

Reverse Course

Changing our minds about water

By Glenda Bartosh



STORY BY GLENDA BARTOSH

REVERSE COURSE! Changing our minds about water

Sure, we don't have to squat over massive open pit toilets or worry about seepage from them. Whistler's sewage and wastewater treatment system is one of the most advanced in the world.

And we don't have to walk kilometres every day to get clean water, hauling heavy bucket loads home balanced on our heads. We don't even have to buy it in plastic bottles.

The Whistler area, surrounded by gorgeous lakes and waterways, is blessed with some of the best-tasting, best quality water available at the turn of a tap. On a recent hike, your pal from out-of-town was amazed you can simply bend over a stream and scoop up a handful.

We're so surrounded by beautiful, fresh, clean water we think it will go on forever.

By contrast, after four years of record drought, Californians must cut water use by 20+ per cent — it's the law. Washington has enacted a statewide drought emergency. And NASA data just out shows that more than half of 37 of the world's biggest aquifers — in the U.S., France and beyond — are being used up faster than they're being restored. Increasing population pressures and climate change will only make things worse.

But don't think we're off the hook in our little mountain kingdom.

Snowpacks vanished this year at astonishing rates. In June, B.C.'s south coast snow levels, and those in seven other regions, were zero per cent of normal.

Spring and summer have been parched with heat waves, low rainfall and soaring temperatures. Records have fallen like bowling pins. B.C.'s May was the driest on record; June the third driest. Sixty-four record highs were smashed in one weekend alone.

Sea to Sky has hit a Stage Three drought level so residents need to cut water use by 20 per cent. Stream and river levels are so low scientists say it could spell disaster for salmon. At Whistler, municipal water crews have never seen 21 Mile Creek, the main water supply, so low. They're constantly monitoring levels to see if the threshold needed for fish habitat is reached. If it is, 21 Mile will be removed from the water supply.

Even here, where it seems to go on forever, we need to change our minds — and habits — about water.

Whistler mayor Nancy Wilhelm-Morden calls it a very good and timely move. Oliver Brandes, co-director of the University of Victoria's Polis Project on Ecological Governance, says it's going to bring us into the modern age.

The new Water Sustainability Act (WSA), which has been making headlines lately, positions B.C. to be the leader of the pack in Canada. When it comes into force next year, replacing the province's woefully out-of-date 100-plus-year-old Water Act, it's going to change the way water is regulated, protected and conserved in the province.

The new act, which provides for flexibility and shared decision-making, has some muscle. It updates a number of critical components, such as planning and monitoring requirements, and protects access to water for essential household needs.

Most importantly, it has provisions to better deal with drought, including setting critical thresholds for environmental flows. These are vital for protecting the necessary pulses of water that go through rivers, streams, lakes and aquifers, and turn plain old water into whole living systems.

"Historically, water was seen as overly abundant (in B.C.)," says Brandes.

"Only in the last 10 years has water really emerged in B.C. as an important driver. Two reasons: One is we're beginning to get its social and economic underpinnings and, two, I don't think anybody is kidding themselves that a change in climate will first and foremost be felt through water systems.

"...You know it's real when the current government passes what many would agree is a very progressive Water Sustainability Act."

The WSA was envisioned in B.C.'s water policy in 2009. The Living Water Smart policy, which is applauded for its ambitious and clear directions, has two relevant goals for conserving water in Whistler, as specified in the Resort Municipality of Whistler's 2013 water conservation and supply plan. By 2020, 50 per cent of new municipal water needs will be acquired through conservation. As well, water use in B.C. will be 33 per cent more efficient. Both are critical goals in a province with one of the highest water usages in Canada — and at Whistler, where water use remains high despite goals to reduce it.

The WSA was passed in spring 2014, but the important part is currently underway. If the act is a car, the regulations are the engine, and the engine parts are being built now. We'll turn the ignition in early 2016.

Probably the most important change will be that, for the first time, the use of groundwater — which is a major source of Whistler and Pemberton's water supply — will be regulated in B.C. Previously, a local government, water bottler, mine, brewery, or virtually anyone with a licence could pump out as much groundwater as they wanted.

"There were only some rules, like how you built the pump and how you finished the pump once you capped it, but there were no rules about how much you took,"

says Brandes.

"Once the straw was in the cup you could slurp all day."

