Unraveling the Myth of Abundance

A Teachers' Guide to The Okanagan Basin Waterscape Poster

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2006: Okanagan Basin Waterscape; Geological Survey of Canada,
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Cover photo courtesy Benjamin Rondel

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Introduction

The Okanagan Basin Waterscape poster is one of a series of educational posters developed by the Geological Survey of Canada to encourage the wise use of water in a part of the province that is facing what some have called a water crisis. As more and more people move into the Okanagan, and as the effects of climate change become increasingly apparent, concerns about maintaining a clean, safe and abundant supply of water will only increase. The Okanagan Basin Waterscape poster is intended to focus attention on these issues and to motivate residents to protect and conserve this valuable resource for future generations.

Bill Taylor.Okanagan Poster Committee

Unravelling the Myth of Abundance, Teachers' Guide to the Okanagan BasinWaterscape Poster is based on Calgary's Bow River Valley Basin Waterscape guide.

The Okanagan Basin poster was produced by a committee of regional scientists and educators. To assist teachers and students in the use of this poster, several regional educators contributed to the writing of this teachers' guide which was compiled, edited and designed by Central Okanagan Science Oppportunities for Kids Society (SOKS). SOKS has been designing and presenting experiential science programs for teachers and students in elementary and middle schools for ten years.

To facilitate the use of the poster, which contains a series of topics or "panels" containing detailed illustrations and text, this guide is divided into four key concepts about water: Understanding Watersheds, The Okanagan Water Cycle, Wise Water Use and Protection of Aquatic Resources. Each key concept includes activities for a group of poster panels.

"The Okanagan Basin, including Osoyoos Lake has the least water per capita of all Canadian basins (Statistics Canada) and consistently [Okanagan River] ranks at or near the top in lists of Canada's most threatened rivers."
International Joint Commission on Water (IJC) Osoyoos Lake Water Science Forum Draft Proposal

photo: Benjamin Rondel


photo: Don Weixl, Tourism Kelownal


photo: Don Weixl, Tourism Kelownal

How to use this Guide

Unravelling the Myth of Abundance, is a companion guide for the Okanagan Waterscape Poster. This poster contains illustrations and text on thirteen different topics or panels (see following page).

This guide is recommended for and focuses on the BC curriculum for grades four to eight. Appendix: Grade 11 and 12 Activities, contains four activities designed by a Senior Secondary science teacher for grades 11 and 12.

To assist teachers to use the poster, this guide incorporates the panels with additional information and related activities. As a way of organizing the extensive information on the poster, the guide is divided into for key concepts which are presented in modules. Though the modules are presented in a specific order, teachers may choose to access one or all of the the modules in any order they choose. The four key concepts are:

Key Concept 1: Understanding Watersheds
Key Concept 2: The Okanagan Water Cycle
Key Concept 3: Wise Use of Water
Key Concept 4: Protection of Aquatic Resources.

Each key concept links three or more panels on the poster and includes a series of related activities. Activities are included for upper intermediate elementary grades (4-6), middle school grades (7-8) and a few for grade 12 geology (in appendices). These activities focus on creating models, games and experiences that engage students in understanding issues around water in the Okanagan Valley and what they can do about dispelling the myth of its abundance. Though materials for the activity models need to be collected, costs are minimal.

An overview of the Key Concepts and related activities is provided on the following two pages.

Appendix: Maps and illustrations contains all the maps and many illustrations found in the body of the guide for duplication. Five are vector illustrations which can be enlarged without loss of resolution.

Ways to Use the Guide

1. Teachers can download and copy pages from the guide as needed. School district resource centres can expand the size in colour where this is desirable.
2. Each panel is reproduced in the guide and may be copied for easy reference.
3. Individual pages may be copied for group problem solving or games.
4. Icons like this one are provided throughout the guide for quick reference to the poster.

Key Concepts, Matching Poster Panels and Activities Elementary and Middle Schools

Key Concept One : Understanding Watersheds

The Okanagan Watershed or Basin includes all the land within and the water surrounding the streams and lakes that ultimately drain into the six main lakes and the Okanagan River at the south end of the basin. Many small feeder lakes, wetlands and creeks in the hills contribute to the water in the six main lakes.

