





# Troubled Waters

Public apathy threatens Alberta's rivers  
and those who live along them

BY KEVIN VAN TICHEM

Soon after his 1876 arrival at the confluence of the Bow and Elbow Rivers, Northwest Mounted Police Commissioner Irvine proposed that the new fort be called Calgary "... which I believe is 'Scotch' for 'Clear Running Water', a very appropriate name I think."

The Bow River I grew up beside a century later differed from the wild stream that greeted those first NWMP officers. Spring ice jams and floods threatened their fort among the Bow's cottonwood groves. By my time, downtown Calgary confidently occupied the river's floodplain, protected from floods by upstream dams. Irvine's river ran faintly blue with gla-

cial silt in mid summer, shrinking and clearing as fall drew near. My river flowed more evenly through the seasons; its flow was regulated by dams whose reservoirs also trapped glacial silt, making the river clearer than in Irvine's day. NWMP Corporal Denny, whose letters home provide a fine record of frontier Calgary life, fished for fat cutthroat and bull trout in the river's eddies and beneath its many log jams. I fished beneath the Crowchild bridge for exotic rainbow and brown trout; the natives long ago having been fished out. Log jams and young cottonwoods were rare.

It was still the Bow River—but a different river altogether.

LEFT: The Milk River in southern Alberta

ABOVE: The Daishowa pulp mill on the Peace River



The Oldman River north of Cowley

Controversy over river conservation remained focused in the south until 1988 when the government announced eight major pulp mill projects in northern Alberta. Suddenly northerners faced the prospect of tonnes of organic waste, laced with cancer-causing dioxins, furans and other organochlorines, pouring into the Athabasca, Wapiti and Peace Rivers. The resulting wave of public outrage caught

**W**e Albertans tend to take our rivers for granted. They flow through our lives virtually unnoticed. We have little sense of how they have changed in response to the ambitions and choices of those who built our province—and perhaps too little concern about how our own choices might affect those rivers and the people who will live beside them tomorrow.

Our complacency belies the fact that we are, far more than many realize, a river people. Our earliest settlements grew up beside rivers. Some, like Edmonton, Rocky Mountain House and Athabasca, were at strategic stopping places for boat parties. Others, like High River, Calgary, Red Deer and Rockyford, rose where overland trails converged on shallow fords or safe crossings. Today's urban parks line city riverfronts. Anglers flock to the famous lower Bow, Crowsnest, North Raven and Ram rivers. Kayakers play in eddies on the Oldman, Kananaskis and Brazeau. Freighting boats still ply the Peace, Athabasca and Slave. Kids skip rocks or dream as they watch the passing water. Ranch buildings and campgrounds shelter beneath riverside spruce and cottonwoods.

A decade ago, Albertans were more river-conscious than today. Public concern about Alberta rivers peaked in the late 1980s after the provincial government began to authorize increased industrial development. The first sign of serious problems down by the waterside was in 1986, when fish began dying in the Highwood and Elbow Rivers. Then, in 1987, the Alberta government began construction of a dam on the Oldman River near Pincher Creek in the face of widespread and vocal opposition.

provincial politicians off-guard. In the 1989 provincial election, that outrage showed up at the polls; although voters returned the ruling Tories to power, both Environment Minister Ian Reid and Premier Don Getty went down to defeat partly because of their record on environmental issues. Getty turned to Stettler-area voters—far from both the Oldman and the northern pulp mills—to elect him in a subsequent by-election.

Pulp mills and dams were supposed to be good news

stories. The angry public reaction sent a forceful message not only to politicians but also to Alberta Environment's powerful water bureaucracy: Albertans wanted our rivers treated as something better than plumbing systems.

In 1989 the University of Calgary hosted a conference, *Flowing to the Future*, that brought together environmental advocates, government resource planners, special interest groups and others

concerned about the future of Alberta's rivers. The conference, and a follow-up conference two years later at the University of Alberta, generated recommendations to protect rivers. But by 1991 the Oldman Dam was finished and filled, the pulp mills were up and running, and the province's economy had gone sour. Public concern about environmental issues gave way to financial worries.

The rivers still flowed to the future, but people no longer noticed.

**A**lberta rivers are ill-disciplined things. Spring rains swell their flow until they are brown and heavy, hissing sullenly among the trees and shrubs of their floodplains. Ten to twenty times more water flows

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downstream during spring floods than in midwinter when headwater valleys lie frozen beneath the snow. Rivers in the South Saskatchewan drainage basin—most of southern Alberta, in other words—pass up to 60 per cent of their flow in May and June.

