

IT'S HIP TO FIX A DRIP!

**The Cowichan Water Challenge
2014-2018**

COWICHAN WATERSHED BOARD

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Photographs for this report were kindly provided courtesy of Barry Hetschko, Eric Marshall, Gord Iversen, and Logan Swain. [Below, Mayor Kent promotes “Save Water” in Duncan Parade, 2014.]



Introduction

Fresh water is Canada's most precious resource, vital to our ecology, economy and wellbeing. Although it is relatively abundant in Canada compared to the rest of the world, fresh water is a finite resource not to be taken for granted, and yet Canada's water consumption rates are among the highest in the world. In 2011 the average Canadian residential water use was 251 litres per person per day (LPD) whereas the World Health Organization advises 50-100 LPD is required to meet home health and safety needs.

In the Cowichan Valley, door to door surveys that year had shown that 92% of people felt that water conservation was important, yet the average daily residential per capita water use here was even higher than the Canadian average. At the same time, worsening drought conditions in summer and early fall were becoming the new normal for the region's climate, and a growing population was placing greater demands on the water supply.

The Cowichan Watershed Board is a collaborative partnership between Cowichan Tribes First Nation and Cowichan Valley Regional District. It was created in 2010 to provide leadership for sustainable water management to protect and enhance environmental quality and the quality of life in the Cowichan watershed and adjoining areas. As such, in the summer of 2014, the Board initiated the Cowichan Water Conservation Challenge, a five-year region-wide challenge to pull people together with a goal of reducing household water use by 20 percent.

Trucks, Salmon and Ladysmith

The Cowichan Water Challenge was inspired by the Town of Ladysmith's 2013 announcement of success in reducing its household water use, combined with compelling images of Cowichan River salmon being trucked up river because water levels in the river were too low for them to swim.

Ladysmith had provided timely evidence that residents could be living well using far less water. By implementing metering, volume-based pricing, aggressive leak detection, low-flow toilet rebates and other measures, Ladysmith water operators estimate that the Town used an astounding 45% less water per capita in 2013 compared to 2002.

The Cowichan Watershed Board proposed a collective challenge to the entire region to follow Ladysmith's lead and significantly reduce our water consumption. Board member



Trucking salmon to their spawning grounds in Cowichan River. (Year, photographer unknown.)

David Slade, a former president of the BC Groundwater Association, gave presentations to elected officials, water district directors, and the public, citing the many benefits of reducing home water use and suggesting ways to cut usage and create a culture of water conservation.

Initially, the goal of the Water Challenge was to use Ladysmith's rate as a baseline, but it was soon determined that a better measurement would be for each participant to strive for a 20-percent reduction from their own 2013 levels of daily per capita water use.

Seven of the largest water suppliers — Cowichan Bay Water District, Mill Bay Waterworks District, Municipality of North Cowichan, Cowichan Valley Regional District, Town of Ladysmith, City of Duncan, and Town of Lake Cowichan—agreed to participate in the Challenge and to encourage wise water use and measure annual progress. Cowichan Tribes, while not a direct water supplier, also joined as a participant. At the same time, the Watershed Board launched a public engagement campaign in 2014 that involved super heroes, educational materials and profiles of locals leading the way on water conservation.



July 2014 Kickoff of the Cowichan Water Conservation Challenge with elected officials in Duncan City Square. Photos by Eric Marshall.



Trickle Up!

The decision for the Water Challenge to target residential users is based on a “trickle up” theory that when people are supported to notice and easily fix small water leaks around their home, they will feel good about that and perhaps take on larger leaks, both at home and in their workplaces.

The project employed charismatic young “superhero” water champions, like Water Woman, who frowned on water waste and celebrated things such as letting lawns turn brown, turning off water while brushing teeth, mulching, testing toilets for leaks, and respecting water restrictions.

The positive water wise vibe was felt in downtown markets, at summer camps, at parades and festivals, and in classrooms. The local Cowichan Valley Citizen and other media amplified the impact with many opinion pieces, profiles of water-wise residents and more.

While the focus of the Challenge was a residential culture shift, many local businesses joined the Challenge as sponsors or by hosting information booths outside their stores. For example, Bow-Mel Chrysler loaned a “Conservation Cruiser” one summer, LNG insured it, and Leon Signs pitched in with decals. The region’s largest water consumer by far, Catalyst Paper, was also a sponsor, as was the mill workers’ union. Independent of the Challenge, the mill has worked to reduce its draw on the Cowichan River. Over the past 20 years, the company has decreased the amount of water needed to produce a tonne of pulp by 30%. Also, in order to repair leaks in pipe infrastructure, which can be a massive waste of water, in 2017 Catalyst conducted its first full assessment of the 15 km water pipe that runs underground from Duncan to Crofton.