But as soon as the new regulations take hold, the process begins to drive us toward reducing water usage.

For details on BC's new Water Sustainability Act go to: <http://poliswaterproject.org/publication/655>

WHERE THERE'S WATER THERE'S WASTE

In California, people are turning to social media to "drought shame" people who waste water. If Canada had the same culture, B.C. — with one of the highest per capita use rates in the nation, according to Brandes — would be near the top of the shamed list. Whistler would rank even higher.

At a rate of 510 litres of water per person per day (2014 data), Whistler has a reputation for being a water pig. Compare its use to Environment Canada's figures of 343 litres/person/day for Canadians on average, or 135 litres/person/day in Israel. And there's no getting off the hook blaming the influx of visitors. Whistler's metric is based on an estimated daily average population of about 29,000, which includes visitors, vs. a base population of 10,400 residents.

You can also compare Whistler's water per capita rate to Banff's. Another great international mountain resort, it welcomes three to four million visitors annually compared to its base population of 9,400.

According to Whistler2020 — which, along with the water conservation and supply plan, guides Whistler's water use with the aim of reducing it — Banff's per capita water use was 282 litres/person/day in 2009. Whistler's number for 2009 was almost double at 536 l/p/d. More important, it's stayed about the same since despite the Whistler2020 goal of reducing use to 425 l/p/d, or about 21 per cent.

"Our water consumption is really bad, much higher than the Canadian average," says Cheeying Ho, executive director of the Centre for Sustainability at Whistler. "Even if it's flat-lining, we're not improving because it's not going down."

But there's a glimmer of hope on the horizon.

"We live in an environment — and it's not just Whistlerites, it's probably most British Columbians — where we think we're surrounded by water, and that it's a readily available and replenishable resource," says mayor Nancy Wilhelm-Morden.

"But even though our trends are still going in the wrong direction, I think attitudes... are changing.

"With two winters of back-to-back low snowpacks, with Washington state declaring a drought emergency, and with the generally drying climates, I think people are starting to be just a little more aware of individual water usage and that our assumptions aren't necessarily defensible any longer."

To the point, every person interviewed for this article valued water and recognized the need to conserve it, at home and at work.

For instance, members of the Restaurant Association of Whistler (RAW) are "absolutely concerned" about water since a clean, steady supply is crucial for them to function. But RAW doesn't track how much water its members use, individual restaurants don't track water use internally, and metering is spotty.

However, according to RAW president and Sushi Village manager, Amy Huddle, likely three-quarters goes to health and safety functions like washing dishware and glassware.

RAW doesn't have any association-wide policies or communications programs to save water. Individual efforts, like filtering water and serving it in reusable containers, are made within the context that customers expect a certain level of service. Sushi Village, like most places, sells bottled water but Huddle says her staff is "very vocal" about promoting Whistler's tap water instead.

"We're on the West Coast so much of this is linked to what we see going on in California at the moment that could very easily be us in the next couple of years," says Huddle. "So doing preventative measures ahead of time is a great way to educate people and get them organized."

On the accommodation side — Whistler's single biggest economic driver where, again, service is king — ad hoc water-smart initiatives are also the norm. Newer hotels can have innovations like hardscaping rather than traditional landscaping to save water, and two-stage toilets, as per B.C. Building Code and local bylaws. But guests won't tolerate low-flow showerheads, even though guest rooms have the highest water use, mostly from long and multiple showers. "Generic towel re-use," which started in the late '90s, has likely saved water, but there's no baseline of data to compare. Besides, most dirty laundry goes to Vancouver.

Again, water use is not tracked internally per se although hotels, like other commercial outlets, are metered by the RMOW and pay for water at a flat rate. (Fairmont Chateau Whistler is the only hotel that pays for water according to volume used). And, like restaurants, there are no association-wide water-smart policies or communication programs in place.

However, Steven Webb, Hilton Whistler Resort & Spa general manager and chair of Whistler's hotel association, representing 3,400 guest rooms, thinks the latter might be coming, given it's "quickly moving up the priority list for people." But there's a caveat.

"It's very difficult with guests who are paying for the services and the product, when they come to hotels in a resort environment to relax, to try and convince them of something they don't actually want to be convinced of," says Webb.

"Until it becomes a pressing issue for the consumer, then it's very difficult for hotels to get the sustainability message out there."

