

Saving the Troubled Waters around Us  
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Scott Simpson - Many Greater Vancouver salmon-bearing streams have already been destroyed by urbanization, and more are endangered. With the region continuing to grow, the race is now on to save the rest.

Right off the bat, Eleanor Ward wants it understood that she fought her fair share of battles on behalf of salmon.

As far back as the 1970s, she and other members of the Northeast Coquitlam Ratepayers were pushing to protect streamside habitat on local salmon-bearing streams like Coquitlam River.

She bristles at the suggestion -- coming from northeast residents who flatly oppose the city's development plan for the area -- that the ratepayers' support for the plan puts them into the developers' camp and, presumably, in opposition to the salmon.

Ward and other ratepayers support the plan because it will clear the way for many small landowners, particularly seniors, to realize some profits as their property is rezoned for higher density development.

As well, the development will finally bring longed-for civic amenities like a sewage trunk line, community centres, a library and a firehall to the under-serviced area.

"You can't stop growth. We will not have zero growth on 4,000-and-some developable acres out here. So let's deal with it. Let's be positive about it," Ward says. "What you can hope to achieve is to have housing in a more environmentally friendly manner. What we need to do is try to come up with sensible guidelines."

There is no shortage of guidance for anyone seeking to develop land in the vicinity of streams -- federal and provincial regulations as well as civic bylaws make provisions for the protection of urban waterways like those running from Greater Vancouver into the Strait of Georgia.

In theory, anyway. But a recent document released by the Greater Vancouver regional district shows the area -- despite the effort of some municipalities to 'day-light' or re-open streams buried in culverts -- suffers a net loss of 18.5 kilometres of urban stream each year to satisfy flood control and other needs. But what if the biggest problem is something more complex than habitat destruction and pollution? What if the problem is chronic, and emerges every time it rains, or every time it doesn't rain for a few days?

When rain falls in Greater Vancouver, we capture it on roofs, driveways, roads and ditches and storm drains which empty, more often than not, into streams. It's a system that works for people, but not for fish.

#### Lethal Efficiency

According to a new GVRD stormwater management document, urbanization of an area makes such significant alterations to a stream's drainage system that surface runoff becomes the most important pathway for rainfall.

It is also the most consistent destructive force working against salmon in urban streams.

For example, impervious areas such as parking lots and roads stop rainwater from seeping into the soil.

Even urban lawns can cause damage. Often they are smooth and so compacted that water can't seep through.

"Stormwater management has proceeded kind of on a piecemeal basis for most of the last century," says Fred Nenninger, program manager for the GVRD's liquid waste management plan.

"Prior to the 1960s and '70s it was very simple -- a pipe would get it to the nearest stream and end of story.

"There wasn't much attention paid to the number of urban streams [and] the fisheries resource in those streams because there were lots of them, seemingly an infinite supply of coho streams."

Nenninger said civic engineers around the region are waking up to the consequences of those practices.

"It has now been recognized as a major issue. It's difficult to reverse in areas that are already mostly developed. But in new areas that are still developing we're looking for ways to do things differently."

#### An imperfect world

In a rainy area like the Lower Mainland, urban streams shoulder a burden of water that is five times greater than Mother Nature ever intended them to carry, and direct the water, eventually, into the Strait of Georgia.

Streams reach high, violent volume quickly because of the efficiency of the system -- scouring spawning channels, boosting silt content, and reducing the supply of organisms that young salmon need to eat.

Modest rainfalls that might have little impact on a forest stream can cause flood conditions in an urban stream because water is quickly captured and shunted into streams with lethal efficiency.

Unlike waterways in forested areas, where water collects underground and nurses streams through the dry month, urban streams can't count on a backup supply.

When the rain stops for a few days or weeks, particularly in the summer, the flow slows to a trickle. Water temperature rises, oxygen levels go down and yearling salmon can suffocate.

In Greater Vancouver alone, according to the GVRD study, at least 105 streams in the region have already been destroyed by urbanization -- including 39 out of 40 in the city of Vancouver.

Of the remaining 207 streams, 197 are considered endangered and the other 10 are rated as threatened.

"Studies have shown that water quality is nowhere near as important to stream health, particularly for fish, as is water quantity," says Patrick Condon, the James Taylor Chair at the University of B.C.'s School of Landscape Architecture.

"The fish are kind of tough when it comes to pollutants, compared to their sensitivity to changes in stream water quality -- and storm drain systems change the quantity dramatically.

"The only way to fix that problem without having unbelievably giant retention ponds --which old slowly release the water during dry periods -- is to let that water from roofs, driveways, lanes and streets go into the grassy soft areas right beside them.

"You really have to infiltrate everywhere, or nowhere."

As for northeast Coquitlam, Condon says it is critical development in the area respects natural drainage patterns and allows water to escape.

"If they don't go to infiltrate I believe you can kiss those streams goodbye."

Matt Foy, a habitat biologist with Fisheries and Oceans Canada, says many of the worst mistakes were made in the 1960s, and earlier, when streams were rerouted and subdivisions plunked down with little consideration for the natural water flow.

"If you look at West Vancouver, the North Shore, Burnaby, you see the most severe disturbances to creeks," Foy says. "As you move into Surrey you see less impact because they were developed later, The same with Coquitlam. As we've learned more, we've pulled back but it's still not a perfect world."

Technology fixes, he adds, are no panacea because every stream has its own unique way of dealing with water.

#### Learning from mistakes

Councillor Mae Reid, a chairwoman of the city's environmental committee, supports the northeast plan and promises the city's stream protection requirements will be a model for the entire province.

She leaves no room for doubt that, whether it's development in the northeast or redevelopment of older parts of the city, permeability is going to be Coquitlam's new environmental buzz-word.

"We are going to have to look at permeable surfaces," says Reid.

"There is all kinds of new technology. There is concrete that is more permeable than what we have now. There are ways of doing shopping centres differently, with bigger planted areas and bigger gravelled areas. Instead of us pooling water on huge parking lots and having it run en masse into creeks and ditched, we can have ground water management that allows Mother Nature to take over.

"It's got to be of prime importance, and it's not just in the northeast. I want to make this very clear. With SkyTrain coming on, we have some huge redevelopment areas here. We have the Brunette River watershed, right up and around Burquitlam. When we develop that area we are going to have to look very carefully at the materials we put in."

Eleanor Ward says many small landowners in her community remain concerned about the way that the new laws will be implemented.

The B.C. government, for example, is talking about requiring a 30-to-50 metre strips of natural habitation along salmon-bearing streams -- a condition that could render a five acre hobby farm with a couple of natural brooks undevelopable.

The answer, she says, may be for the city to loosen up its zoning restrictions to allow higher density housing -- townhomes and apartments -- on the land considered least important to streams while leaving remaining strips and parcels in a more natural state.

"We're not going to have that chance to make all those mistakes that were made in the past," Wards says. "We'll have to be absolutely correct but to me, that shouldn't stop housing from starting. I think it's going to be a learning process. We're going to make a few mistakes and we're not going to change the world in a year.