Excerpt from Cowichan Water Challenge website

Every drop helps. The easiest drops to save are the ones that are “wasted” every hour of every day through leaks in hoses, toilets, and pipes. So start there!

Check your toilet (even new ones!) for silent leaks caused by old or misaligned flappers in the bottom of the tank. ([Click here for instructions.](#))

Outside, take 20 minutes to walk around with a wrench and some hose washers. Check all hose and faucet connections for leaks and tighten up!

Stream 1: A Friendly Challenge to Water Suppliers

With a mandate rooted in collaborative leadership, the first step of the Cowichan Watershed Board was to coordinate a meeting between the staff representatives from the eight partners – seven water suppliers plus Cowichan Tribes First Nation. This alone turned out to be one of the most impactful efforts. Throughout the Challenge, the partners shared information, strategies, knowledge and resources to improve water conservation.

For example, a significant achievement was made in the spring of 2015 when all eight participants collaborated to create and promote one common water conservation schedule (bylaw). While we knew that residents generally supported the idea of water conservation, a common complaint was that they couldn't keep track of the rules. People also don't feel motivated to conserve when they observe others watering when they can't. By developing a common set of rules about what was allowed in each of three stages of water conservation, the participants made it easier for people to comply. They also pooled resources to publicize the rules on a hanging "doorknocker" given to water users. (see image at right)

Five water purveyors annually reported their data¹-- Municipality of North Cowichan, CVRD, Town of Ladysmith, Cowichan Bay Waterworks District, and Mill Bay Waterworks District—and they all succeeded in achieving some reductions in the per capita residential consumption of their water over the five-year period. The average residential per capita use during the Challenge decreased from 300 litres per day to 282 litres per day, or 8.6 percent measured against the 2013 baseline. Cowichan Bay, at 22.83 percent, was the only purveyor to beat the goal of a 20-percent decline in water consumption over the entire period, although Ladysmith had achieved that benchmark previously (see page 6).

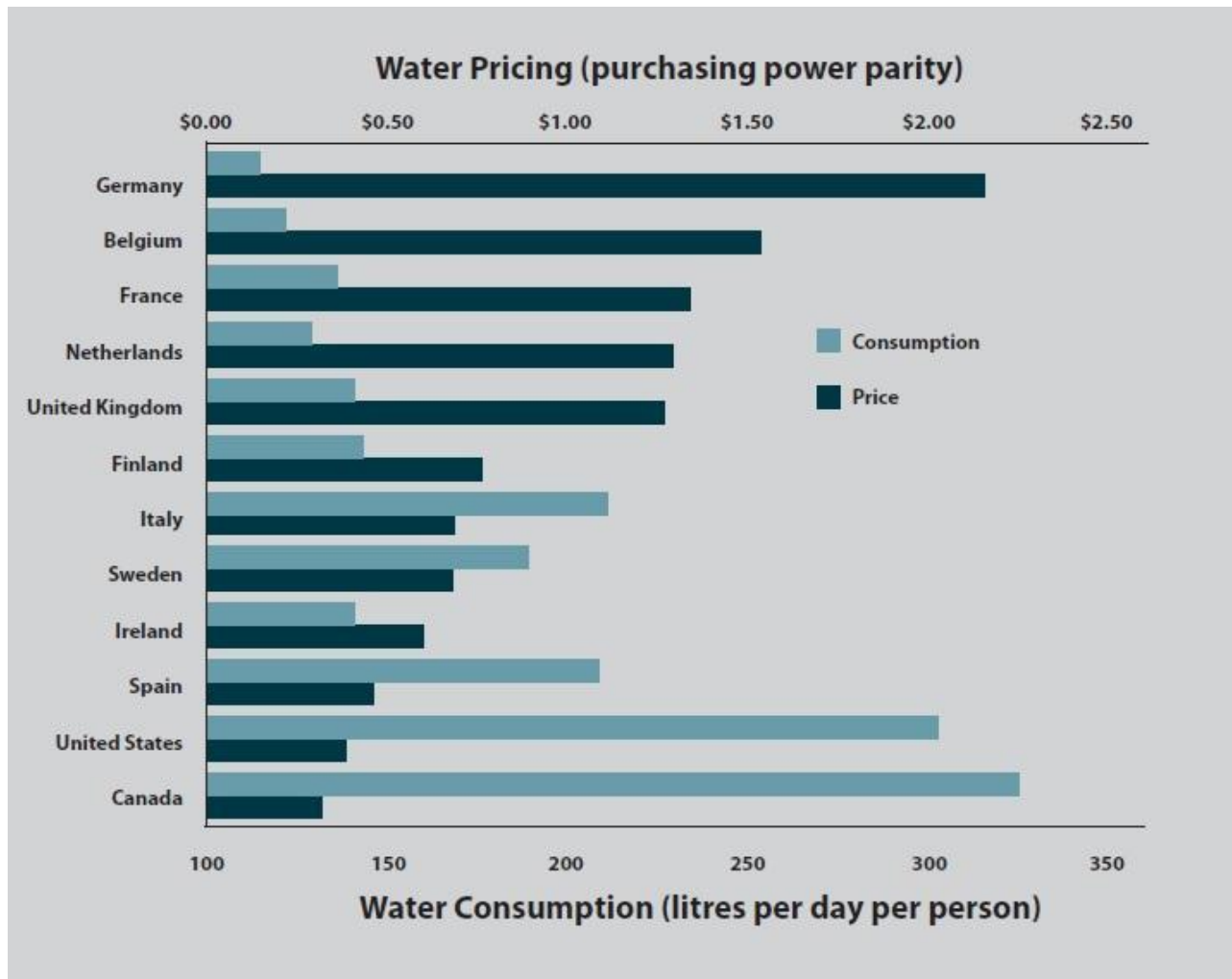
¹ Annual data from Lake Cowichan and City of Duncan have not been received, so are not reflected in the results.

