

Preparatory to year 7

Traditional sources of freshwater in Queensland

In Australia, water for urban, agricultural and industrial use has traditionally been sourced from surface or groundwater resources such as dams, weirs and bores.

Surface water

Surface water includes any water that comes from rainfall and run-off into streams and rivers. Water may be collected from dams, weirs and lakes or pumped directly from rivers and creeks. Dams, barrages and weirs are constructed barriers that hold water to provide a reservoir for water supply or energy production. There are approximately 68 large dams and barrages (over 10,000 ML) and 261 small surface water storages across the state. The water from these storages is used by a large portion of Queensland's population for drinking, irrigation, industry and business.

Surface water can contain:

- debris like tree branches
- broken down pieces of plant and animal matter (detritus)
- sand, gravel and loam from stream and river banks
- nutrients such as nitrates and phosphates from agricultural fertilisers
- microorganisms from the environment, some of which may come from human or animal contamination and be harmful.

Groundwater

Many communities across Queensland rely on groundwater for their water supply. When rain soaks into the soil, the water seeps down into the ground because of gravity. It passes between particles of soil, sand, gravel or rock until it reaches a depth where the ground is filled, or 'saturated', with water. Groundwater is stored in the spaces between the rock particles in materials like gravel and sand. In this case, the Earth acts like a big sponge holding all that water in aquifers – underground zones and layers where water is stored. Water can also move through porous rock formations like sandstone, or through cracks in the rocks. When the water reaches a layer of rock or clay that it cannot move through (impermeable layer), it then travels sideways through the ground along the top.

As groundwater moves through rock particles, salts from the minerals in the rock dissolve in the water. Much of the groundwater in Australia is naturally very salty. Some coastal aquifers can also be affected by seawater, either naturally or from human impacts.

Human activities such as industry and agriculture can contaminate groundwater.

Groundwater can contain:

- salts
- nutrients such as nitrates and phosphates
- contaminants such as industrial chemicals and pesticides.

