

# Introduction to Watersheds & Biodiversity

BC Urban Streams & Watersheds

A UNIT PLAN FOR **GRADE 7**



This resource is part of the BC Urban Streams & Watersheds lesson plans, assembled in 2025. Learn more and download additional resources at [www.engagewithnbs.ca/for-schools](http://www.engagewithnbs.ca/for-schools)

This material is available to reuse and adapt in your classroom.



# *Learning Objectives*

- To be able to define watershed, and identify the functions, importance, and impact on watersheds.

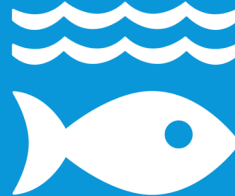
**6** CLEAN WATER  
AND SANITATION



**13** CLIMATE  
ACTION



**14** LIFE  
BELOW WATER



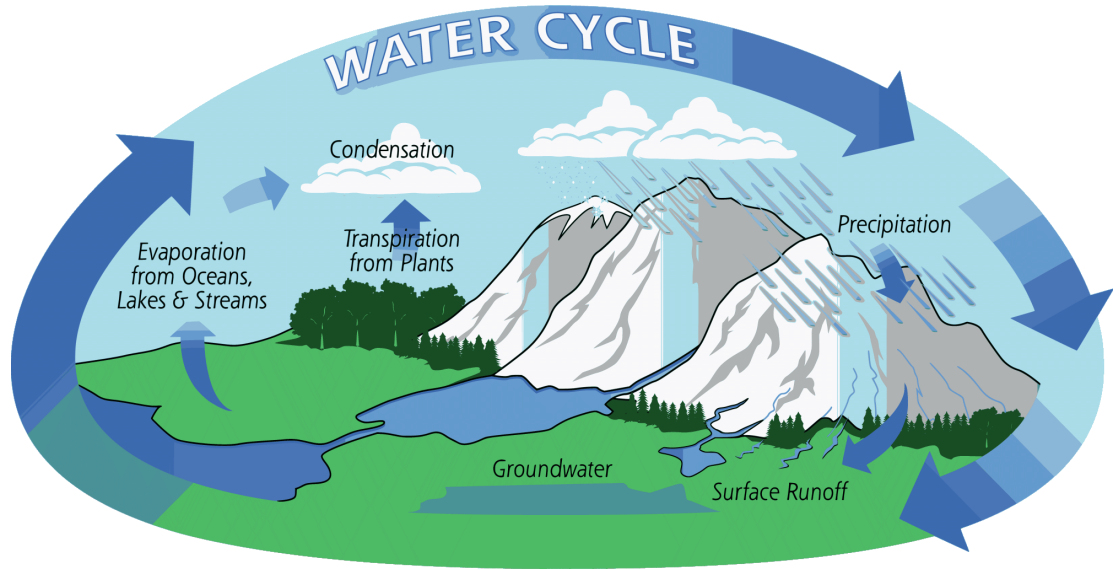
**15** LIFE  
ON LAND



# Global Water Cycle

There are three basic steps in the global water cycle:

1. water precipitates (rains) from the clouds above us,
2. then travels on the surface and through groundwater to the oceans,
3. and evaporates from land or from oceans, lakes, and streams, becoming clouds.



