The Victorian Constraints Measures Program (CMP) - Environmental Benefits

Victoria engaged ecological and modelling specialists to better understand the complexities and environmental responses of relaxing constraints on the Goulburn and Murray rivers.

Specialists, including those from the University of Melbourne and the Arthur Rylah Institute for Environmental Research, provided advice on the environmental risks and benefits.

Modelling, considering a range of climate change scenarios was undertaken by the Department of Energy, Environment and Climate Action (DEECA), Manly Hydraulics Laboratory and the Murray Darling Basin Authority. This helped to better understand how the rivers flow and how the environment would respond should they be reconnected with the floodplains.

What was the feasibility study's focus?

The feasibility study looked at the potential impacts on carbon, fish, birds, and vegetation health when constraints are relaxed at specific flow rates.

The greatest benefits relate to watering low-lying riparian vegetation and billabongs and flood runner ecosystems more frequently. Environmental studies show that the frequency, duration, and timing of inundation as well as the area inundated are all important.

By increasing the river's connection to the floodplain, high-value ecosystems on public land could be enhanced on the Goulburn and Murray rivers. While the inundation benefits floodplains, it is not at the frequency or durations needed to restore them. Significant Victorian areas that would benefit include Gemmill Swamp, Reedy Swamp, Ryans Lagoon Nature Conservation Reserve and Barmah National Park.

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Why are Victoria's floodplains important?

Climate change and water regulation have impacted the health of rivers across northern Victoria, including floodplains.

Floodplain river ecosystems are complex and interdependent. They are made up of various components, including wetlands, redgum forests, open woodland plains, and redgum and black box woodlands. Recent research reveals healthy wetlands can store more carbon per unit area compared to forest ecosystems, contributing to carbon sequestration efforts.

Floodplains are important for many reasons, including:

- Being the buildings blocks to moving essential nutrients, carbon, and sediment between land and water environments.
- Serving as a vital habitat and food source for diverse aquatic life, including fish, birds, invertebrates, reptiles, amphibians, and mammals like rakali and platypus.
- Offering river ecosystems that provide water purification, climate regulation, and various cultural, educational, and recreational opportunities.
- Supporting Traditional Owners, whose culture and history have deep connections to land and water and rely on the health of the system. Floodplain disconnection due to river regulation inhibits First Peoples continuing traditional practices.

Improving the health of the Southern Connected Basin

Potential benefits of implementing this program extend broadly across the landscape. These benefits are not only within specific sections of the river, but also system wide, reaching our Basin Plan partner states, New South Wales and South Australia.

Climate change

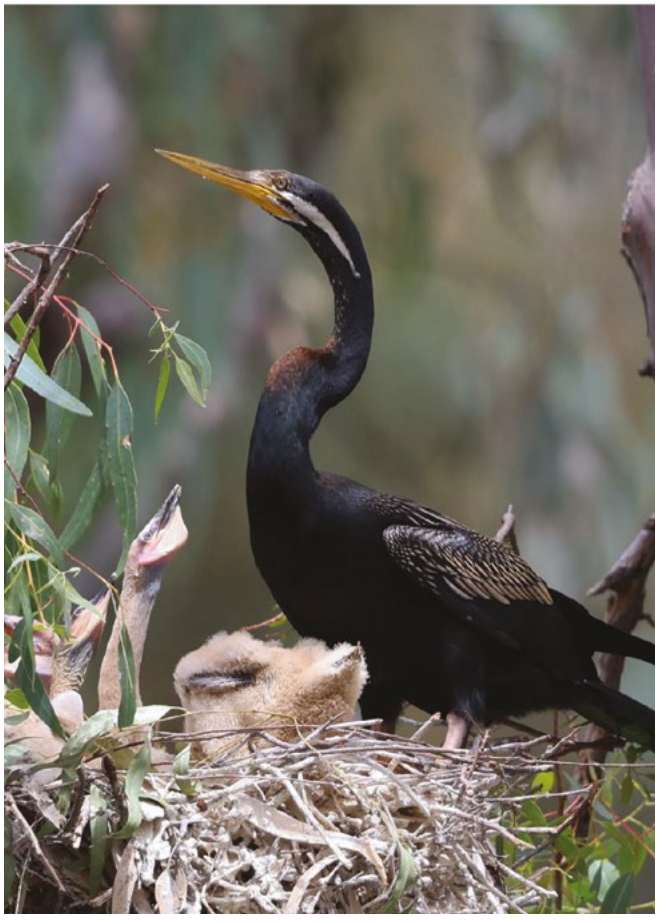
Many parts of Northern Victoria are predicted to experience a warmer and drier future climate, with an increased likelihood of extreme droughts and floods.

The effects of climate change are already apparent, and its severity will change the potential benefits to floodplains. The feasibility study found that a floodplain's resilience to climate change would be improved by relaxing constraints, creating a healthier environment for all to enjoy. However, under severe climate change and conditions like the Millennium Drought, the modelling suggests the benefits of relaxing constraints are far less.

Environmental Benefits

The feasibility study results show that the frequency, duration, and timing of inundation and the area inundated are all important.

- The greatest benefits come from overbank inundation. These include watering low-lying riparian vegetation and billabongs and flood runner ecosystems more frequently, in the lower sections of the Goulburn and Murray Rivers and through national parks.
- The ecological needs of floodplain vegetation below the minor flood level, cannot be fully met by relaxing constraints because of the short duration of inundation.
- Relaxing constraints not only expands inundated areas for vegetation, but also improves their resilience. This increases the proportion of water-dependent vegetation that can be maintained in good condition even during dry periods.
- Large areas of higher floodplain vegetation need moderate and major flood events to be watered. Complementary programs such as The Living Murray and the proposed Victorian Murray Floodplain Restoration Project are needed to protect these sites.



Environmental Risks

- Environmental risks of relaxing constraints include reducing the frequency of moderate flood events, increasing bank erosion, carp populations and possible blackwater events. However, ecological response modelling and expert panel advice indicate that the environmental benefits of relaxing constraints outweigh these risks.
- While relaxing constraints offers significant benefits for vegetation in the low-lying areas of the floodplain, it may not extend to all areas, especially those at higher levels within the floodplain. Some areas dominated by black box trees would not receive the required environmental water under any of the constraint relaxation scenarios.
- Relaxing constraints is not expected to increase the likelihood of bank erosion.
- Erosion is an ongoing risk caused by river operations to deliver irrigation water, and in some instances, boat wake. This needs to be addressed separately, even if the CMP is not implemented.
- Complementary programs, including grazing management, pest control, and monitoring, are necessary to maximise Goulburn and Murray environmental outcomes. Addressing the deteriorating riparian zone is critical to enhancing the benefits of water for the environment.
- Under severe climate change and conditions like the Millennium Drought, modelling suggests the benefits of relaxing constraints are far less.

What's next?

A comprehensive overview of relaxing constraints is outlined in the feasibility study. The study will help inform next steps including the Murray Darling Basin Authority-led Constraints Roadmap for implementation.

This will provide further direction on the program's future. For more information about the study and next steps, visit the Victorian Constraints Measures Program website and the Murray Darling Basin Authority websites.

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