

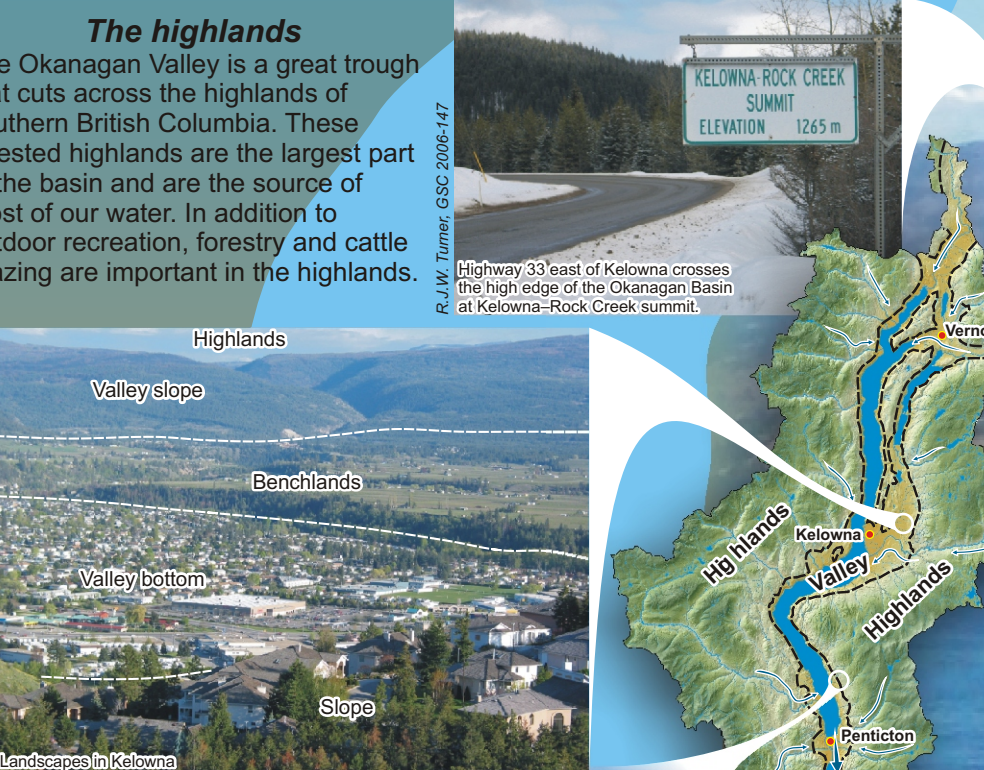
# What is the Okanagan Basin?



A river basin or watershed is high at its edges and low in the centre where the waters flow. The Okanagan Basin includes all the land that feeds water to our big lakes, Kelowna, Vernon, Penticton, and Osoyoos all lie within the Okanagan Basin. The Okanagan River drains the lakes and flows south across the International Boundary as a small tributary to the Columbia River.

**Where does water from the Okanagan Basin go?**  
Okanagan Basin water flows into the Columbia River, past the city of Portland, to the Pacific Ocean.