# *What is a Watershed?*

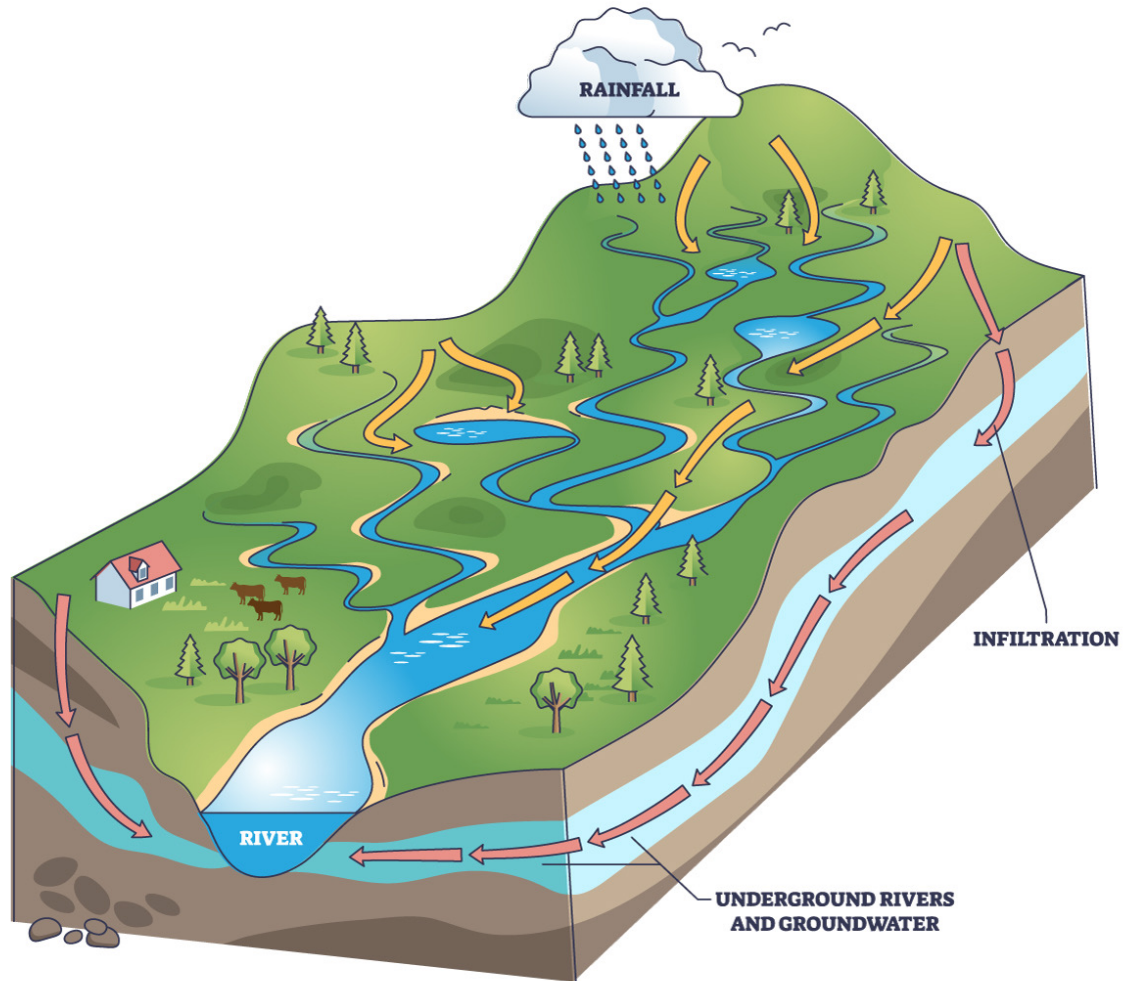
Each of us lives in a watershed, regardless of how far we are from a body of water.

A **watershed** is the area of land that drains rainfall, snowmelt, sediment and dissolved materials to a particular water body, such as a stream, river, lake, reservoir or marine harbour.

The physical characteristics of a watershed – the geology, soil, vegetation and slope, as well as human land uses – influence the quality and quantity of the water that flows through it.

# Components of Watersheds

- upland areas such as forests and meadows
- streams and rivers
- lakes
- wetlands
- marine harbours and shorelines
- riparian zones, areas of saturated soils and water-loving vegetation that surround water bodies



# What Watershed Are You In?

- Many cities and regions have had their watersheds mapped, with the maps available to the public.

