Green Scene: “Water, Water Everywhere”

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[Title in Tri-City News: Water, water everywhere]

The record-breaking rainfall has been truly relentless. From drizzle to downpour, we must have as many words for rain as the Inuit do for snow. As the rain splatters into mud puddles and seeps into our shoes, drips down our necks or oozes through seams in our clothing, it feels as if there is no escape from its moist embrace. But more than anything, this unending rainfall should remind us that we have the fortune of living in one of the grandest rainforests on earth.

In temperate rainforests, the rain is an ecosystem-defining bounty that bestows life on our wet coast flora and fauna. On the Pacific coast, as much as ninety percent of our rain falls in the winter, the season when the forests and salmon streams appear to need it the least. Some of our west coast trees such as the cottonwood seem to be able to store water in their trunks and branches, possibly as a survival strategy to get through the drier months ahead. Similarly, the rain-induced rise in the water table helps to ensure that streams will have continue to have flows in summer.

In an undisturbed rainforest, only a small fraction of the rain actually reaches the ground. Most of the rain is intercepted by the leaves and needles of tall trees, understorey shrubs and leaf litter on the ground. Much of the water which penetrates down through the thick canopy will slowly percolate into the soil and recharge the water table to ensure sufficient moisture for plants to survive next summer’s drought. Only a relatively small portion of the rain will end up flowing over land and entering streams where its arrival sustains an amazing diversity of aquatic life. Such abundance of rainfall allows temperate rainforests to produce a greater biomass of living material per hectare than tropical rainforests.

In our suburbs, we live in a rainforest that is now mostly devoid of its trees. When rain falls, it usually hits a hard surface such as a roof, patio or road. Thus, the underlying soil is deprived of the moisture that could have been sequestered for next summer’s use. As rain washes over roads, it picks up oil and tailpipe pollutants deposited by passing cars. The now-polluted water is directed to storm drains where it is promptly conveyed to the nearest stream. Converting rainforests to suburbs creates conditions that rapidly collect rainfall into explosive flows that scour creeks and erode streambanks during winter storms. Storm flows that should occur only once in hundred years become almost annual events in many suburban streams. Salmon eggs can be covered by silt. Juvenile salmon risk being crushed by rolling boulders in the stream. Worse still, the changing weather patterns caused by global warming are predicted to bring us increased rainfall during winter months and more prolonged summer droughts. This January’s record could be a harbinger of wetter winters to come. It is clear that our urban streams face severe threats in the years ahead.

Now that the impacts of urban development on stream flow dynamics have become better understood, it should be obvious that streams in areas undergoing development should receive better protection than they have in the past. Similarly, residents living beside streams need assurance that their property will not be washed away by increasingly frequent winter storms. The answer lies in having adequate streamside protection in the form of vegetated buffer strips along streams, in creating opportunities for rainfall to seep into the ground and in building suburbs with fewer hard surfaces. Although the solutions may be obvious, as residents, we must rely on municipal governments and developers to have the wisdom and foresight to implement them.