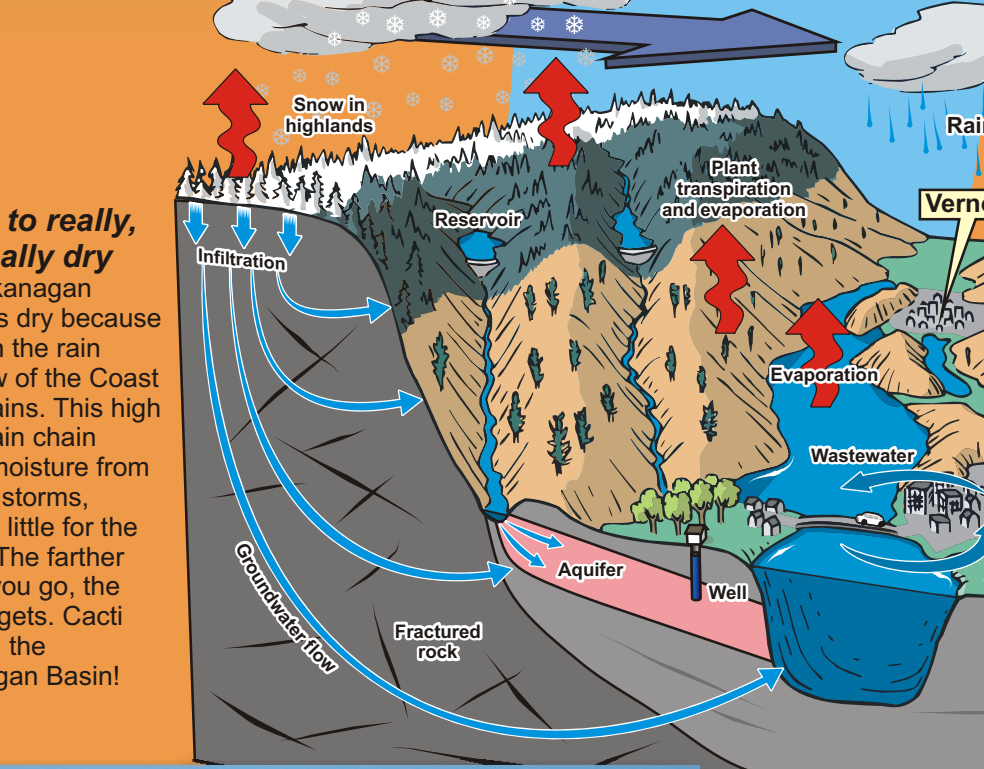
## From highlands to valley floor



**The highlands**  
The Okanagan Valley is a great trough that cuts across the highlands of southern British Columbia. These forested highlands are the largest part of the basin and are the source of most of our water. In addition to outdoor recreation, forestry and cattle grazing are important in the highlands.

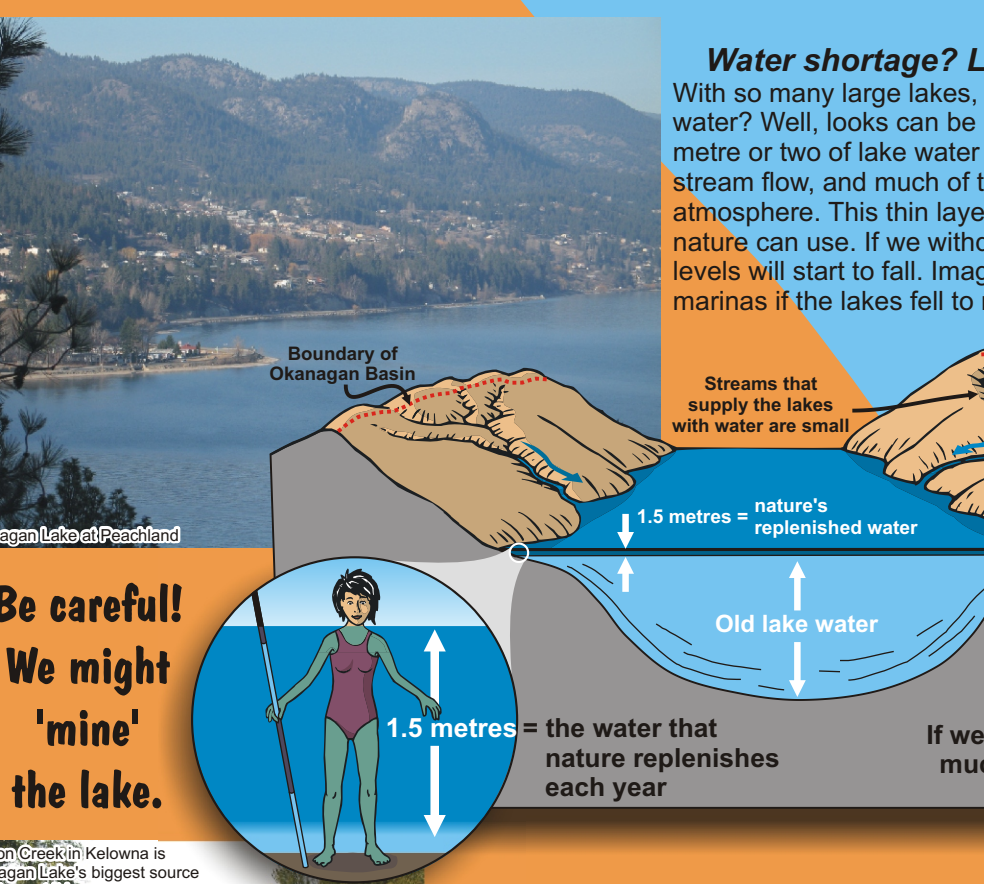
**The valley is a busy place!**  
The Okanagan Valley consists of the main lakes, valley bottom, benches, and surrounding slopes. Most of us live down on the valley bottom or on the surrounding benches in Kelowna, Vernon, Penticton, and other major centres. The valley contains our lakes, agriculture and wineries, tourist facilities and golf courses, and industry, as well as wetland ecosystems, species at risk, and endangered habitat. With all these competing uses, we need to plan our growth carefully.