	Residential Water Use in Litres per person per day (LPD)						Average % Change*
Water Supplier	2013	2014	2015	2016	2017	2018	2013-2018
North Cowichan	296	283	265	245	283	318	-5.7%
Mill Bay	249	265	227	243	240	252	-1.6%
Cow Bay	307	240	213	211	223	232	-22.8%
CVRD	415	410	370	387		376	-6.9%
Ladysmith	231	235	213	220	189	233	-5.9%
Average	300	287	258	261	234	282	-8.6%

*Average of year-to-year changes from the 2013 (pre-Challenge) baseline.

While the overall trend was toward increased water reduction, there was a lot of year-to-year variety. Some water sources are most impacted by winter and spring conditions to recharge aquifers while other water sources are more vulnerable to dry hot summers. To greater and lesser degrees, all systems are stressed under the trend towards long dry summers with no rain, when outdoor watering increases to compensate for dry soils, and water infrastructure (pipes and pumps) can't accommodate unlimited water demand. However, while stage 3 watering restrictions can be critical in one system to ensure sufficient water supplies into the fall, they may not be as necessary in an adjacent area, depending on the water sources.

Another focus of the Water Challenge was water pricing. In the POLIS Project on Ecological Governance Report, "Worth Every Penny: A Primer on Conservation-Oriented Water Pricing," a strong correlation was found between nations that charge higher prices for water by volume, and nations with wiser water use. The report also states that "on average, Canadian utilities are currently not recovering enough money from their customers to cover the costs of the services they provide." (pi). Accordingly, the CWB urged the Challenge partners to implement conservation water pricing as a necessary component of good water stewardship. While tricky to implement, it is necessary to long-term water sustainability.



Source: Council of Canadian Academies. (2009). The Sustainable Management of Groundwater in Canada: Report of the Expert Panel on Groundwater. Ottawa, ON. p 115. Reprinted in POLIS Project for Ecological Governance's Worth Every Penny: A Primer on Conservation-Oriented Water Pricing. Oliver M. Brandes, Steven Renzetti and Kirk Stinchcombe University of Victoria May 2010

For the City of Duncan and some systems within CVRD, volume-based pricing was impossible without water meters, so installing water meters became step one. Duncan is almost fully metered now, with approximately 11,000 water meters installed since 2014. Water rates in the city will gradually be converted to volume-based pricing in 2020-2021. CVRD increased from 54% metered in 2014 to 80% metered in 2018.

Participants were also encouraged to consider the benefits of more frequent (e.g. seasonal) billing to help people understand where their highest water use occurs, and to identify leaks early, but it is not known to what degree that improved over the course of the Challenge.

CASE STUDY: Town of Ladysmith

Ladysmith's water conservation success, the inspiration for the Cowichan Water Challenge began in 2003 with the introduction of a metered water rate system. This change from a monthly flat rate fee is credited with being a major contributor to the Town's decrease in per capita usage rate by almost 45 percent from 2003 to 2013, making Ladysmith one of the most water-wise towns in BC at that time.