Spring floods can be formidable. Early explorers described bison dying by the hundreds while crossing flood-swollen prairie rivers. A 1995 flood caused millions of dollars of property damage in the Oldman River basin. Such abundance of water, however, is long gone by July and August when farmers' fields bake beneath the mid-summer sun. In prairie Alberta, where crops often wither for lack of water, thirsty summer memories of wasted spring runoff have inspired a century's worth of dam projects.

Northern Alberta rivers inspire local boosters to lobby for taxpayer-funded dams too, but for different reasons. The most common complaint in the north is not too little water in summer, but too much in spring. Communities beside northern rivers face frequent flooding.

Such seasonal extremes are what run a river's ecosystem. Trout rely on heavy spring flows to stimulate their upstream migrations to headwater spawning beds. Cottonwood trees and sandbar willows release seeds in June, just in time for those seeds to sprout on newly-deposited sandbars where receding floodwaters irrigate their fast-growing seedling roots. The slackened flows of autumn capture billions of fresh-fallen leaves and carry them lazily into quiet eddies. Those decomposing leaves feed battalions of caddisfly, mayfly and midge larvae through the winter when other food is scarce. They, in turn, feed fish, frogs and mink. The entire river ecosystem is adapted to, and needs, the seasonal cycle of violent flood and sleepy near-drought that so frustrates our human desire for a stable environment.

Conversely, of course, the dams we build to smooth out those seasonal flows throw the natural world into confusion. Fish can no longer migrate. Cottonwood seeds lodge on dry sand and die. Tamed rivers can no longer rearrange their channels and revitalize their floodplains. Instead, they become entrenched—especially when further confined by flood-control dikes and armoured with riprapped banks.

Because a river's plants and animals live in intimate contact with the water, whatever is in the water soon works its way into the ecosystem. The convenient thing about flowing water, from a human standpoint, is that it's always going elsewhere. That makes it easy to dispose of unwanted wastes: simply pour them in the river. Alberta's oil industry was once a major polluter of rivers such as the Bow and North Saskatchewan. Although the petroleum industry has cleaned up its act to a remarkable degree, cities and pulp mills continue to contaminate Alberta's rivers.

At the *Flowing to the Future* conferences, ecologists talked with Cree hunters; environmentalists argued with industry scientists; and Alberta Environment's well-paid and powerful water engineers debated with everyone. For a while it seemed like a new, more enlightened vision of river conservation might emerge from the unprecedented sharing of knowledge and perspective. But then the conferences ended.

A decade later, as the 20th century gave way to the 21st, the uproar over Alberta's rivers has abated. Our demands on them, however, have not. Despite some progress, few involved in river conservation issues express much confidence in the future.

Kerry Brewin is senior fisheries biologist for Trout Unlimited Canada, a conservation group mostly com-





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One of the few healthy reaches on the St. Mary's River, a stream dying for lack of water

vegetation will have wet roots, and to meet the water needs of productive riparian ecosystems, especially during the critical midsummer season. Where human users have licensed rights to most of a river's natural flow, government-reserved water for the river itself is critically important. The new Water Act makes this possible, at last. However, Mr. Brewin

prised of anglers who work to protect cold-water ecosystems. Mr. Brewin notes that after the river conferences, the province of Alberta finally replaced its long-outdated Water Resources Act with a new Water Act that includes potentially useful new tools for protecting rivers. The old legislation, modelled on the 1894 Northwest Irrigation Act, was designed only to promote water development, not to protect rivers. It allocated water for "beneficial uses"—all of them outside the riverbed.

Alberta's 1999 Water Act reflects the public environmental concern that emerged in response to the older law's destructive legacy. The Act allows government to reserve water for rivers, and mandates development of a strategy to "protect the aquatic environment." It promotes watershed management by linking land use planning with water planning, and guarantees public involvement in major river decisions. The Act prohibits major diversions of water from one river basin into another—a radical shift in policy from two decades ago. Then, water engineers were building the Dickson Dam on the Red Deer and the Three Rivers Dam on the Oldman in places where they could be used for future north-to-south water transfers.

Still, says TU's Brewin, the new Water Act's conservation provisions are vague and, too often, discretionary. For example, the Minister "may" develop water management plans, which "may" be done consultatively. On the other hand, of course, the Minister may choose not to do this, and be fully compliant with the Act. The language is permissive rather than mandatory.

Rivers need guaranteed instream flows, for example, to ensure that fish can swim and breathe, so that streamside

says, "There are no time lines for any of this stuff. If things like instream flows are ever implemented, good things could happen."