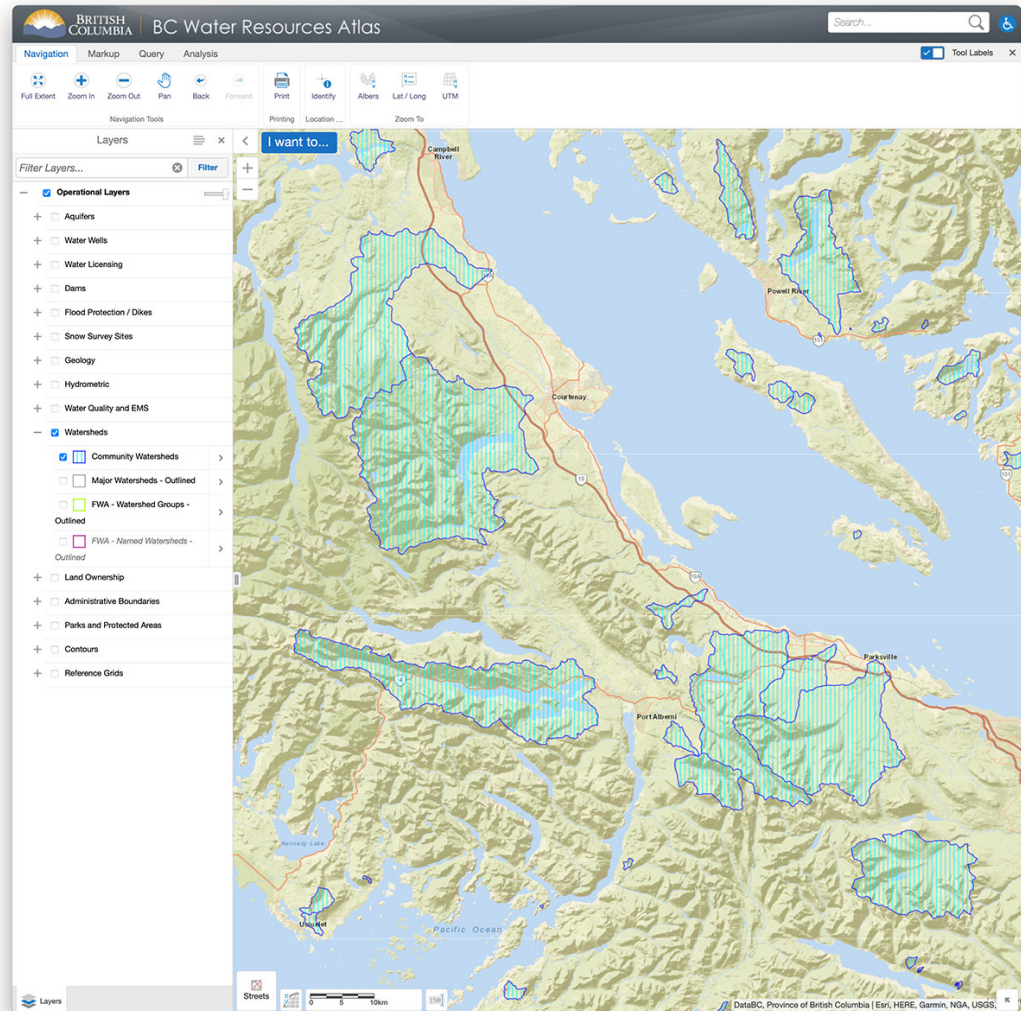
( Map Source: Capital Regional District's  
Watersheds of Greater Victoria School Version

<https://www.crd.ca/environment/education-outreach/resources-educators> )



# Check out the *BC Water Resources Atlas*

( Map Source: *BC Water Resources Atlas* zoomed in,  
and with Community Watersheds layer active  
<https://maps.gov.bc.ca/ess/hm/wrbc/> )

