



# Our Watersheds

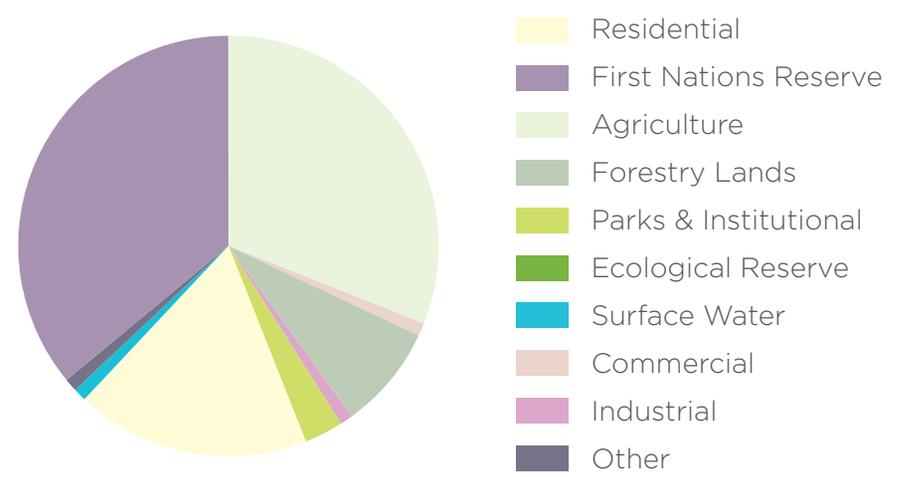
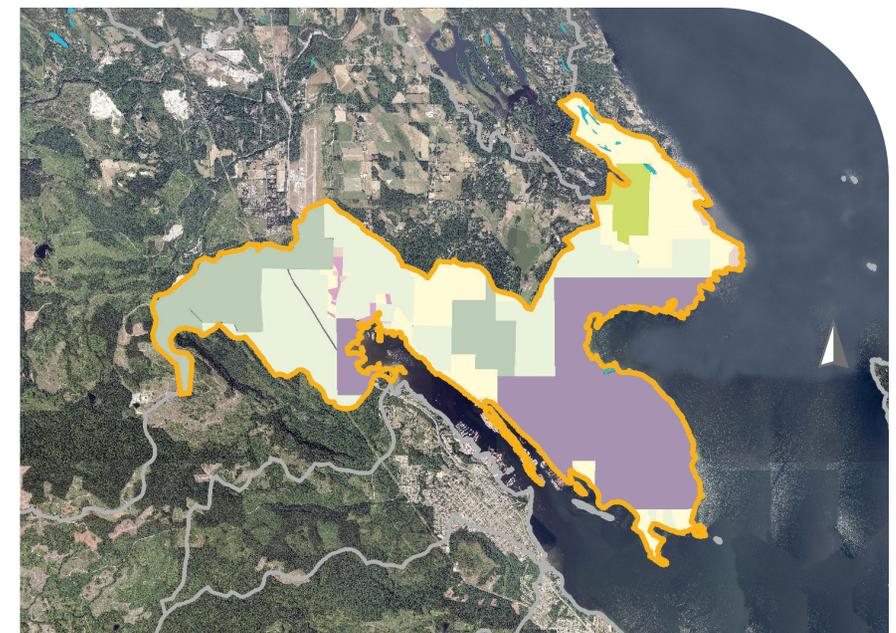
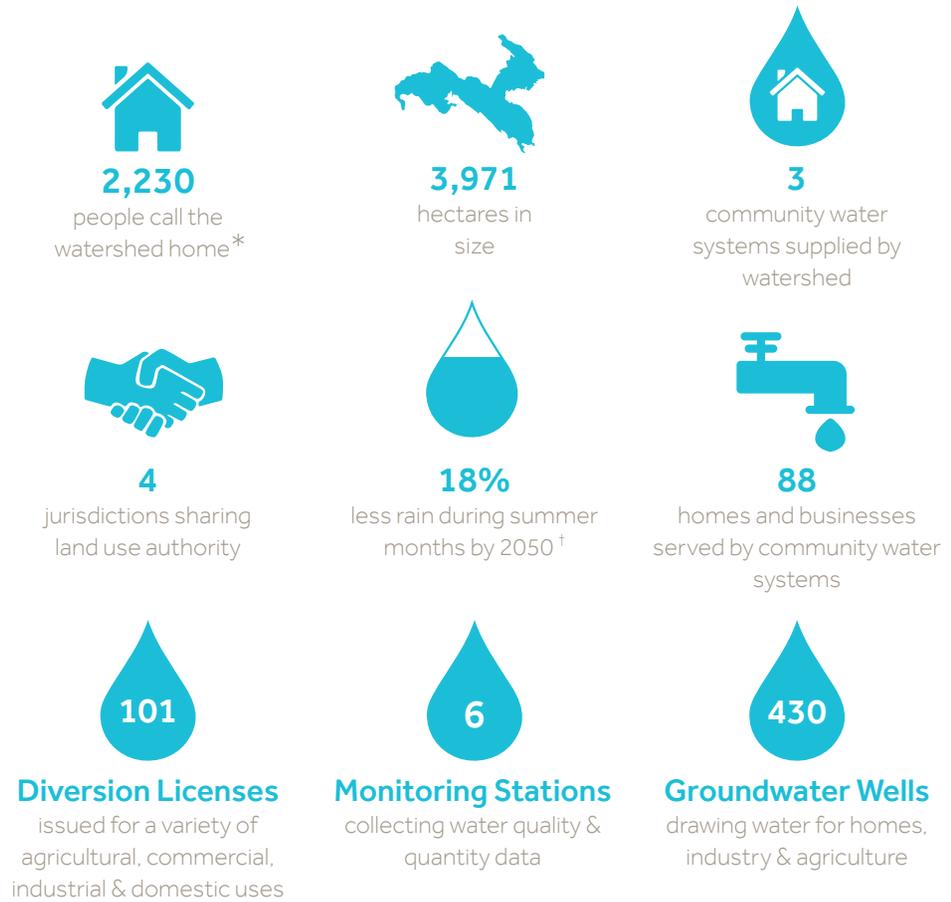
## Yellow Point Benchlands