Also, in 2010, the town targeted heavy residential water users by introducing an increasing block rate tiered structure for single-family dwellings.

Some of the other actions the Town took included:

- Installed a holding tank at the Transfer Beach water spray park to reuse water for irrigation and toilets.
- Switched to ozone at the public swimming pool so water is changed less frequently.
- Installed a computerized optimal irrigation system where everything is programmed, controlled and monitored centrally.

As indicated above, the 2013 baseline residential water use rate of 231 LPD² reflected the reductions made from a decade of water metering and education efforts. In 2014, the first year of the Challenge, the town actually saw a slight increase in per capita water usage but this was followed by reductions in all four subsequent years, peaking in 2017 with a further reduction of 18.23 percent in residential water consumption that year compared to 2013. The average change over the five years of the Challenge was -5.9% from 2013 levels.

The sources of Ladysmith's water are Holland Lake and Stocking Lake and the system serves approximately 3,000 homes.

Please see the publication [Every Drop Counts](#) to read more about Ladysmith's water conservation efforts.



Water Woman pays a visit to Mayor of Ladysmith, Aaron Stone to thank the Town for its leadership.

² Note variation from 246 LPD cited earlier is due to changes in the calculation method to align with other areas.

CASE STUDY: Mill Bay Waterworks District

Mill Bay Waterworks is one of 10 water systems operated by improvement districts in the region, governed by an elected board of trustees. The source of Mill Bay's water is 11 groundwater wells. This system serves approximately 1,000 homes.

For the baseline year of the Challenge (2013), the daily per capita home water use by consumers was 249 litres, which was good by Canadian standards, and second only to Ladysmith among the participating water suppliers.

By necessity, driven by limited water supplies, a fast-growing population, and a lack of authority to enforce water bylaws, Mill Bay has been a leader for active block tier pricing in the region since before 2014. Tiered pricing is an effective conservation tool, charging users more per unit volume above a base level, and then increasingly more above certain benchmarks. For example, the chart at right shows Mill Bay's 2019 rates above a base charge of \$56.40 for up to 1,999 cubic feet (CF) per billing cycle (2 months). Cowichan Watershed Board supports this move towards conservation-oriented water pricing.³

Mill Bay customers decreased home water consumption further in three of the five years of the Challenge, with the largest reduction occurring in the first full year of the Challenge -- an 8.82 percent reduction in 2015. However, despite implementing the strong Stage 3 water bylaw by July or August of every year from 2015-2018, the average trend over the five years was -1.6% change from 2013 levels. Mill Bay experienced rapid development during this time, so irrigation to establish new landscaping is believed to be a factor in the district's modest reductions in residential water consumption.

Mill Bay also cited the following improvements made by residents during the Water Challenge:

- changing irrigation to micro systems
- installing artificial turf or rock instead of lawn
- using rain barrel collection (small impact but a good start)



Single Family Dwelling Service

Tier	Above Allowance Quantity – CF	Cost per CF
1	2000 - 2999	\$0.0386
2	3000 – 3999	\$0.0407
3	4000 – 4999	\$0.0654
4	5000 – 7999	\$0.1293
5	8000 +	\$0.1944

Mill Bay Waterworks District Bylaw 260 (2019) Schedule A. Water costs per cubic foot (CF)

³ POLIS Project for Ecological Governance Worth Every Penny: A Primer on Conservation-Oriented Water Pricing. Oliver M. Brandes, Steven Renzetti and Kirk Stinchcombe University of Victoria May 2010

CASE STUDY: Cowichan Bay Waterworks District

Cowichan Bay Waterworks serves approximately 1,000 homes using four groundwater wells.

According to data submitted by the Water Challenge participants, Cowichan Bay achieved the greatest reductions in per capita water consumption at 22.83% below 2013 levels on average over the course of the Challenge.

Furthermore, Cowichan Bay sustained the low water use over time. In each of the first four years of the challenge, it beat the goal of a 20-percent reduction. Only 2018 saw a more modest reduction (3.35 percent).

Starting as far back as July 2007, Cowichan Bay Waterworks sent an educational newsletter with its bills, including water conservation information and tips. In 2010, the Board updated its Water Use Distribution Bylaw (230). Among other things, this bylaw specifies that water can only be used for domestic purposes. Using water supplied by the District for things such as filling a swimming pool requires written permission.



Cowichan Bay Water Works staff arranges a visit from Water Woman to Bench School to teach families how to test their toilets for leaky-loos!

By 2011, the district had metered all its customers and introduced four-tier pricing. Through this, the district could apply conservation incentives to use less water and reported that most residents have been able to stay within the first two tiers to avoid the higher water rates.