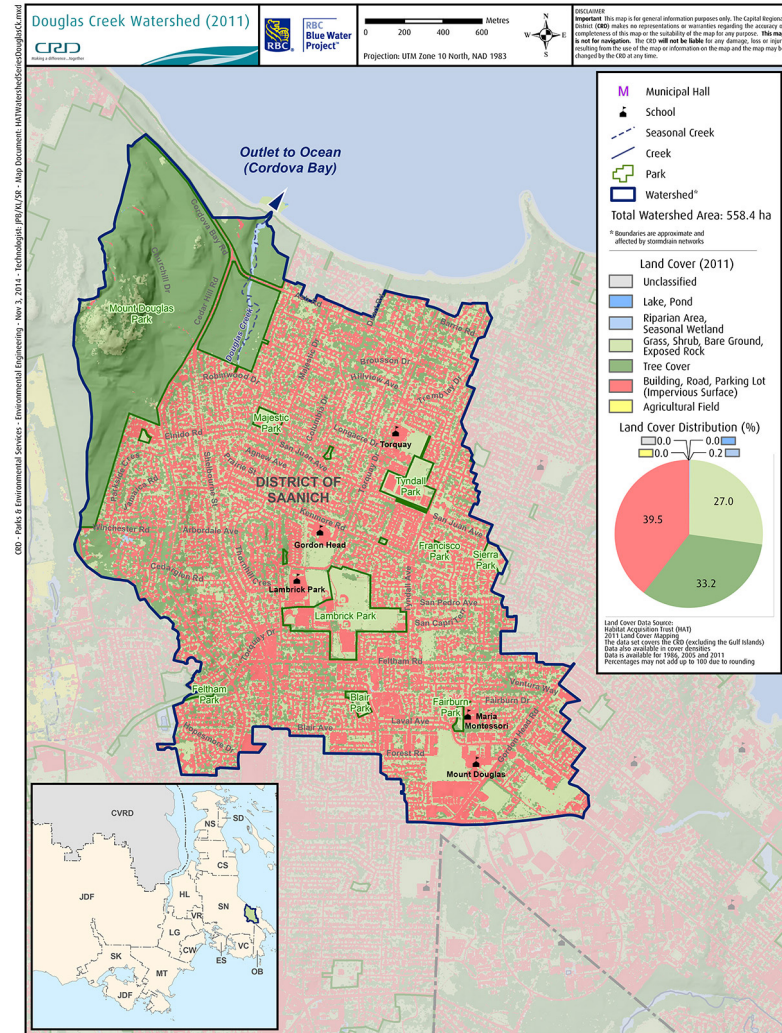


# EXAMPLE: Douglas Creek Watershed



( Map Source: Capital Regional District's  
Watershed Maps & Diagrams

<https://www.crd.ca/environment/stormwater-watersheds-harbours/watersheds/watershed-maps-diagrams> )



