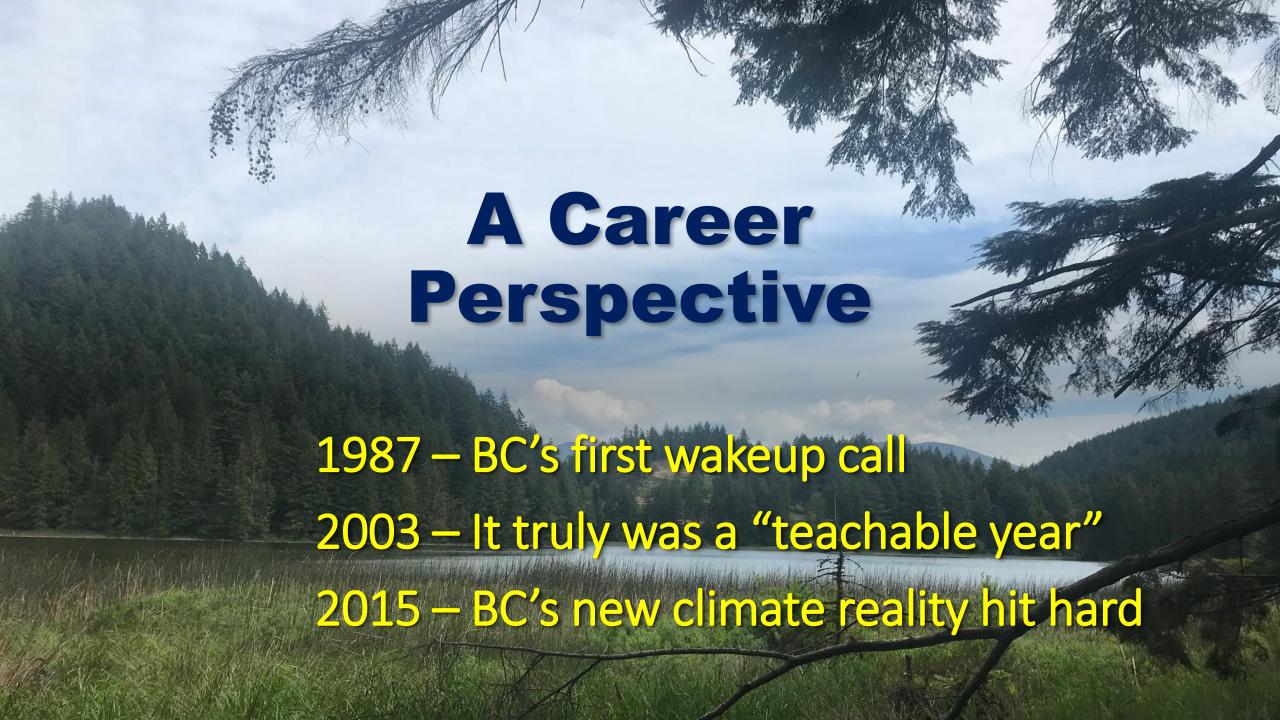


## Water and a Changing Climate: Drought Affects Us All

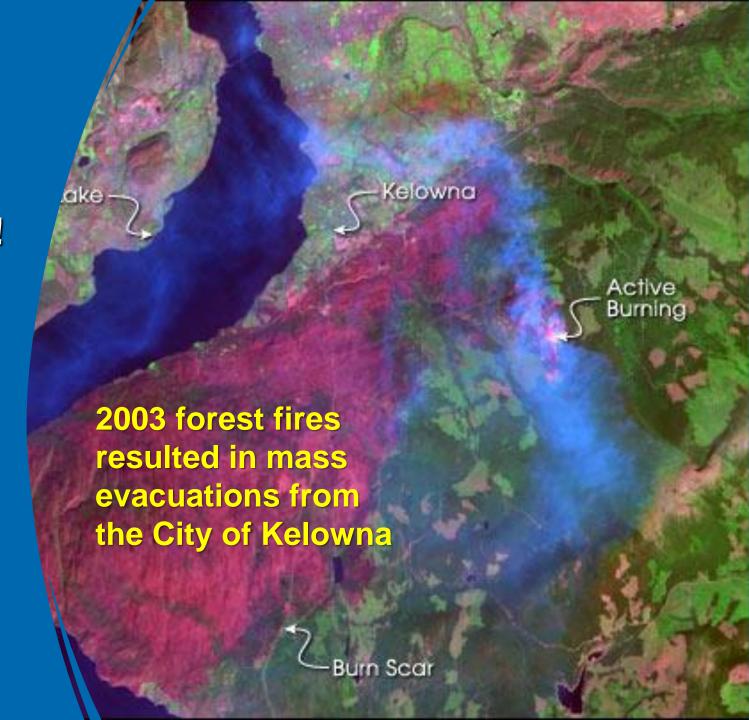
Bowen Island Climate Conversation on July 29, 2021

A presentation by Kim A Stephens, M.Eng., P.Eng., Executive Director, Partnership for Water Sustainability in British Columbia



Starting in 2003, we have had one teachable moment after another, and in rapid succession!

