



*Ollie the Otter's Guide
to Watershed Stewardship*

Video Scripts

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What Is a Watershed?

Oh hi, I'm Ollie the Otter, the CRD Watershed Warden. Perhaps you've seen me around. My natural habitat is all over the Capital Region. I can live on the land... in creeks and even in the harbours.

But today I want to talk to you about "watersheds" and how they work to slow down, clean and store rain and melting snow.

A watershed includes all the land that drains water into a creek, lake, harbour and ocean. You could say that the watershed is my kind of place. So, naturally, I want to keep it safe and healthy.

The things we do around our homes and neighbourhoods can help or harm the watersheds where we all live, go to school and play.

A healthy watershed has lots of trees and native plants that help to control the flow of rainwater allowing it to be slowly absorbed into the land.

Trees are a super important part of a healthy watershed. When it rains about half of the rainwater is pumped back up to the sky by the sun and trees.

This is called "Evapotranspiration". That's a big word!

The other half of the rain fall seeps into the earth where healthy vegetated soil is "PERVIOUS" - That means it will allow the rain to soak into the soil and slowly move downhill.

This underground movement of water is call "INTERFLOW".

This water slowly travels toward a wetland, lake, or creek and continues to flow into larger creeks and eventually, the ocean.

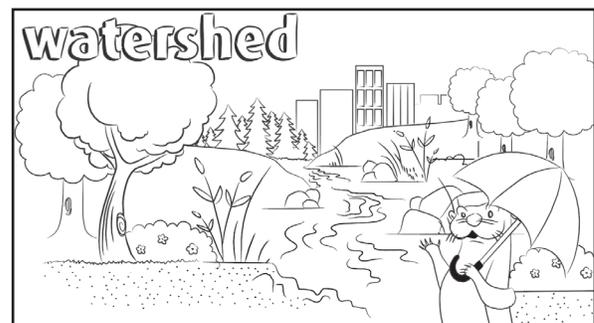
A healthy watershed includes "riparian areas" - the vegetated area around the banks of a lake or creek which acts like natural armour. The riparian area keeps the soil in place and cleans and cools the water for all of us that live in it. Ah, cool, clean water with trees all around me - that's what I call a healthy watershed!

But these days, not all of the watersheds in the Capital Region are this healthy.

Our region is now full of paved roads with cars and buildings and far fewer trees. And that's made for some big changes in our watershed.

Learn more about watersheds by watching my next video "How we have changed our watersheds". Then join my team and become a CRD Watershed Warden - to help clean, enhance and protect our watersheds. I'll see you there!

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How We Have Changed Our Watersheds

Hi! Remember me? I'm Ollie the Otter, the CRD Watershed Warden. My friends and I love healthy watersheds where we all live on the land and in the water.

Now that our region is full of paved roads with cars and buildings there are far fewer trees. And that's made for some big changes in our watershed.

Now, when rainwater falls, it doesn't always land on a nice soft forest. Sometimes it lands on a hard and "impervious" roadway or parking lot... where it is IMPOSSIBLE for water to soak in.

Rain that lands on roof tops, roads and parking lots, picks up all the pollution that collects on these impervious surfaces.

This is called "STORMWATER".

You've all seen these on the side of the road – this is a "storm drain". It leads to a network of underground pipes that carry all of this rain and stormwater away.

But where does all of this water go?

Well, stormwater rushes at full speed through the underground pipes and into our streams, lakes, harbours and ocean. It doesn't travel alone either - it brings things like, litter, oil and other fluids dripping from cars and trucks along with very little bits of metals that fall from engines, tires, breaks and exhaust.

Pollution can also come from fertilizers and herbicides used by your mom and dad in your yard, or by farmers when they grow food.

It can come from soaps and paint chips from washing your cars and houses.

Even droppings from pets and wild or farm animals, end up in our creeks and eventually the ocean.

As you can see, our watersheds are in danger and they need our help. Find out what you can do in my next video: "Earning Your Watershed Warden Badge". Then, join my team and become a CRD Watershed Warden - to help clean, enhance and protect our watersheds. I'll see you there!

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Earning Your Watershed Warden Badge

Hi, remember me? I'm Ollie the Otter, the CRD Watershed Warden. Our watersheds are in danger and we need your help to keep them clean for all creatures big and small.

Join my team and earn your CRD Watershed Warden badge!

There's a lot you can do to protect our watersheds and earn your badge. Here are some ideas...

Learn the name of the watersheds that you live and go to school in. Visit a nearby creek, lake, wetland or marine shoreline – to get to know your watershed

Go outside when it's raining! Try standing under a tree, on a grassy area or on the side of the road and watch where the rain goes. What's floating in the stormwater as it flows down the side of the road?