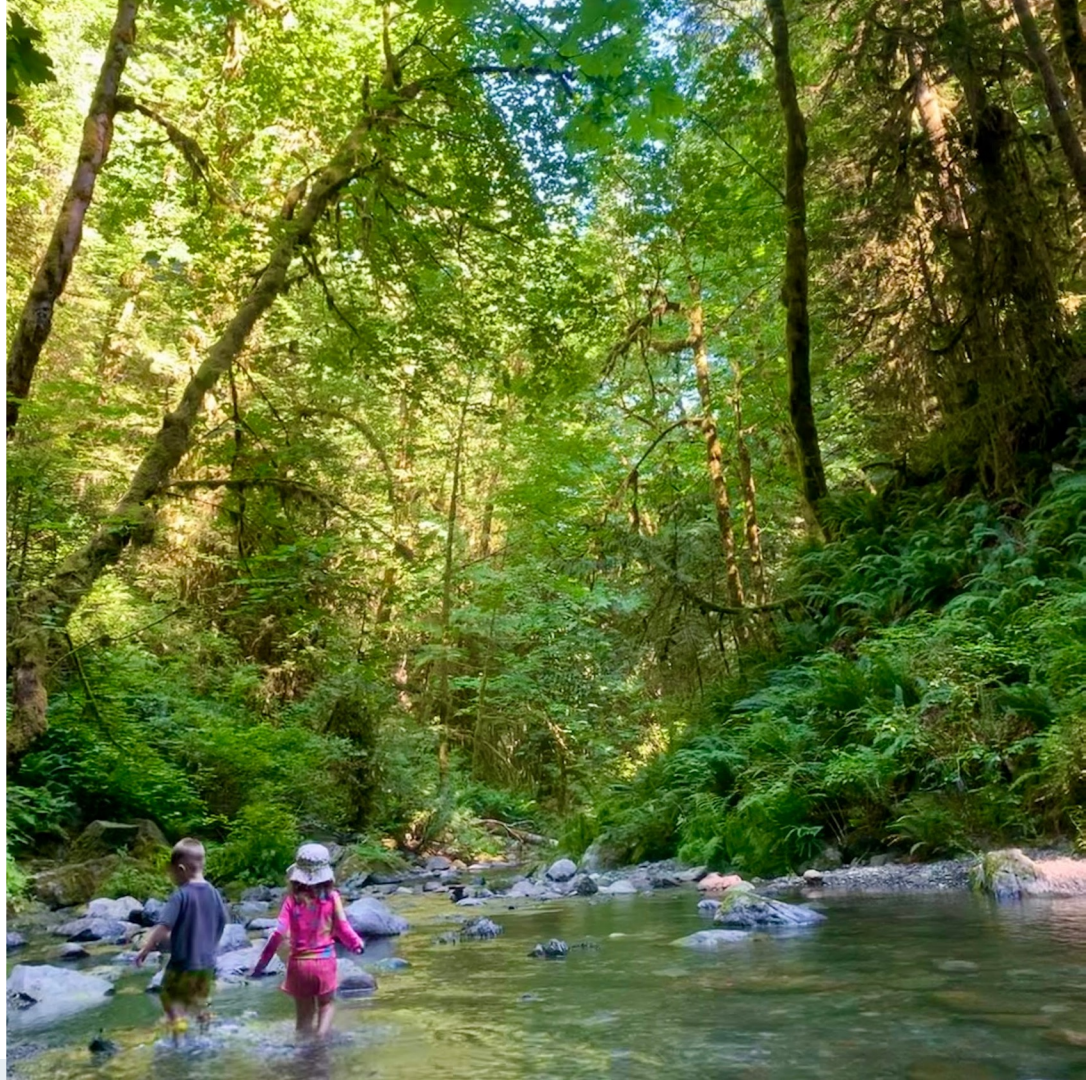
# Functions of Watersheds

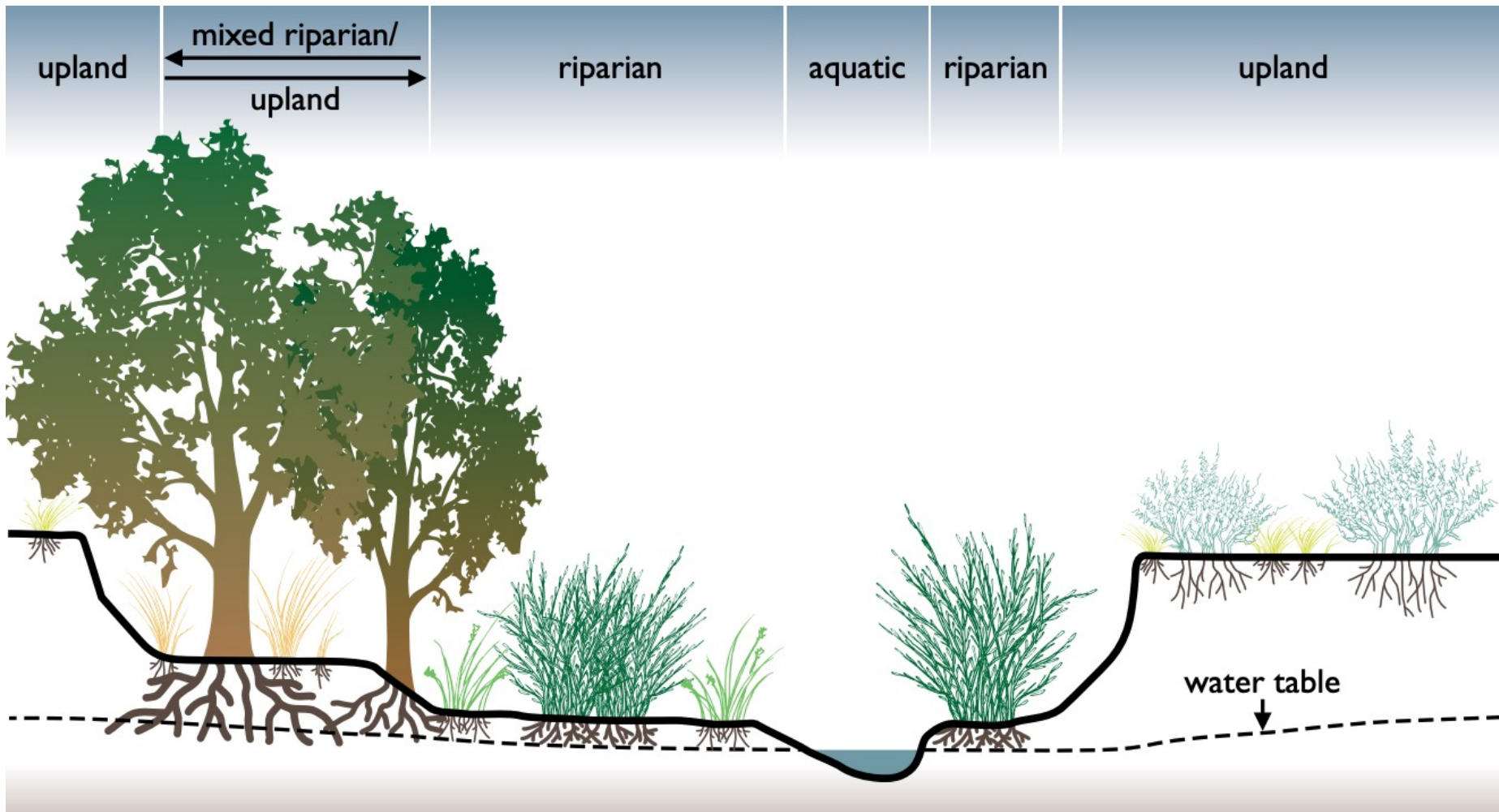
- Rivers and streams, sometimes called the “arteries of the land,” nourish and connect ecosystems throughout the watershed.
- Watersheds provide habitat for fish (including the Pacific salmon), birds, mammals, as well as insects and other invertebrates.



# Functions of Watersheds

- Watersheds supply us with clean water for drinking and irrigation.
- The various components of watersheds provide people with opportunities for recreation, tourism, education and aesthetic appreciation.