In addition, Cowichan Bay conducts audits to detect leaks in the water system by comparing how much water they produce to how much they sell. The difference is attributed to leaks which they can then try to find and fix.

Cowichan Bay Waterworks achieved the highest water reductions from their 2013 baseline in more years than any other water supplier. In 2014 the district organized for Water Woman (see page 13) to visit Bench Elementary School to teach the children how to test their toilets at home for water leaks.

CASE STUDY: Municipality of North Cowichan

The Municipality of North Cowichan maintains three water systems, serving over 10,000 homes. The Chemainus Water System gets its water from Bannan Creek and Holyoak Lake in the summer and groundwater wells the rest of the year. The South End Water System is fed by four groundwater wells located adjacent to the Cowichan River and drawing from the Cowichan River aquifer. The Crofton Water System draws its water from the Cowichan River via Catalyst Paper.

Prior to the Water Challenge, North Cowichan had already installed water meters in 100% of residences. Efforts to work with one Chemainus sawmill had yielded a 70% reduction in that customer's use, and annual school program were offered that often focused on water conservation.

In four out of the five years of the Water Challenge, North Cowichan was able to reduce residential water use per capita compared to the 2013 baseline. The greatest reduction came in 2016, when per capita water use fell by 17 percent, which is impressive across such a large customer base. In the Chemainus system, residential use decreased by 25% in 2015. The average reduction in the amount of water consumed per person over the five years of the Challenge was 5.68 percent.



Water Woman celebrates Chemainus water conservation success in 2015 with Municipality of North Cowichan Mayor Jon Lefebure and staff Shaun Chadburn. Residents reduced water use by 65 litres/person/day that year.

Additional water saving activities by North Cowichan during the Water Challenge included:

- Helping to coordinate the Water Challenge partners to create and promote a common water conservation bylaw between areas.
- Co-sponsoring a series of three free workshops on efficient residential irrigation systems.
- Implementing watering restrictions every year, including Stage 3 in 2014, 2015 and late 2018.
- Creating a new water conservation website with Frequently Asked Questions.
- Sending notices alerting customers about possible leaks on high water bills.
- School programs reaching 1,600+ K-7 students each year with a focus on watershed health (2018) and water conservation (2015).
- Hosting summer student water restriction patrols.
- Improvements to park and recreation field irrigation and drought-tolerant plantings.
- Providing free leak-detection tablets to the public.

CASE STUDY: Cowichan Valley Regional District

The CVRD operates 19 water systems; more than any other region in the province. Water sources are varied in quantity and quality, including mostly groundwater wells located near the water system, but also Stocking Lake, Shawnigan Lake and Youbou Creek. Collectively these systems serve almost 4,000 homes.

For each year of the Challenge, the CVRD had reductions in household water consumption from the 2013 baseline, except possibly in 2017 when data was not reported.

The year with the greatest reduction was 2015, when use dropped by 10.82 percent. The average over the five years of the Challenge was 6.9%

Many of the CVRD's systems were fully metered before the Challenge began, enabling volume-based billing. The region has also implemented an inclined block rate with four tiers of pricing based on the volume of water used. By using a quarterly billing cycle, CVRD helped customers be more aware of their seasonal water use and notice "spikes" (often caused by leaks) more quickly to address them.

The CVRD provided much of the leadership and coordination for the water suppliers during the Water Challenge, such as:

- Initiating the New Normal Cowichan website in the first year of the Challenge, providing a good go-to place for people looking for information on water supply and drought. Keeping the full suite of data tools in that website current proved to be unsustainable within the staffing levels of all the partners, but the website has been a valuable central repository for water conservation information. In particular, the Watershed Board's public outreach teams, including "Watershed Ed", have used the website to teach people on the street and in elementary classrooms how to find out where their water comes from. This website is anticipated to play an ongoing role for all the partners to coordinate communication to the public about watering restrictions.
- Co-sponsoring three free workshops on efficient residential irrigation systems.
- Commissioning an independent utility review and assessment, completed in 2017, on all CVRD-operated sewer and water systems. A major conclusion of this report was that the CVRD needs to charge more for water.



Excerpt: The utilities are generally grossly underfunded and have been that way for decades....In order to ensure reliable drinking water and wastewater disposal in the future, difficult decisions will have to be made on the implementation of accurate, fulsome and balanced utility rates. Without these changes, communities will not have the benefit of safe drinking water and environmentally sound wastewater disposal. (Source: *Water & Wastewater Utilities Review and Assessment for CVRD*. January 2017)



CVRD staff provide water conservation education to residents of Arbutus Ridge neighbourhood.