Participate with your family, class or club in riparian restoration and help make my habitat healthier! Plant and care for a tree or native flowers in the watershed, to provide a habitat for my friends.

Choose to walk or ride your bike to get around, less driving means less pollution getting onto our roads.

Remind adults not to allow the water from power washing your house or driveway to flow into the storm drain. We don't want those paint chips or oil floating in my habitat.

And, of course, never litter. You can also participate in a school yard or beach clean-up.

Those are just some ways that you can prevent pollution from getting into my habitat and help it better absorb the rain into the land.

If you do any of those or other things to help keep our watersheds clean, you can earn your CRD Watershed Warden Badge.

Send me a letter, a drawing or a photo to show me what you're doing and I'll send you your own CRD Watershed Warden badge.

My home is your home too, because we all live in a watershed. So let's work together to make our home clean and healthy.

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Watershed Stewardship **We all live in a watershed**

A watershed is an area of land where all the surface water and water seeping into the soil, drains to the same point- a wetland, a lake, a creek and eventually the ocean.

The capital region is made up of approximately 300 large watersheds and many more smaller watersheds, each with their own network of lakes and creeks leading to the ocean, while some coastal areas drain directly to the ocean.

These are all multi-use watersheds, where we live, work, and play- utilizing the land and ground and surface water.

Watersheds cross property lines and municipal borders - we all live in a watershed.

For thousands of years, watersheds on Southern Vancouver Island have supported people and a huge diversity of wildlife that live on the land and in and around our creeks, wetlands and lakes.

Healthy watersheds are important because they control the flow of water allowing it to be slowly absorbed into the landscape.

A healthy watershed includes ample trees throughout to absorb and slow the rain, as well as vegetated areas around the banks of a lake or creek which act as a filter for incoming water. This keeps it clean for the animals, insects and birds that live in these habitats.

Southern Vancouver Island - the capital region- is largely forest. These trees provide an important function in a healthy watershed.

When it rains in a natural watershed, about 50 per cent of that water is pumped back to the sky by the trees and sun. This is called evapotranspiration.

The other half soaked directly into the soil and slowly moved downhill. This underground movement of water is called interflow.

When the water eventually reaches a wetland, lake or creek, it then continues to flow toward larger creeks or lakes and eventually, the ocean.

As the population of Greater Victoria and across the capital region increased, forests were cleared for agriculture, roads paved and buildings began to dot the landscape. All of these changes have an impact on rainwater's interaction with the landscape. The loss of tree cover meant that less water was being returned to the sky and more water remained on the land.

As agricultural areas and towns developed, ditches were built to drain the water from the landscape as quickly as possible because there were no longer enough trees to naturally manage the water.

As the cities, further developed, ditches and creeks were converted into the underground pipes of our stormwater system.

Buildings, roads and parking lots create impervious surfaces where the rain cannot soak in. The increase in impervious surfaces and storm drains creates two key impacts on our watershed.

The first impact is an increase in water flow.

In a healthy watershed, rain could take days or months to make its way to creeks. In an urban storm drain system, it could take just a few minutes.

During the rainy season, creeks can become overwhelmed when water that moves through them too quickly causes erosion of the banks and flooding which creates a poor habitat for fish.

The second impact is an increase in water pollution.

This is what happens when rainwater becomes storm water. Storm water is **the** major source of pollution to our local waterways and nearshore marine environment.

Whether natural, rural or urban, we all live in a watershed that is ours to keep clean, enhance and protect.

So get involved and learn about the ways you can clean, protect and enhance the watersheds in the CRD, visit: www.crd.bc.ca/watersheds

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WE ALL LIVE IN A WATERSHED



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Watershed Stewardship Everyone Has a Part to Play

We all live in a watershed, whether natural, urban or rural. We are all affected by the rain that falls, the soil, plants, trees, wildlife and the flow of water through our watersheds.

Watersheds often flow across municipalities and up-stream activities affect those downstream, so it's essential that we work together. As individuals, as businesses and as a community, our daily activities impact our watersheds.

Storm water is the largest source of pollution to our local creeks and marine environment. The CRD monitors the water quality of storm water, lakes, creeks and the marine receiving environment.

The Capital Regional works to monitor, enhance and protect the health of our watersheds and the near shore receiving environment.

By working with municipalities, businesses and residents, the CRD reduces storm water contamination through regulation, restoration and education.

Groups such as the Gorge Waterway Initiative, Bowker Creek Initiative and the Esquimalt Lagoon Stewardship Initiative, are coordinated by the CRD so that citizens, businesses and all levels of government can actively care for our watersheds together.

