

FACT SHEET

December 2008

Decommissioning of Lake Mokoan and the impacts on flooding

Lake Mokoan is reverting back to a natural wetland. Decommissioning the lake will mean that Lake Nillahcootie, which is located on the Broken River upstream of Benalla, will become the sole storage to supply water users. Water will no longer be diverted from the Broken River and Hollands Creek into Lake Mokoan.

The existing outlet channel will remain operational to allow excess water to overflow from the wetlands into the Broken River via a 10 metre opening to be constructed in the current dam wall. However, the only source of water for the new wetlands will come from rainfall within that small localised catchment.

Following some concerns about flooding within the community, a number of studies were carried out to provide additional information about flooding impacts in the future. A specific flood study on the affect of Lake Nillahcootie was commissioned by the Benalla Rural City.

These investigations were supported by the Department of Sustainability and Environment, Goulburn Murray Water, and Goulburn Broken Catchment Management Authority. The following questions and answers have been developed by these agencies to better inform the community of the studies' findings.

Question 1

Will decommissioning have an impact on flooding in Benalla?

The studies found that the decommissioning of Lake Mokoan will not significantly change future flood levels in Benalla. A repeat of the most recent major flood event in 1993 would not lead to increased water levels in Benalla and no additional houses would be affected. The same situation applies to the other major floods in recent history which occurred in 1974, 1975 and 1981.

Question 2

Can Lake Nillahcootie provide flood benefits for Benalla?

Lake Nillahcootie can influence flood levels at Benalla in two different ways.

The first is by reducing the passage of floodwaters downstream. The studies showed that Lake Nillahcootie, regardless of the amount of water in storage, provides flood protection for the Benalla community. Without the physical presence of the reservoir the studies estimated that 1993 flood levels would have risen by 230 millimetres, affecting approximately 300 additional houses.

The second method is by storing and delaying the passage of flows through and downstream of the lake. The studies have shown that this effect is less. Were it possible to have Lake Nillahcootie 75 per cent full or less, the 1993 flood levels would be 9 centimetres lower. However, this situation is difficult to achieve (see answers to Q3 and Q4).

Question 3

Did the operation of Lake Nillahcootie have an impact on major floods in Benalla?

The studies found that during the last four major floods, including 1993, Lake Nillahcootie was either full or close to full prior to each event. Therefore it did not have the capacity to capture enough water to provide additional protection benefits for Benalla.

Question 4

The Study says that if Lake Nillahcootie is kept at or below 75 per cent full, there are additional flood protection benefits at Benalla. Can this occur?

If the storage was full, it would be necessary to predict a flood three weeks in advance to allow for enough water to be released to decrease water levels to 75 per cent of its capacity.

As most people would know, it is not possible to predict any floods three weeks in advance of them occurring. Lake Nillahcootie's design does not provide for the ability to decrease water levels quickly, prior to a flood occurring.

Maintaining Lake Nillahcootie at 75 per cent or below capacity would also greatly reduce the amount of water available for use in the Broken system, including for irrigation.

Question 5

If water is not diverted into Lake Mokoan, won't that increase floods in Benalla?

The inlet channel capacity is too small to significantly reduce the flow reaching Benalla during major floods. Also, during major flood events there is no guarantee that the inlet channel can operate.

In minor flood events, not diverting water into Lake Mokoan will increase flows onto the floodplain of the Broken River and Holland Creek, however, no houses will be affected.

These minor changes in flows will have many benefits for the Broken River and its tributaries, and will assist native flora and fauna species, including fish such as Murray Cod and Golden Perch.

Question 6

Will flooding be more frequent in Benalla following the decommissioning of Lake Mokoan?

The studies found that there will be no significant change in the frequency of minor floods in Benalla. An example of a minor event would be the flooding of the Stock Bridge (Ackerly Avenue) in Benalla. This currently would on average once every 1¾ years will change to every 1½ years in the future.

The studies also found that there will also be no increase in the frequency of major floods.

Question 7

How will decommissioning impact on flooding downstream of Lake Mokoan?

The studies found that the decommissioning of Lake Mokoan will have no impacts on flood levels downstream of the Caseys Weir on the Broken River. The large capacity of the Winton Wetlands and proposed 10-metre opening in the current dam wall will choke overflows from the wetland considerably.

The studies analysed the impacts of a 1993-sized flood flow into the future Winton Wetland on water levels downstream of the wetland. The results showed that outflows from the proposed opening in the dam wall would only increase levels in the outlet channel immediately downstream of the wetland by 2 centimetres. At the downstream end of the outlet channel near Caseys Weir the increase will be only 1 centimetre.

Continued overleaf

Question 7 continued

Given the large volume of water coming down the Broken River from Benalla, these flows would be entirely dissipated below Caseys Weir with no increased flood levels.

Studies have found that flood heights between Benalla and Shepparton will also not change.

Where can I find out more information on the flooding impact studies?

The following studies related to flooding impacts can be downloaded from the "Mokoan Return to Wetland" website: www.lakemokoan.com.au

Hydrologic Studies as part of the Decommissioning include:

- Works Decommissioning Concept Study – Report on Hydrology and Downstream Hydraulics, Oct 2005 (GHD for G-MW)
- Lake Mokoan Hydrology – Response to Community Concerns, Draft 30/7/08 (GHD for G-MW)
- Lake Nillahcootie Flood Study, 2008 (Cardno Lawson Treloar for BRCC)
- Lake Mokoan Inlet Channel Investigations, currently underway (GHD for G-MW)
- Mokoan Inlet Channel Closure – Impacts on Broken River and Holland Creek Hydraulics, May 2005 (EarthTech for GBCMA)

Earlier Studies (available for viewing through Benalla Rural City)

- Benalla Floodplain Management Study, 2002, (Cardno Willing for Delatite Shire Council)
- Benalla FPM Study, 1984 (SRWSC)

Also available

- Responses to flood impact questions raised by Benalla and District Flood Awareness Group and community - December 2008

For further information, telephone Benalla Rural City Council on 5760 2684.