

What Canada can learn from California's drought and groundwater laws

By Randy Christensen, Oliver M. Brandes and Rosie Simms

California's unprecedented and devastating four-year drought has received widespread, international media attention. Its drought is so severe that the state has ordered cities and towns to reduce water use by 25%, and has begun literally turning the tap off on water rights holders. This drought is profoundly affecting California's communities and their quality of life, the economy, and the health and function of streams, rivers, lakes and aquifers throughout the state.

A new research report entitled "California's Oranges and B.C.'s Apples? Lessons for B.C. from California Groundwater Reform," was released in June by the POLIS Water Sustainability Project, based at the University of Victoria, and Ecojustice. This report provides a detailed comparison between British Columbia and California regarding groundwater management. Drawing from California's drought experience and recent groundwater reform efforts, this research provides a number of key findings and insights that reveal priorities for B.C. to ensure a comprehensive and effective approach to sustainable groundwater management.

However, beyond specific lessons for B.C., the California experience also offers critical insights into drought planning and water management that are relevant to communities across Canada.

1. Regional droughts can have serious national consequences – California's Central Valley is one of the world's most productive agricultural areas. The state produces nearly half of U.S.-grown fruits, nuts and vegetables and is considered to be the world's fifth largest supplier of food. California's ability to sustain this massive agricultural industry, however, is contingent on access to sufficient water for irrigation. It accounts for as much as 80% of the total human water use in the state. This year alone, drought is expected to cause agricultural losses of \$3 billion in California.

Given the importance of California's agriculture to food supply, the impacts



The Uvas reservoir in Santa Clara, CA. Photo courtesy of Don DeBold.



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of the drought extend far beyond state borders. In today's interconnected global economy, regional droughts aren't just about local environmental impacts, they are matters affecting national economies.

Depending on the region of Canada, a drought could have significant effects on many different sectors, including agriculture, energy production, fisheries and tourism, as well as impacting cities and towns.

2. Once in a drought, it's too late to

do many of the things that are most needed – Once an area is in the midst of a full-blown drought, many critical aspects of water management and planning fall to the wayside as crisis response takes over. While emergency measures such as mandatory conservation requirements are certainly important, they are too-little, too-late in terms of preventing ecosystem damage and implementing sustainable water management regimes.

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Drought preparedness in Canada must include proactive planning and governance measures implemented well *before* crisis hits. These measures include establishing methods to determine and protect environmental flow needs, building robust water use monitoring and reporting systems, and implementing pricing regimes that encourage water use efficiency and conservation.

Requirements to build more water-efficient buildings and infrastructure, as well as replacing wasteful fixtures and appliances, take years if not decades to implement.

3. Groundwater and surface water need to be managed together – Groundwater has long been California’s safety net in times of drought, a resource to which water users have turned when surface water is in short supply. However, one of the most significant consequences of the state’s drought and diminishing surface water availability is that groundwater well drilling and pumping have been ramped up to unprecedented rates.

Surface and groundwater are one interconnected resource that must be managed as such across Canada. Surface water percolates into groundwater and recharges aquifers; groundwater upwellings in turn sustain base flows in rivers and streams, which is especially critical in summer months when there is little precipitation entering surface water sources.

Despite its vital importance, California did not regulate groundwater until

2014, when the state enacted the *Sustainable Groundwater Management Act* (SGMA). The damage to California’s aquifers from this “Wild West” approach to groundwater management is widespread. So much groundwater has been extracted that across the state, land is sinking and aquifers are at serious risk of being depleted.

4. Normal dry cycles will become much more exacerbated due to climate change – According to the U.S. EPA, some long-term trends in water availability in the western U.S. are now becoming apparent. It has experienced less rain over the past 50 years, as well as increases in the severity and length of droughts.

Future hydrological projections taking into account climate change suggest that the western U.S. will experience less total annual rainfall, less snowpack in the mountains, and earlier snowmelt. These impacts in turn, mean that less water will likely be available during the summer months when demand is highest.

Projections for changing hydrological patterns in western Canada are similar. Data show snowpacks and glaciers vanishing at record speeds and snowmelt occurring earlier in the spring. This again means less water available to sustain flows in the summer.

5. Each jurisdiction must develop planning processes suited to its unique legal, social and historical context – and that will take time – Increasingly

complex water problems point to a clear need for communities across Canada to develop water planning processes to help keep their ecology and economy functioning in times of shortage. Plans allow for watershed-specific solutions and structures that can liberate water for essential uses.

