



The Pipeline

A City of Kelowna Water Utility Publication

Fall 2005

Survey results show that more needs to be done

The City of Kelowna's annual Citizens Survey showed that:

- **96 percent** of Kelowna residents think water conservation is very important;
- **81 percent** of residents have taken steps to reduce their water consumption; and
- **55 percent** of residents have reduced the volume of water they use for irrigation.

While the figures look promising, there's still much to be done. "More than half the water used by the average home is for irrigation," says Neal Klassen, the City's *Water Smart* Coordinator. "These survey figures show that 45 percent of residents still have to do their part in reducing outdoor water use. Over the next few years, our *Water Smart* program will focus on that 45 percent." ■

Kicking water conservation into higher gear

The City of Kelowna Water Utility takes conservation seriously, and 2005 will be remembered as the year the utility kicked its *Water Smart* program into high gear.

Major water conservation efforts began in March, with the introduction of a new, inclining block rate for water. (An inclining block rate increases water rates as monthly consumption exceeds certain volumes.)

In April, *Water Smart* rolled out its soil amendment program for the fifth year. This spring, the lawns of 275 homes

received a top-dressing of Glenmore Grow, a compost product that helps soil retain moisture so lawns require less water. The soil amendment program is incentive-based, meaning the homeowner pays for the cost of the product and the *Water Smart* program pays for delivery and spreading.

A new service offered this summer was complete indoor and outdoor water audits. Summer students were available to assess the water efficiency of indoor plumbing and outside irrigation systems. According to

customers who took advantage of this service, one of the most interesting parts was the core sampling of lawn and underlying soil. A core sample can "tell the history" of a homeowner's watering habits, and many customers were shocked to see the results of watering too frequently and using fertilizers with high nitrogen content (see related story on page 5). For more information about *Water Smart* services, call 868-3339, or email

watersmart@look.ca. ■



The City of Kelowna's *Water Smart* program topdressed 275 homes with Glenmore Grow this year.

Water Whys? Water Wise!

It's easy to forget that water doesn't just magically appear out of nowhere when we turn on our taps. The fact is, the water we use to sustain life and lifestyle is the result of a complex series of natural and man-made systems. In our first installment of *Water Whys? Water Wise!* we'll explore the natural water (hydrologic) cycle and how it provides us with our most precious natural resource.

THE WATER (HYDROLOGIC) CYCLE is the journey of water from the oceans to the land, and from the land back to the oceans. It is responsible for constantly replenishing the earth's fresh water supply. (Although 75 percent of the earth's surface is covered with water, only 1 percent is useable fresh water.)

- 1 Water heated by the sun *evaporates* and rises as invisible vapour into the atmosphere.
- 2 Water vapour is also emitted from plant leaves by a process called *transpiration*. (Every day an actively growing

plant transpires five to ten times as much as it can hold at one time.)

- 3 As water vapour rises it cools and eventually *condenses*, usually on tiny dust particles in the air. When it condenses it becomes liquid again, or turns directly into a solid (ice, hail, or snow). These particles then collect and form clouds.

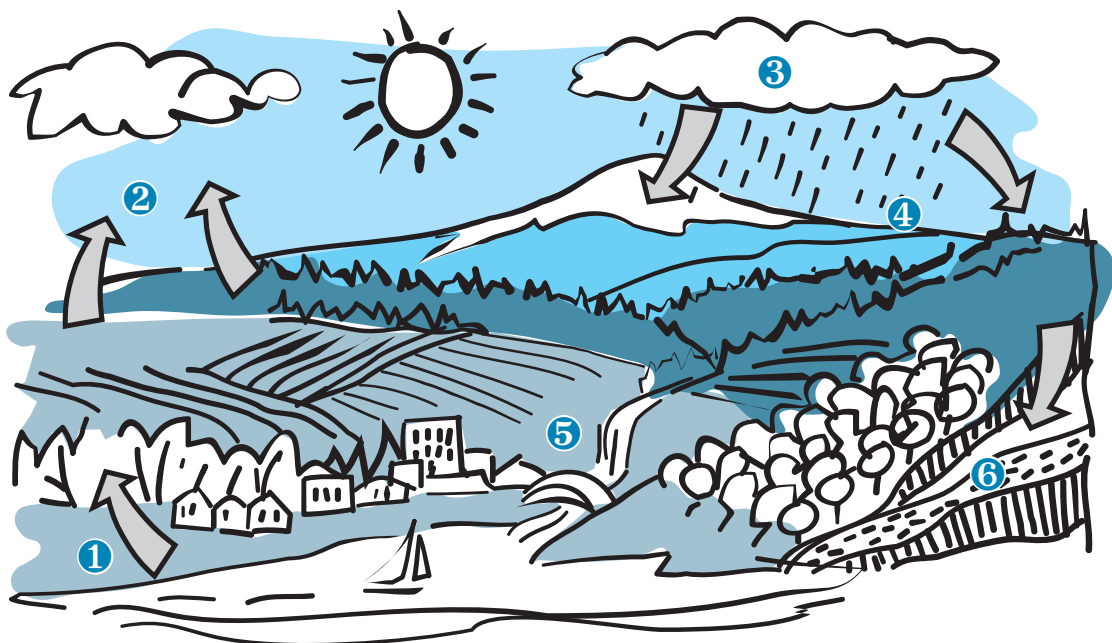
- 4 *Precipitation* in the form of rain, sleet, hail, or snow falls from these clouds.

