly contemplated this and is making the necessary commitments to ensure these bodies are in place.

B.C. also has the potential to create the local institutional infrastructure needed to take on new forms of local control and watershed-based decision-making under the new legislation,

however many uncertainties still remain and there is still some significant work ahead to effectively achieve this.[52] To effectively create such a decentralized or shared regime, B.C. will need strong provincial standards to protect water quantity, water quality, and ecosystems. When sufficient local expertise and resources are available, these standards could then be adapted and managed at a local level. Of course, safeguards would need to be in place to prevent the capture of these local bodies by, for example, industry or other well-funded interests.

Postcards from the Future

California is much closer than B.C. to the ecological, social, and economic disaster that comes from a serious and prolonged drought. Groundwater was historically viewed as the safety net—the reserve in the bank—that would get California through any difficult times associated with low precipitation.

But, that reserve has been poorly managed and California is now facing the consequences of decades of lackluster follow-through on effective and sustainable groundwater management. B.C. does not have to follow this same path. By employing a precautionary and proactive approach, B.C. can avoid the situation that California is currently in.

If B.C. doesn't fundamentally address the issues being faced today, sometime in the not-so-distant future B.C. could be in a multi-year drought like California, or have other social, economic, and environmental problems from the over-allocation and over-pumping of groundwater—at least on a regional scale. So, let us consider these warnings as a gift to be acted upon, rather than a message describing B.C.'s possible future. The lessons from California offer valuable insights. We can avoid California's errors and benefit from its successes as we seek to implement a viable and robust groundwater regime right here in B.C.

Resources

California Legislation

Sustainable Groundwater Management Act (the SGMA is a combination of three bills):

Assembly Bill 1739: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB1739

Senate Bill 1168: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB1168

Senate Bill 1319: http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140SB1319

British Columbia Legislation

Water Act, RSBC 1996, c 483: http://canlii.ca/t/52cdd

Water Sustainability Act, SBC 2014, c 15: http://canlii.ca/t/528ss

A background document discussing B.C.'s complete legislative proposal is available at: http://engage.gov.bc.ca/watersustainabilityact/files/2013/10/WSA_legislative-proposal_web-doc.pdf

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Notes

1 SBC 2014, c 15 (not yet in force). See http://leg.bc.ca/40th2nd/3rd_read/gov18-3.htm

2 RSBC 1996, c 483. See http://www.canlii.org/en/bc/laws/stat/rsbc-1996-c-483/latest/rsbc-1996-c-483.html

3 The *Sustainable Groundwater Management Act* of 2014 is a comprehensive three-bill package that includes AB 1739 (Dickinson), SB 1168 (Pavley), and SB 1319 (Pavley).

4 On March 20th, 2015 the webinar "Groundwater Reform: Lessons from California" was hosted as part of the POLIS Water Sustainability Project's ongoing *Creating a Blue Dialogue* webinar series. Guest speakers Thomas Harter (Faculty, Department of Land, Air, and Water Resources, University of California, Davis) and Randy Christensen (Lawyer, Ecojustice Canada; Research Associate, POLIS Project) discussed California's recent groundwater law reform and explored lessons that could be offered for the British Columbia context under B.C.'s new *Water Sustainability Act*. A recording of the webinar is available at http://poliswaterproject.org/webinar/812

5 California Department of Food and Agriculture. (2015). *California Agricultural Production Statistics.* Retrieved May 12, 2015 from http://www.cdfa.ca.gov/statistics/

6 The percentage of the B.C. population reliant on groundwater is 28.5 per cent; see Environment Canada. (2013). *Groundwater.* Retrieved April 29, 2015 from http://www.ec.gc.ca/eau-water/default.asp?lang=En&n=300688DC-1 Typically, groundwater supplies about 30 per cent of California's urban and agricultural uses; see p. 24 of California Department of Water Resources (2013). *California's Groundwater (Bulletin 118).* Retrieved from http://www.water.ca.gov/pubs/groundwater/bulletin_118/california's_groundwater__bulletin_118_-_update_2003_/bulletin118-chapter1.pdf