California’s SGMA includes robust groundwater planning provisions that offer three water planning insights for Canadian communities to take into account.

First, California’s SGMA introduced a *requirement* for groundwater sustainability agencies to develop groundwater sustainability plans. Beginning in the 1990s, California *encouraged* planning exercises to protect groundwater, but there was no requirement to actually develop and implement plans. While some successful examples of voluntary plans do exist, this approach is generally ineffective on a wider scale. The most effective plans will be those that are mandatory and enforceable.

Second, the SGMA requires that groundwater sustainability plans meet basic sustainability standards that avoid “undesirable effects,” including aquifer overdraft, land subsidence and saltwater intrusion. Canadian communities must also develop plans that include clear and enforceable targets and achieve some minimum performance standards.

A third point for Canadian jurisdictions to take note of is that California’s groundwater planning process has been



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extremely protracted. Almost fifty years will have passed between:

- The creation of the first framework for local planning (1991);
- When the first groundwater management plans are required to be in place and operating under the SGMA (2020 and 2022); and
- When groundwater sustainability plans must achieve sustainability criteria (20 years after the plans have been adopted - 2040 and 2042).

With California's groundwater sustainability planning timeline in mind, Canadian communities must begin water planning processes *now*, with clear timelines for plan implementation. Critical first steps include: piloting water sustainability plans that include drought management, linkage to environmental flows, and the application of minimum standards and water objectives on a regionally appropriate basis.

6. Water policy shortcomings and gaps create a vacuum that will be filled by litigation – Where loopholes and weaknesses in water policy exist, these policies are vulnerable to litigation. As

demonstrated in California, litigation is costly, confrontational and time consuming. Allowing courts to determine water rights, and, thus, water policy, is problematic. Solutions that create satisfactory outcomes or agreed-upon tradeoffs for all parties, may not be within the court's power to order.

Therefore, a planning approach that brings in all parties with a stake in the particular issue at hand and receives support, is preferable for many reasons, including the availability of a broader range of innovative solutions. Canadian jurisdictions should focus on developing robust water planning processes to minimize confrontation and avoid the path of litigation.

7. Drought presents an opportunity to dramatically reform water laws and policies, if governments are prepared to act – Four years into an unprecedented drought, California is suffering and sacrificing. But it's also evolving. The severity of this drought creates the motivation to change even entrenched things that couldn't be changed without the sense of extreme vulnerability.

In addition to the groundwater management regime, California has introduced other changes and reforms to create long-term sustainability. A rebate program for lawn removal initiated by the water district for Southern California was so popular that it exhausted the budget for the program in just five weeks. San Francisco passed an ordinance to require that new buildings of a certain size have on-site water recycling systems and reuse their own wastewater.

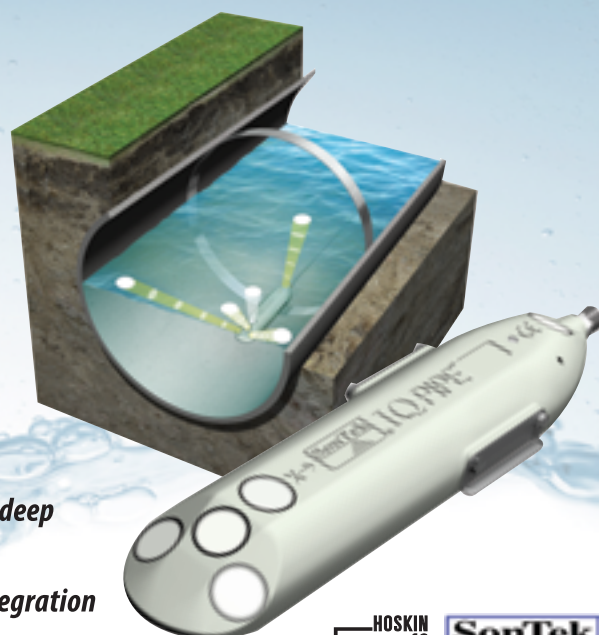
Canada is fortunate in that no one region in the country is experiencing a crisis situation at the scale of California's state-wide drought emergency. However, the California situation does offer some key lessons and insights to Canadian jurisdictions. Canada has the opportunity to learn from what is happening south of its border and to accelerate planning and management processes that will proactively address emerging freshwater issues.

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