

WHAT IS A WATER BALANCE?

The goal of the **Columbia Basin Water Monitoring Framework** is to establish a unified monitoring network that reflects local priorities while following a scientific water balance approach.

In the study of water, known as hydrology, a water balance can be used to describe the flow of water through a system, such as a watershed. Water moves in and out of watersheds both above and below ground through precipitation, evapotranspiration, groundwater recharge and discharge, while some water is stored within the system.

PRECIPITATION, including rain, sleet or snow, is the way in which water enters the watershed. Precipitation is measured at climate stations.

EVAPOTRANSPIRATION is a combination of water evaporated from the surface of the earth, and water released through the leaves of plants. Evapotranspiration can be estimated from a combination of measurements recorded at climate stations or during field site visits including temperature, humidity, wind speed, and the height of surrounding vegetation.

STORAGE is the amount of water that remains in the watershed over a given period of time. This represents visible water bodies like lakes, wetlands and glaciers, as well as less obvious reservoirs such as groundwater, soil moisture, and water stored in plants. Monitoring all parts of the water balance can help estimate changes in water storage.

DISCHARGE is the water leaving a watershed through rivers, streams, and overland flow runoff (when soils cannot absorb anymore water) and is measured at hydrometric stations. Monitoring a diverse set of streams allows for more accurate predictions of how changes in climate and land use will affect a watershed

It is difficult to measure water flowing into and out of the ground. Water seeps into the soil and deeper in the ground through cracks in bedrock and the spaces in between sand and gravel (the body of rock and/or sediment that holds groundwater is an aquifer). Measuring **GROUNDWATER** levels gives us an indication of the water storage in aquifers and how it changes seasonally and year to year.

WHY DO WE NEED A WATER BALANCE FOR THE COLUMBIA BASIN?

In order to plan for future land use and ensure sustainable water management, decision-makers need to understand how much water is currently available across watersheds, and how climate change will continue to impact the water cycle.