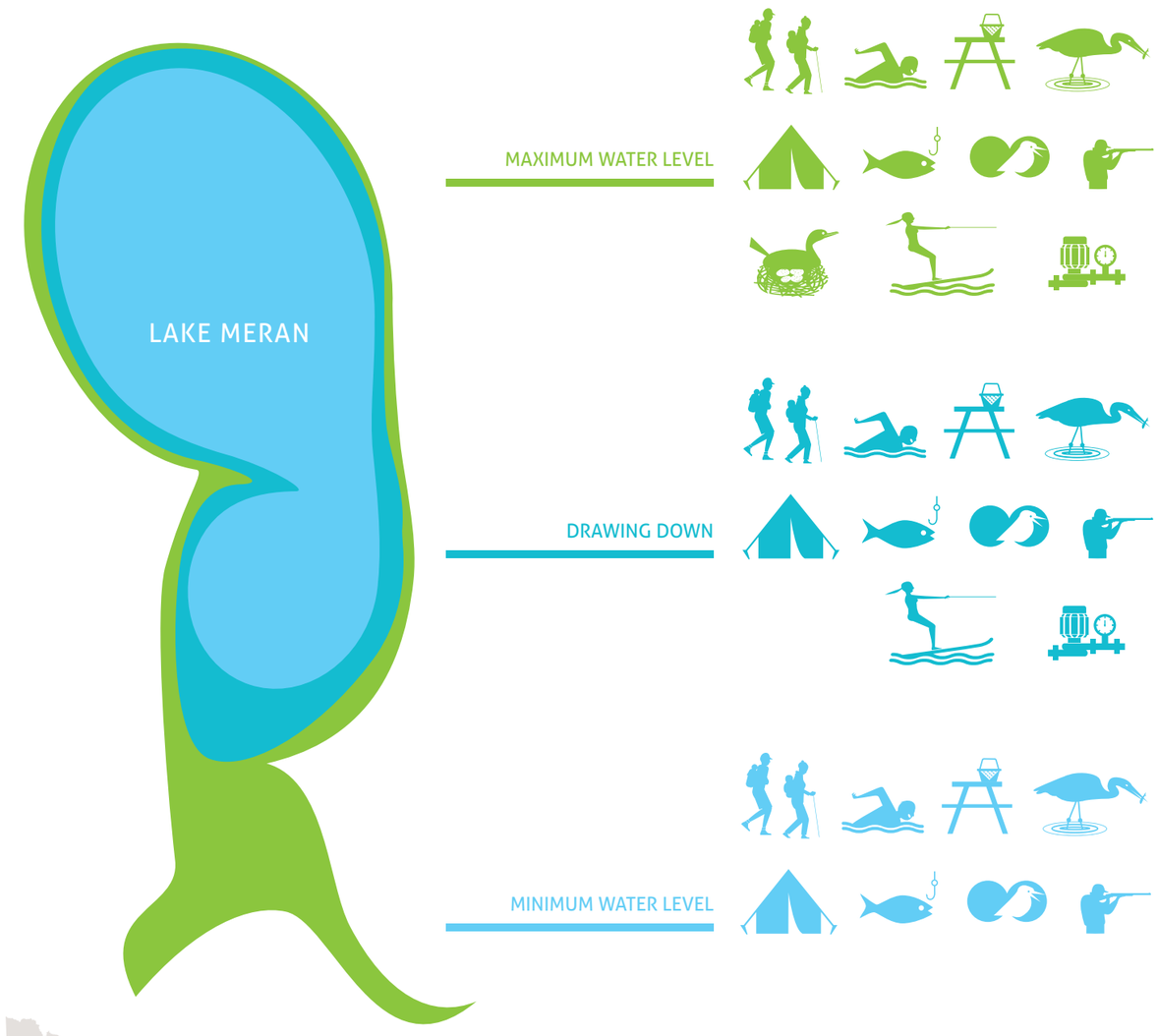
In consultation with the community, stakeholders and scientists, the North Central Catchment Management Authority's long-term vision for Lake Meran is:

A rehabilitated vibrant lake that has high quality breeding and feeding habitat to support colonial nesting birds, migratory waterbirds and Murray River turtle populations, which continues to provide recreational and economic benefits.

Much has changed over time and now, other than natural flooding, water for the environment is the only source of water for Lake Meran. The delivery of water to Lake Meran focuses on rehabilitating the lake's environment to support waterbirds which have declined in numbers by 70% since the early 1980s and is also a win for recreational users and the lake's diverters.



More Information

For a copy of the Lake Meran Environmental Water Management Plan 2016–2026, or for more information about the wetland, North Central CMA and other current projects, go to www.nccma.vic.gov.au, email info@nccma.vic.gov.au, call us on (03) 5448 7124 or drop into our office 628-634 Midland Highway, Huntly.