- Droughts
- Floods
- Forest Fires
- Wind Storms
- Pine Beetle







"Prominent scientists say 2018 marks a turning point in human history. We may have crossed an invisible threshold into a new climate regime. It is not the end of the world, just the beginning of another."

Quotable quote from a speech by Bob Sandford to 40 heads of state in September 2018.

Described as the "Winston Churchill of water", Bob Sandford is the Chair in Water and Climate Security at the United Nations University Institute for Water, Environment and Health.

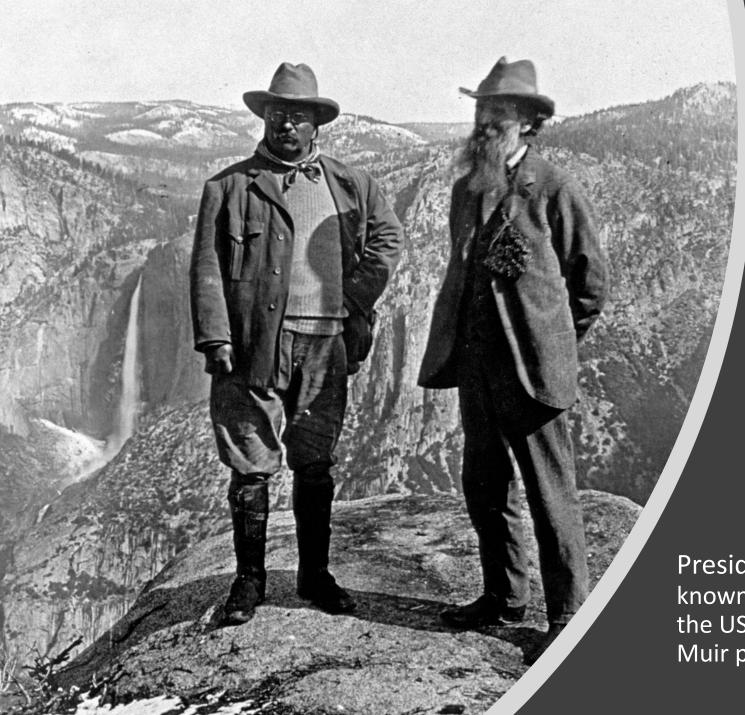
# Adjusting to longer and drier summers in British Columbia:

Our seasonal use of water must be in balance with a changing water cycle.



"Since 2000, summer precipitation has dropped about 20 per cent. That means we need to be far more conscientious about summer water use."

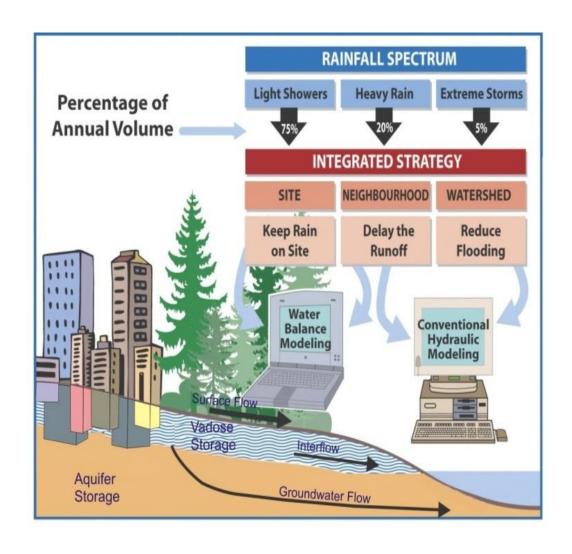
HANS SCHREIER,
UBC PROFESSOR EMERITUS
VANCOUVER SUN NEWSPAPER /
JULY 2021



"When we try to pick out anything by itself, we find it hitched to everything else in the universe."

