

Lake Eppalock Technical Assessment

What We Heard – Consultation Report



Photo credit

Goulburn-Murray Water

We acknowledge and respect Victorian Traditional Owners as the original custodians of Victoria's land and waters, their unique ability to care for Country and deep spiritual connection to it.

We honour Elders past and present whose knowledge and wisdom has ensured the continuation of culture and traditional practices.

DEECA is committed to genuinely partnering with Victorian Traditional Owners and Victoria's Aboriginal community to progress their aspirations.



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Executive Summary

During October 2022 the Campaspe River experienced major flooding, with flood waters causing significant damage to farms, townships, roads, water supply infrastructure and communities. Following these floods, the Department of Energy, Environment and Climate Action (DEECA) engaged Hydrology and Risk Consulting (HARC) to undertake a technical assessment of Lake Eppalock. The assessment was to determine if changing the operating and infrastructure arrangements could improve protection for downstream communities from future flooding and some of the associated financial and non-financial implications of such changes. The final report was published on DEECA's website in November 2023.

The Lake Eppalock Technical Assessment Report and public consultation feedback has been provided to Campaspe Shire Council for consideration in the review of the Rochester Flood Management Plan. The review of the Rochester Flood Management, being led by council with technical support from North Central Catchment Management Authority (CMA), will include the benchmarking of all flood mitigation options for Rochester such as levees, house raising and changes to the operations/infrastructure at Lake Eppalock. The review is underway and will include significant community and stakeholder engagement including a robust governance and management framework and a community reference group.

A working group involving DEECA, local councils, water corporations, North Central CMA and the Victorian Environmental Water Holder oversaw the development of the five options investigated as part of the technical assessment:

- Option 1: Reduction of target storage levels, for example, where possible holding the lake at a maximum volume of 50%, 70%, 90% of Full Supply Level (FSL) all year round, using existing infrastructure
- Option 2: Reduction of target storage levels, for example, where possible holding the lake at a maximum volume of 50%, 70%, 90% of FSL all year round, and increasing the outlet capacity from 1,600 to 5,000 ML/day
- Option 3: Reduction of FSL (to 70% of current FSL) using a passive spillway slot
- Option 4: Maintenance of FSL, and the addition of spillway gates
- Option 5: Maintenance of FSL, combined with the changes to spillways (installation of piano keys) and the reconfiguration of embankments to enable more water to be stored during floods.

Public consultation was open on the Lake Eppalock Technical Assessment for approximately eight weeks from 29 February to 30 April 2024. The full technical report and other information relevant to the project was made available via the Victorian Government's online consultation platform Engage Victoria, and feedback was sought via an online and paper survey. Communications and engagement activities were undertaken to promote the opportunity for comment.

The consultation was an opportunity to seek feedback on any other benefits or negative impacts that needed to be considered that had not already been identified. The survey focused on collecting feedback for Options 2, 3, 4 and 5 only, as the assessment found that Option 1 was not a robust flood mitigation option. The survey did not seek feedback on individual's preferred option.

Over the eight-week consultation period, the Engage Victoria website was viewed 4,757 times by 1,657 unique visitors. During this period, 271 survey responses were received, primarily (89%) from those who live in the north central region. The largest proportion of responses (51%) described their interest in the technical assessment as coming from the perspective of a downstream flood affected resident. Other respondents identified themselves as coming from perspectives such as Lake Eppalock foreshore, recreation, tourism, environment, and business interests. Five additional written submissions were received via email and 34 individuals attended the four community sessions held through March and April 2024.

The feedback from communities indicated a wide range of views on the technical report and whether all positive and negative impacts have been considered. Overall people had a neutral or slightly positive response on whether all impacts had been considered.

The analysis of the additional feedback showed that was that many respondents hold the view that Lake Eppalock's storage management policy and procedures should be changed to allow Lake Eppalock to be lowered in response to high rainfall events. Other findings indicated strong support for establishing new rules and/or infrastructure to increase flood mitigation to protect downstream communities but recognition that other factors must also be considered such as upstream impacts, the structural integrity of the dam wall and

other complementary mitigation measures downstream. There was also feedback that recognised that flood mitigation should be focused on Rochester to reduce the flood risk from floods caused by tributary inflows below Lake Eppalock.