## Our water cycle



**Dry to really, really dry**  
The Okanagan Basin is dry because it lies in the rain shadow of the Coast Mountains. This high mountain chain strips moisture from Pacific storms, leaving little for the basin. The farther south you go, the drier it gets. Cacti grow in the Okanagan Basin!

## Our lakes — looks can be deceiving



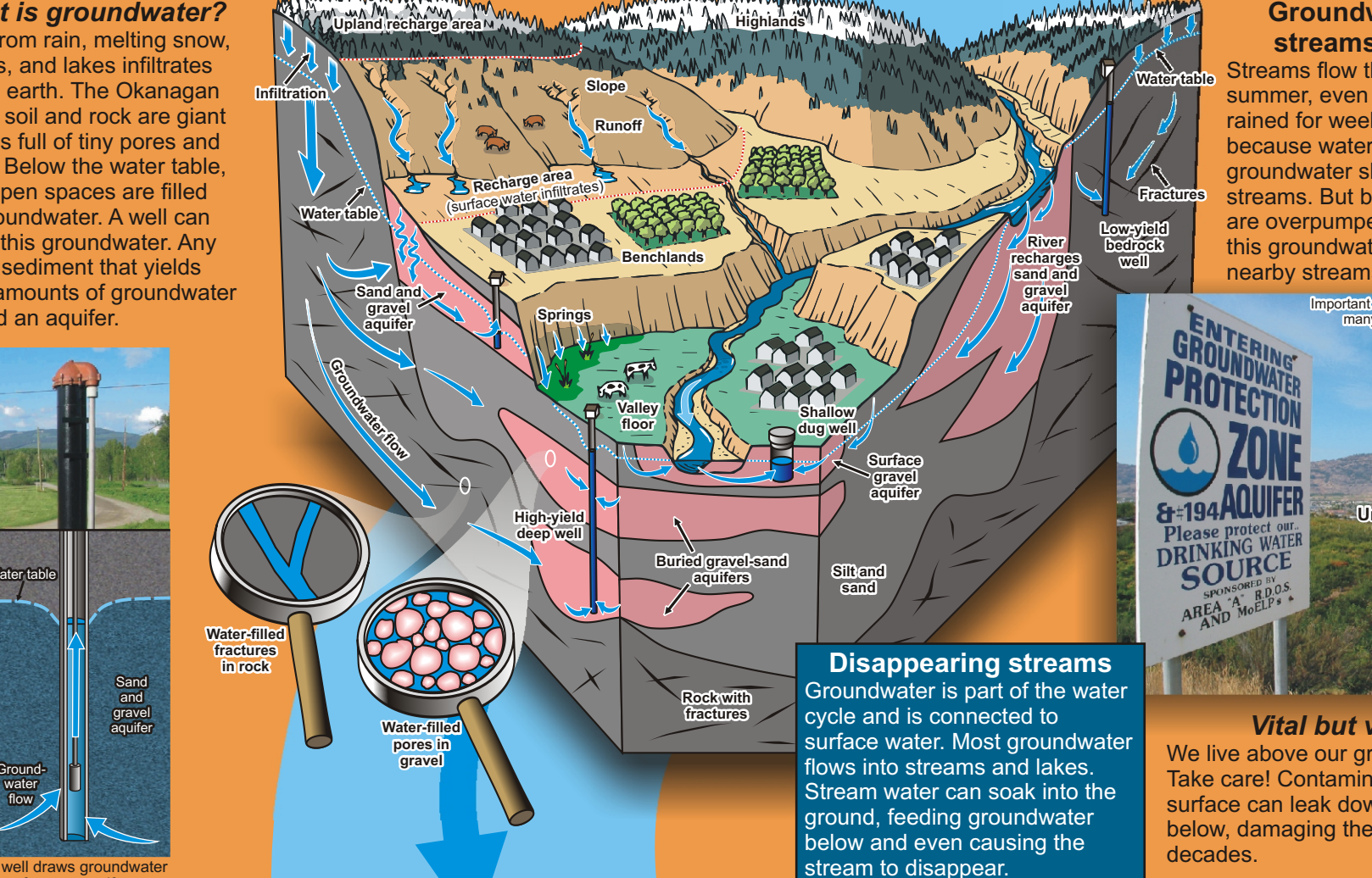
**Water shortage? Look at all that water!**  
With so many large lakes, how could we be short of water? Well, looks can be deceptive. Only the upper metre or two of lake water is replenished each year by stream flow, and much of that evaporates to the atmosphere. This thin layer is all that people and nature can use. If we withdraw more than that, the lake levels will start to fall. Imagine the impact on docks and marinas if the lakes fell to much lower levels.