At 3,971 hectares, the Yellow Point Benchlands watershed has a relatively small catchment area, with just a few minor streams. These seasonal watercourses wind through residential areas, forests and farms before draining into the waters around Stuart Channel in the Salish Sea. Although no major lakes or rivers are found on this landscape, the watershed contains a diversity of ecosystems, including: rare wetlands, Garry oak and Douglas-fir forests, and unique sandstone outcrop habitats. **7% of the watershed is designated as forestry lands.**

With limited natural surface water storage, the Yellow Point Benchlands, are more **susceptible to periods of drought and flood** than many of the other watersheds in the region. A lack of surface water also means that life in the Benchlands depends heavily on groundwater. However, **expanding human populations** in the area place increasing stress on this **critical water supply** for **Stz'uminus First Nation** and the communities of **North Oyster, Yellow Point, Woodley Range** and **Cedar**.



# Yellow Point Benchlands at a glance:



\*Estimate based on 2016 Population Census, Statistics Canada  
 †CVRD, (2017). Climate Projections for the Cowichan Valley Regional District

## Land

Gradually sloping terrain and flat, low-lying areas shape much of the Yellow Point Benchlands and provide **productive agricultural lands**. A few exceptions include the prominent ridge facing Ladysmith Harbour, and the Benchlands western arm, which extends up to the top of Mt. Hayes. The layers of sandstone and mud exposed throughout the Benchlands are features of the “Nanaimo Group”—a geologic formation spanning the southeast of Vancouver Island.