Some respondents were eager to see further work be undertaken to understand the wider socio-economic impacts of the reduction in entitlements/target storage levels, and who would pay to maintain and operate the storage should the level be reduced. Concerns were also raised from recreation and tourism users regarding the impact a lower lake level would have on the tourism industry, local jobs and the economy. Risk to the environment and general water security for entitlement holders and urban water supply were also raised, especially in consideration of climate change.

Through the public consultation period, further feedback was received in the form of comments made in the open text sections of the survey, as well as via the five written submissions. This feedback spanned a range of themes and DEECA responses to each theme are contained within this What We Heard Report. In many instances, review of the Rochester Flood Management Plan will be the key mechanism for progressing the issues raised.

DEECA thanks all those who have generously shared their time and provided feedback on the Lake Eppalock Technical Assessment.

Introduction

This report has been prepared by DEECA to close the loop on public consultation on the Lake Eppalock Technical Assessment that was released on 30 November 2023.

Copies of the full technical report, summary report, explanatory note, question and answers and a factsheet for the Lake Eppalock Technical Assessment were published on Engage Victoria ([Lake Eppalock Technical Assessment | Engage Victoria](#)) and DEECA's webpage ([Lake Eppalock operating arrangements assessment \(water.vic.gov.au\)](#)).

Communications and engagement activities undertaken to promote the opportunity for feedback included a live webinar on 18 December 2023, which was uploaded to both websites and four community drop-in sessions held in Rochester (21 March and 26 March 2024), Lake Eppalock (26 March 2024) and Bendigo (16 April 2024). In addition, posters promoting the consultation, social media posts, agency newsletters and emails and presentations to interested groups also occurred.

Appendix A provides the full list of communication activities that supported the public consultation.

The consultation was an opportunity to seek feedback on any other benefits or negative impacts that needed to be considered that had not already been identified.

The survey focused on collecting feedback for Options 2, 3, 4 and 5 only, as the assessment found that Option 1 was not a robust flood mitigation option. Feedback was encouraged from all members of the community including – Traditional Owners, irrigators, downstream residents, recreational water users and upstream landholders.

The survey did not seek feedback on individuals preferred option, as this will be considered in the review of the Rochester Flood Management Plan.

Interested parties were invited to complete either an online (via Engage Victoria) or paper survey and/or email a written submission to assessments@dewlp.vic.gov.au.

This report documents the feedback provided through the public consultation and provides DEECA responses to themes arising from the written feedback.

DEECA thanks all those who have generously shared their time and provided feedback on the Lake Eppalock Technical Assessment.

Background

The Lake Eppalock catchment encompasses an area of approximately 2,030 km², and the catchment area of the Campaspe River between Lake Eppalock and Rochester is approximately 1,370 km². There is a strong correlation between the peak spill from Lake Eppalock and the peak flow at Rochester. Although the correlation is strong, it is not perfect, this is because the catchment area and the tributaries of the Campaspe River between Lake Eppalock and Rochester can contribute substantial unregulated flow to the Campaspe River downstream of Lake Eppalock. If rainfall is heaviest in the region downstream of the dam rather than upstream, significant flooding at Rochester can occur even if there is minimal or no flooding at Lake Eppalock.

The January 2011 and October 2022 floods were in part a result of record-breaking spills from Lake Eppalock, and during these events the Campaspe River experienced major flooding with flood waters causing significant damage to farms, towns, roads, infrastructure and communities.

Post the January 2011 floods a Flood Management Plan (2013) was produced for Rochester. Many of the recommendations of this plan were introduced, including updating the total flood warning system for the town and some minor mitigation works south of the town. Large structural flood mitigation options were explored and modelled however they were not pursued due to either not being economically viable, not being supported by the community or both.

Following on from the 2013 Flood Management Plan, in 2018 the Rochester Mitigation Study was produced. The Rochester Mitigation Study was commissioned to review and examine the recommended township mitigation works on areas beyond the initial study boundary. Changes to Lake Eppalock were not considered in detail as part of this study.