- 5 *Surface runoff* moves overland into nearby streams and lakes. Tributaries eventually form one major river that carries all of the subbasins'

runoff into the ocean. Water diverted from along this route is called surface water. Distribution systems are often gravity fed.

- 6 Some precipitation and surface water *percolates* downward through cracks, joints and pores in soil and rocks until it reaches the water table where it becomes *groundwater*. These underground reservoirs can be tapped with wells and then pumped.

Although the water cycle balances what goes up with what comes down, one phase of the cycle is 'frozen' in the colder regions during winter. Precipitation is stored as snow or ice on the ground. During *freshet* (spring melt and runoff), large amounts of water are released back into the system, replenishing natural and man-made reservoirs. ■



Watershed management is a community responsibility

The availability of affordable and reliable supplies of water is essential to life as we've come to know and appreciate it in B.C.'s interior. To protect our invaluable water resource, we must individually and collectively protect the sources that supply it.

What is a watershed?

A watershed includes all land that drains into a common outlet. Often called a drainage basin or catchment area, a watershed collects water received as precipitation and slowly releases it into streams, which flow into rivers, which eventually empty into the ocean. A watershed — which also contains bodies of standing water such as lakes and wetlands — provides habitat for plants and animals and pathways for environmental pollutants to be filtered and processed.

Who uses a watershed?

Watershed uses are either licensed (by the provincial government) or unlicensed. Licensed uses include water supply for irrigation and domestic purposes, forestry, cattle grazing, mining and mineral exploration,

Interior Health

and trapping and guiding. Unlicensed uses are primarily recreational, and include fishing, hunting, boating, hiking, wood-cutting, snowmobiling, and off-road vehicle use. Within Interior Health boundaries, some entire communities are built within a single watershed.

What affect do these uses have?

Watersheds naturally undergo continuous natural change. Stream channels shift, unstable soils erode, and trees topple. Typically, human-induced change is different and broader in scope than naturally occurring change. When we cut forests, clear and cultivate land, build roads, remove riparian (stream-side) vegetation, alter drainage patterns, and withdraw water for irrigation, we cause rapid and often irreversible change, which also affects watershed health in downstream areas.

What is watershed management?

“The last time you went to a concert, you didn't listen to music

from just one instrument or voice,” states the Water Environment Federation in its brochure *Everyone Shares a Watershed*. “You heard the entire orchestra or chorus. It was a holistic or complete experience. Watershed (ecosystem-based) management is like that. Instead of focusing on one particular problem, we take a holistic approach. Society makes decisions based on all water resources, all water uses, and all threats to water throughout a common geographical area.”

What are the barriers to watershed management?

While government policies set the necessary legal framework for watershed protection, they are often insufficient because:

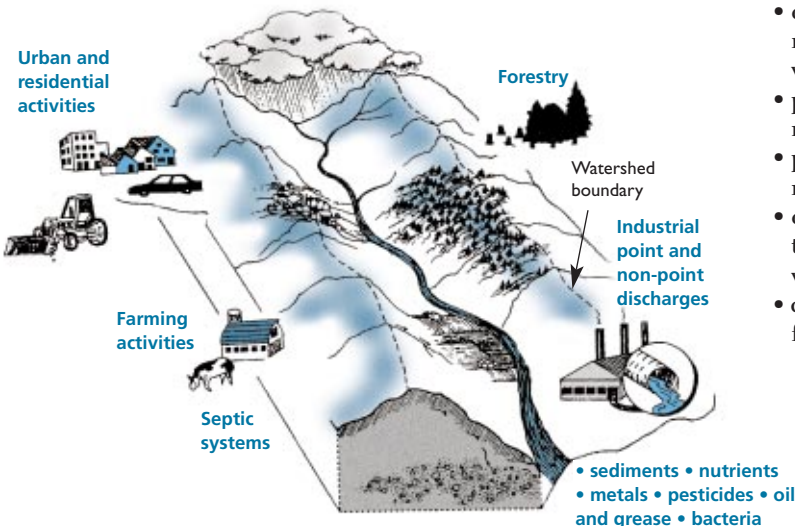
- many jurisdictions function within a given watershed,
- administrative boundaries don't coincide with watershed boundaries,
- most laws apply only to certain issues or watershed locations, and
- enforcement is difficult and expensive.