So the sad irony remains that despite the resort's brand being tied intrinsically to nature, the growing community awareness, and the progressive conservation policies, Whistler is still a water hog.

The new Water Sustainability Act will make a difference, but what else needs to change to make the community reverse course on water?

WANT TO MANAGE SOMETHING? MEASURE IT

In B.C., typically from a municipal perspective, water use in summer increases drastically. One half of that summer water use is outdoors, whether it's watering lawns, landscaping and gardens; filling swimming pools; or washing cars — and we're not talking about agriculture here.

"So it's actually very easy to cut back drastically on the amount of water we use per capita," says Deborah Curran, municipal lawyer and professor of environmental law and sustainability at the University of Victoria. "It's very simple: It's targeting outdoor water use — becoming much more efficient in our outdoor water use and, secondly, charging for water such that we use it much more efficiently."

There's a direct correlation between water use and metering. The University of Victoria's Polis Project on Ecological Governance has several documents that show once you start metering and charging for water by volume, people decrease their water use by about 25 per cent — about the same decrease stipulated by Whistler2020. So metering changes behaviour.

Luckily, you don't have to convince RMOW utilities staff of that. One of the initiatives outlined in the municipal 2013 water conservation and supply plan is metering and volume-based pricing.

"It's inarguable that in locations where you have volumetric pricing, so you're billing for water used, it is absolutely clear that there's a reduction in water use — no question," says RMOW utilities group manager, Michael Day. "And that can range anywhere from 10 to 30 per cent."

Curran has several suggestions for effective conservation through metering. One, block pricing, uses a set rate for a certain number of litres, say, what a family of four would use.

"Then anything above that punts into a different rate and you charge significantly more because it's that incremental supply that is much more costly to deliver," she says. (Don't forget that water use is inextricably linked to energy and capital costs for things like pumping it.)

Once meters are in use, it's also easy enough to have different rates for different types of uses, say irrigation, vs. residential use vs. commercial use and so on. You could even meter water separately if it's used for cooling systems.

For example, every water customer is metered in the town of Mammoth Lakes, adjacent to the mountain resort of the same name in California, where water use must be cut by 20 per cent. They've also been metering different types of uses and applying a unique block pricing system to each type for years.

(See "Dispatches" in this issue of Pique Newsmagazine: Head to head with water at mammoth lakes)

By contrast, fewer than half of Whistler's commercial and residential buildings, including all new buildings, are metered. Contrary to urban myth, the meters are read, but only once a year.

While the overwhelmingly largest amount of potable water that's unaccounted for goes to irrigation (see WATER TABLE FACT 5), the RMOW does meter some irrigation systems — those attached to newer strata lots and some of Whistler's parks. As well, there's an irrigation/sprinkling bylaw regarding summer watering restrictions like those in place now, but it's only enforced on a complaint basis.

Water user fees in Whistler are based on square footage and the use of the property. For instance, a car wash pays a higher rate based on use than, say, a residential condo.

Average cost per residence in 2015, be it a house or condo, is \$387.74. Commercial fees are complex to calculate, but each restaurant, bar or lounge, which make up about 260 billable water accounts in Whistler, will pay an average of \$1,053.55 in 2015, no matter how much water they use.

Installing and tracking meters for all Whistler water users would be a major undertaking, but it would change behaviour and drive people to use less, especially in cases of unaccounted water, which can be everything from strata corporations with their own water distribution systems that leak, to irrigation uses. It would also provide much-needed metrics and analysis, and drive Whistler into the modern world, one where best practices are for municipalities to meter water.

"I come from a background of being an engineer in Seattle — so both sides of the border," says Rick Peel, building maintenance manager for Hilton Whistler Resort & Spa.

"That said, I was just totally blown away with not having meters in place and tracking this stuff (water consumption), because there's a lot of information that comes along with tracking utilities...."

MORE BRAINWAVES FOR SAVING WATER

Californians might be using drought shaming to get people to save water, but gentler peer pressure, like changing the social conversation and leading by example, is more the Whistler way.

Throughout Whistler, initiatives are happening that definitely save water and you can easily reinterpret at home.