Stream 2: Making Water Conservation Fun

“It’s hip to fix a drip.”

The Cowichan Watershed Board set out to make water conservation a hip and heroic action by creating water superheroes and incorporating them into a public engagement campaign that complemented the efforts of the water providers participating in the Water Challenge.

The first was “Water Woman” in 2014, who was a media sensation and solicited water conservation pledges from residents to test their toilets for leaks, let their lawns go brown and to learn and follow watering restrictions. She was followed in subsequent years by “Flo”, “Raindrop”, “Water Girl”, “Watershed Ed” and the “Cowichan Hosers”, who all inserted fun and humour into the serious issue of trying to reduce water waste throughout the region.



The water superheroes were a visible presence at numerous public events, from community parades to farmer’s markets. Kids would come home from summer camps awed by meeting a water superhero and inspired to check for leaky toilets and oversaturated houseplants. The heroes made a variety of educational videos, often partnering with organizations in the community. Two local teachers even developed water conservation lesson plans based on the videos.

And it was an unforgettable experience for those who portrayed the heroes; “Flo” created a spoken word piece about her dream of restoring the Cowichan to abundant water flow and “Raindrop” and her teammates recorded a Cowichan-drought rendition of [“Raindrops Keep Falling on my Head”](#).

They also provided content for the local newspaper including seven real-life local watershed heroes profiled by “Flo” and five stories about people who were “Capturing the Rain” with storage ponds, tanks, and landscaping techniques.

The public engagement campaign had three components: Slow your Flow, Grow your Flow and Know your Flow.

SLOW YOUR FLOW

In our Eastern Vancouver Island geography and climate, much of the water challenge revolves around slowing the movement of water. This project encouraged people to see every drop as a precious resource that is moving through our watershed, and to do what they can to slow its journey out to sea.

The Challenge outreach teams focused on getting people onboard with simple things they could do at home to “slow the flow”. The goal was to give people an experience with a simple activity that would make a lot of difference over time, especially if many of us did it.

Water Woman and Friends

Take the Toilet Test!

In 2014-2015, super-heroes Water Woman and Flo used little blue food dye tablets and “Leaky Loo” to teach people how to detect leaks in their toilets. 150 local residents were provided with toilet tablets, in exchange for a pledge that they would check their homes for leaky toilets.

Other water-saving behaviours were encouraged through the Pledge to Save Water signed by more than 500 people. These commitments were mostly the result of engaging face-to-face conversations with the superheroes, rather than online interactions, enhancing their impact.

Cowichan Hosers

“Don’t let your water get wasted, eh.”

In 2017 and 2018, the campaign welcomed a new set of characters. Various people played the “Cowichan Hosers” and developed fun educational skits modelled on the 1980s Canadian comedy duo, Bob and Doug MacKenzie. Clad in iconic plaid lumberjack shirts and toques, the Hosers got us to think about... hoses!

Leaky garden hoses waste water all summer when it is most scarce. By inserting a fresh hose washer and making connections tight, residents were conscripted to save 4 million litres of water. After distributing hose washers, each on a string necklace, at public events, the Hosers collectively received 264 verbal confirmations during follow-up phone calls with people who said they had used the washers to fix leaks, leading to an estimated savings of 7.6 million litres of water (see math below).



The Cowichan Hosers hit Duncan Market, urging people to fix their leaky hoses (eh)!

Million Litre Challenge

During Water Week in March 2018, the Million Litre Challenge aimed to have 100 local residents commit to test their hoses for leaks and fix them. Information tables were set up at local businesses and events, where 78 people donned a hose washer “necklace” and gave their commitment to check their hoses. 54 more people made verbal commitments to fix hose leaks in other ways. With an estimated 28,800 litres of water saved by changing the washer of a leaky hose, a potential of 3.8 million litres of water was saved if all 132 washers were used to fix hose leaks. Some local businesses also pitched in with discounts and incentives.

Irrigation Workshops

Micro and drip irrigation systems stretch water budgets while producing healthier gardens. These systems drastically reduce the amount of water lost to evaporation or overwatering. Co-sponsored by the Municipality of North Cowichan and the CVRD, the Watershed Board hosted three free irrigations workshops with Karen Hounscome of the Irrigation Industry Association of BC, with about 65 people attending in total.

GROW YOUR FLOW

In response to the new climate reality of wetter winters and drier summers, the second part of the Cowichan Watershed Board’s public engagement effort was to educate residents on what they can do at home to compensate for lower summer water availability for gardening and other uses.