So, how can you help?

Watershed management requires cooperation and contribution from everyone. You can help by:

- educating yourself about water resources and uses in your watershed,
- promoting watershed management to elected officials,
- participating in watershed planning and stewardship groups,
- ensuring local schools are teaching the concept of watershed management, and
- considering and planning for future water needs.

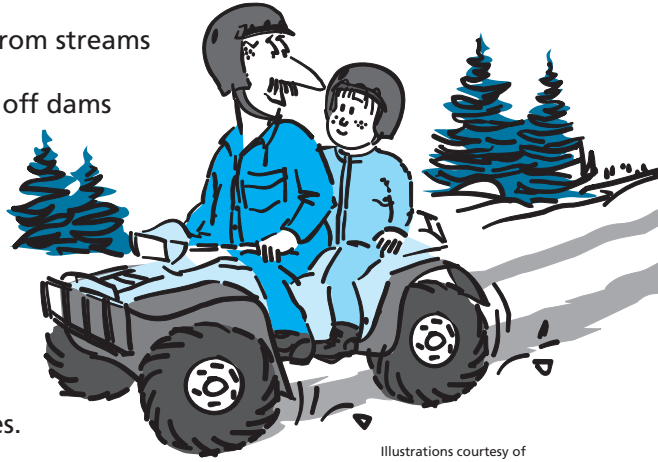
Transport of pollution through a typical watershed



Wally and Wanda say...

Be responsible when playing in our watersheds

- Recognize you're in a community watershed and that water is the priority resource.
- Go to the bathroom well away from streams and lakes — bury solid waste.
- Obey all signs and keep vehicles off dams and other structures.
- Observe, record, and report questionable activities.
- Leave nothing but a soft footprint — take out whatever you take in.



Illustrations courtesy of Kelowna Joint Water Committee

When fishing or hunting:

- Clean animals and bury animal remains away from water sources.

When cutting wood:

- Leave the trees around lakes or along streams.
- Clean debris from ditches and culverts.



When driving motorized vehicles:

- Stay on designated roads.
- Leave the soil undisturbed.
- Avoid driving in lakes and streams.
- Avoid the watershed in the spring or during rainy periods when roads may be muddy and soils are soft and wet.

Prepare for winter — some helpful hints

- Check water pipes that sit against outside walls. Fill cracks or joints that could let freezing air to the pipe.
- Check any renovations around water pipes for proper insulation.
- Drain irrigation systems and blow water out of lines and valves.
- Disconnect hoses from outside taps and drain hoses.
- Drain swimming pools and their filters and pumps.
- Clear snow in front of fire hydrants for better emergency access.
- If you have a frozen water pipe, don't try to thaw it with an open flame or torch. Use a hair dryer or portable heater, always being careful of the potential for electric shock in and around standing water.



Core sampling helps to conserve water

The health of your lawn is not determined by how green it is on the surface. Rather, the main indicator of your lawn's health is what you can't see.

This past summer, *Water Smart* staff took core samples to show customers the implications of watering too much and using high-nitrogen fertilizers. A core sample is simply a 13-cm (5-inch) plug of lawn that exposes your grass and the root system below the ground.

The first sign of overwatering is the depth of the roots. Healthy grass roots will be from four to six inches. If your grass roots are very short, that's a sure sign of watering too much.

The next indicator is thatch. This is the spongy brown layer between the grass and the dirt. A thick layer of thatch is another sign of overwatering. And extremely compacted soil indicates excessive fertilizer use.

You can actually create a thirsty lawn when you manage it from the top, not from the bottom. Just looking at the colour of your grass may lead you to make decisions that are ultimately harmful. To grow a strong, healthy lawn that can survive a little drought, you really want to work on what's underneath the grass.

Creating a monster

Here's how so many lawns in Kelowna become monsters with a voracious thirst for water.

- In the rush to have a green lawn as quickly as possible, many people use fertilizers with high nitrogen content in the spring. High-nitrogen fertilizers require a lot of water to prevent the grass from burning.



Watch for students offering water conservation advice — coming to your neighborhood in 2006.

- Excess lawn watering, especially in the spring, leads to shallow roots. All the nutrients and water are on the surface, so the roots get lazy, not bothering to dig deep.
- Shallow roots lead to thatch. Thatch repels water and shallow roots require excess water to survive the heat of summer.