With Rochester and surrounding areas experiencing major flooding twice within 11 years and community calling for an investigation on how Lake Eppalock could be used to mitigate flooding, the Victorian Government undertook detailed technical assessment at Lake Eppalock to determine if changing the operating and infrastructure arrangements could improve protection for downstream communities from future flooding and the associated financial and non-financial implications of such changes.

The Lake Eppalock Technical Assessment Report and What We Heard Report has been provided to Campaspe Shire Council for consideration of use in the review of the Rochester Flood Management Plan. The review of the Rochester Flood Management, being led by the Campaspe Shire Council with technical support from North Central CMA, will include the benchmarking of all flood mitigation options for Rochester such as levees, housing raising or changes to the operations/infrastructure at Lake Eppalock. The review is underway and will include significant community and stakeholder engagement including a robust governance and management framework and a community reference group.

Summary of Feedback

Introduction

Public consultation on the Lake Eppalock Technical Assessment was open on Engage Victoria from 29 February to 30 April 2024.

Over the eight-week public consultation period the Engage Victoria website was viewed 4,757 times by 1,657 unique visitors. During this period, 271 survey responses were received and 22 people attended the public webinar held on 18 December 2024.

The survey questions are provided in Appendix B.



4,757 page visits by 1,657 individuals



271 Surveys completed (151 online & 120 written)



34 individuals attended Community Sessions



Five submissions from individuals, agencies or organisations via written correspondence/email

From the 271 survey respondents, the three most read documents were the Lake Eppalock Technical Assessment - Consultation Factsheet (70%), Lake Eppalock Technical Assessment – Explanatory Note (41%) and the Lake Eppalock Technical Assessment – Consultation Q&As and Lake Eppalock Technical Assessment – Assessment Report (both with 38%) (see Figure 1).

The Lake Eppalock Technical Assessment webinar was watched by 54% of survey respondents.

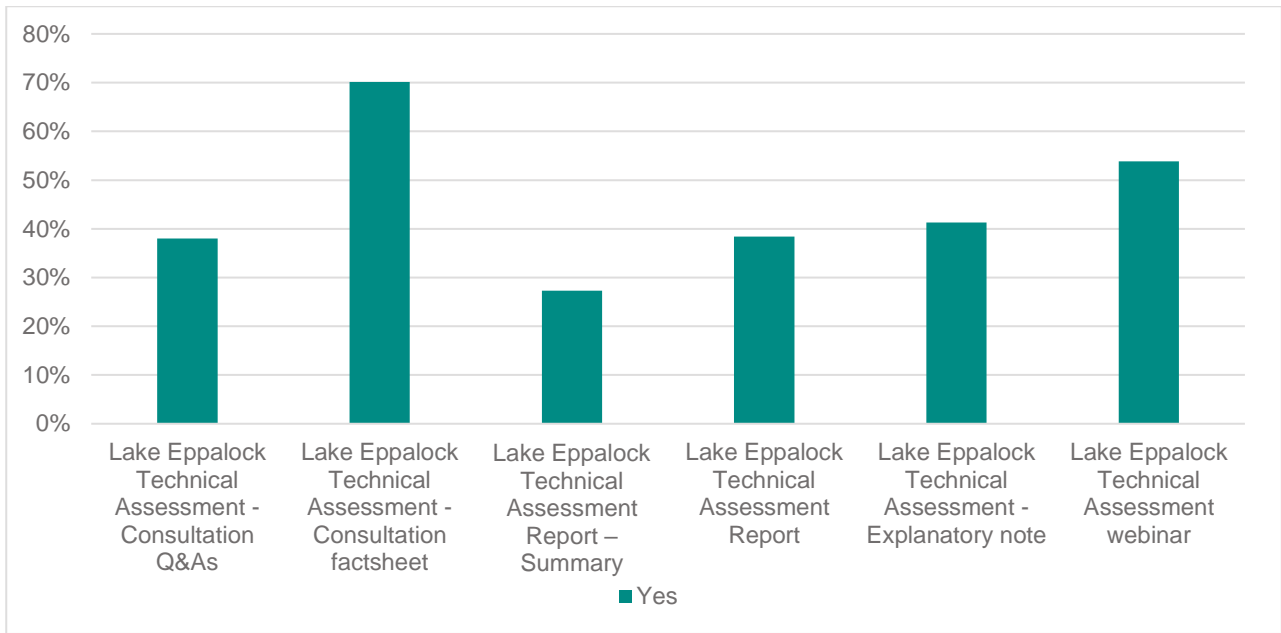


Figure 1: DEECA materials and webinar read and/or watched by the 271 respondents to the survey.