## ACTIVITY:

# Look Inside a Watershed...

- Explore the Capital Regional District's *Look Inside a Watershed...* handout
- Note and discuss with a partner, both the positive and negative impacts humans have on watersheds.
- Consider some actions that you could take in your own lives to protect watersheds.



## Look Inside a Watershed... It's All Connected!

**CRD | Integrated Watershed Management**

A watershed is an area of land that drains precipitation and groundwater to a common point, such as a creek, wetland, lake or ocean. A healthy watershed functions to slow, clean and store water, by allowing the water to absorb into the landscape.

The flow of water is changed by the clearing of land and development such as roads, driveways, parking lots and buildings. Precipitation, hose and irrigation water that falls on these surfaces wash pollution, soil and litter into stormdrains leading directly to our creeks, harbours or ocean, without the benefits provided by a healthy watershed.

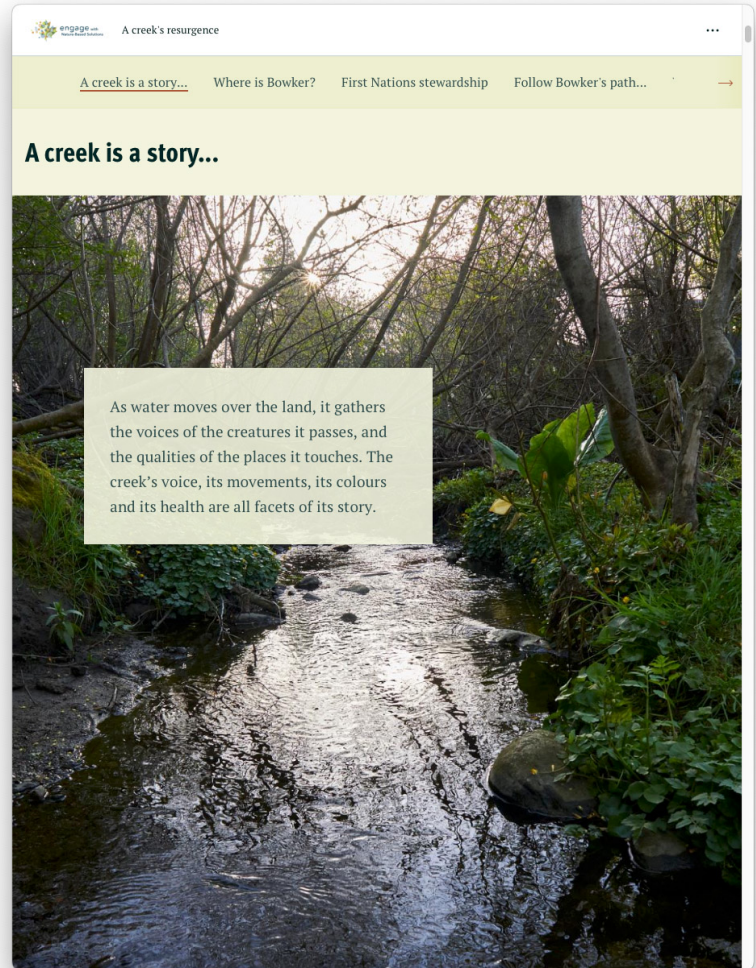
We all live in a watershed whether natural, rural or urban, and our daily actions and activities can impact our watershed. There are a number of things we can each do to protect our watersheds. Look inside to see how we can all be watershed wise.



## CASE STUDY: Bowker Creek

Use the story map from Engage with Nature-Based Solutions to explore the urban impact of Bowker Creek and the restoration efforts:

<https://engagewithnbs.ca/community-story/bowker-creek/>



## CASE STUDY: Fraser River

Connect, Protect, Restore with an interactive journey through the Fraser River:

<https://watershedcpr.canadiangeographic.ca>

The screenshot shows the 'RESTORE' section of the 'Watershed CPR' website. The header features a green background with a mountain and river illustration, and a vertical sidebar on the right with icons for 'CONNECT', 'PROTECT', and 'RESTORE'. The main content area has a white background with a green header bar. The 'RESTORE' logo is in the top left. The title 'Watershed CPR' is in large, bold, black font. Below the title is a paragraph of text explaining the need for a resilient watershed. A second paragraph explains the 'Watershed CPR' strategy. Below this is a definition of a 'resilient watershed' and a prompt to click circles to learn more. Three large, rounded rectangular boxes are arranged horizontally, each with a colored circle icon (blue for 'CONNECT', orange for 'PROTECT', green for 'RESTORE') and a heading: 'What does it mean?', 'Why?', and 'What does this look like?'. The footer contains copyright information and a website credit.

