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*Courtenay Councillor Wendy Morin (left) and Comox Councillor Stephanie McGowan listen to Tim Ennis speak about Kus Kus Sum / George Le Masurier photo*

# Has engineered stormwater doomed BC's waterways?

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**BY GEORGE LE MASURIER**

As population growth continues unrestrained and subsequent urban development expands the dimension of impervious surfaces, an increasing volume of polluted stormwater runoff will poison British Columbia's waters, local species and natural ecosystems.

It sounds like a doomsday prediction, and according to the keynote speaker at a recent provincial conference on water stewardship it's going to take a major change in local government thinking to avert this disaster.

Bill Derry, one of the Pacific Northwest's best known experts on stormwater management, delivered this keynote message recently to an audience of more than 200 British Columbia streamkeepers, local government engineers and elected officials and others. Derry spoke April 3 at the second Vancouver Island Symposium on water stewardship organized by The Partnership for Water Sustainability in B.C.

## *"Put the forest back"*

Before any development occurred in B.C., soils and natural vegetation in forests soaked up rainwater, filtered it and slowly released it into streams that flow into larger bodies of water. But in cities, where nature has been covered with impermeable surfaces, rainwater flows along streets where it picks up toxic chemicals and carries them unfiltered into water systems through gutters and underground pipes.

To protect or restore water quality in developed areas is a complicated problem, but Derry said the solution is quite simple: "Put the forest back."

That's impossible, of course, yet alternatives do exist.

Fifty years ago, Scottish landscape architect Ian McHarg proposed using natural systems in urban planning. His 1969 book *Design With Nature* was a guide toward what we call green infrastructure today; the use of rain gardens and infiltration galleries.

Getting local government engineers to implement green infrastructure that protects or restores water quality in developed areas will take massive and relentless public pressure on local governments.

"Tweaking current systems and practices isn't enough," he said. "Major change is required, and governments can't do it. They won't do it unless we push them."

Derry said government engineers and elected officials are reluctant to shift from managing stormwater with curbs and gutters toward source control —

managing rain where it falls — out of fear of lawsuits and insurance liabilities.

And local governments don't believe people will maintain rain gardens or other green infrastructure on their properties, he said.

"So we have to challenge old ideas at chamber forums and talk to decision-makers," he said. "Change will only and always comes when motivated people talk to other people."

Derry was one of several speakers at the conference who spoke of the benefits of designing municipal systems that attempt to mimic nature. Others spoke of studies that show green spaces and urban streams improve people's mental health, and are aesthetically pleasing.

Jody Watson, supervisor of environmental planning and initiatives for the Capital Regional District, echoed Derry's message that public pressure can effect change. Watson is also the past chair of the Bowker Creek Initiative, a successful restoration of a major waterway running through three municipalities in the Victoria area.

Because local governments had given up on Bowker Creek, more and more of it was being buried and channelized.

But widespread community pressure raised the creek to the regional district's No. 3 priority. Consultants had to convince local engineers of the value of restoring and daylighting the creek. Some staff engineers had rigidly opposed daylighting the creek.

"Sometimes you have to just wait for somebody to retire," Watson said.

Derry urged conference attendees to champion better stormwater practices on several fronts.

— No expansion of urban growth boundaries. Increase urban density and "save the best of the rest," he said.

— Require government agencies to preserve forests, not just slow down development. "There should be no net loss of forest cover," he said.

— Ban toxins such as zinc on vehicle tires, copper on brakes, phosphorous and the micro-plastics from single-use bags and water bottles at the local, provincial and federal level.

Deery cautioned his audience not to expect instant results.

"This isn't something that will happen overnight," he said. "But we need to amp up the seriousness of the discussions."

## COMOX LAKE, CONSERVATION PARTNERSHIPS AND BROOKLYN CREEK

**Comox Valley Regional District Senior Engineer Marc Rutten** spoke to the conference about the Comox Lake Watershed Protection Plan. It's a wide-ranging effort that involves multiple landowners and will address issues of turbidity and hydrological changes from logging activities. The watershed is the only source of drinking water for 50,000 residents.

**Tim Ennis, the executive director of the Comox Valley Land Trust**, spoke about the Comox Valley Conservation Partnership, one of six such groups in the province. The partnership has a unique focus on local government, and speaks with one voice on conservation issues, growth and urban forest strategies. Ennis also talked about the Kus-Kus-Sum project, which he said is more about reconciliation than restoration. "Ten acres of steel and concrete is a daunting" restoration project. But he called the recovery of the K'omoks Estuary a "fantastic model for success."

**Al Fraser and Marvin Kamenz of the Town of Comox, and Christine Hodgson of the Brooklyn Creek Watershed Society**, spoke about the relationship between the town and the streamkeepers. Hodgson said over the last 13 years, the streamkeepers have raised about $300,000 ($100,000 in-kind) for in-stream work to improve fish habitat. The town has roughly matched the group's fundraising. The streamkeepers also do annual smolt counts and public education for neighboring residents.