In general, soils here are rapid-draining and shallow; mostly glacial deposits made up of gravelly, loamy sand or material derived from underlying rock formations. Less well-drained soils are found in flat low-lying areas (where human development tends to concentrate), with the water table expressing itself above surface to form the watershed’s wetlands.

## Habitat

As part of the Coastal Douglas-fir biogeoclimatic zone, the Yellow Point Benchlands are home to unique habitats where **Douglas-fir, Garry oak and Arbutus** trees grow amongst rock outcrops and **diverse wetland ecosystems**.

The watershed supports two ecological reserves—Woodley Range and Ladysmith Bog—which protect **some of the most rare and biologically diverse natural areas in B.C.** Together, these reserves are home to 14 different plant and animal species of concern, all of which are vulnerable to



### **Coastal Douglas-fir Biogeoclimatic Zone**

A “biogeoclimatic zone” is an area with similar patterns of vegetation and soils as a result of specific climate conditions. The Coastal Douglas-fir zone is at significant risk, with less than 1% of the original old forest remaining. Limited strategies are underway to protect older forest on the Crown portion of this zone, but much of the zone is private land.

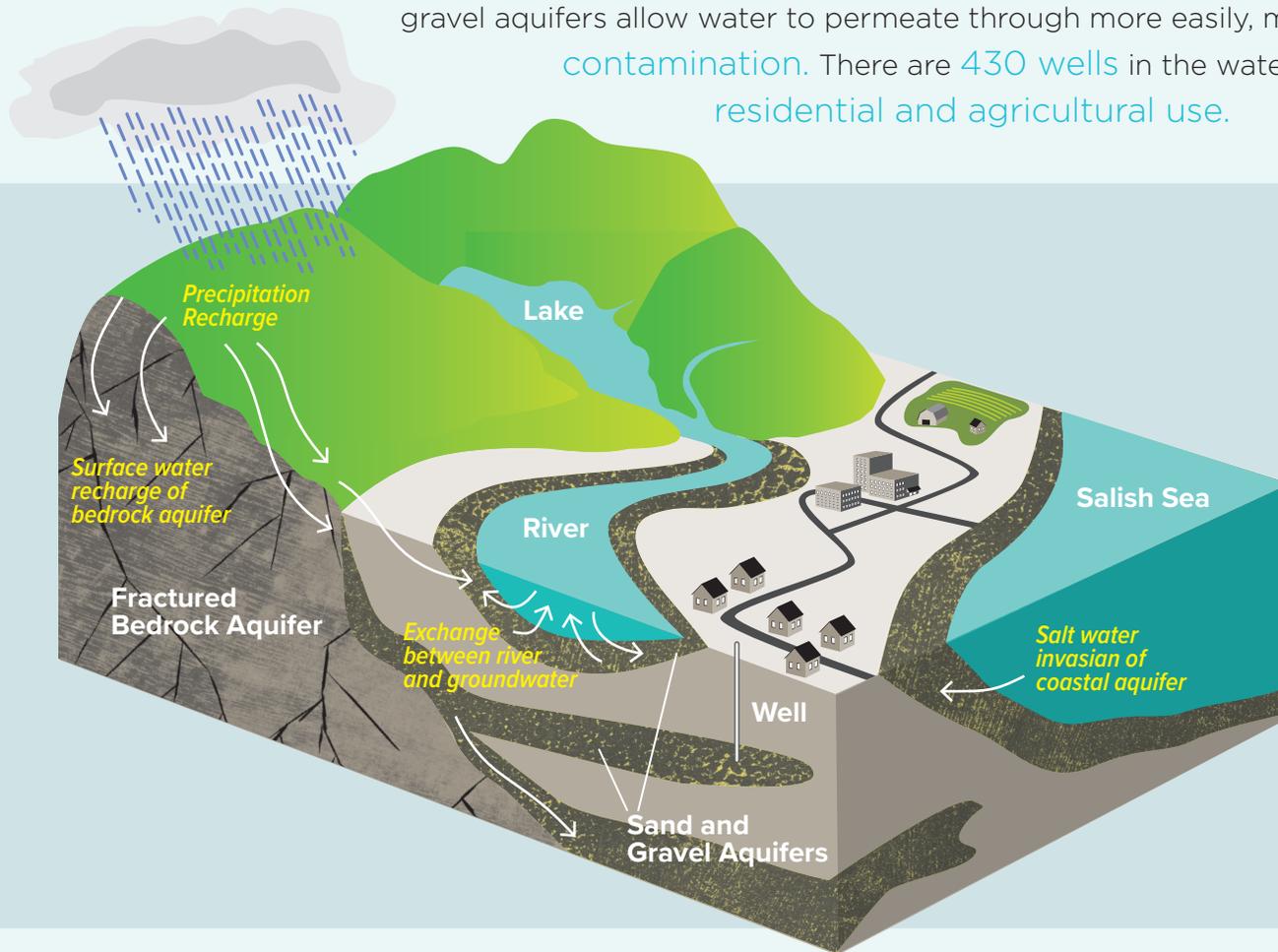
the pressures of climate change and a growing population. Beyond such impressive habitat value, natural spaces in the area provide a number of essential ecosystem services such as absorbing carbon and filtering pollutants from our water systems.