7 In United States v. Gerlach Live Stock Co. (339 U.S. 725 (1950)) and Dugan v. Rank (372 U.S. 609 (1963)), riparian landowners along the San Joaquin River brought suit against the federal government, whose construction of an upstream dam deprived the landowners of seasonal overflow to which they claimed a riparian right. The Supreme Court held that the government's plan to impound water amounted to a physical taking of the landowners' water rights, since the water to which they had a riparian right had been physically prevented from reaching their land (Dugan, 372 U.S. at 625). See also Tulare Lake Basin Water Storage Dist. v. United States, 49 Fed. Cl. 313 *(2001).*

8 For further reading on the public trust doctrine, see: Brandes, O.M., & Christensen, R. (2010, June). The Public Trust and a Modern B.C. Water Act. Victoria, Canada: POLIS Project on Ecological Governance, University of Victoria. Retrieved from http://poliswaterproject.org/publication/352

9 Curran, D. (2014, May 28). British Columbia's Water Sustainability Act – A New Approach to Adaptive Management and No Compensation Regulation [Web blog post]. *The University of Calgary Faculty of Law Blog on Development in Alberta Law*. Retrieved from http://ablawg.ca/2014/05/28/british-columbias-water-sustainability-act-a-new-approach-to-adaptive-management-and-no-compensation-regulation/

10 Famiglietti, J. (2015, March 12). California has about one year of water stored. Will you ration now? LA Times. Retrieved from http://www.latimes.com/opinion/op-ed/la-oe-famiglietti-drought-california-20150313-story.html; and McCarthy, T. (2015, April 5). California governor tells climate change deniers to wake up. The Guardian. Retrieved from http://www.theguardian.com/us-news/2015/apr/05/california-governor-drought-climate-change-dianne-feinstein

11 Warrick, J. (2014, August 17). West's historic drought stokes fears of water crisis. *The Washington Post*. Retrieved from http://www.washingtonpost.com/national/health-science/wests-historic-drought-stokes-fears-of-water-crisis/2014/08/17/d5c84934-240c-11e4-958c-268a320a60ce_story.html

12 Office of the Governor of California. (2015, April 1). *Governor Brown Directs First Ever Statewide Mandatory Water Reductions.* Retrieved from http://gov.ca.gov/news.php?id=18913

13 Stevens, M., Goldenstein, T, & Megerian, C. (2015, April 7). Some communities may have to cut water use by 35%, regulators say. *LA Times.* Retrieved from http://www.latimes.com/local/lanow/la-me-ln-some-california-cities-must-cut-water-use-35-amid-drought-20150407-story.html

14 Governor Brown has said, "Some people have a right to more water than others. That's historic. That's built into the legal framework of California … If things continue at this level, that's probably going to be examined, but as it is, we do live with a somewhat archaic water law situation." Alpert Reyes, E. (2015, April 15). Brown defends not requiring water cuts for California farmers. *LA Times,* Retrieved from http://www.latimes.com/local/lanow/la-me-ln-gov-brown-agriculture-water-restrictions-20150405-story.html

15 While in B.C. this assumption or perception might also exist, in practical legal terms it does not hold. This means that B.C. has many more opportunities to innovate in its approach to sustainable water management and governance in law. While in some cases compensation might be required, it does not limit the options available.

16 The private right of property in water in California is the right to its use only; there is no private property right in the corpus of the water itself. *Eddy v. Simpson*, 3 Cal. 249, 252 (1853); *Kidd v. Laird,* 15 Cal. 161, 180 (1860); Cal. Water Code §§ 102, 1001 (enacted in 1911 and 1913).

17 Cal. Const art X, § 2.

18 Cal. Water Code § 106.3(b).

19 In 1991, the Water Code was amended by *Assembly Bill 255* to allow local water agencies overlying critically overdrafted groundwater basins to develop groundwater management plans. In 1992, the Water Code was again amended by *Assembly Bill 3030*, which authorized water agencies in any groundwater basin to develop a groundwater management plan, if the groundwater was not subject to management under other provisions of law or a court decree.

20 The Water Code (section 10750 et seq.) was amended again in 2002 by *Senate Bill 1938* and now requires that five specific components must be included in a groundwater management plan if the agency applies for State funding made available after September 1st, 2002.