You can also contribute in many meaningful ways to protect and restore the health of our local watershed.

The best thing we can do to contribute to a healthy watershed is to decrease the amount of pollution on our roads, parking lots and land and increase the amount of rainwater soaking into the ground. This will mimic the conditions and functions of a natural watershed.

If you're a property owner, here are just some of the things you can do:

To prevent sewer water from flowing into local creeks and the marine environment, ensure that your sewer and storm drain are not cross-connected, or that your septic system is well maintained.

If you have a home heating oil tank, be sure to inspect it seasonally to ensure oil is not leaking.

If you have a parking lot on your property with a catch basin, you can prevent pollution from entering our local creeks and harbours by having a spill response plan with a spill kit on site and having the catch basin pumped out annually.

When building or renovating, install green infrastructure such as a rain garden or a rooftop garden.

Plant and maintain a healthy tree cover on your property to reduce the runoff into local lakes, creeks and marine environments.

And here are some things everyone can do:

Get to know what watershed you live in. Participate in a local beach clean-up or become engaged with a local watershed stewardship group.

Drive less and maintain your vehicles. When rain hits the roads and parking lots, leaks and brake dust from vehicles are picked up and carried away in the storm water leading directly to our local creeks and marine environments.

Use less, keep it clean and go organic. Don't use fertilizers or pesticides, use minimal anti-icing agents, don't litter and avoid letting anything other than rain water enter into a stormdrain.

So get involved and learn about the ways you can clean, protect and enhance the watersheds in the CRD, visit: www.crd.bc.ca/watersheds.

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Watershed Stewardship Contaminants in Stormwater

If we could see the contaminants in our creeks, lakes, harbours and near shore marine environments we might ask: Where is all of this coming from and how can we prevent it?

What we do on land directly impacts the health of our local water bodies. Let's find out how.

In developed areas where there are a lot of rooftops, paved surfaces or hard packed soil the rain is not able to soak into the ground. Instead, it runs off these surfaces as stormwater, picking up various contaminants along the way.

This polluted stormwater flows into storm drains or ditches which lead directly to our creeks and nearshore marine environments.

Contaminants accumulate on our land, roads and parking lots as a result of some of our daily activities.

Here are some of the most common sources:

One. Vehicles deposit oils, grease, metals and other contaminants on to paved surfaces.

For example, exhaust and brake dust are sources of metals and fluids can leak from engines.

Two. Washing and maintenance of outdoor surfaces can release contaminants such as metals, paint, oil and wood preservatives.

Three. Deteriorating heating oil tanks can leak oil into the soil and surrounding area.

Four. Agricultural and residential land where chemicals such as pesticides, herbicides and fertilizers may be used can be washed away into creeks or ditches. Bare soil and farm animal feces can also be a source of bacteria turbidity and nutrients in our creeks.

Five. Leaky sewers can get overwhelmed when heavy rains occur and lead to over flows into our storm drains, creeks and nearshore marine environment. As well, some sewer pipes are incorrectly connected to the storm drain network leading to natural waterbodies.

Six. And litter on our streets such as cigarette butts and food wrappers can get carried by the rain into the storm drains.

Throughout the year, CRD staff regularly monitor levels of contaminants in stormwater at over 500 locations where it flows into our freshwater and marine environments.

At times, particularly during and after heavy rains, the level of contamination in stormwater can be high enough to exceed guidelines that aim to protect aquatic life and to people using our waterways and ocean. But, there are ways this can be prevented to protect both human and sensitive ecosystem health.

For example, the CRD works with municipalities, businesses and residents to find the sources of these contaminants and minimize the amount entering into our storm drain network and our environment.

Routine street sweeping by municipalities as well as cleaning of catch basins along roadsides and in parking lots help to capture some of these contaminants. Municipalities and owners of properties with catch basins are responsible to maintain and pump out catch basins.