## Water

With little surface water, life in the Yellow Point Benchlands relies on groundwater provided by two different aquifer types; one is bedrock while the other is sand and gravel.

The bedrock aquifer system extending through Yellow Point is limited in its capacity to store water and slow to recharge, making it **susceptible to over-extraction**. Though water conservation programs are addressing this challenge, one reservoir here—Woodley Range—requires bulk water delivery during the dry season to support water supply for homes.

The other aquifer system in the Benchlands is the large sand and gravel deposit in the western portion extending north towards the Nanaimo River. This aquifer has a larger storage capacity and is quicker to recharge. However, sand and gravel aquifers allow water to permeate through more easily, making them more **vulnerable to contamination**. There are **430 wells** in the watershed which draw water primarily for **residential and agricultural use**.



### What is an aquifer?

Aquifers are rock or soil that can contain groundwater. Sources of water that can become groundwater include:

1. recharge from rain or snow that soaks through an unsaturated zone
2. surface water bodies such as streams, lake and wetlands

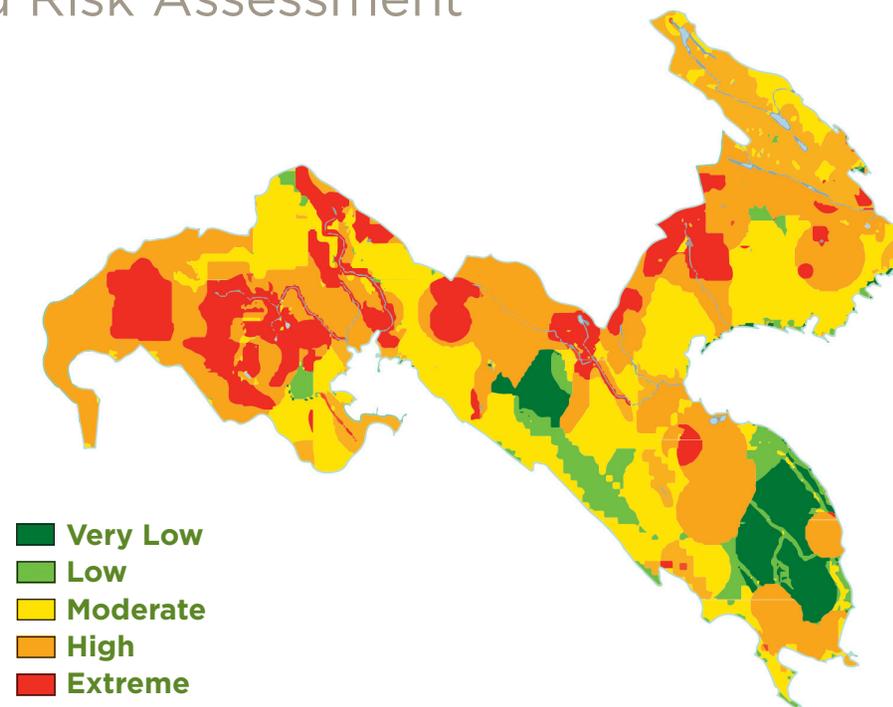
The characteristics of the rock and soil determine the speed at which water passes into an aquifer, how much water can be stored within it and how vulnerable it is to contamination.



