

Why rivers need water

How environmental flows
support people and the environment



Our Water Our Future

A Victorian Government initiative



Rivers are vital to life

River systems are vital to Victoria. They:

- sustain people by supplying water for towns, farms and businesses
- provide places to play, relax and connect with nature
- help absorb floodwaters and protect against fires, and
- contribute to local economies through industries such as boating, fishing and tourism.

Importantly, rivers are also a crucial part of the ecosystem, sustaining native plants, fish and animals.

Environmental flow is the term used to describe the water needed in a river to maintain healthy, natural ecosystems. In other words, it is the water needed to maintain life in and around a river.

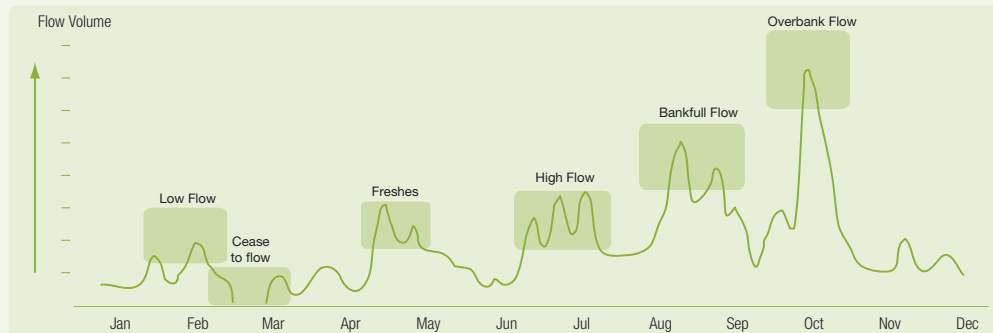
What are 'environmental flows'?

Victoria's natural ecosystems have evolved around the complex and connected elements of river systems.

Scientists now understand that the way in which water flows in a river system is vital to maintaining its physical, chemical and biological health – and, therefore, the communities that rely on it.

While the volume of water flowing in a river is important, the timing, duration and frequency of water flows are just as crucial.

'Freshes' through summer, for instance, help to maintain or improve water quality, while spring flooding replenishes a river channel and provides soils and nutrients for floodplains, as well as being vital for the breeding success of waterbirds and native fish.



Flow regime. The typical flow pattern of a Victorian river.

What are the consequences of poor environmental flows?

When a river doesn't have adequate environmental flows the life that relies on it suffers. Inadequate flows in a river can cause serious environmental damage and, in some cases, have social and health consequences for the community.

Water quality can deteriorate, harming not only river life (such as native fish, animals and plants) but also the people who rely on the river. Salinity levels can escalate and toxic algal bloom outbreaks can occur, making water unsuitable for farming and drinking; seriously degraded water costs more to treat if the water is to be used for homes, farms and businesses.



Inadequate environmental flows can result in severely degraded water quality.

Inadequate environmental flows can also impact upon people's general quality of life. Swimming holes silt up; fishing spots become barren as fish stop breeding and die; river courses can become permanently altered; and plants and trees, such as River Red Gums, begin to die out.

Recently Victoria has worked to prevent the near extinction of the Murray Hardyhead fish - a direct symptom of inadequate flows brought about by drought and water consumption.



Isn't the water naturally found in rivers adequate?

Most major rivers in Victoria have a substantial amount of water extracted from them for use in our homes, on farms and by industry.

As Victoria's population has grown, so has the amount of water extracted from rivers. On average, one-third of stream flow is extracted, although some rivers lose more and others less.

The Moorabool, Wimmera, Goulburn rivers and even the mighty River Murray receive, on average, less than half of their 'natural' flows.

Unfortunately the drought has increased this impact: Low rainfall and the lowest inflows ever recorded in Victoria's rivers have meant even less water for environmental flows.



The Wimmera River receives less than half of its 'natural' flows.
Pic: Wimmera Catchment Management Authority

In drought years, Australian rivers and creeks dry up. Why should we give rivers extra flows if dry rivers are a natural phenomenon?

It's true that some rivers naturally dry up in drought and, while this is a shock to the river system, in natural circumstances most rivers recover.

However, in today's environment it's more difficult for rivers to recover from drought because so much water is extracted from them to sustain towns and businesses.

In a way, today's rivers are suffering a 'double drought'. First, they contain less water because of high levels of extraction; second, they are suffering from the lowest inflows on record, due to low rainfall.



Pictures of the Coliban River taken in 2004 and 2007, showing how much the drought has impacted on river flows. Pic: Stephen Malone

For example, before the construction of Lake Eppalock and the Upper Coliban storages in the Campaspe River catchment, the average natural flow was 305,000 megalitres a year. The storages now limit the Campaspe River to about half the natural flow in average rainfall years, and only 5% in dry years.

In these years, about 95% of the flow is extracted for towns and irrigation. The drought now being faced by the Campaspe River environment is 20 times harsher than a natural drought.

Rivers, like the Campaspe River, that have had so much water taken from them, or had their natural flow pattern altered so much by diverting water into dams and weirs, need to be helped with environmental flows.

The environment faces the same issues confronting our water supply systems. Climate change means harsher, longer and more frequent periods of drought.

So while droughts are natural, the additional pressures placed on rivers because of our activities are not natural. They make rivers less resilient and more susceptible to collapse.

How do we know how much water a river needs to have adequate flows?

Rigorous scientific methodologies have been developed to work out how much water can be extracted from rivers while continuing to meet community and environmental needs.

Scientists examine the individual needs of plant and animal species in and around a river and calculate how much water is needed and the flow pattern required to protect that river for the long-term.



A dried out section of the Glenelg River at Chetwynd in March 2007.
Pic: Glenelg Hopkins Catchment Management Authority.

How Victoria protects river flows

In November 2005, the Victorian Government passed a law which, for the first time, gave legal protection to the environment's share of water flow in rivers.

The 'Environmental Water Reserve' is the term now used to describe the amount of environmental flow that each of Victoria's rivers must receive by law. This amount differs from river to river.

While the Environmental Water Reserve has been a breakthrough for river protection and restoration in Victoria it should be noted that a river's designated Environmental Water Reserve does not always provide an adequate amount of environmental flows. The reason for this is that, in setting up the reserve, the Victorian Government recognised the rights of existing water users, such as towns, farms and businesses, who have grown to rely on a river's supply. In some of these cases, the government is now trying to find ways to boost environmental flows.

How can we boost a river's environmental flows?

In Victoria, water used for environmental flows is often sourced by making efficiencies in water infrastructure or water use. For example, building the Wimmera Mallee Pipeline will save around 103,000 megalitres of water a year on average, which otherwise would have been lost to evaporation and seepage. Up to 83,000 megalitres of this 'saved' water will now be available for environmental flows for the highly-stressed Wimmera and Glenelg river systems.

The Victorian Government can also access water for environmental flows by buying it on the water market.

In the Mallee, in 2006, for instance, 5 gigalitres of water was donated by local irrigators to help save drought-affected River Red Gums along the Murray.

Does supplying water for environmental flows take water away from other water users in towns, farms and businesses?

As we can see above, water used to improve environmental flows is, effectively, 'additional' water and does not affect the rights of existing water users.

Human health and safety must always come before the ecological needs of rivers, plants and animals. Only once basic human needs are met (i.e. for drinking and washing), can the needs of other water users, including agriculture, industry and the ecosystem, be met.

Ultimately the Victorian community works with the State Government to decide how much water is taken from our rivers and how much is made available for environmental flows through processes such as the development of regional Sustainable Water Strategies.

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More Information:

In most systems catchment management authorities (CMAs) are the responsible managers for environmental water. In the Melbourne and Western Port regions, Melbourne Water is responsible. These agencies work in partnership with the Department of Sustainability and Environment (DSE) and water corporations to ensure the health of Victoria's water resources.

The Victorian River Health Program works to tackle the causes of poor river health affecting two thirds of Victoria's rivers.

By collectively treating the problems of low flows, declining water quality and degraded riverine habitats, the Program will restore stressed rivers while protecting healthy ones

If you would like to learn more about environmental flows or river health in general, please contact your local Catchment Management Authority. Alternatively, visit www.dse.vic.gov.au or call our customer service centre on 136 186.



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