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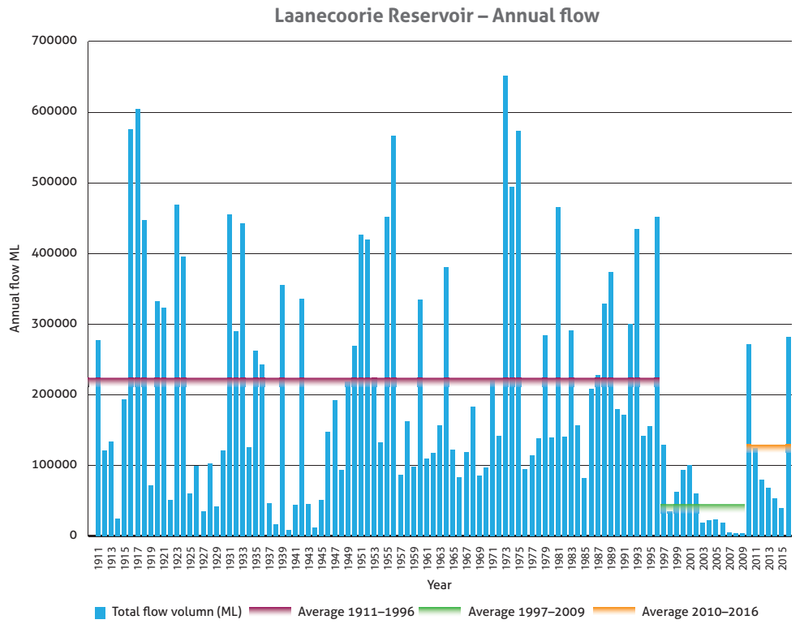
Lake Meran
Environmental Water Management Plan 2016–2026

How was Lake Meran able to be managed like it was before?

Until 1996, the region's reservoirs were predominantly filled in most winters and spring, with up to three minor to moderate floods each year. Water allocations were regularly more than 100% and Goulburn-Murray Water used various wetlands around the region, including Lake Meran to manage cancelled water orders, spills from the region's water storages and water drained from irrigation channels at the end of the season. The local community tells us that Lake Meran had leaking drop bars that sent a constant trickle of water into the wetland from the nearby channel during the irrigation season. This resulted in permanent high water levels in Lake Meran, with total inflows estimated to be about 2,900 ML/year. This allowed recreation to flourish and diverters to have a very high reliable source of water.



What changed?

Since 1996 the way water is managed in Northern Victoria has changed. Governments, scientists and communities recognised that water was not being used efficiently, and that the rivers and wetlands in the Murray Darling Basin, and the flora and fauna they support, were under significant pressure.

As the Millennium Drought ravaged most of the country, governments everywhere took a look at how water was managed. The National Water Initiative identified over-allocation, and the effect it had on irrigation and stressed rivers and wetlands. It urged water authorities to better manage water wastage, to better respond to water demands and use, and create greater certainty for investment, productivity, communities and the environment. This meant that the management of outfall water changed significantly, with the water authority ensuring that the majority of water managed is used by irrigators.

As a result, water authorities began to implement more water efficient practices. This included minimising diversion of outfall water to wetlands, Lake Meran no longer receives the reliable source of water it once had. In addition, the Australian and Victorian governments, irrigators and water users in Melbourne invested more than $2 billion to modernise the irrigation system in the Goulburn-Murray Irrigation District.

Above: Grebe. Photo: Adrian Martins NCCMA

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VICTORIAN ENVIRONMENTAL WATER HOLDER

What has happened since the Millennium Drought broke in 2010?

Lake Meran now relies on either natural flooding or an environmental allocation for inflow. If the lake relied on Mother Nature alone, a changing climate could see long periods where the lake is dry, as occurred during the Millennium Drought. Environmental water has been delivered to Lake Meran for the past few years under the Lake Meran Environmental Watering Plan (EWP) 2010. Without the delivery of this water the lake would have dried up between the flooding of 2010-11 and spring 2016.

The EWP was based on best available information at the time, and sought to replicate a cycle of water levels similar to what had occurred historically. Unfortunately, the North Central Catchment Management Authority (CMA) did not record a high environmental return on the investment from the water that was delivered under that EWP as the water level was too constant. In particular, the numbers and diversity of waterbirds at Lake Meran were consistently much lower than other wetlands the CMA delivers water to – with less than 100 birds and less than 10 species recorded during each survey (monthly surveys were undertaken at all watered wetlands from spring to autumn every year). Compare this to wetlands such as Johnson Swamp. More than 2000 birds were recorded at Johnson, from up to 70 different species from September 2015 until it dried in March 2016. The highlight during this watering event was almost 20,000 birds recorded in February 2016. At Lake Cullen, between 1,000 and 4,000 birds were recorded from up to 45 species from November 2016, when we delivered water for the environment, to April 2017.