## Yellow Point Benchlands: Combined Risk Assessment

### Understanding Risk

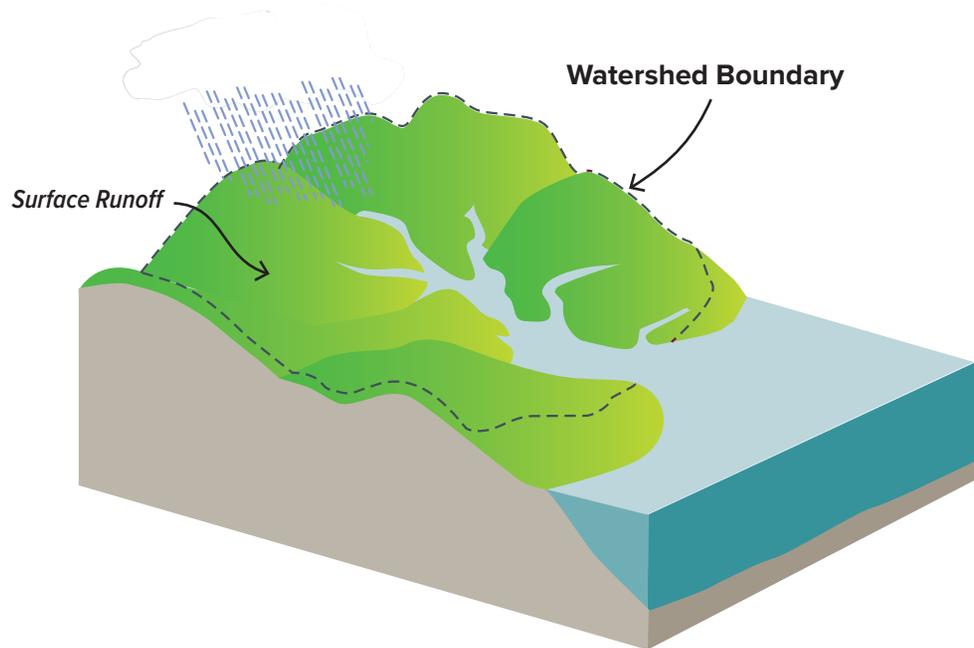
Making good decisions around development and resource use requires an understanding of risk. Risk is a product of the likelihood of a hazard occurring and its consequences. The map above is based on 5 factors: groundwater contamination, surface water supply, stream water quality, slope failure and flood. Risk in the Yellow Point Benchlands is largely driven by groundwater contamination, surface water quality and surface water supply. Risk-mapping can inform land-use planning and stewardship.



# Watershed Management Q&A

## ***What is a watershed?***

A watershed is an area of land that catches rain and snow and where water flows downward into a common river, stream, lake, or aquifer. All land is part of a watershed and we all live in a watershed.



## ***What is watershed management?***

Watershed management aims to preserve watershed health as a whole. This means connecting land-use planning with resource management in order to make decisions that meet community needs today and in the future. Inter-agency collaboration and community involvement are essential to this process.

## ***What does this have to do with the CVRD?***

Our engagement with residents of the Cowichan Region provided a clear message: the sustainability of our drinking water is a top priority when it comes to managing growth and change in the region. This message became official in the fall of 2018, when residents voted in favour of a new Drinking Water and Watershed Protection Service. This service will allow the CVRD to focus on protecting drinking water at its source in a number of ways, including developing watershed management plans, monitoring water quality and supply, and working closely with the community and other agencies to protect this precious resource and inform land use planning.

