

## Comment: Storms show need for better water management

Rosie Simms / Times Colonist

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The recent announcement about Victoria's new stormwater utility bill, coupled with the trio of storms (albeit less powerful than predicted) that dumped heavy rainfall across the South Coast over the weekend, has brought the issue of urban stormwater management to the fore for many Victoria residents. With the rainy season upon us, this is an opportune time to ask: Where is all that water rushing down the streets going to go, what are the impacts and how can it be better managed?

At the heart of the issue is, of course, the fact that our cities are covered in hard surfaces that do not absorb water. In the natural environment, rainfall is absorbed by the landscape, nourishing plants and recharging groundwater. But in our cities this water hits impervious surfaces and floods into storm sewers to be piped away to a receiving water body.

Flooded streets and basements aren't the only impacts — sewage outflows and polluted beaches (an issue with which Victoria residents are certainly familiar), degraded urban streams and expensive drainage infrastructure are all evidence that the current approach to stormwater management needs to change.

Just in time for the winter storms, this month the City of Victoria took a promising step toward improving its approach to rainwater management. The city is now charging people for stormwater runoff that leaves their properties on a property-by-property basis: the more impervious the surfaces, the higher the charge will be.

This provides an important incentive for residents to better manage rainwater — for instance, through resurfacing driveways with materials such as permeable pavers, installing green roofs or building rainwater-capture systems.

Drought-stricken California has also taken recent measures to transition rainwater from an expensive hassle into a valuable water resource, passing a new law that lets water agencies collect stormwater for a variety of purposes, including reuse, recharging groundwater or boosting water quality.

These types of measures will be critical in light of climate-change projections for B.C. that show we can expect profound changes in how water moves through watersheds in the future — hydrological uncertainty, instability and extreme swings from too much to not enough water will increasingly be the "new normal" as climate change takes hold.

Many B.C. communities are now familiar with (but still ill-prepared to respond to) the costly consequences of droughts and floods. In June 2012, for instance, rampant flooding across the Interior, Kootenay and Fraser Valley regions forced 700 British Columbians to evacuate their homes. In 2015, many of these same places faced Stage 4 drought conditions, with raging wildfires, wells running dry and declining reservoirs.

As identified in a recent detailed report on the top five water issues that will define B.C.'s future, building resilience to droughts and floods is a critical challenge that B.C. faces. Naturally, this will require more than just better rainwater management in urban spaces, but investing in climate-smart water-infrastructure improvements will be a critical part of addressing this challenge.

A second major factor in the stormwater equation is addressing impacts on the receiving waterways. The rush of water from urban spaces into end-of-pipe outlets in creeks, rivers, aquifers and wetlands affects both water quality and flow

patterns — two essential elements of what is known as the “environmental flow regime”: the life pulse of water that keeps ecosystems healthy and functioning.

Changes on the landscape, including urbanization and increased impervious surfaces, are contributing to disrupted flow regimes by changing how water moves through and over land, increasing peak flows and eroding ecosystem structure and integrity. In Victoria, stormwater runoff, and the pollutants it contains, has been identified as a key factor in the loss of fish stocks in urban areas.

The threat of intense winter storms is a reminder that in this age of growing water uncertainty, incorporating green infrastructure into urban design is an important aspect of addressing the range of growing water challenges in B.C. This must be coupled with decision-making that integrates and respects the flow of water within our urban environments — from sustaining high-quality, appropriately timed water flows for nature, to preparing for more extreme droughts and floods linked to climate change in the years ahead.

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