# Steeves: Treat water with water plus plants

By Judie Steeves - Kelowna Capital News
Published: **September 30, 2011 2:00 AM**

**W**hether agriculture, asphalt or homes for people are to blame, there has been an 88 per cent loss in wetlands in the Okanagan Valley and they continue to be degraded and filled in.

Yet, not only are they among the richest and most productive lands for animals, they also regulate flows of waterways, detain and store water and filter it.

Without wetlands, runoff flows untreated into waterways and larger bodies of water, carrying contaminants and silt with it that harm natural habitat.

At last week's fascinating Osoyoos Lake Water Science Forum, a fisheries biologist who owns Wetlands Pacific Corporation, Kurt Kerns, talked about the value and function of natural and constructed wetlands.

His B.C. company has designed a constructed wetland called the Vegetative Tertiary Filter, which has been winning awards for innovative environmental technology and he is passionate about the importance of wetlands and about what they can accomplish in filtering wastewater.

He began by talking about how wetlands once were associated with most water bodies in North America, in part because beavers dammed waterways to form ponds, which evolved into wetlands.

However, farmers came along, drained the wetlands, and diked the waterways, and turned them into farmland.

Wherever a little wetland remained, we've been filling them in and either paving them or building on them.

Yet, wetlands remove and detoxify substances, whether they are natural or constructed wetlands, he explained.

They are nutrient and carbon sinks and they sequester heavy metals as well as other toxic substances.

They slow the release of water from storm events and they recharge aquifers.

At the same time they provide valuable habitat for wildlife and they add value to human lives with green and colourful growth.

His list for the ways they remove contaminants is long and pretty amazing, but it includes by sedimentation, filtration, microbial decomposition, precipitation, chemical binding, re-oxygenation through photosynthesis and gaseous exchange with the atmosphere, microbial degradation as wetlands provide vast submerged surfaces for attachment, sunlight and alternating oxic and anoxic zones with differing microbial communities and metabolic pathways.

Now, I must confess I don't understand all of that, but most of it makes sense and I'm impressed by the rest.

They can even remove pharmaceuticals such as endocrine disruptors like estrogenic compounds.

Kurt says constructed wetlands can be used to treat stormwater, municipal wastewater, landfill leachate, agricultural runoff, acid mine drainage and industrial and commercial wastewater.

Constructed wetlands can be built in a number of different models, including free water surface, vegetated submerged bed, lineal, stormwater, capillary and treatment wetlands.

Some, he told forum delegates, can even turn ugly industrial areas into delightful, soul-satisfying habitat for birds and other creatures who rely on the rich interface areas between different ecosystems.

He says only three per cent of a city's land area is needed for wetlands, and the cost of treating wastewater using constructed wetlands is 10 per cent that of a high-tech plant.

Hmmm…interesting, eh?

And, speaking of picture perfect, natural solutions to ugly problems, the Central Okanagan Naturalists' Club is holding a photography workshop with Les Gyug, a naturalist and biologist who is also a photographer.

It's intended for anyone from beginner up and is Oct. 1, 1 to 5 p.m., at the EECO

It's free, but bring a loony for insurance.

Register by contacting him at 769-5907. Registration is limited.

*Judie Steeves writes about outdoors issues for the Capital News.*

***jsteeves@kelownacapnews.com***