For some rivers it may already be too late. According to University of Lethbridge ecologist Stewart Rood, so much of the St. Mary River's flow is already devoted to irrigation use that water planners were only able to increase its minimum flow from the paltry 0.93 cubic metres per second it got in the 1980s to 2.75 cubic metres per second today. Pointing out that most of the St. Mary's cottonwood trees are already dead, Dr. Rood describes the river's ecosystem as "collapsed."

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"With the St. Mary's we have to talk about restoration, not protection," he says. "Without more water, the prognosis for the St. Mary's is bad."

In spite of this, Rood is optimistic about prospects for river conservation. His studies on floodplain cottonwood forests led Alberta Environment to adopt a

"flow ramping" strategy for the Oldman Dam, an approach since adopted for the St. Mary's and other dams. Flow ramping allows a dam to capture spring runoff and store it for summer use in downstream irrigation farms, but tries to mimic the natural river flow pattern by releasing a moderate spring flood and then gradually reducing the flow into early summer. Dr. Rood believes that floodplain vegetation suffers more from sudden changes in water availability than from the reduced intensity of spring floods. Besides, he points out, until the Oldman's modified flow is totally used up by irrigators (which could happen within a decade) the downstream ecosystem will enjoy more water than before the dam, when the river's natural summer flow was sucked nearly dry.

“I’ve seen the Oldman down to one cubic metre per second at Fort Macleod and five at Lethbridge,” he says. “The minimum flow now is 20 cubic metres per second at Lethbridge.”

Dr. Rood was a member of a multi-stakeholder committee that the Alberta government established to advise on how to operate the Oldman Dam. Although dominated by irrigation lobbyists, the Oldman River Dam Environmental Advisory Committee quickly agreed that the river’s health could no longer be compromised. The committee reviewed Alberta water law and discovered that the dam, ironically, may provide a legal angle for protecting river flows. Prior to the dam, the Oldman’s natural flow was governed by a traditional “first-in-time, first-in-right” doctrine that gave precedence to the oldest water licences. Now, however, downstream from the dam, the Oldman has more than just its natural flow in summer. Water released from its reservoir is stored water, not natural water. This means that any summer flows above what would naturally exist need not go to senior water licensees like the large St. Mary’s, Taber and Lethbridge Northern Irrigation Districts, who are entitled only to “natural” water. Some of the stored water can be reserved for urban water needs and protecting river ecosystems.

Sharing water shortages fairly, rather than giving the oldest water licensees all the water they want while leaving junior licensees—and the river—to do without, is a fair and rational approach. It’s also a radical departure from traditional practice, and threatens the once-firm grip on water and economic power the region’s politically-dominant irrigation compact has enjoyed. That may be why the committee’s recommendation remains stalled in Edmonton. Without significant public pressure, and in the face of powerful special interests, the government has dragged its feet rather than risk doing the right thing.

As evidence that government water managers are better at making promises than delivering results, Kerry Brewin points to official foot-dragging on even so simple a matter as screening the mouths of irrigation canals. Farm irrigation districts divert well more than 2.6 million cubic decametres of water each year out of rivers in the South Saskatchewan watershed. Countless fish get drawn out of rivers into the irrigation canals each summer. In the fall, when irrigation engineers turn off the flow, those fish are trapped and die. Brewin and other TU volunteers rescued almost 70,000 fish from irrigation canals downstream from Calgary in 1999. Despite well-orchestrated media coverage and lobbying, the government has yet to screen the diversion canals.

“I found reports dating back to 1911 and 1912 saying that fish losses were a problem due to lack of fish screens,” Brewin says. “We called for a provincial task force to solve the problem of fish losses in irrigation systems but Alberta Environment rejected it. They said they

preferred to set up an internal working group so they could develop their own position. Here we are 89 years later and they don’t even have a position!”

Although frustrated by the glacial speed of government response, Kerry Brewin is quick to add that the last decade has seen considerable improvement. “Ten years ago it was difficult even to get people to listen to you,” he says. “There were few specific studies being done to evaluate fisheries issues at development sites along rivers. Those studies are being done now, and we’re at the table more often than not.”

Cliff Wallis, past-president of the Friends of the Oldman River (FOR), wasn’t at the *Flowing to the Future* conference. He was too busy trying to save the Oldman River from a dam many of those who attended were involved in building.



The Oldman Dam shortly after completion in 1991

A decade later, Wallis feels guardedly optimistic about the future of Alberta’s rivers. He believes that those who advise the Minister of Environment are giving him better advice. “The moral suasion of the advice given to the Minister is working,” he says. “They’re doing it, but they wouldn’t put it in the Act for fear we would take them to court.”