**RESTORE**




# Watershed CPR

While we can be proud of past resiliency-building initiatives that have helped to build back the Fraser Watershed, it's clear that more action is needed to address the complex issues facing our environment. Globally, we are facing a nature emergency and climate crisis. We know the Fraser Watershed is in trouble, and that no one, singular approach will solve every issue. Creating a resilient Fraser Watershed will require a combination of approaches, including individual action, support from governments (co-governance with Indigenous communities, in particular), industry commitment to new technologies and sustainability, and a shift in priorities.

The Rivershed Society of BC has adapted a strategy of Watershed CPR – Connect, Protect, Restore—as a path to creating a resilient Fraser Watershed by promoting and using nature-based solutions.

**What is a resilient watershed?** A resilient watershed has the capacity to retain and improve community, economic, and ecosystem health, even during major disturbances such as climate change.

Click each circle to learn how we define a “resilient Fraser.”

	 CONNECT	 PROTECT	 RESTORE
<b>What does it mean?</b>			
<b>Why?</b>			
<b>What does this look like?</b>			

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Website by Cicada Creative Inc.



Christi Belcourt and Isaac Murdoch, *Water is Life*, 2018,  
kihêw waciston Indigenous Centre, MacEwan University, Edmonton

# *Biodiversity*

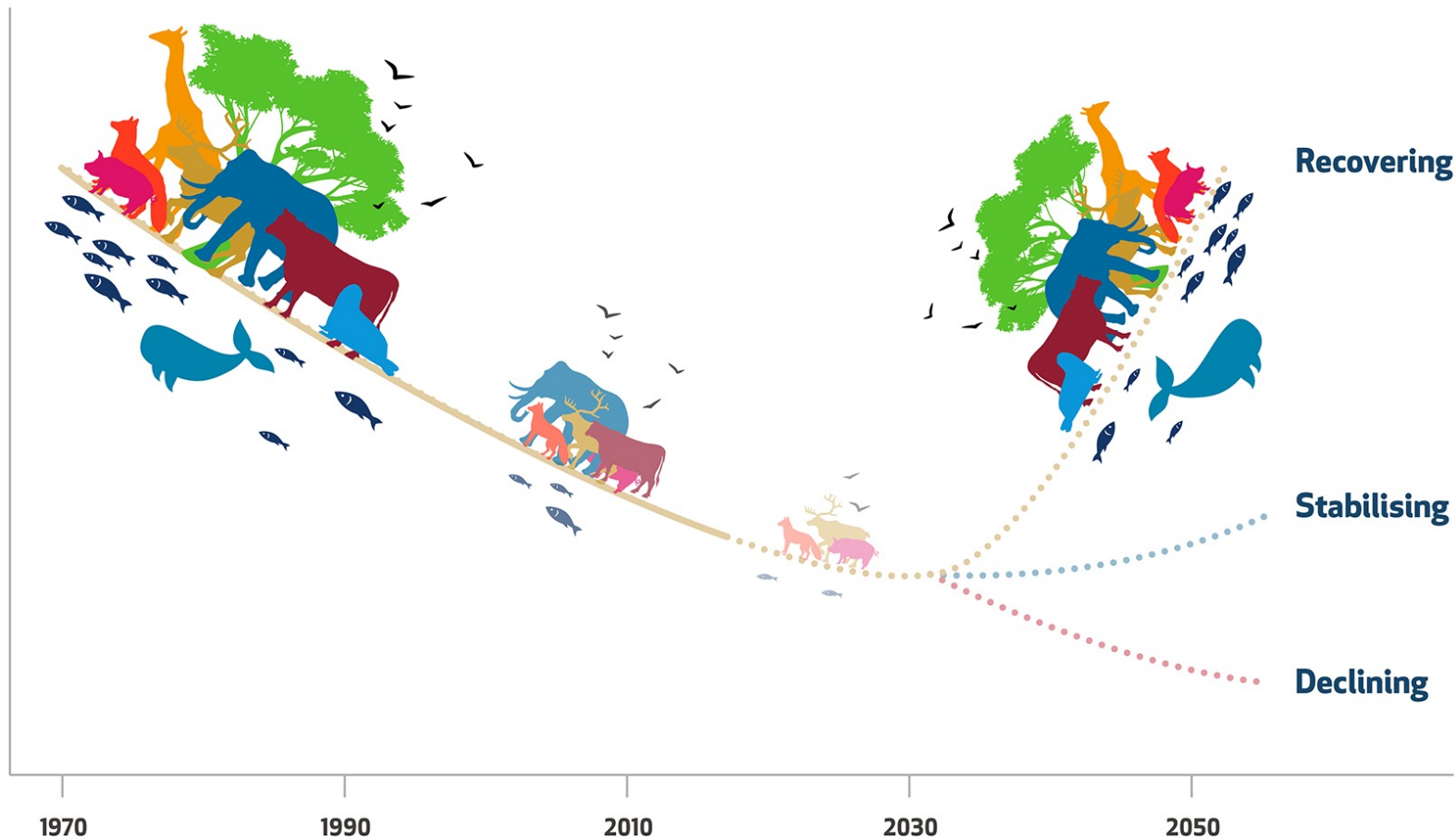
The existence of a variety among and within plant and animal species living in an environment.



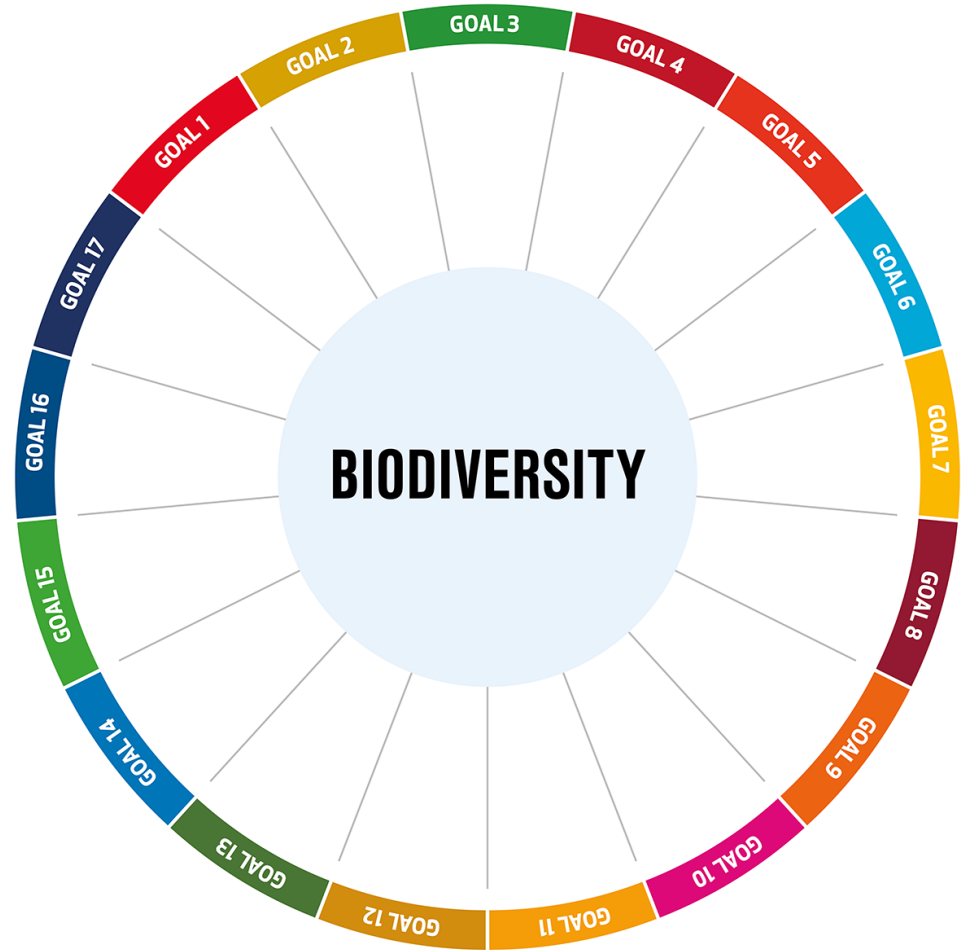
# *Biodiversity*

- What human activities are increasing biodiversity loss?
- How does biodiversity loss impact a watershed?

## Wildlife Populations



Why is biodiversity loss such a problem for people, planet and the achievement of the UN's Sustainable Development Goals?



## EXIT CARD:

In your own words, respond to 2–3 of the following questions:

- What conclusions can you make about the importance of watersheds?
- Which human actions affect the quality of water in our watersheds or urban streams?
- What biodiversity can be found in our watersheds?
- Which of the United Nations' Sustainable Development Goals can you connect to watersheds and biodiversity?
- What is your connection to watersheds?



# engage with Nature-Based Solutions

*communities in local stewardship of lands & waters*

Learn more at [www.engagewithnbs.ca](http://www.engagewithnbs.ca)