Panels

Water–The Myth of Abundance
What is the Okanagan Basin?
From Highlands to Valley Floor

Activities

School Yard Model
Contours: Shapes and Curves
Watershed Sculpture

Panels and Activities for Key Concept Two ~ Water Cycle

The Okanagan Basin Water Cycle is complex and influenced by a variety of factors. Our water supply is limited despite the visual cues that indicate otherwise. The amount of useable water within the watershed is limited by accessibility, hydrology and the seasonal timing of the water cycle process.

Panels

Okanagan Water Cycle
Our Lakes: Looks Can be Deceiving
Groundwater Connected to Surface Water
Our Challenging Climate: Less Water But Rising Demands

Activities

What is the Water Cycle?
Water Cycle in a Bottle
Water Cycle Keeps on Rolling
Dance of the Water Droplet
Measuring Rain with a Raincatcher
Building a Ground Water Model
Watershed Down
Go With the Flow
Effects of Human Use on the Water Table
Tasty Water
Ground Water Pollution and Prevention
Climate Change: Effects on Your Lifestyle
Aquifir Xray
Alkalai Lake

Key Concepts, Matching Poster Panels and Activities
Elementary and Middle Schools

Panels and Activities for Key Concept Three ~ Protecting Our Aquatic Resources

Protection and conservation (stewardship) of Aquatic Esosystems is essential to sustain plant, animal and human communities into the future. We need healthy streams and groundwater.

Panels

Protecting Natures Water Needs

Activities

Yellow Fish Road
Make a Waterscope
Stream Science

Panels and Activities for Key Concept Four ~ Wise Water Use

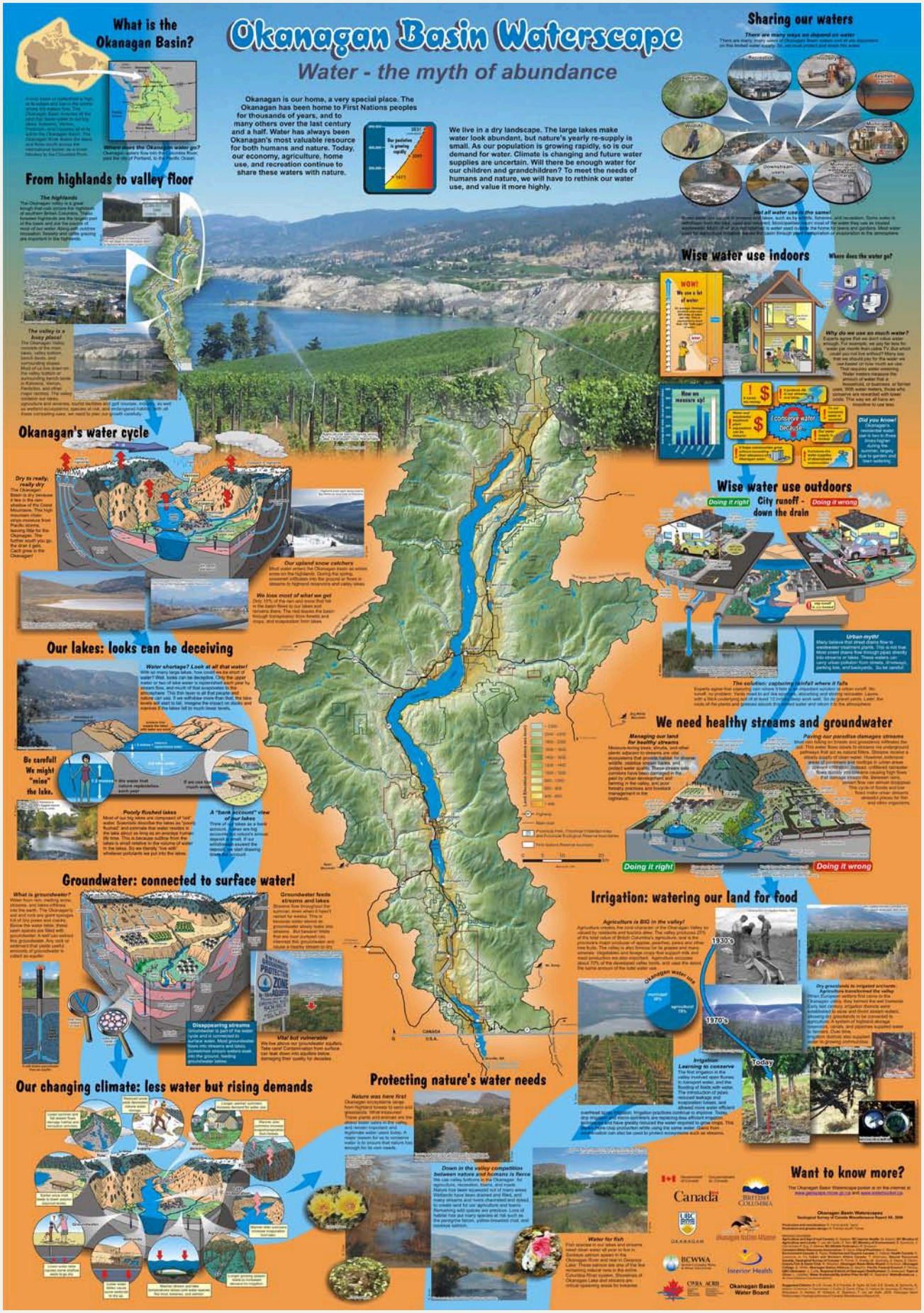
Wise water use for the Okanagan embraces water conservation at home and in our agricultural practices.

Panels

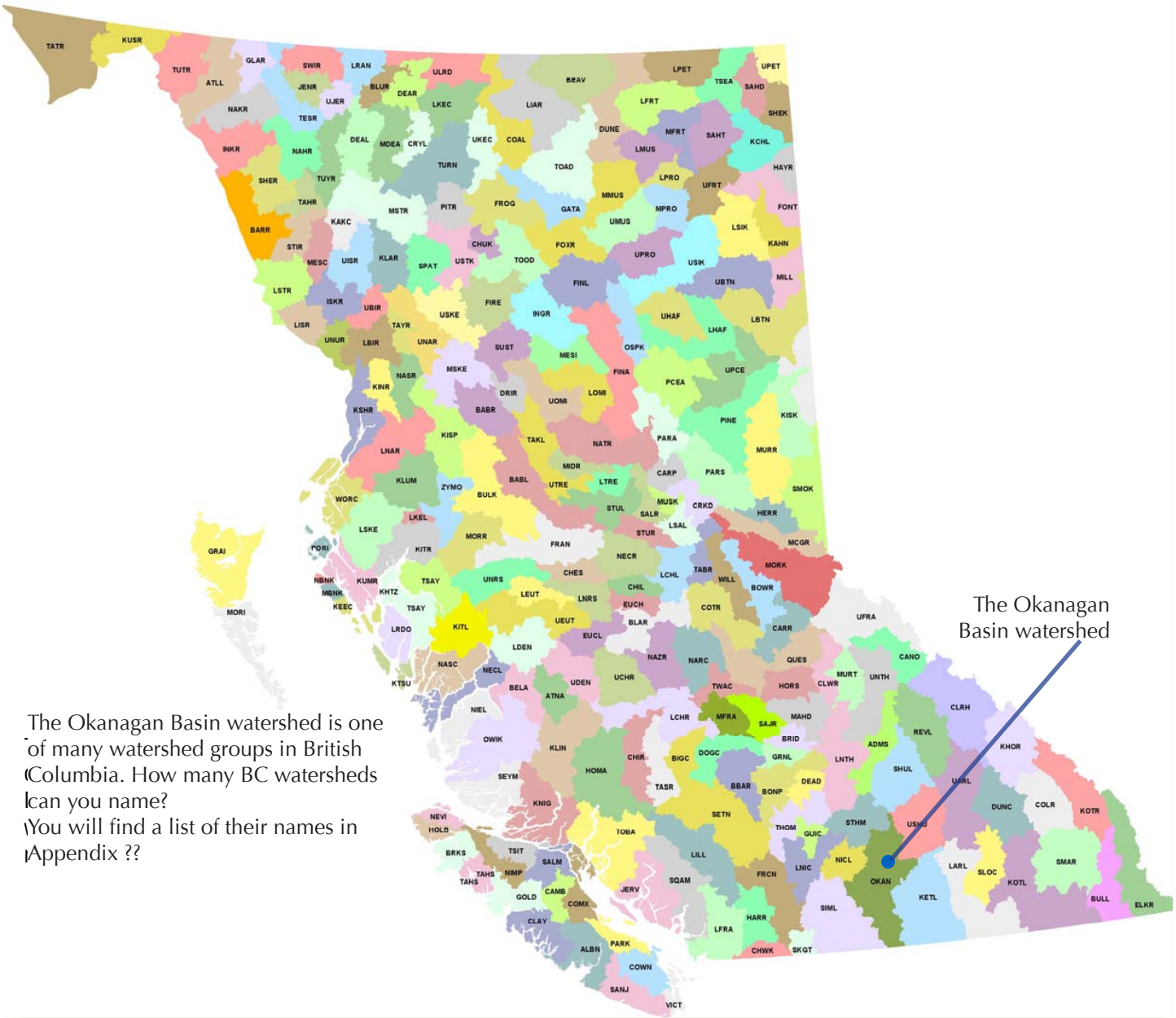
Sharing Our Waters
Wise Water Use Indoors
Wise Water Use Outdoors
Irrigation: Watering Our Land