President Teddy Roosevelt (left) & John Muir, known as the "Father of the National Parks" in the USA, at Yosemite National Park in 1903 when Muir pitched the concept

Flow of rainwater from cloud to stream is comprised of three water balance pathways, <u>each with a different time scale</u>:



Surface runoff from minutes to hours

Interflow (shallow horizontal) from days to seasons

Deep Groundwater from years to decades or more

**GUIDING PRINCIPLE:** Maintain the proportion of rainwater entering the stream via each pathway!

This deceptively simple equation embodies the basic principles and concepts for dealing with uncertainty and managing risk

Climate change is not a driver; rather, it is another variable.

### Over time, the safety factor has been shrinking:

**The Water Balance** 

**OUT = IN** 

IN = f (hydrology, weather, time, infrastructure,...)

where....

 $U_{\text{essential}} = f$  (population, ecology, industry, time, ...)  $U_{\text{excess}} = f \text{ (wealth, society, technology...)}$ 



"THERE IS NO SILVER BULLET.

COMMUNITIES NEED TO DO

MANY LITTLE THINGS. OVER

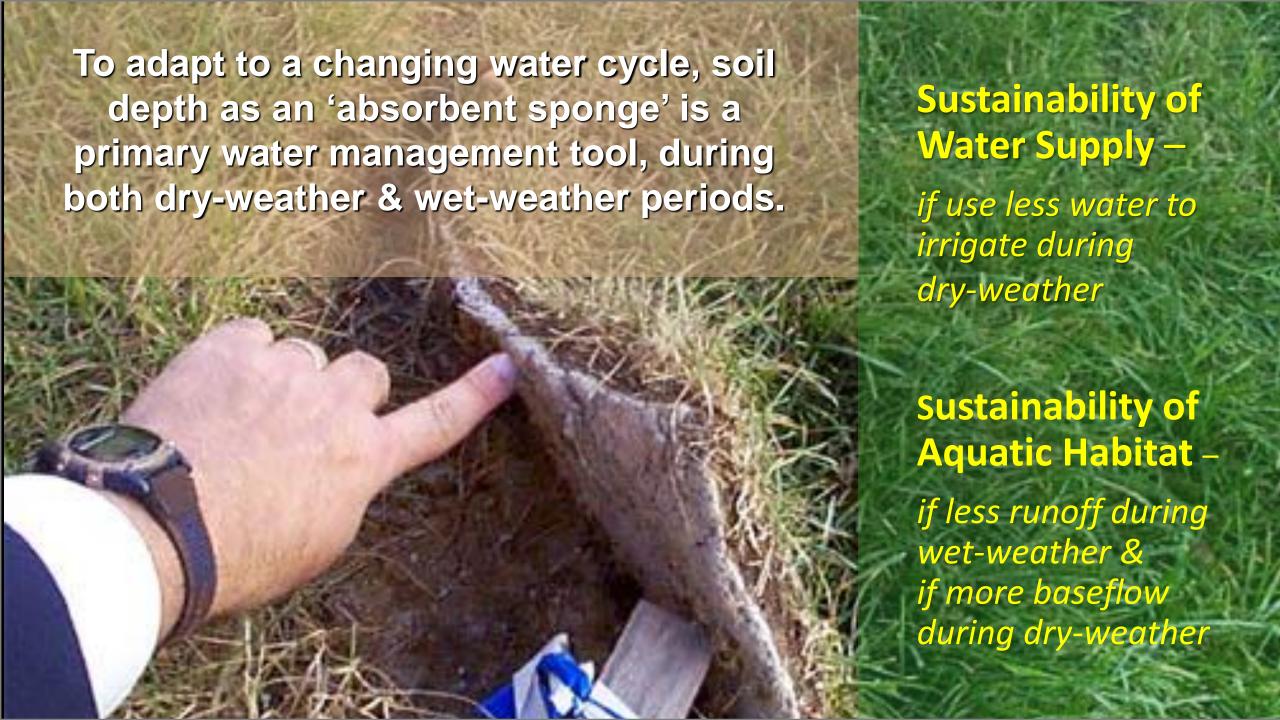
TIME THE CUMULATIVE

BENEFITS OF DOING MANY

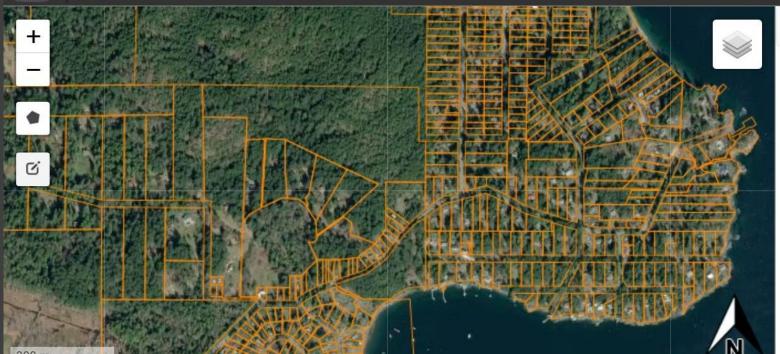
THINGS DO ADD UP."