## ***How is the region expected to change?***

A temperate climate and an abundance of natural beauty make the Cowichan Region a highly desirable place to live; our population is growing steadily throughout the region, up 4% from 2011 to 2016. This growth is occurring in tandem with a changing climate where summertime drought and wintertime flooding are the new normal. Preparing for the changes ahead will require all levels of government, local authorities, and community members to work together in developing an integrated and cooperative approach to decision-making.

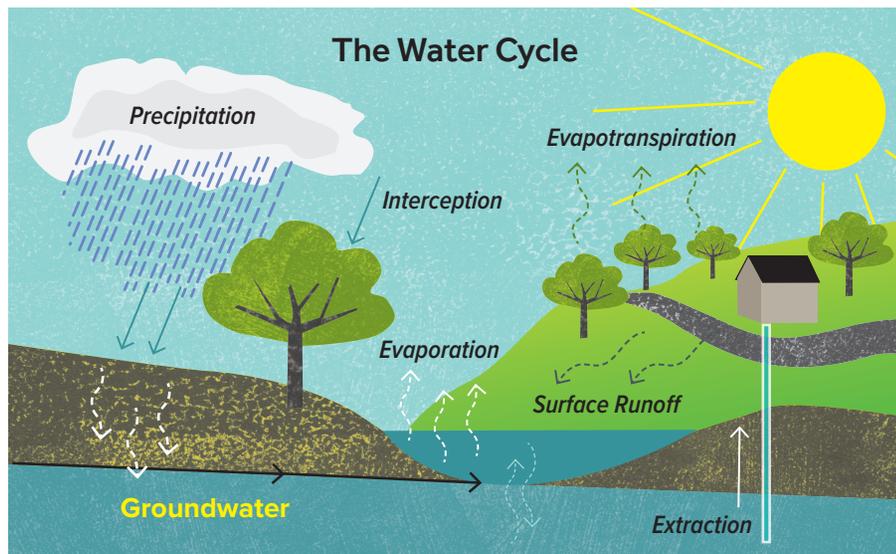
# Watershed Management in action

## Water Balance

To understand how our watersheds can sustain development, we need to first understand how much water is entering the watershed as rain and snow and how much water is needed to support natural processes. Then we can begin to understand how much there is for human uses. Water balance is about understanding how much water is entering the watershed (water in) and how much water is being used or leaving the watershed (water out).

Maintaining natural water balance is important because:

- **Too much water** can lead to erosion, slope destabilization and flood.
- **Without enough water** fish can't survive, vegetation dies, groundwater does not recharge and drinking water supplies diminish.



When natural areas are altered, we often lose the slow-release function of vegetation and soil. We disturb the natural balance of water when we pave surfaces, cut down trees, and divert watercourses. In the Yellow Point Benchlands, changes to the water balance have been largely driven by **residential and agricultural development and water extraction**. Climate change impacts on precipitation will only increase the stress.

## Community-informed Planning

The CVRD will be engaging with community members in the Yellow Point Benchlands on an ongoing basis to prioritize concerns related to watershed health and livability.



Water Quality & Availability



Integrated Development



Stream & Groundwater Protection



Flood Protection



Habitat Restoration & Enhancement

## A Shared Resource

We can all help!

- Everyone can do their part to conserve water.
- Residents can construct rainwater catchment systems.
- Builders can choose low impact development options.
- Homeowners should ensure septic systems are functioning.
- Farmers & foresters can manage fertilizers & pesticides.



Our approach to watershed management will focus on:

- » Protecting water resources
- » Understanding the unique pressures and risk for each watershed
- » Protecting the ability of watersheds to supply sustainable water to meet ecological and community needs
- » Making land use decisions informed by watershed planning
- » Rainwater management to mimic natural hydrology
- » Integration of development with stormwater management

**What does this process look like?**

The CVRDs approach will be ongoing and adaptive:

