



Northern Region Sustainable Water Strategy

Fact Sheet 2

Future threats to water resources

Climate change and variability are the biggest threats to water availability in northern Victoria. Victoria's water entitlement framework is designed to cope with drought, but the scale of drought over the past 12 years has put it under pressure. Changes need to be made to retain our reliable water supplies, and protect environmental values, in a future with less water.

There is increasing concern that the last 12 years of low rainfall transcends normal drought, and is an indicator of climate change. Patterns that are unique to the dry period we have been experiencing since 1997 include:

- more severe streamflow and inflow reductions than the long, dry droughts of the early 1900s, and the mid 1930s/40s
- higher temperatures, and therefore increased evaporation
- no high rainfall years interspersed within the 12 drought years to provide relief
- a disproportionate decline in autumn and early winter rains, resulting in a low winter-spring run off.

To assess how much water may be available in the next 50 years, the Strategy uses the CSIRO's low, medium and high climate change scenarios which result in a gradual reduction in water availability and a more severe scenario based on a continuation of the extreme conditions since July 1997.

Water availability due to climate change, and other pressures, is compared to demand projections to provide insight into future water requirements.

Key actions to safeguard our future

The Northern Region Sustainable Water Strategy has 52 actions and 17 policies to position northern Victoria to respond to any water future. See fact sheets three to eight.

Climate change, drought and the Northern Region

Climate change could impact on all aspects of the water cycle. Reduced rainfall and hotter temperatures are expected to result in drier soils, less run off into waterways and storages, and more evaporation from rivers, channels and dams.

The most severe climate change scenario spells significant adjustment for the environment, the irrigation sector and the communities that depend on it. The western catchments such as the Campaspe and Loddon are likely to be harder hit than eastern ones, such as the Kiewa and Ovens.

Table 2.1 - Forecast change in total inflows in the major river systems in the Northern Region (compared with the long-term average)

River system	Water availability scenarios at 2055			
	A – Low climate change	B – Medium climate change	C – High climate change	D – Continuation of low inflows (July 1997 - June 2007)
Murray*	+ 8%	-21%	-40%	-43%
Kiewa	-5%	-19%	-32%	-23%
Ovens	-6%	-24%	-41%	-33%
Broken	-7%	-31%	-51%	-53%
Goulburn	-7%	-25%	-43%	-49%
Campaspe	-9%	-31%	-54%	-72%
Loddon	-10%	-34%	-58%	-74%

Note: * Refers to total Murray system, not just Victoria's share.

The Strategy also takes into account the impact of predicted population changes, water extraction, regulated rivers, land use changes, bushfires and interception activities such as small catchment dams.

What happens if we do nothing – a future with less water

If there were no changes to the way we managed water there would be:

- ↳ less reliable water supplies:
 - under a continuation of recent low inflows, full allocations for **high-reliability water shares** would be reduced from 95 years in 100, to 68 years out of 100 in the Murray system. There would be five years out of 100 with zero allocations. In the Goulburn system, full allocations of high-reliability water shares would be reduced from 98 to 28 years out of 100 under the same scenario.
 - the number of years with zero allocations for **low-reliability water shares** in the Murray system would increase from 14 out of 100 years, to 72 years out of 100. In the Goulburn system, full allocations for low-reliability water shares would never occur under a continuation of the past 12 years and zero allocations would occur in 95 years out of 100.
- ↳ more restrictions for licence-holders on unregulated rivers: Unregulated rivers – those without large dams or weirs would see licence-holders on restrictions or bans more often
- ↳ falling groundwater levels: Groundwater levels are expected to go down across the region as a result of the declining recharge rate and increased extractions
- ↳ urban water users: If there were no change, urban water users could expect to see more frequent and severe water restrictions
- ↳ species and site losses for the environment:
 - the disappearance of most river red gum forests
 - the end to colonial bird breeding, such as egrets
 - a significant decline in native fish populations
 - the degradation or even loss of internationally acclaimed wetland sites, such as the Kerang Lakes
- ↳ poor water quality and increasing salinity: Ongoing dry conditions are causing new issues with water quality, including reduced discharge to streams, the exposure of acid sulphate sediments, and increased salinity.