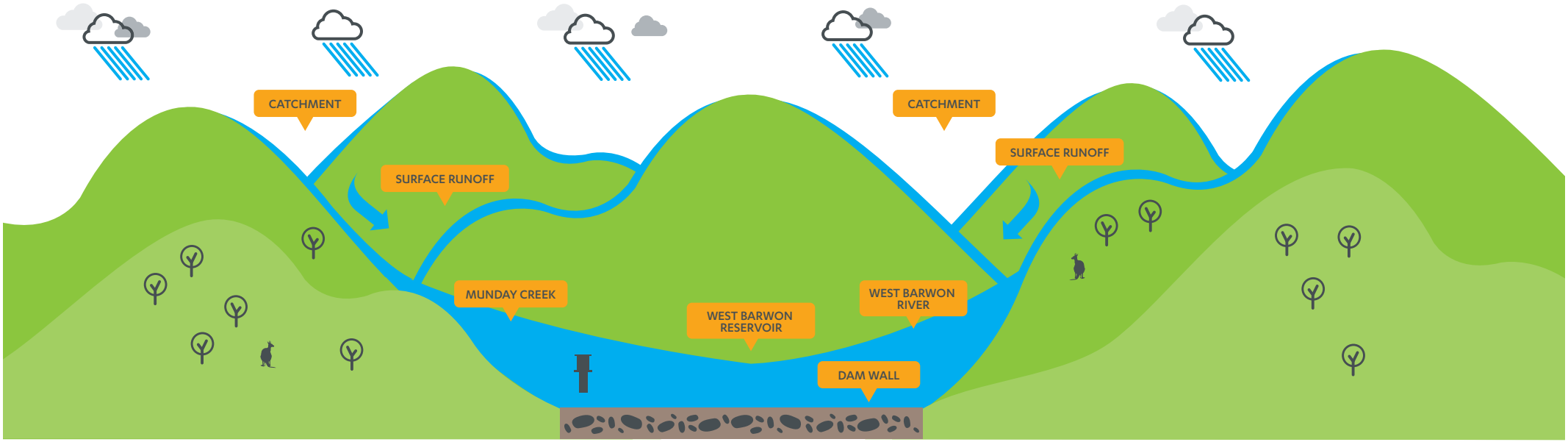
Barwon Water

West Barwon Reservoir



Water is essential for life. Its cycle from the surface of the planet to the sky, to clouds, to rain and back to the surface is continuous, and one of the fundamental natural processes on which we depend.

Its journey from the environment to our homes involves long distances and specialised equipment that transforms this natural resource into drinking water for almost 300,000 permanent residents of the Geelong region.

History

Geelong's first reservoirs were constructed on the Moorabool river system in the 1870s, but a growing population and subsequent increase in demand for clean water necessitated a new water source. The then Geelong Waterworks and Sewage Trust turned to the upper Barwon catchment for Geelong's next reservoir.

Work began on the West Barwon dam in 1959 and the reservoir was officially opened in 1965. At the time of construction, West Barwon was the largest reservoir project in Victoria.

Catchment

Most of Geelong's water supply originates within the picturesque Great Otway National Park where the average rainfall is double that of Geelong. The natural contour of the surrounding hills results in a catchment of approximately 51 square kilometres, directing all rainfall within this area toward West Barwon Reservoir.

Surface runoff

As the rain falls, surface runoff flows down the steep forested hills toward streams, creeks and rivers. The water continues along the tributaries before flowing into the **West Barwon River** and **Munday Creek.**