Activities

Taste Test Challenge
Better than Bottled
How Water From the Watershed is Treated
Wise Water - Doing it Right
Greening the Lawn
Paradise or Paved
Okanagan Enviro-Ethics


Okanagan Basin Waterscape
Water - the myth of abundance
What is the Okanagan Basin?
Okanagan is our home, a very special place. The Okanagan has been home to First Nations peoples for thousands of years, and to many others over the last century and a half. Water has always been Okanagan's most valuable resource for both humans and nature. Today, our economy, agriculture, home use, and recreation continue to share these waters with nature.
We live in a dry landscape. The large lakes make water look abundant, but nature's yearly re-supply is small. As our population is growing rapidly, so is our demand for water. Climate is changing and future water supplies are uncertain. Will there be enough water for our children and grandchildren? To meet the needs of humans and nature, we will have to rethink our water use, and value it more highly.
Our population is growing rapidly
2031 projected
2001
1971
Sharing our waters
There are many ways we depend on water
Recreation
Irrigation
Residents
Wildlife
Municipal water supply
Industry
Downstream users
Municipal wastewater discharge
And all water use is the same!
From highlands to valley floor
The highlands
The valley is a busy place!
Where does the Okanagan water go?
Okanagan rivers flow into the Columbia River, past the city of Portland, to the Pacific Ocean.
Wise water use indoors
Where does the water go?
WOW! We use a lot of water
How we measure up!
Conserve water Because
Why do we use so much water?
Did you Know!
Okanagan's residential water use is two to three times higher during the summer, largely due to garden and lawn watering.
Okanagan's water cycle
Dry to really, really dry
Our upland snow catchers
We lose most of what we get
Wise water use outdoors
Doing it right
City runoff - down the drain
Doing it wrong
Urban myth!
The solution: capturing rainfall where it falls
Our lakes: looks can be deceiving
Water shortage? Look at all that water!
Be careful! We might "mine" the lake.
Poorly flushed lakes
A "bank account" view of our lakes
We need healthy streams and groundwater
Managing our land for healthy streams
Paving our paradise damages streams
Doing it right
Doing it wrong
Groundwater: connected to surface water!
What is groundwater?
Groundwater feeds streams and lakes
Disappearing streams
Vital but vulnerable
Irrigation: watering our land for food
Agriculture is BIG in the valley!
Okanagan water use
1930's
1970's
Today
Irrigation
Learning to conserve
Our changing climate: less water but rising demands
Protecting nature's water needs
Nature was here first
Down in the valley competition between nature and humans is fierce
Water for fish
Want to know more?
The Okanagan Basin Waterscape poster is on the internet at www.geoscape.nrcan.gc.ca and www.waterbucket.ca
Okanagan Basin Waterscapes
Geological Survey of Canada Miscellaneous Report XX, 2008
Canada
British Columbia
Okanagan Basin Water Board
Interior Health
BCWWA
CWRA ACRH