21 Legislature expressly designated 15 agencies with prior groundwater management roles to be the exclusive sustainability agency within their boundaries. In addition, a group of local agencies may jointly form a sustainability agency through execution of a joint powers or other agreement. Sustainability agencies will be the primary actors for groundwater management in the future, subject to evaluation and potential intervention by the state. See: Strickland, W. (2014, November 19). Dark Clouds Over California: The Sustainable Groundwater Management Act [Web blog post]. *Private Water Law Blog.* Retrieved from http://privatewaterlaw.com/2014/11/19/dark-clouds-over-california/#more-1416

22 Groundwater found in fractured bedrock or other geological formations outside the boundaries of a basin is not covered by the SGMA. In addition, the act does not apply to the 26 basins that have been subject to prior court adjudication, mostly in Southern California. See: Strickland, W. (2014, November 19). Dark Clouds Over California: The Sustainable Groundwater Management Act [Web blog post]. *Private Water Law Blog.* Retrieved from http://privatewaterlaw.com/2014/11/19/dark-clouds-over-california/#more-1416

23 Cal. Water Code § 10720.7(a)(1)).

24 Cal. Water Code § 10720.7(a)(2)).

25 See California Department of Water Resources. (n.d.). *1992 Assembly Bill 3030 (AB 3030).* Retrieved April

29, 2015, from http://www.water.ca.gov/groundwater/docs/1992_AB3030_Summary_02202014.pdf

26 Sometimes these are referred to as "AB 3030 plans." The Water in the West program at Stanford University found that most medium- and high-priority groundwater basins in the state (at least 80 per cent) already have groundwater management plans. Choy, J. & Szeptycki, L. (2014, October 27). Groundwater Sustainability Plans: New Territory or Well Trodden Ground? [Web blog post]. *Stanford Woods Institute for the Environment.* Retrieved from http://waterinthewest.stanford.edu/resources/forum/groundwater-sustainability-plans-new-territory-or-well-trodden-ground

27 *Water Act*, RSBC 1996, c 483, s 1.1.

28 See the following for a summary of the key aspects of the WSA: Curran, D. (2014). *British Columbia's Water Sustainability Act: Waiting for the Details*. Victoria, Canada: Environmental Law Centre, University of Victoria. Retrieved from http://www.elc.uvic.ca/press/documents/2014May13_Bill18SummaryCurran.pdf and Brandes, O.M. &, O'Riordan, J. (2014). *Decision-Makers' Brief: A Blueprint for Watershed Governance in B.C.* Victoria, Canada: POLIS Project on Ecological Governance, University of Victoria. Retrieved from http://poliswaterproject.org/publication/760

29 *Water Sustainability Act*, SBC 2014, c 15, s 5(2). However, it is critical to note a significant oversight of the new legislation is the failure to recognize and address First Nations' water rights. Many suggest that First Nations are the original "first users" and water for traditional uses, including hunting, fishing, and ceremonial rights, should be given protection ahead of all other licensed uses. While the WSA makes progress on many fronts, this is a serious omission. The failure to address the rights and title of First Nations to water resources in B.C., including groundwater, could become an ongoing concern. Currently, there are many uncertainties regarding the nature and extent of First Nations' water rights. However, in 2005 the B.C. Government promised a "new relationship" with First Nations based on respect, recognition, and accommodation of aboriginal title and rights. Because the WSA does not even acknowledge aboriginal rights and title claims, it seems clear that the "new relationship" may be no different than the old relationship.

30 *Water Sustainability Act*, SBC 2014, c 15, s 6(1).

31 Curran, D. (2014). *British Columbia's Water Sustainability Act: Waiting for the Details*. Victoria, Canada: Environmental Law Centre, University of Victoria. Retrieved from http://www.elc.uvic.ca/press/documents/2014May13_Bill18SummaryCurran.pdf

32 *Water Sustainability Act*, SBC 2014, c 15, s 140.

33 *Water Sustainability Act*, SBC 2014, c 15, s 6(4).

34 *Water Sustainability Act*, SBC 2014, c 15, s 39.

35 *Water Sustainability Act*, SBC 2014, c 15, ss 16-17.

36 *Water Sustainability Act*, SBC 2014, c 15, s 86.

37 *Water Sustainability Act*, SBC 2014, c 15, s 87.

38 *Water Sustainability Act*, SBC 2014, c 15, s 88.

39 *Water Sustainability Act*, SBC 2014, c 15, ss 64-85.

40 *Water Sustainability Act*, SBC 2014, c 15, s 126.

41 *Water Sustainability Act*, SBC 2014, c 15, ss 64-85.