Voila! You have created a monster lawn that is addicted to water.

Taming the monster

So that's what NOT to do. If you want to tame the monster and create a lawn that requires far less water and maintenance, take these tips from a Kelowna homeowner who watered his lawn just six times this past spring and summer (and yes, the grass looked fine).

- Top-dress your lawn with organic material (compost, Glenmore Grow, etc.) as often as you can.

- Stop using nitrogen fertilizers.
- Avoid excessive watering in the spring. This will encourage deep root growth.

And that's it! Granted, it might take a few years to build up your topsoil, — especially if you have a lot of clay or sand, or if the soil has been compacted by excessive watering and fertilizers. But in the long run, you'll have a healthier, happier lawn. And it all starts by taking a look at that 13-cm core sample. ■

NEIL: Have you heard about that new water-efficient grass?

ERIC: No, I haven't.

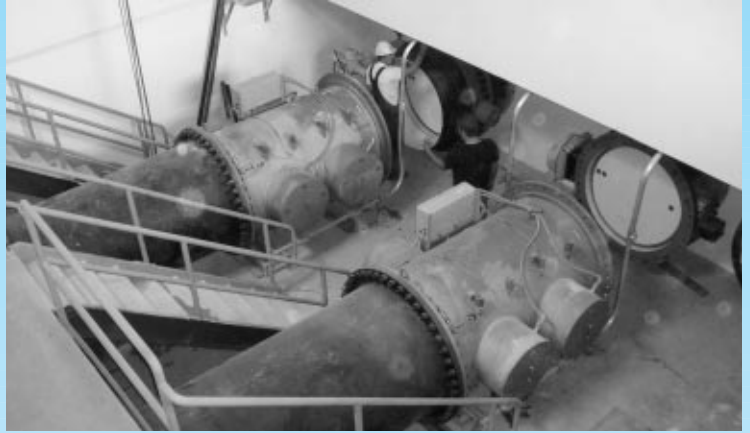
NEIL: You sprinkle it with beer and it comes up half cut!



UV light treatment nearing completion

Installation of UV (ultra-violet) disinfection equipment at the City of Kelowna Water Utility's Poplar Point, Eldorado Road, and Swick Road intakes will be completed and commissioned this fall.

With the UV reactors, the city can provide a multi-barrier disinfection system, consisting of UV primary disinfection followed by chlorination as a secondary treatment method. As water is pumped out of the lake, it passes through the reactor, where UV lights flash at a specific frequency. Pathogens are rendered sterile, therefore making the water safe to drink. ■



The Eldorado Road facility will have one 1200mm UV reactor, while the Polar Point intake will have two. The Swick Road reactor is considerably smaller, and includes one 450mm diameter reactor. The fourth intake location, at Cedar Creek Park, will be upgraded in 2006 to include UV disinfection and expanded pumping capacity.

LOOKING FOR VOLUNTEERS

Drought-tolerant grass experiment in 2006

The *Water Smart* program is looking for volunteers to participate in a drought-tolerant grass experiment in 2006. We're looking for five or six people who currently have *NO* grass and have plans to seed early next spring. We will provide you with a special blend of fine fescue grass seed.

We'd also like to find five or six people who already have an established lawn that we can over-seed next spring with drought-tolerant grass seed.

The point of the experiment, obviously, is to see how much water is required to grow and maintain the grass. We believe that this grass will

require far less water and maintenance than traditional grasses.

If you are interested in volunteering, you can find out more about the grass by following this link:

<http://www.wild-flowerfarm.com/>.

Look for the Online Catalog heading on the left side of the page, and the Eco-Lawn Link underneath the heading.

To volunteer, you must own a single-family residence that receives water from the City of Kelowna Water Utility. For more information, call 868-3339 or email watersmart@look.ca. ■

Strata reduces water consumption by 49 percent

The new multi-family water rate introduced this spring prompted several wise strata councils to be proactive about reducing water consumption.

One example is the strata at Silver Place on Dilworth Mountain. In early July, it took advantage of *Water Smart's* free irrigation system assessments. It took two days for *Water Smart* staff to evaluate the system thoroughly with the strata's gardener, but once it was done the strata had a list of repairs and suggested upgrades to improve

system efficiency. By making the repairs and implementing the suggestions, the strata was able to reduce its water consumption by 49 percent in July and 42 percent in August. It was an easy way to lower their water bills, when it seems the costs for everything else are rising.

If you belong to a strata council, your group can take advantage of this free service next spring. If you want more details, call the *Water Smart* office at 868-3338, or email watersmart@look.ca. ■

The PipeLine



Published by:
Works & Utilities Department
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Kelowna, B.C. V1Y 1J4