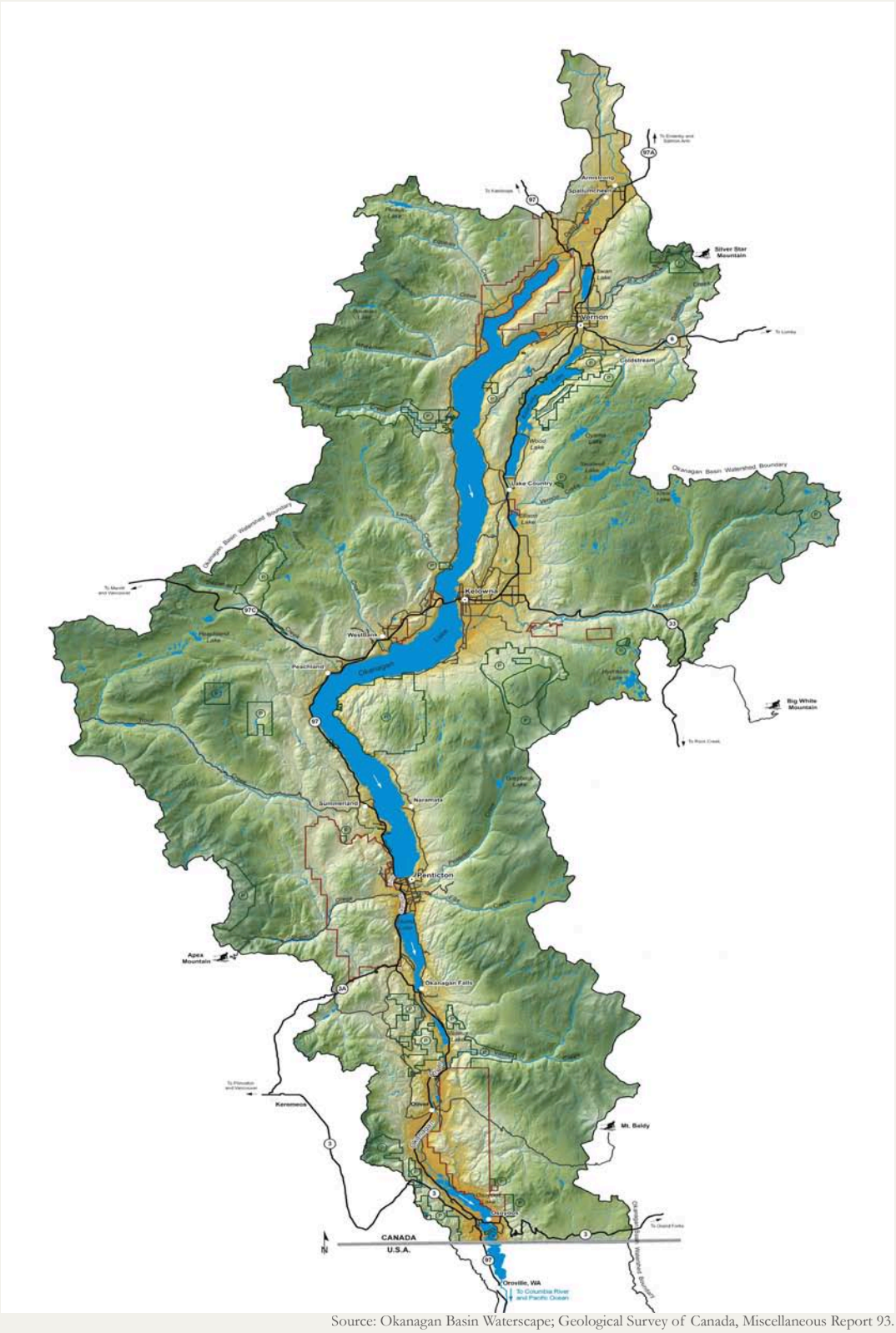
Watershed Groups in BC



The Okanagan Basin watershed is one of many watershed groups in British Columbia. How many BC watersheds can you name?
You will find a list of their names in Appendix ??