Robert Hicks
Senior Policy and Process Engineer
City of Vancouver









♠ Welcome

**♦** Irrigation Profile

**9** Help

#### About the Calculator

v1.0.2

The BC Landscape Water Calculator helps British Columbians estimate the water requirements for their landscaped areas.

Before using this tool, prepare a sketch showing the dimensions and area of the landscaped areas on your property (in meters). Also note the type of plant material, irrigation system present or type of system to be installed. This information is required to add to the calculator.

When you're ready to get started, click and zoom on the map to find your property, or enter a civic address in the search bar. Then click on the Irrigation Profile tab.

the nartnershin

data.gov.bc.ca, Map data @ OpenStreetMap contributors, CC-BY-SA, Imagery @ Mapbox

DDITTELL



RBC



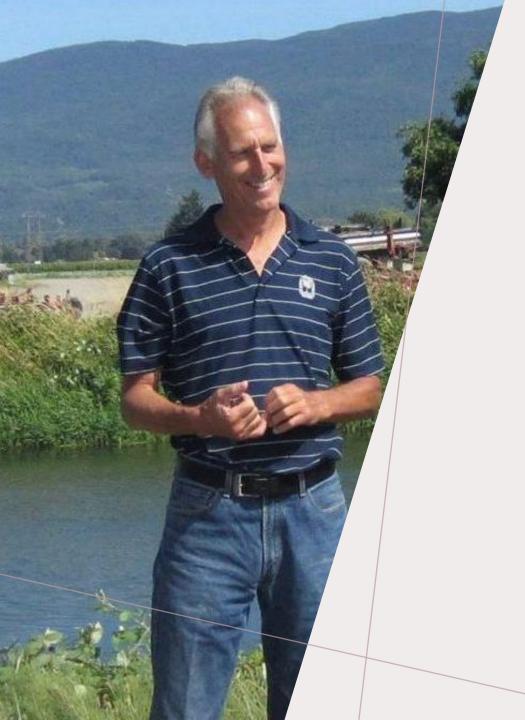
https://bcwatercalculator.ca/landscape/welcome

The power of the BC Landscape Water Calculator is that it is linked to a provincial 500 metre gridded climate dataset that was built for the Agricultural Water Demand Model. This is what establishes the allowable water budget for each and every property in BC.



"The new BC Landscape Water Calculator would allow local governments to further support their Water Conservation Plans with the next piece of education for those who are actually turning on the taps at their homes."

Brian Bedford, Executive Director, Ministry of Municipal Affairs & Housing



"NOW ANY PROPERTY OWNER IN BC CAN ZOOM IN TO THEIR PROPERTY AND QUANTIFY THEIR OUTDOOR WATER NEED BASED ON CLIMATE, SOIL, PLANT TYPE AND IRRIGATION SYSTEM."

TED VAN DER GULIK, PRESIDENT,
PARTNERSHIP FOR WATER SUSTAINABILITY

FORMER SENIOR ENGINEER, MINISTRY OF AGRICULTURE

CHAIR, BC LANDSCAPE WATER CALCULATOR PROGRAM

"An unintended outcome of customizing the BC Landscape Water Calculator for Abbotsford conditions is in the way it gives homeowners direction for selection of native and water efficient plants based on sun, shade or a combination. This is powerful."

Amy Peters
Water Quality and Resource
Coordinator, City of Abbotsford



"The City Utility is excited to promote this online water tool (BC Landscape Water Calculator) to our residents. It makes the process of understanding, calculating, and submitting water use reports to the City so much easier and user-friendly.

#### **Ed Hoppe**

Water Quality and Customer Care Supervisor, City of Kelowna



"The BC Landscape Water Calculator is a new tool for the CRD's Summer Waterwise Campaign. It has real potential to foster a stewardship ethic on the part of homeowners."

Glenn Harris, Senior Manager, Environmental Protection Capital Regional District