**Be careful! We might 'mine' the lake.**  
1.5 metres = the water that nature replenishes each year. If we use too much water, we are mining the lake.

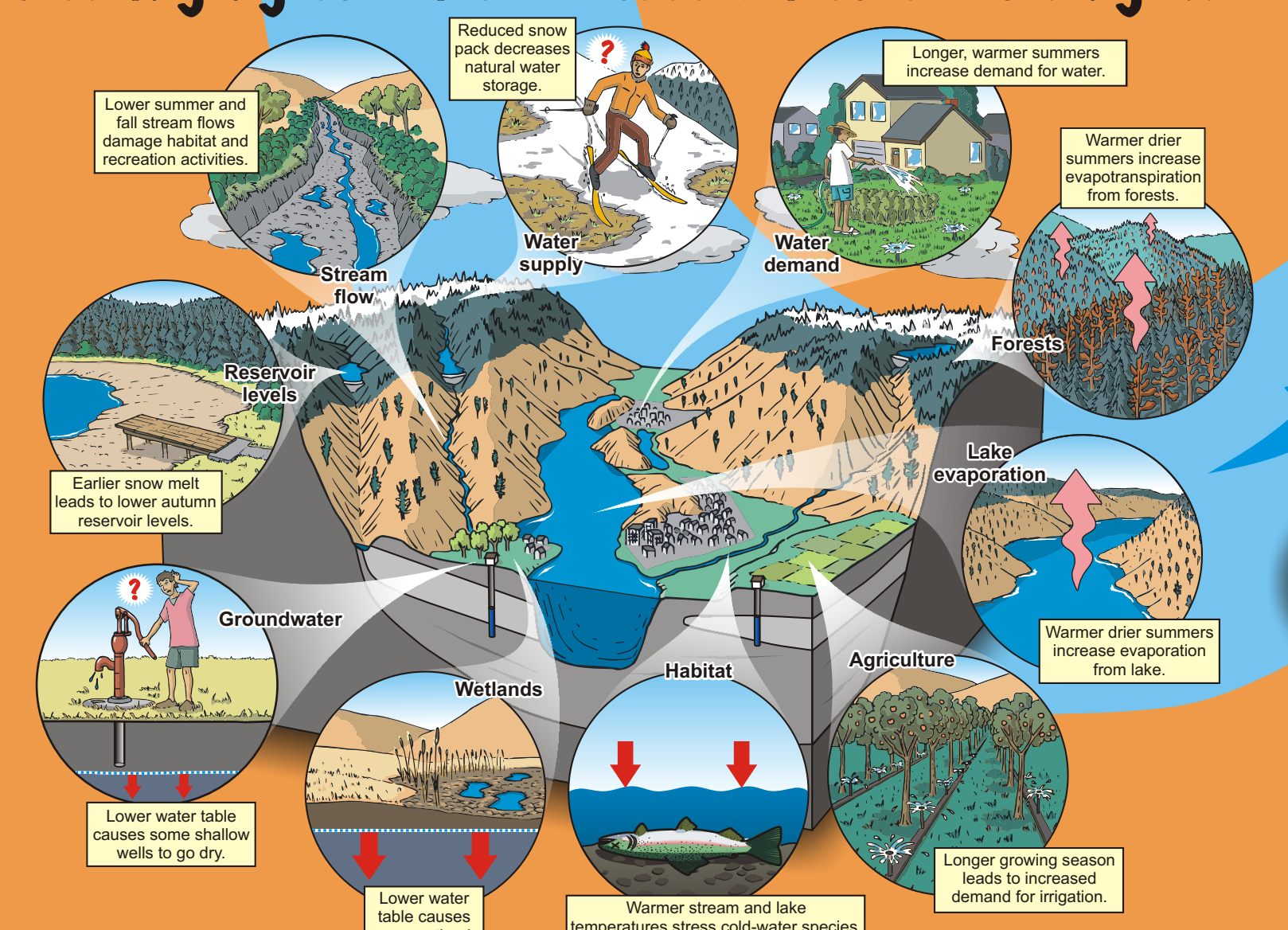
**Poorly flushed lakes**  
Most of our big lakes are composed of 'old' water. Scientists describe the lakes as 'poorly flushed' and estimate that water resides in Okanagan Lake about as long as an average human lifetime. This is because outflow from the lake is small relative to the volume of lake water. So we literally 'live with' whatever pollutants we put into the lakes.