Reservoir

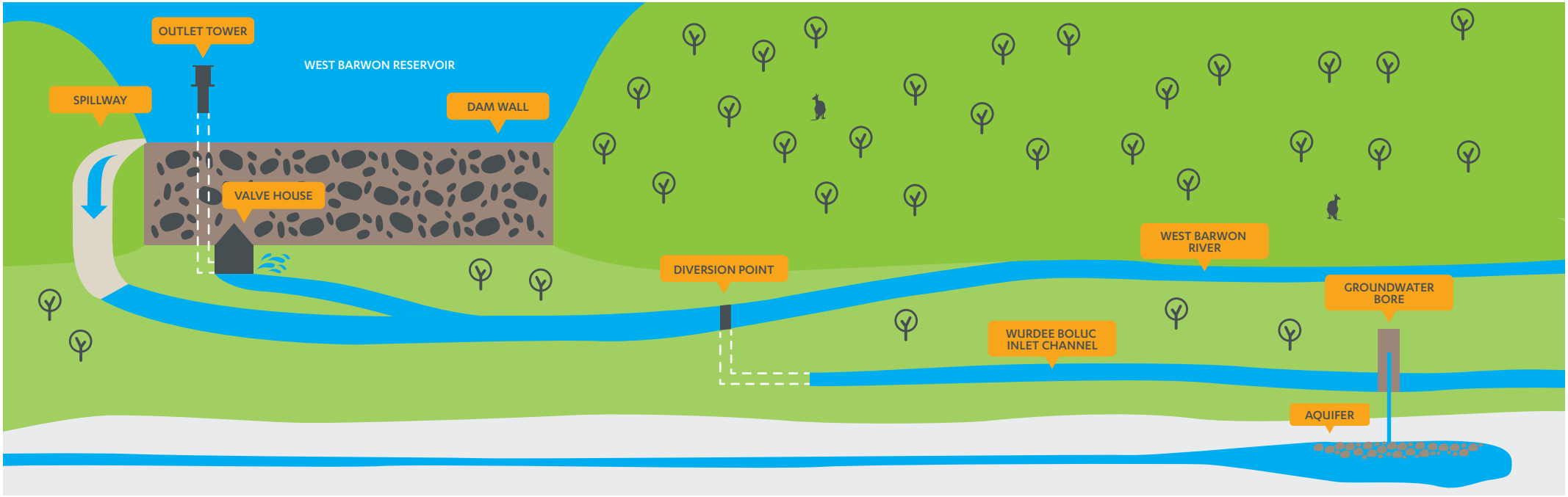
The water eventually finds its way to West Barwon Reservoir where it is stored for future use. The reservoir holds approximately 21,500 megalitres (million litres) when full – enough for approximately six months' supply for the greater Geelong region.

Water quality

Although untreated, this water will eventually end up as drinking water. To aid in the treatment process, it is critical the water is kept as clean as possible from the very beginning. For this reason, the reservoir is off-limits to bathers, domestic animals and all forms of boating.

Dam wall

Built at the junction of the West Barwon River and Munday Creek, the dam wall is constructed from zoned earth and rockfill, with an upstream sloping clay core to reduce seepage.



Did you know?	
Catchment area	51 km^2
Reservoir surface area (when full)	1.76 km^2
Capacity (when full)	21,504 ML
Usable volume	20,900 ML
Max depth of reservoir	21.4 m
Length of dam	320 m
Height of dam	43 m
Width of dam wall (top)	9 m
Width of dam wall (base)	125 m
Elevation of dam wall	172 m (above sea level)
Length of outlet tunnel	170 m
Diameter of outlet tunnel	3.3 m

Spillway

In the rare event of flood, a large concrete weir, spillway and chute release the overflow safely around the dam wall, directing the excess water to the West Barwon River below.

Outlet tower

The outlet tower acts as the 'plug hole' for the reservoir. The 30 metre tall concrete structure draws water from the reservoir and delivers it through a 150 metre tunnel to the valve house below the dam wall.

Valve house

At the valve house, the flow of water is regulated via a cone-shaped valve. The valve has the capacity to release up to 300 megalitres a day (3,500 litres/sec). To maintain river health, a minimum amount of water must be released. This water is termed the 'environmental flow' and is equivalent to 4 megalitres a day (45 litres/sec).

Diversion point

Approximately 400 metres downstream of the valve house, water is diverted through a 600 metre tunnel to the West Barwon River. A further 5 kilometres downstream the water is diverted again into the Wurdee Boluc inlet channel.

Wurdee Boluc inlet channel

The Wurdee Boluc inlet channel is a 57 kilometre concrete-lined channel that transfers untreated water from West Barwon Reservoir to Wurdee Boluc Reservoir.

Groundwater

In times of reduced rainfall, groundwater is used to supplement surface water. Groundwater is found in underground water bodies called aquifers. Water can be extracted from an aquifer using a bore and pump.

Wurdee Boluc Reservoir

Untreated water is stored within Wurdee Boluc Reservoir before being transferred to the water treatment plant for filtration and disinfection.

Treatment plant

At the Wurdee Boluc Water Treatment Plant, untreated water is dosed with a special chemical that 'glues' dirt particles together into a 'floc'. This water is then passed through filters that remove the floc particles and leaves the water crystal clear.

The final step is the addition of a small amount of chlorine to inactivate any micro-organisms that may be present. Fluoride is also added at this point to help reduce tooth decay.

The water is now clean and safe to drink, and is sent on its way toward residents of greater Geelong.

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For further information

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