One of the biggest at the municipal level is the upgrade to a smart irrigation system for all the green spaces it waters that will be completed by mid-September. It will include municipal parks, sports playing fields and village areas (many irrigation systems you see in action — often wasting water — are on

private property). Linked by software to a weather station, the smart system will take into account factors like humidity, wind, precipitation, solar radiation — even evaporation rates — and program the amount of water accordingly for every individual valve in the system.

Of course, you wouldn't invest \$230,000, but you could install a simple rain switch in your irrigation system, in which a cork swells up when it rains, turning off your irrigation. If you're one of the many who turns on your hose and forgets about it, battery-operated timers you can buy at a hardware store are easy to hook into your garden hose, and pre-program to turn water on and off at set days and times, making it easy to comply with the sprinkling bylaw.

When it comes to landscaping, municipal crews and private landscaping companies alike have been continually naturalizing landscaped areas around Whistler with hardy indigenous or drought-resistant plants. A great idea, especially for strata properties, because the results are beautiful, plus they save water and reduce costs managing those areas. (In June, the only Whistler neighbourhood that didn't have extraordinarily high watering was Cheakamus Crossing, which has hardy native plants and effective automated sprinkling.)

"This doesn't mean planting cactus and succulents," says landscape architect Tom Barratt. "It means using native plants of the area that are better suited to existing climatic conditions and rainfall."

Western larch, Nootka roses, mock orange, pearly everlasting, goat's beard — the list of drought resistant plants is extensive. You can find a very comprehensive one at Whistler.ca. Remember, sufficient soil and good soil condition are key to water retention, even for grass. Adding mulch and compost will keep your plants happy and leave more water in the wetlands and watersheds.

GRASSY STRATEGIES

All Whistler golf courses have their own non-potable irrigation wells, but Whistler Golf Club is a leader in saving water. Working with Audubon International, the golf club has moved to a new irrigation system and other initiatives, like using a creeping bentgrass variety on greens for better heat and ice tolerance, that have increased water savings by 12-15 per cent annually. Here, assistant superintendent Stu Carmichael hand waters specific dry locations on greens to prevent overwatering large areas using irrigation heads. Moisture meters, like the one pictured, are also handy. You can be water wise with your lawn, too. Grass is much more water-friendly if it's well maintained and drought-resistant varieties are used, like fescue.

ASK AN AUSSIE!

If you want to know how to save water, ask an Aussie — they're experts. That's the successful campaign on the RMOW's Facebook page to gather good ideas on saving water. Greta Bishop must have the top offering with this (and, yes, she is an Aussie!): "Have a shower with the plug in the bath, bathe children. Then bucket the water into the washing machine. Then take the drained water to water your veggie garden then eat your beautiful tomatoes."

Other smart ideas include:

Use a stopwatch outside the shower to keep it to two minutes

Use a little cup to dip your toothbrush in and rinse rather than running the water.

Stop watering your lawn! You won't have to mow it.

Leave water in one sink all day to wash your hands, then water your plants with it.

The RMOW is also giving out signs to people saving water ("I save Whistler water: Ask me how!). You can find more good ideas that might help you proudly display

a sign on your brown lawn at whistler.ca/savewater

THE GOOD & THE BAD:

Whistler's water conservation and supply plan

Whistler adopted a water conservation and supply plan in 2013 to ensure a long-term, reliable supply of water. The plan actually includes things like metering with volume-based pricing, better enforcement of sprinkler bylaws and better public education. Two aspects stand out:

THE GOOD One initiative that's been overwhelmingly beneficial for water conservation has been the replacement of leaking water mains. Whistler is located on porous rock that makes leak detection difficult so old neighbourhood water systems installed decades ago can leak and remain undetected for ages. The current detection and repair program started in Emerald Estates and has moved on to the village and Creekside. Many leaks are being resolved in Alpine Meadows with the water main replacement project there, but that project was undertaken for water quality reasons — plugging leaks and saving water is a welcome side effect.

THE BAD One water conservation strategy raised in the 2013 plan has great potential. It's aimed at tackling once-through cooling systems. These wasteful systems cool by running cold water — namely Whistler's potable water that averages a nice cold 6°C — through a commercial cooling unit like a walk-in freezer once, then it goes down the drain. The waste is huge. Once-through systems were once popular because they save users the energy costs associated with conventional cooling systems. There are definitely some once-through systems in Whistler, but no one knows for sure how many. RMOW staff tried to get a bylaw through restricting them in 2009, but it died at third reading due to resistance from the business community. However, they'll try again this year with a new bylaw at least restricting future once-through systems.