Capture the Rain



This 2017-2018 educational campaign focused on the storage of rainwater to reduce irrigation needs in summer, when water is in shortest supply. With wetter winters and drier summers, we simply need to store more.

Workshops were held with 495 high school students to teach them how to calculate the rainwater harvesting potential of their own home or school. Two public workshops on rainwater harvesting techniques for home gardeners were offered by a representative from Rainwater

Canada. CWB also produced a series of five profiles on landowners in the Cowichan region who are increasing their storage of water which ran in The Cowichan Valley Citizen, and two articles for the Cowichan Valley Voice. “Capture the Rain” ideas and tips were further promoted throughout the rainy season on CWB’s social media pages and coverage from Juice FM radio.

KNOW YOUR FLOW:

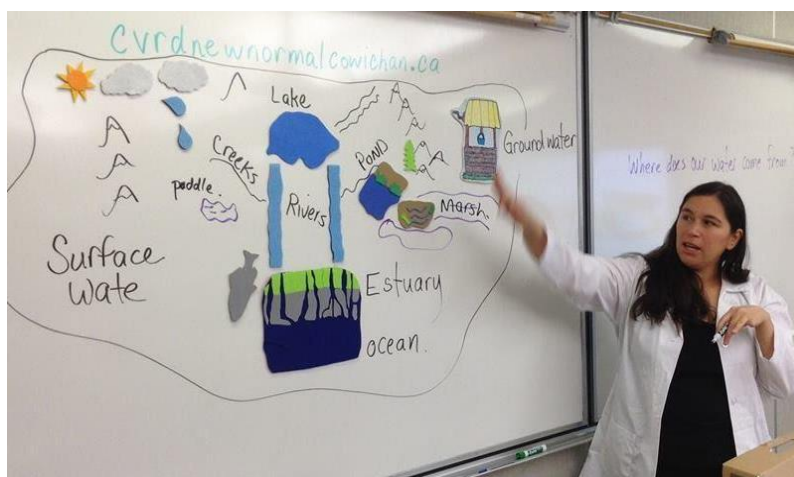
Public knowledge about where water comes from is key to water conservation for two reasons. The first is simply that having an understanding of a water source beyond the tap that a person is reliant on can contribute to concern for the safety of that water source. The second is that people who understand where their water comes from are more likely to understand how it might be affected by climate conditions (e.g. low river levels). If they understand the problem, we assume they are more likely to embrace the solution.

During the Water Challenge, water providers in the Cowichan region became more united in promoting awareness about water restrictions and what residents are allowed to do in each of the three stages of their local water conservation bylaws. They had all heard that the variation in rules about watering across the region was confusing residents, so in 2015 they tried to address that by synchronizing water regulations so that everyone was treated the same regardless of their water source. But ultimately that effort failed because different water sources respond differently to climatic effects and therefore need different levels of protection. The water providers concluded that there was a real need for residents to “know their flow”.

Watershed Ed to the Rescue!

From 2017-2019, the character of Watershed Ed taught people about the source of the water in their tap. In 2017, “Ed” conducted 25 street interviews with a clipboard and tablet, showing people how to navigate the New Normal website to find their water source. While this was an excellent experience for those involved, in the end it was deemed too time-consuming as a strategy to reach a large number of people.

In the Fall of 2018, Ed set a new goal of visiting every grade 2 or 3 class in the watershed if the teachers would make the time. In total, 314 elementary students were led through a one-hour session to identify their home water source. Materials were developed in consultation with local water purveyors that enabled educators to share some basic information about any water source in the area, depending on where students lived. After learning about their water sources, the elementary students received a certificate and encouragement to take it home to teach their families about their home water source.



Educator Kim Lagimodiere, in the role of Watershed Ed, helps grade 3 students discover where the water in their home faucets originated.
December 2018

Other

The Cowichan Watershed Board has developed a comprehensive six-hour educational bus tour of the watershed. During this period (2014-2018), tours were offered for all candidates for the 2014 municipal election, and all summer students working in water-related jobs in 2015 and 2016 for Cowichan Tribes, local government, or NGOs. Tours were also conducted with some non-profit organizations, such as One Cowichan and Cowichan Lake and River Stewardship Society.



Young interns and staff working in water-related jobs within local and first nation government offices in summer 2015 take in a day-long watershed tour lead by CWB Coordinator Rodger Hunter. The tour illustrates issues challenging the Cowichan watershed, and initiatives underway to address them.