That’s a legitimate fear. Since 1987, the Friends of the Oldman River have redefined the nature of environmental advocacy in Alberta by repeatedly challenging the provincial and federal governments in the courts. Led by the brilliant and uncompromising Cliff Wallis and Martha Kostuch, FOR initiated more than ten major legal interventions in their battle to stop the Three Rivers Dam or, when it was already completed and filled, to have it decommissioned. Two cases went all the way to the Supreme Court. Canada owes its Canadian Environmental Assessment Act to FOR’s successful battle to prove that the federal government had to obey its own environmental guidelines.

“We were treading water in 1989,” said Cliff Wallis in an



KEVIN VAN TIGHEM

The former confluence of the Oldman and Crowsnest Rivers, an area now submerged under the Oldman Reservoir

interview during the last weeks of the notorious Ty Lund's reign as Environment Minister. "The 1990s were a bad time for the environment, but while we didn't make any gains, we at least held our ground. We've got some building blocks now, if we can get a good Minister and senior managers in Alberta Environment."

Among the new building blocks to which Wallis refers are Alberta's new Water Act, the Canadian Environmental Assessment Act, the Natural Resources Conservation Board, and the reports and recommendations of the Northern River Basins Study.

**T**he Athabasca, Peace, Slave, and Lake Athabasca basins cover more than half the province. Alberta's new pulp mills and the Peace River's W.A.C. Bennett Dam aroused public concerns about water pollution and watershed degradation. The government response was the Northern River Basins Study. The 24-member panel completed 150 technical reports and reviews, conducted public meetings, and submitted its work to scientists across Canada for peer review.

In 1997 the governments of Canada, Alberta and the Northwest Territories formally responded to the panel's final report. The governments accepted all its recommendations—then proceeded to explain how they would not implement them. The panel called for a pollution target of zero industrial discharge. The governments declared pollution prevention their first environmental priority, then dismissed zero discharge as unworkable, opting instead for "best available technology"—in other words,

explained why pulp mills need to continue dumping them. Alberta and Canada did agree to upgrade sewage treatment plants at Grande Prairie and Jasper. Work on the Grande Prairie facility began in 1998, while Jasper's project is still in the planning phase.

In response to the need for more and better monitoring data, the Alberta government promised only to study information collected by pulp mill companies. The gov-

ernments did, however, commit to more studies. Most are behind schedule or have yet to begin, but pulp mills continue to discharge industrial wastes into the Peace, Wapiti, Athabasca and other northern rivers while clear-cutting their upstream watersheds.

After spending four and a half years and more than twelve million dollars on a comprehensive scientific analysis of the deteriorating state of northern rivers, governments prom-

ised all the improvements possible—except meaningful ones. The industrialization of northern rivers appears to be government policy. Clean water, edible fish and a healthy environment are okay too—so long as they don't get in the way of industry.

**T**he Bow River laps as peacefully against its ripped banks today as when I was growing up beside it. I no longer enjoy the happy illusion that this is a river whose future well-being is assured. Not long ago, the natural forces at play in their watersheds—seasonal changes in rainfall, fire and grazing, dry cycles and wet cycles—controlled Alberta's

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## TROUBLED WATERS

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rivers. Today's rivers are controlled not by nature but by human choices. We determine how much water they will contain, and when. We change their chemistry at the mouth of each storm sewer, pulp mill discharge pipe and sewage treatment plant. Our bulldozers and trackhoes hem them in, constraining their need to shift course. If Albertans are river people, our choices are too rarely river choices.

"If we're going to do right by our rivers, more people need to get involved," says Cliff Wallis. "Even if they write only one letter per year. We need church groups, community groups, everyone out there to discuss these things and get active."

Although formidable, the energies of Cliff Wallis, Stewart Rood, Kerry Brewin and the few others who work for river conservation during the lulls between public controversies are not enough to protect rivers against exploitation. During those quiet times, powerful vested interests such as the Alberta Irrigation Projects Association and Alberta Forest Products Association continue to lobby governments to favour their special interests. Alberta's rivers are increasingly vulnerable.

Cliff Wallis refuses to be drawn into a discussion of whether there is any hope for Alberta's rivers. Hope, to him, is something people create. "I just put my head down and do what needs to be done," he says. "I get my energy not from hope but from the danger of the downside: how much there is to lose."

The rivers will continue to let us know how well we succeed—or fail.

Kevin Van Tighem has worked as a biologist in western Canada's national parks with the Canadian Wildlife Service and Parks Canada. He co-chaired the 1989 and 1991 *Flowing to the Future* river conferences, and is the author of eight books, including *Coming West: A Natural History of Home*.