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# 3 Comments

**Andrew Gower** on 05/08/2019 at 1:19 pm

I will precis my comments by first stating that I am a practicing civil engineer, and have designed projects for public and private clients in the Comox Valley since 2007. All four jurisdictions have already taken steps to address this issue. Any new development in the Comox Valley is required to have source control for pollutants in run-off, and for quantity. Many end up with storm-water infiltration systems – also on site / at the source. The impacts of climate change on rain fall patterns and intensity have also been accounted for.

What is missing is any strategy or plan to deal with legacy systems, which include 80% plus of public and private infrastructure built in the Comox Valley. The City of Courtenay has done one successful project – the 5th St Complete Street project. But what remains – the many older streets and developments – needs to be addressed still. The City has started an overall rainwater management process – and hopefully this is one of the outcomes. This process needs to happen across all four jurisdictions, and in an integrated fashion with aligned standards and outcomes, in order for the process to be successful.

One initiative that should be looked at is a combination of pavement reduction, with the areas of roads that doesn't get re-paved converted to rain gardens to infiltrate and treat runoff. Just look at some of the over-built roads in Courtenay specifically – Tull Ave, Wilemar. All far wider than necessary with more pavement than required. Re-paving such roads with narrower lanes, and adding even just grassed boulevards would both save taxpayer money and improve stormwater management outcomes.

Reply

**Jack Stevens** on 05/03/2019 at 10:12 am

As a member of the Brooklyn Creek Stream Keepers, I am concerned that our efforts will be in vain unless we can gain widespread support for dealing with water quality issues at their source. The community must value these urban streams and take active measures to prevent further loss of fish habitat. The estuary itself is at risk and the toxic condition of storm drains is a huge factor.
Time is running out to turn this crisis around.
Courtenay Council has just passed a resolution which would promote an organized response to critical mitigation.

Reply

**Ken McDonald** on 05/02/2019 at 6:00 pm

Bill Derry, the keynote speaker at the recent Stormwater Symposium in Parksville, is very familiar with the foundational research on the impacts of stormwater done by Dr. Richard Horner. Dr. Horner, an internationally recognized expert on stormwater has prepared a comprehensive report detailing the negligence of the Town of Comox in managing their stormwater runoff into Golf Creek.

In his report, Dr. Horner details how the Town of Comox has consistently, over three decades, ignored warnings about stormwater erosion and pollution and has failed to implement recommendations to mitigate the problems in multiple engineering reports commissioned by the Town.

Most people in the Town of Comox are not aware that at times, the water quality in Brooklyn Creek, Golf Creek and Port Augusta Creek contains fecal coliform bacteria at levels that are unsafe for human contact, especially for small children who enjoy splashing about in those creeks. Keep in mind that urban wildlife relies on our urban creeks for drinking water. Sadly, they are forced to drink a toxic cocktail of bacteria, heavy metals, hydrocarbons, and pesticides.

Another fact that most people in the Comox Valley are not aware of is that the Department of Fisheries and Oceans have placed a sanitary contamination ban on shellfish harvesting in Comox harbor. One of the primary sources of fecal contamination of shellfish is stormwater runoff. Think about that when you are shucking fresh oysters at the Seafood Festival.

In 1999 (20 years ago) a stormwater engineering study done for the Town by Koers and Associates recommended that “the Town design and implement a monthly storm water quality monitoring program at a suggested annual budget of $5000, to stay abreast of shellfish closure parameters and to help identify new sources of pollution before they become significant problems.” The Town of Comox has never tested water quality at their stormwater outfalls.

Every time it rains, contaminants are washed into drains and gutters generating a lethal soup of pollutants that are then discharged directly into our fresh water streams. Most people thought it was gross and disgusting when the City of Victoria was discharging raw sewage directly into the ocean. Yet, the Town of Comox has no problem turning a blind eye to discharging contaminated stormwater into streams and ultimately into the marine environment.

What should really anger Comox residents, is that it doesn’t have to be this way. The City of Courtenay has the benefit of a Municipal Engineer, Ryan O’Grady, who has expertise in modern stormwater management practices and has begun making changes to improve the City’s stormwater management practices.

The Town of Comox likes to highlight their contribution to the Brooklyn Creek Streamkeepers as an example of their environmental stewardship. This is an example of “green-washing”. What they don’t tell you is that there are multiple Town of Comox stormwater outfalls dumping large volumes of untreated stormwater directly into Brooklyn creek. They also won’t tell you that all of those stormwater erosion scarps that you see as you wall along the creek that are threatening the foundations of many homes along the creek are the result of accelerated stormwater erosion. The same is happening at Port Augusta Creek. Ask yourself how many salmon you have seen climbing the fish ladder at Brooklyn Creek these past few years.

There is hope! In the last municipal election, the residents of the Town of Comox elected four new progressive and environmentally responsible councilors, Alexandra Bissinger, Nicole Minions, Stephanie McGowan and Patrick McKenna. For too long, the mayor and council at the town of Comox have taken their marching orders from the Town's administrator and staff. That has to change. Council was elected to give orders not take orders. It's time for the new councilors to take hold of the ship's wheel and let the staff know that they have a job to do.

Reply

## HOW TO CONTACT US

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