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## Special Report: The lake's huge ... but not infinite

### The Okanagan Valley has started to respond to drought conditions, but is hampered by a 'mishmash' of almost 100 water providers with no overall co-ordination

BY LARRY PYNN, VANCOUVER SUN SEPTEMBER 22, 2015

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The Okanagan Valley is seen as a water playground. But it has looming conservation issues, and suffers from a hodgepodge of close to 100 water providers, some tapping into groundwater, surface streams, and Okanagan Lake.

THE OKANAGAN VALLEY —When it comes to water, Shaun Reimer is the closest thing to god around these parts.

Amid intense competing interests for a finite resource from farmers, towns, fisheries and First Nations on both sides of the Canada-U.S. border, it is Reimer who ultimately decides how much water gets released, and when, from the Okanagan Lake dam at Penticton.

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released, and which, from the Okanagan Lake dam at Penticton.

The section head for public safety and protection with the Ministry of Forests, Lands and Natural Resource Operations is concerned not just that lake levels were below normal this summer but the potential for drought conditions could be repeated next year. After all, the lake has only about 1.5 metres to play with, the amount of water recharged annually into the basin.

"We have a finite amount of water," Reimer explains. "As more people move into the Okanagan, it will be tough and will have to be factored in. There is a myth of abundance in terms of water. People see a 140-kilometre-long lake and they just assume it will always be there for them. It's not what they think."

The dam is hidden away behind an amusement park's go-kart track and the Cannonball Air Blaster at the southwest end of Okanagan Lake. People who find the steel-reinforced concrete structure can stand on a walkway and watch two white plumes of water gush forth to form the Okanagan River.

The dam was built in the 1950s for flood control but during times of drought it also serves to hold back water and allow for releases through a dry hot summer.

It is also the final and ultimate impediment for a population of sockeye salmon that begins its spawning migration at the mouth of the Columbia River and travels 1,000 kilometres past nine hydro dams into the southern Okanagan.

The Okanagan River, which begins just below the Okanagan Dam, is diked and channelled and filled with fun-seekers on inner tubes and air mattresses on a warm day floating through the outfall of Penticton's tertiary-treatment sewage plant en route to Skaha Lake.

"They're a little ways down the ladder of priorities," Reimer says with a smile. "I tell them if you're on a raft you're probably OK. but I wouldn't want to swim down. You might skin your knees on the rocks."

The Okanagan River continues past Skaha Lake to Vaseux Lake and Osoyoos Lake, navigating another two dams and 17 "vertical drop structures" along the way, before reaching the international border. Vast amounts of technical information, including stream flows into the lake and fish modelling, help determine the best release of water.

But a shockingly disjointed system of water delivery in the Okanagan

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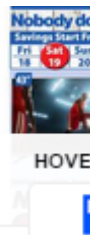
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doesn't make the task easier.

There are almost 100 water providers in the valley, including cities and irrigation districts, providing water to as few as a handful of farmers or to as many as tens of thousands of mainly urban residents. It's a reflection of the history of settlement of the Okanagan Valley, irrigation systems established piecemeal by ranchers, farmers, and developers. If you poke around you can still find some old wood-stave flumes on the local mountain sides as well as abandoned concrete flumes, including one next to the University of B.C. campus north of Kelowna.

"The Okanagan has to be one of the most highly managed water systems in Canada," confirms Anna Warwick Sears, executive director of the Okanagan Basin Water Board. "Almost every tiny bit of water running on the land has some kind of control structure on it. It's a total mishmash. Everyone has their own concern and is looking at it from their own perspective. And there's no information coming from the provincial government to bring it all together. This is an unprecedented situation and no one knows quite how to respond."

Among today's providers, some have water meters and some don't. Water rates vary. Some extract surface water from streams and smaller dams in the hills, some from wells, and some, such as the City of Kelowna, draw from the depths of Okanagan Lake.

Even in Kelowna, there is no uniformity. There are five major water providers within Kelowna's boundary — one of which is the City of Kelowna, drawing water directly from Okanagan Lake and one of the last to impose lawn sprinkling restrictions on its residents.

The B.C. government declared a Level 3 drought rating in the Okanagan on July 10, and urged a 20 per cent reduction in water use from all municipal, agricultural and industrial users.

Yet it took the City of Kelowna almost a month, Aug. 4, to enact even the most modest of residential restrictions — lawn watering on odd-numbered days for odd-numbered address, even days for even-numbered addresses, the first such restrictions since 2010.

On Aug. 5, the province declared a Level 4 drought and suspended angling on the Okanagan River.

The city has to date relied largely on the big natural reservoir at its doorstep and meters as a financial deterrent to excessive water use.

It can all be confusing for anyone who travelled this summer from Metro Vancouver to the Okanagan. Coastal residents may live in a rainforest



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but watched their lawns turn brown due to tough water-use restrictions, while cities such as Kelowna in a hot semi-arid landscape continued to enjoy lush and watered downtown parks.

The Sun caught up with Jen Trampf and her children — Julie, three, and Ava, six — sitting on the green next to the fully functioning water park on the waterfront near William R. Bennett Bridge. Kelowna is her hometown, but she lives in North Vancouver and returns regularly to visit family.

At home, she can't even fill her swimming pool. "I do find it odd," she says. "Obviously, we're only four hours away and it's night and day with water here."

Kelowna's water utility manager, Kevin Van Vliet, has seen the issue from both sides. He worked 14 years with the City of Vancouver before coming to Kelowna four years ago.

"Vancouver doesn't necessarily have a water problem, it has a storage problem," he said, referring to the Capilano, Seymour and Coquitlam reservoirs. "It's different on the coast."

Kelowna residents tend to voluntarily avoid sprinkling during daylight hours due to high evaporation rates.