42 See: Frank, R. (2014, March 4). California Enacts Emergency Drought Legislation. [Web blog post]. Legal Planet. Retrieved from http://legal-planet.org/2014/03/04/california-enacts-emergency-drought-legislation/

43 *Fullerton v. State Water Resources Control Bd.* (1979), 90 Cal.App.3d 590 [153 Cal. Rptr. 518]; and *California Trout, Inc. v. State Water Resources Control Bd.* (1979) 90 Cal.App.3d 816 [153 Cal. Rptr. 672]. An application for water rights cannot be made based on an in situ use, however.

44 *Water Sustainability Act*, SBC 2014, c 15, s 121.

45 *Water Sustainability Act*, SBC 2014, c 15, s 134.

46 *Water Sustainability Act*, SBC 2014, c 15, ss 62, 74.

47 *City of Barstow v. Mojave Water Agency* (2000) 23 Cal. 4th 1224, 1240.

48 *Water Sustainability Act,* SBC 2014, c 15, s 76.

49 On March 20th, 2015 the webinar "Groundwater Reform: Lessons from California" was hosted as part of the POLIS Water Sustainability Project's ongoing *Creating a Blue Dialogue* webinar series. See footnote 4 for more detail.

50 See Brandes, O.M. & Morris, T. (2013). *The State of the Water Movement in British Columbia: A Waterscape Scan & Needs Assessment of B.C. Watershed-Based Groups.* Victoria, Canada: POLIS Project on Ecological Governance, University of Victoria and the Real Estate Foundation of British Columbia. Retrieved from http://poliswaterproject.org/publication/561; and Baltutis, J., Brandes, L., Brandes, O.M., Moore, M-L., Overduin, N., & Plummer, R. (Eds.). (2014). *Watersheds 2014: Towards Watershed Governance in British Columbia and Beyond—Edited Proceedings.* Victoria, Canada: POLIS Project on Ecological Governance, University of Victoria. Retrieved from http://poliswaterproject.org/sites/default/files/watersheds2014/Watersheds2014Proceedings_FINAL.pdf

51 This discussion around watershed governance is an important and emerging topic of significant interest; however, a detailed exploration is beyond the scope of this report. For an initial discussion about the

benefits, opportunities, challenges, and critical next steps see Nowlan, L., & Bakker, K. (2010, August). *Practising Shared Water Governance: A Primer.* Vancouver, Canada: Program on Water Governance, University of British Columbia. Retrieved from http://watergovernance.ca/wp-content/uploads/2010/08/PractisingSharedWaterGovernancePrimer_final1.pdf; Brandes, O.M., O'Riordan, J., O'Riordan, T., & Brandes, L. (2014, January). *A Blueprint for Watershed Governance in British Columbia.* Victoria, Canada: POLIS Project on Ecological Governance, University of Victoria. Retrieved from http://poliswaterproject.org/blueprint; and Baltutis, J., Brandes, L., Brandes, O.M., Moore, M-L., Overduin, N., & Plummer, R. (Eds.). (2014). Watersheds 2014: *Towards Watershed Governance in British Columbia and Beyond—Edited Proceedings.* Victoria, Canada: POLIS Project on Ecological Governance, University of Victoria. Retrieved from http://poliswaterproject.org/sites/default/files/watersheds2014/Watersheds2014Proceedings_FINAL.pdf

52 An important starting place will likely be ensuring sufficient and sustainable funding to ensure such bodies have the capacity to effectively engage in governance.

POLIS Project on Ecological Governance

Created in 2000, the POLIS Project on Ecological Governance is a research-based organization that is part of the Centre for Global Studies at the University of Victoria. Researchers who are also community activists work to make ecological thinking and practice a core value in all aspects of society and dismantle the notion that the environment is merely another sector. Among the many research centres investigating and promoting sustainability worldwide, POLIS represents a unique blend of multidisciplinary academic research and community action.
polisproject.org

POLIS Water Sustainability Project

The POLIS Water Sustainability Project (WSP) is an initiative of the POLIS Project on Ecological Governance. It recognizes water scarcity is a social dilemma that cannot be addressed by technical solutions alone. The WSP works with all levels of government, industry, civil society, and not-for-profits to develop and embed strategies that benefit communities, the environment, and the economy. The WSP focuses on four core research themes:

1) Water Conservation and the Water Soft Path,
2) The Water-Energy Nexus,
3) Watershed Governance, and
4) Water Law and Policy.

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