LESSONS LEARNED FROM THE WATER CHALLENGE

Apples and Oranges: Initially, the goal of the challenge was to meet or beat Ladysmith's per capita residential water rate. It soon became apparent that it's difficult to precisely compare the data from different water systems given the lack of consistency in data-gathering or billing systems, and the variety of housing formats, which affect water use (e.g. apartment and condo dwellers don't have lawns and inherently use less water than a single-family home). Given that, it appears to be more useful to compare year-to-year daily per capita data within a system, assuming a consistency of parameters.

Broccoli and Carrots: Some complaints about watering restrictions center on the fact that during the worst droughts, car washes are allowed while home vegetable gardening (feeding your family) is restricted. The water providers encourage gardeners to invest in efficient irrigation systems that are exempt from the restrictions but recognize that a change or exemption to the bylaws for food production should be considered in the future.

Meters Matter: When people have to pay more for higher volumes of water consumption and can see how much they're consuming, most will find ways to use less. A lack of metering can obscure major leaks or abuses of water. For example, up until 2014, a large commercial building in Duncan with an unmetered water connection was using city water and a heat pump to heat and cool the facility at a rate of 20 gallons per minute. Because the water was free, almost 30,000 gallons of fresh water a day was going through a heat pump and straight into the sewers. This practice was ended thanks to the implementation of metering in the City of Duncan.

Tiers of Joy: Tiered rate systems that charge more per litre of water above certain base levels encourage water conservation. When higher tiers cost significantly more than base or secondary levels, people see the link between wasting water and wasting money and tend to invest in fixing leaks or efficient irrigation systems to avoid the high water bills. See the Mill Bay Case Study for an example.

Synchronized Swimming, Harder than it Looks: There was an effort from 2015 to 2017 to try to synchronize the watering bylaw stages in effect across all water systems in the region to reduce confusion and the tendency for people to not want to do anything their neighbours don't have to do. So, for one year at least, when we went to Stage 3 in 2015, all the partners shifted together. While this seemed to be successful at improving regional compliance with water conservation bylaws, thereby helping areas with the most critical water shortages, there were many complaints. Areas with healthier water supplies found the synchronization hard to justify in light of that.



Cowichan Tribes Councilor Debra Toporowski and Super-hero "Flow" are all smiles in the Water Challenge's "Conservation Cruiser" July 2015.

Collaboration Helps: The Water Challenge facilitated the creation of a community of water suppliers who came together, shared strategies for conservation, and created a common water conservation bylaw to reduce confusion and improve compliance.

Shifting Attitudes: It's difficult to measure how much of a culture of water conservation was inspired by the challenge, or where the ripple effects will lead. A planned before and after survey could have looked at attitudes (e.g. how it feels to have or see a green lawn during drought conditions). However, the outreach teams were warmly welcomed, and even cheered, and comments from water suppliers indicated that they felt a water-positive culture shift was slowly happening.

One Step Leads to Another: Our outreach leaders developed ways to try to hook people into taking action, and then following up. By handing out hose washers on a necklace that remained visible until you got home, they tried to spark conversations and keep the topic top of mind a bit longer. By then following up with a cheerful text or phone call, we reminded them a 3rd or 4th time that they were doing their part in an important bigger picture. It is difficult to measure the impact, but we know that marketing professionals aim for the multi-touch approach to create real converts, so we did too.

Climate Insecurity. Growing uncertainty of the water supply and awareness of local impacts accompanied by water restrictions is a major motivator for people to be more mindful of their water use. As the Water Challenge progressed, people actually started complaining if watering restrictions weren't implemented soon enough.

Good Data Is Hard to Find. The Cowichan Water Challenge and the partners involved achieved some success in lowering home water use. Yet it is hard to read too much into comparing the results of the five participants due to outliers and variables between the water systems, and several staffing changes throughout the Challenge. For example, one unusually large water user or undetected leak can skew data, and one data manager might choose to therefore exclude it while their successor might leave it in. Also, the degree of urban vs suburban landscapes (e.g. lawn vs no lawn) matters significantly between the water systems. So, while we think the trends are valid and interesting, all data must be taken with a drop of saltwater!

The Five-Year Plan. The goal of The Challenge was for participants to have their 2018 per capita residential water consumption meet or beat a 20% reduction from a 2013 baseline. But because focusing on just 2018 numbers, which could be an outlier for various reasons (see above), wouldn't capture progress made in other years of The Challenge, we decided to measure the year-to-year changes over the entire course of the project. In hindsight, because 2013 could also have been an outlier, it may have been more accurate to use the average water consumption during the five-year period (2009-2103) leading up to The Challenge as the baseline, instead of just a single year.



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