"Our peak demand is 3 to 5 a.m., unlike a lot of typical cities that peak when people come home, after dinner," Van Vliet said.

Kelowna also recycles all of its waste water back into Okanagan Lake, while Metro Vancouver discharges into the Fraser River or Strait of Georgia where it is lost to domestic reuse.

Due to the dry and hot climate, city residents still tend to use more water than other jurisdictions.

A 2010 study of the entire Okanagan basin found a residential per capita rate of 675 litres, which compared with a Canadian average of 329 litres and B.C. average of 490 litres. Metro Vancouver weighs in at 470 litres per person daily.

Single-family residential water use in summer is four times greater in summer than winter but has dropped 20 per cent per capita over the past decade.

"If this is long-term drought, we'll want to use less water and not start mining Okanagan Lake," Van Vliet said. "The volume of water is huge, but we have to make sure it can recover."

The city is also working with the four other major water providers within

The city is also working with the four other major water providers within Kelowna's boundaries on a coordinated drought-response plan, but lacks connecting infrastructure to share water in times of drought.

The Okanagan Basin Water Board, established in 1970 as a partnership of the basin's three regional districts, is the organization trying to make sense of the clutter of water scenarios. It does an aggressive job on public education, but ultimately has no teeth to force anyone to act responsibly on water management.

Sears sits in her second-floor office within the Regional District of Central Okanagan administration building on KLO Road in Kelowna. She furrows her brow to see the lawns out front green and manicured during The Sun's visit, not in keeping with the board's message against unnecessary watering.

"It's my job to urge people to be cautious," says Sears. "I'm encouraging people to balance all these competing demands and be as conservative as possible. We can have fun in the lake and grow our crops and do what we want, but I don't know why the lawn out here is being watered. In a drought, we should be cutting out our discretionary needs."

She believes that increased water restrictions this year will stimulate debate on greater, longer-term issues over water use. "For the first time really, I think there is now concern about how much water is in the lake and how much will be available for releases."

The board has decided to concentrate its conservation efforts not on farmers but on residential landscaping, which sucks up 25 per cent of the area's water supply. Elsewhere, the landscaping sector is such a water hog that the Southern Nevada Water Authority pays customers \$1.50 per square foot of grass removed and replaced with desert landscaping.

Sears' board also supports a switch to drought-resistant plants and has funded the six-hectare Summerland Ornamental Gardens to showcase low-maintenance, drought-tolerant landscaping — known as xeriscape gardening, from the classical Greek root xer, meaning dry. "Plants use a tremendous amount of water," said Warwick, who has a PhD in plant biology. "Grasses are particularly good at pumping water out of the soil."

Surprisingly, too much conservation can also be bad for business, Sears observes.

"I know for a fact that some water utilities ... are concerned if they tell people to conserve too much then the water utility won't be able to charge as much ... and the utility can have financial problems if people

aren't watering enough. It's a perverse dysfunctional system.

"I'm not naming any names."

The South East Kelowna Irrigation District serves 2,282 hectares of mainly orchards, and has 2,300 water connections and 400 irrigation connections. It relies on reservoirs within a 65-square-kilometre total area, according to a 2006 report by the federal government's policy research initiative found.

The report noted that in 1994, the district began installing water meters and providing irrigators with soil moisture meters as an educational tool, so irrigators would have a better sense of their own water use. In 2000, the district started charging a flat rate for a basic water allotment and a volume rate for additional water use. In 2003, excess users were hit with a punitive increasing block rate. "In the year 2000, when prices were introduced, the water savings became significantly larger, and from 2001 to 2005, when punitive prices were introduced, water savings were very strong, water use declined by about 40 per cent with the pricing program," the report found.

Those findings continue to ring true today.

Low water rates can hamper conservation efforts, agrees Ted van der Gulik, president of the Partnership for Water Sustainability in B.C. "The water costs are too cheap in the Okanagan to really make huge changes in how you manage your water to save money," he said "Most farmers are doing it for their own benefit, growing a better product."

A farmer in the South East Kelowna Irrigation District pays \$79.20 per acre per year for 2.7 million litres.

"Farmers who pay attention and manage their water use will have enough water to get by in a dry year, at a reasonable rate," said district manager Toby Pike. "If they do not water responsibly, they will pay a penalty and also run the very real risk of simply having their water shut off when they reached their allotment."

Grape growers such as Nathan Goltz have been effective at turning water into wine — and doing so more efficiently than the generations of farmers who preceded him.

Goltz has his own four-hectare vineyard in Cawston but also manages larger vineyards such as Vanessa Vineyard in Cawston in the Similkameen and Sandhill and Burrowing Owl vineyards midway between Osoyoos and Oliver in the south Okanagan.

In the past, farmers in the Okanagan Valley used overhead sprinklers to

water their orchards for hours with little thought to the consequences.

“It’s so much different now,” confirms Goltz, a fourth-generation farmer and director of the B.C. Grapegrowers Association. “Nowadays we measure how much water we’re putting in the soil, how far down is it going and when do I need to water again.

“I hear stories from my dad. They grew apples. They just kept running cycles of waters. You went out and turned on the water for 12 hours.”

Today, as a consulting vineyard manager, Goltz employs a range of technologies to ensure the grape vines receive the optimum amount of water for growth and production — soil probes, pressure chambers to measure drought stress in the leaves, along with drip irrigation.

He does it to ensure optimal growth for a variety of grapes and root structures across a range of soil types and sun exposures. It also doesn’t hurt to feel good about your effect on the environment.

“I know there are growers out there who might not care about that,” he said. “One day when I give this land back to the next person I want it to be in better condition than when I started. That’s built in a little bit to farmers. That’s how we make our living — off the land.”

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