The role of the CMA is to ensure the region is getting a return from the investment of water for the environment. We are accountable to the public, as this is public water, and – importantly – we are accountable to the broader irrigation community, as the water has been recovered through water savings measures and buy backs. Water for the environment has a job to do, and for wetlands one of the primary focuses is to provide opportunities for waterbirds to feed and breed. This is important, because across south eastern Australia, waterbird numbers have declined by 70% since the early 1980s. This is an alarming predicament and the CMA is committed to contributing to the reversal of this statistic.

Murray River Turtles

The Murray River turtle population across the entire Murray Darling Basin has suffered at the hands of drought, climate change and predation from foxes. Up to 98% of turtle eggs succumb to predation, meaning the populations are slowly getting older. Having a healthy population of juvenile turtles is important for recruitment for the entire system. The Lake Meran Environmental Water Management Plan focuses on maintaining the wetland to allow the turtles to survive, and, if the turtles move out of Lake Meran during times of flood, contribute to the recovery of the population across the region.

Murray River turtle.
Photo: Jules Farquhar

River red gum.
Photo: Louissa Rogers NCCMA

Below: Carp.
Photo: Gunther Schmida

Lake Meran Environmental Water Management Plan 2016

As the previous EWP was not giving us a return on investment, we developed a new Environmental Water Management Plan (EWMP). The community told us the environmental values that were important at the wetland, which we set ecological objectives for. Our role was then to determine the most appropriate cycle of water levels over time, to achieve those objectives and justify the investment of water; particularly because Lake Meran is also part of an active floodplain which means it receives natural flooding. Science tells us that drying phases in wetlands are critical to increase their productivity. This creates more food for waterbirds when the water returns. When other similar wetlands in the area are drawn down, they are dried out completely, often for seasons at a time.

It is possible these beneficial conditions could be achieved at Lake Meran simply by relying on natural flooding alone. However during the development of the EWMP, we completed a fish and freshwater turtle survey of the lake, and found that Murray River turtles are successfully breeding and that young turtles are surviving at Lake Meran. While freshwater turtles are able to move when wetlands dry out, given the size of the young turtles, it is best to maintain Lake Meran as a permanent wetland to keep them safe.

However, permanent does not mean full all the time. To ensure that water for the environment will achieve a high return on investment, we also need to maximise the area of the lake that can go through a drying phase. The water cycle recommended in the EWMP will enable an area of 66 hectares to experience a regular wetting and drying phase, and an area of between 50 and 64 hectares to be greater than 1.5 metres deep at all times. This depth will protect the animals in the water from the air temperature and stop them from getting too hot in summer and too cold in winter.

What about salinity?

When water is delivered to Lake Meran, salt comes with it. As the water evaporates, the salt becomes more concentrated in the remaining water, creating a salinity risk. Diverters around the lake provide a benefit to the wetland ecology by extracting salt with water diverted for irrigation, thereby reducing the salinity risk. Under the planned water cycle, salinity levels will remain within an acceptable range for the ecology of the lake even at minimum level, as long as diversions occur when the lake is above 77.8m AHD[1]. This means that diverters will benefit from the implementation of the Lake Meran EWMP by having access to water for the environment, which is a more reliable source than natural flooding alone. When the volume of water in the lake is at the minimum level of the proposed cycle, it is around the same volume of the diverters' entitlements. If diverters continue to extract below this level, all the water could be removed, which will be a significant risk to recreational users and environmental values.

[1] *AHD – is Australian Height Datum established in 1971 where sea level was assigned the value of 0.000m*

Top left: Great Egret.
Above: Darter chicks.
Photos: Adrian Martins NCCMA

The scientists who have studied Lake Meran and worked out the water levels needed for the best ecological results, have recommended that an optimum cycle would see the lake filled to the maximum level that we can fill it to once every five years. In wetter periods, once the trees in the southern basin and around the eastern and southern edges are mature and able to support bird breeding, it may be filled as often as one in every four years, if water is available. Conversely, in dry periods, such as experienced in the Millennium Drought, or as was almost experienced before the 2016 floods, water for the environment will be directed where it is most needed, and Lake Meran may not be prioritised for up to seven years.

Throughout the optimum five-year cycle, there will be a high number of recreational and economic benefits. When the lake is full or when it is drawing down to its minimum level, the community will be able to use the lake for waterskiing and the diverters will be able to divert their full entitlements for irrigation. During the entire cycle, recreational activities, such as camping, fishing, canoeing, bird watching, and bush walking will be able to be enjoyed.

In summary, the more efficient management of water in the irrigation system has resulted in significantly reduced irrigation system water flowing into Lake Meran. The plan to rehabilitate the lake includes benefits for recreation users and diverters. And without this plan, no water will flow into Lake Meran outside of natural flood events.