Prepared by GIS Applicatons Unit Information Services Branch BC Ministry of the Environment

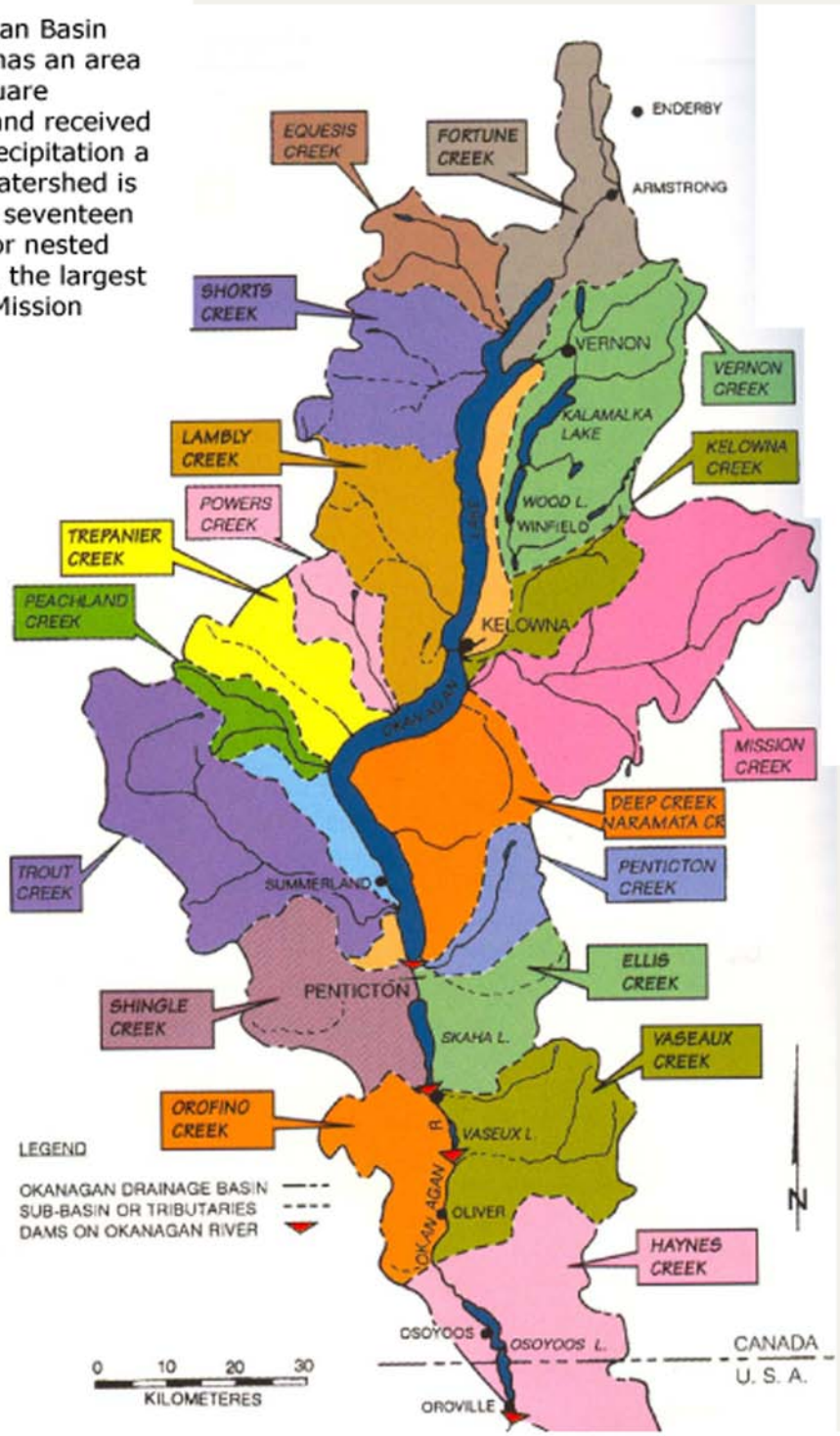
Okanagan Basin Watershed



Source: Okanagan Basin Waterscape; Geological Survey of Canada, Miscellaneous Report 93.

Okanagan Basin Watershed Groups

The Okanagan Basin Watershed has an area of 6,187 square kilometers and received 55 cm of precipitation a year. The watershed is divided into seventeen sub basins or nested watersheds, the largest of which is Mission Creek.



Source: *Okanagan Geology*. Kelowna Geology Committee editors. Murray Roed and John Greenough, 1995