**'A bank account' view of our lakes**  
Think of our lakes as a bank account. Lakes are big accounts, but nature's annual deposit is small. If our withdrawals exceed the deposit, we start drawing down the account.

## Groundwater — connected to surface water!



## Our changing climate — less water but rising demands

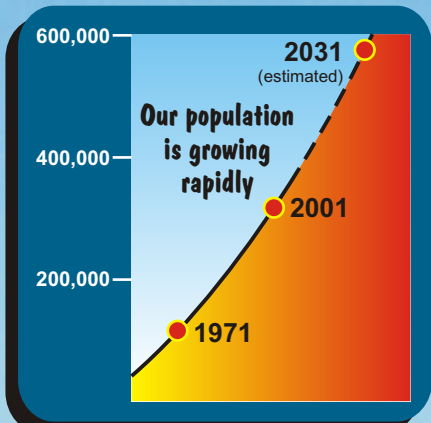


Lower summer and fall stream flows damage habitat and recreation activities.  
Earlier snow melt leads to lower autumn reservoir levels.  
Lower water table causes some shallow wells to go dry.  
Warmer stream and lake temperatures stress cold-water species, such as trout, kokanee, and salmonids.  
Longer growing season leads to increased demand for irrigation.  
Warmer drier summers increase evaporation from lakes.  
Warmer drier summers increase evaporation from lakes.

# Okanagan Basin Waterscape

## Water — the myth of abundance

The Okanagan Basin is our home, a very special place. It 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 the basin'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 resupply 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.

### Sharing our waters

There are many ways we depend on water and all are dependent on this limited supply. So, we must protect and share the water.

- Recreation
- Industry
- Agriculture
- Wildlife
- Aquatic life
- Downstream users
- Municipal water supply
- Municipal wastewater discharge
- Aesthetic values

**Not all water use is the same!**  
Some water use occurs in streams and lakes, such as by wildlife, fisheries, and recreation. Some water is withdrawn from the lake, used, and returned. Municipalities return most of the water they use as treated wastewater. Much of what is not returned is water used outside the home for lawns and gardens. Most water used for agricultural irrigation leaves the basin through plant transpiration or evaporation to the atmosphere.

### Wise water use indoors

**WOW! We use a lot of water**  
An average Okanagan Basin resident uses over 300 litres of water per day. That's more than 125 litres just to shower! 40 metres high!

**Why do we use so much water?**  
Experts agree that we don't value water enough. For example, we pay far less for water per month than cable TV. But which could you not live without? Many say that we should pay for the water we use based on how much we use. That requires water metering. Water meters measure the amount of water that a household, business, or farmer uses. With water meters, those who conserve are rewarded with lower costs. This way we all have an incentive to use less.

**Did you know!**  
The Okanagan Basin's residential water use is two to three times higher during the summer, largely due to garden and lawn watering.

### Wise water use outdoors

**Doing it right City runoff — down the drain**

**Doing it wrong**

**Urban myth!**  
Many believe that street drains flow to wastewater treatment plants. This is not true. Most street drains flow through pipes directly into streams or lakes. These waters can carry urban pollution from streets, driveways, parking lots, and backyards. So be careful!

**The solution — capturing rainfall where it falls**  
Experts agree that capturing rain where it falls is an important solution to urban runoff. No runoff, no problem. Yards need to act like sponges, absorbing and storing rainwater. Lawns with a thick underlying soil of at least 12 inches work well. So do gravel yards. Later, the roots of the plants and grasses absorb this stored water and return it to the atmosphere.