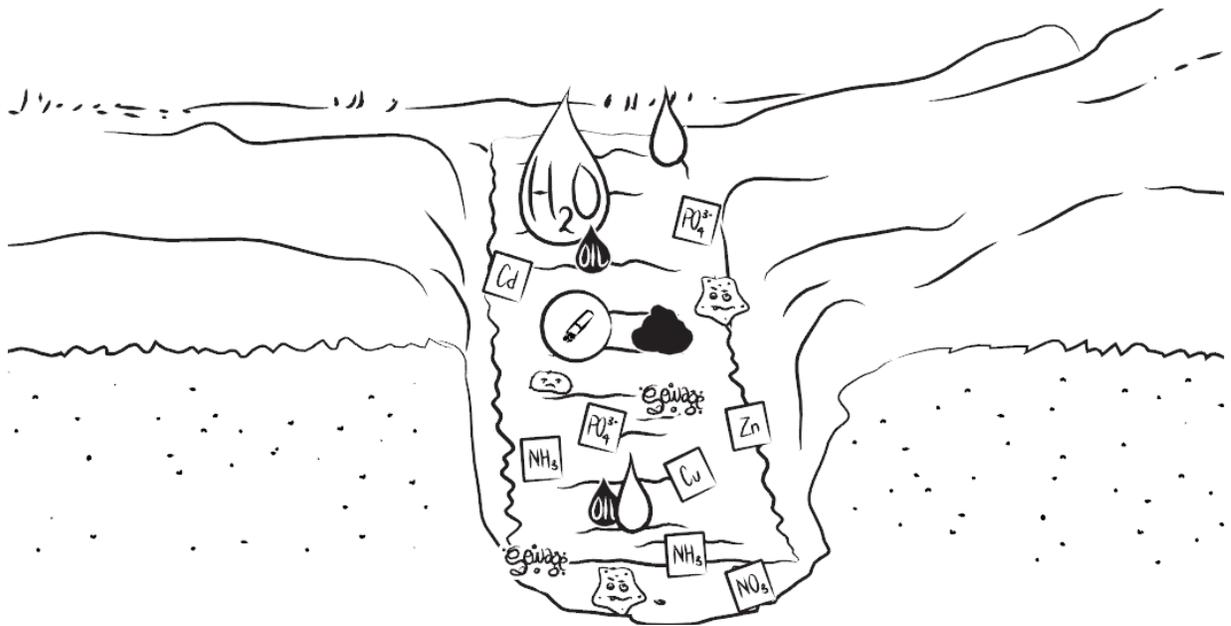
The CRD and municipalities work together to find storm drains and sewers that are crossconnected so that the municipalities or property owners can fix them to minimize sewage entering our water bodies.

And local governments are also work together to enable the building of more green infrastructure such as green roofs, rain gardens and swales to minimize the amount of water flowing in storm drains overwhelming pipes and creeks.

Green infrastructure aims to infiltrate more rain and stormwater into the land to be slowed and naturally filtered by the soil, trees and vegetation.

And you can do your part! So get involved and learn about the ways you can clean, protect and enhance the watersheds in the CRD, visit www.crd.bc.ca/watersheds.

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Watershed Stewardship How to Maintain Your Catch Basin

If you own a business or a building with a parking lot or other paved surfaces - which drain into a catch basin, there are some important things for you to know about catch basin maintenance.

These areas almost always contain a catch basin designed to collect and remove pollutants in storm water run-off before it enters the storm water collection system.

And, as the property owner, you are responsible for maintaining any catch basin on your property.

So let's take a look at how a catch basin works:

Storm water run-off and any pollutants and debris picked up enter through the grate and fall into the basin. When the water level reaches the height of the outlet pipe it can flow to the storm water system which will run to a stream or the ocean.

Your catch basin may also have a hood over the outlet to prevent oils and floating debris from entering the outlet pipe.

Most debris will eventually sink and accumulate in the bottom of the catch basin.

As the accumulated sediment starts to fill the basin it reduces its working capacity and more sediment and pollutants may be discharged into the storm water system and eventually end up in a stream or the ocean.

These pollutants can harm aquatic life.

That's why regular maintenance is key to avoiding problems with your catch basin. In fact, your local municipality may have a storm water bylaw that outlines requirements for catch basin maintenance and record keeping.

So clean your grates often. Leaves, litter and other debris can clog the grate resulting in the flooding of your property and parking lots.

A complete pump out of your catch basin is recommended at least annually, preferably before the fall rains start. It is best to inspect your catch basin at least twice a year and make note of the amount of solids accumulating in the bottom.

A vacuum truck can be used to remove the solid and liquid portions of the catch basin. Remember, any waste water removed should not be returned to the catch basin. And the basin should be refilled with clean water where possible to enable it to be at full functioning capacity for the next rainfall.

Most often, the catch basin waste is made up of organic material and sand or grit that is not considered hazardous, and can be disposed of at a treatment facility or at the Hartland Landfill.

Finally, keep records regarding the frequency of inspection and maintenance. Some municipalities have enacted bylaws that require inspection and routine maintenance records be kept.

For more information on catch basin maintenance, visit www.crd.bc.ca/catchbasin.

And to learn how to prevent pollutants from entering our storm drains, visit www.crd.bc.ca/watersheds.

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