WATER AS SNOW

While the 1977–2013 trendline shows more snow pack at Whistler Blackcomb, the past two years have been exceptionally low. As well, climate change means glaciers, including Horstman Glacier, which feeds Fitzsimmons Creek watershed, have been receding for well over a century. Glaciers and thicker snowpacks ensure a longer flow of water into the drier summer months. Exactly how these factors will coalesce and impact Whistler watersheds in the future is unknown. What is known is that low snowpack years, like the last two, mean more snowmaking and using more water and energy.

Whistler Blackcomb has a sustainability policy with strong conservation goals for energy, but no specific goals for water. Municipal water is used for base area facilities and mountain wells for on-mountain facilities. But 95 per cent of water used goes to snowmaking, most of it from Fitzsimmons. At 1.7 billion litres in 2013–14 and 1.2 billion litres 2014–15, it's still only "a decimal point of the water in the greater Fitzsimmons drainage basin."

"We're taking the water out of various watershed but it typically stays in that watershed because it's reproduced as snow, then it melts with the freshet," says Arthur De Jong, planning manager. "Some scientists are now recognizing that snowmaking in a small way is helping the natural systems... because it's almost following its natural hydrological cycle."

WATER AS FOOD

Depending on whether you live in the village or valley at Pemberton, water comes from different sources but irrigation plays a big role, regardless.

Pemberton village supplies good quality water from the Pemberton Creek aquifer to about 3,000 residents in the village and Pemberton North, and to farms east along Highway 99, almost to the industrial park. Everyone pays a flat rate except the users along the highway, who pay by volume. The village's two main wells pumped an average of 2.5 million litres/day in 2014, with summer use, largely irrigation, doubling that of winter. Wastewater treatment handles about the same levels year round.

Other than the usual sprinkling restrictions, which came into effect about a month earlier than usual this year, there is no official conservation plan for the village. However, most people are "pretty conscientious" says Jeff Westlake, public works supervisor. Still, consumption is up 25 per cent over the past five years. At 844 litres/person/day in 2014, per capita rates are nearly double the Canadian average and 65 per-cent higher than Whistler's. If consumption continues at the same rate, the village will have to look for another source.

In light of conservation, Pemberton village has installed meters in each of five zones to show per capita consumption and understand how water is being used. Results should be known in the next few months.

Water in the valley goes largely to agricultural purposes and is managed by the Squamish-Lillooet Regional District. Most residents draw groundwater from individual wells, which must be tested each year by Vancouver Coastal Health. Some farm wells almost go dry each summer as the water table is depleted. Dykes built in the valley in the 1940s to control flooding help make Pemberton Valley one of B.C.'s most productive agricultural areas, famous for its seed potatoes and other crops.

It's places like Pemberton, where food is grown, that you can appreciate more than ever how important a steady supply of good clean water really is.

"I find it fascinating that we don't really know our water situation in B.C...." says Jennie Helmer, longtime resident, organic farmer and Village of Pemberton councillor.

"Although we haven't had a crisis, it's so important for people to have an understanding about why conservation is important when water is all around us."

REPORT CARD

WHISTLER2020: UP TO EVERYBODY!

Whistler2020 is "absolutely embedded in everything we do," assures mayor Nancy Wilhelm-Morden. Good thing. It's still the best practice in North America, according to UVic professor of environmental law and sustainability, Deborah Curran. "The thing is it's not just the municipality expected to do things, it's for everybody to get engaged," adds Curran.

Here are highlights, with grades and notes, from Whistler2020's water guidelines, which aim to reduce water use by 20 per cent.

Healthy streams, rivers, lakes and wetlands: But don't take them for granted. Wetlands are like a big sponge. They're key to keeping streams flowing in low periods so when we draw down groundwater we impact wetlands. – A+

Whistler's potable water supply system delivers water of excellent quality – A+

All potable water is used sparingly and only used to meet appropriate needs. Back to school! Using more than the absolute minimum amount of water for things like irrigation, cooling and washing cars is not smart. – D–

Water supply is distributed reliably, equitably and affordably – A

Residents and visitors are educated about, and encouraged to protect and conserve natural water resources. Work needed! – C–