## Protecting nature's water needs

**Nature was here first**  
Okanagan Basin ecosystems range from highland forests to semiarid grasslands. What treasures! These plants and animals are the oldest water-users in the valley, and remain important and legitimate water-users today. A major reason for us to conserve water is to ensure that nature has enough for its own needs.

**Down in the valley, competition between nature and humans is fierce**  
We use valley bottoms in the Okanagan Basin for agriculture, recreation, towns, and roads. Nature has been squeezed out of many areas. Wetlands have been drained and filled, and many streams and rivers channelled and dyked, to create land for our agriculture and towns. Remaining wild spaces are precious. Loss of habitat has put at risk many species, such as the peregrine falcon, yellow-breasted chat, and sockeye salmon.

**Water for fish**  
Fish species in our lakes and streams need clean water year-around in which to live. Sockeye salmon spawn in the Okanagan River and rear in Osoyoos Lake. These salmon are one of the few remaining natural runs in the entire Columbia River system. Shorelines of Okanagan Lake and streams are critical spawning areas for kokanee.

### Wise water use outdoors

**Doing it right**

**Doing it wrong**

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### We need healthy streams

**Managing our land for healthy streams**  
Moisture-loving trees, shrubs, and other plants adjacent to streams are vital ecosystems that provide habitat for diverse wildlife, stabilize stream banks, and protect water quality. These streamside corridors have been damaged in the past by urban development and farming in the valley, and poor forestry practices and livestock management.

**Paving our paradise damages streams**  
Most rain falling on forests and grasslands infiltrates the soil. This water flows slowly to streams via underground pathways that act as natural filters. Streams receive a steady supply of clean water. However, extensive areas of pavement and rooftops in urban areas prevent infiltration, instead, unfiltered rainwater flows quickly into streams, causing high flows that damage stream life. Between rains, stream flow can almost disappear. This cycle of floods and low flows makes urban streams stressful places for fish and other organisms.

**Doing it right**

**Doing it wrong**

### Irrigation — watering our land for food

**Agriculture is BIG in the valley!**  
Agriculture creates the rural character of the Okanagan Valley so valued by residents and tourists alike. The valley produces 25% of the total value of British Columbia's agriculture, and is the province's major producer of apples, peaches, pears, and other tree fruits. The valley is also famous for its grapes and many wineries. Vegetables and forage crops that support milk and meat production are also important. Agriculture occupies about 70% of the developed valley lands, and accounts for about the same proportion of water use.

**Okanagan water use**

- Municipal 30%
- Agriculture 70%

**1930's**  
Construction of irrigation canals, 1930. (By natural landscape photographer)

**1970's**  
Overhead spray irrigation. (By natural landscape photographer)

**Today**  
Irrigation — learning to conserve  
The first irrigation in the valley involved open flumes to transport water, and the flooding of fields with water. The introduction of pipes reduced leakage and evaporation losses, and allowed more water-efficient techniques and have greatly reduced the water required to grow crops. This allows more crop per drop of water. A system of highland storage reservoirs, canals, and pipelines supplied water to farmers. Over time, irrigation districts also supplied water to growing communities.

**Dry grasslands to irrigated orchards — agriculture transformed the valley**  
When European settlers first came to the Okanagan Valley, they farmed the wet lowlands. Early last century, irrigation districts were established to store and divert stream water, allowing dry grasslands to be converted to agriculture. A system of highland storage reservoirs, canals, and pipelines supplied water to farmers. Over time, irrigation districts also supplied water to growing communities.

### Want to know more?

The Okanagan Basin Waterscape poster is on the Internet at [www.gscscape.nrcan.gc.ca](http://www.gscscape.nrcan.gc.ca) and [www.waterbucket.ca](http://www.waterbucket.ca)

**Okanagan Basin Waterscape**  
Geological Survey of Canada, Miscellaneous Report 93, 2006

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Recommended citation:  
Turner, R.J.W., Franklin, R.G., Taylor, B., Cah, M., Grayby, S.E., Symonds, B., Adams, M., Armour, G., Carmichael, V., Curtis, J., Davis, D., Epp, P., Harlow, C., Johnson, M., Mackie, D., Moloney, T., Nelson, B., Simpson, R., Stephens, K., and van der Gulik, T., 2006. Okanagan Basin Waterscape, Geological Survey of Canada, Miscellaneous Report 93.

Catalogue no. M41-6/93  
ISBN 0-660-19051-1

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