

Floods Are Not a Water Management Problem



By Dave Mayhood

Floods are a fact of life for anyone living beside flowing water. I experienced my first — and almost last — flood shivering in a half-submerged frame tent, our boat floating in the doorway. Three of us spent an anxious night as trees slammed to the ground all around us, uprooted by the river. The site was remote and escape was impossible: with us navigating in the dark, logs choking the torrent would have swept us into debris jams and ground us up.

We survived that flood, but we shouldn't have. We were living on a floodplain, on the edge of an alluvial fan (the flood-deposited debris from a steep mountain tributary)

during an unrelenting 10-day rainstorm. It was a crazy place to be.

Rivers flood. The place they flood — the only place they flood — is the floodplain. Floodplains look like land, but they are not. Floodplains are part of the river. They are as much a part of the river as rapids and pools in the active channel. Building on the floodplain is building in the river. If you do it, expect, sometime, to get wet. Rivers cannot flood you if you are not in them. Prudent people build there cities elsewhere.

Like many other southern Alberta communities, central Calgary is built on a floodplain. So, inevitably, the Bow will flood — over and over again, forever. Few of us are

just visiting this planet; we're here to stay. Let's plan accordingly, and make our communities and countryside last forever. We, and all of our descendants, should be able to live here without having to fear flooding rivers. At the same time we should be able to enjoy the natural southern Alberta landscapes we all love so much, unmutated by flood-control structures.

My suggestion: stop all building on floodplains, immediately. Follow a long-term (say, 50-year) strategy of moving the flood-prone parts of communities off of floodplains, starting with the most vulnerable. Governments can purchase the properties and convert the land to public parkland, a suitable



Elbow River above Bragg Creek, June 2013 flood. PHOTO: © D. MAYHOOD

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Jumping Pound Creek, June 2013 flood. PHOTO: © D. MAYHOOD

Correct date: June 2005

use for floodplains. Once completed, we can sit on the terraces and look down on floods, a great natural spectacle, in complete safety. Costly? Of course, but a one-time cost. Crazy? Read on.

Many people believe that engineering works can stop floods. They can't. Flood-control structures can at best postpone floods. Eventually they will experience floods they cannot handle, with potentially catastrophic results: massive property damage, many deaths. Only structures built to control the maximum possible flood might be exempt from this rule and they are insanely expensive in financial, ecological, esthetic, and social terms. All engineering works require frequent monitoring, regular maintenance, and eventual replacement. These are perpetual costs, which means that they are effectively infinite. Any other solution is cheaper.

Flood-control dams store water temporarily and then release it as the flood recedes. Rivers already have even greater temporary storage capacity naturally, and for free, in perpetuity. Floodplains are natural flood controls: during a flood, they store all of the excess water. They work perfectly, every time. And they maintain themselves forever. All that is needed is to stay off of them, and let them do their job. Best of all, during the times they are not storing floodwater (very nearly all of the time), we can use them safely as parks, nature reserves, picnic areas — all essential assets that make life worth living. All are relatively cheap to maintain and repair.

An estimated 100,000 southern Albertans were evacuated from floodplains in the 2013 flood: fewer than 2.5 percent of the province's population, fewer than 0.3 percent of the Canadian population. These are the peo-

ple who would be directly aided — temporarily — by flood control structures. All of us will pay forever for flood-control works to protect, temporarily, a relative handful of citizens. In the event of a catastrophic failure of any of these structures, the “protected” are at far greater risk; many others must place themselves at great risk to help them. Floodplain-dwellers are safer if they move off of the floodplain. All of us are richer by working with, not against, the river. ♣

Dave Mayhood is a consulting aquatic ecologist in Calgary (<http://fwresearch.ca>). His family has lived there for 125 years, missing the great 1879 flood by a decade, but still experiencing two more floods larger than the 2013 flood over that time.

Best data show 1 other flood larger than 2013 event since 1889