Who we heard from

Overall, the majority, 89%, of survey respondents live in the North Central region, and the remaining 11% of respondents stated they live outside of the region.

There were two ways of responding to the survey, through an online survey or a paper survey.

Paper surveys were submitted at the Rochester Flood Recovery Hub or via email and the results were manually transposed into Engage Victoria so that the results could be included in the overall feedback for the options.

Survey respondents were also asked what category described their interest in the Lake Eppalock Technical Assessment and were able to choose up to two categories shown in Figure 2. Over half of the respondents described their interest as a downstream flood affected resident (189), followed by Lake Eppalock Foreshore/Upstream User/Resident (42) and Recreation/Tourism (38).

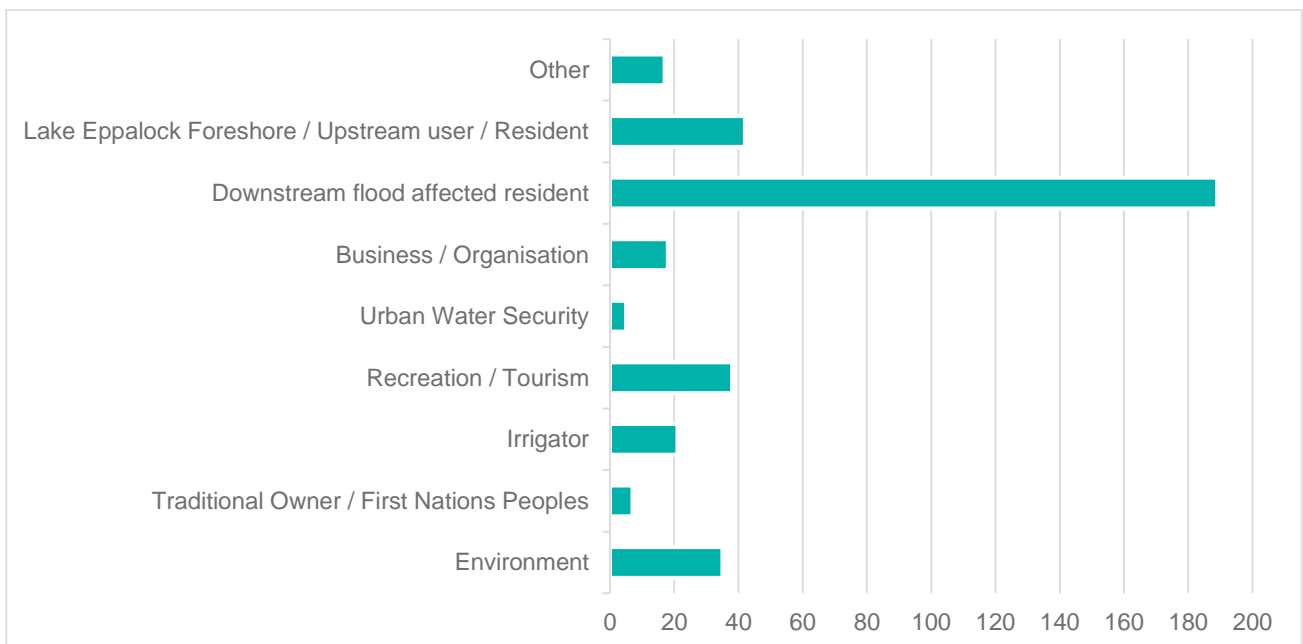


Figure 2: Described interests in the Lake Eppalock Technical Assessment. The x axis is the number of respondents who selected as a key reason for their interest in the assessment.

What we heard

Survey participants were asked what they value most about Lake Eppalock, and to describe what they think the priorities for its operation should be.

For Options 2, 3, 4 and 5, respondents were asked whether the options explored in the Lake Eppalock Technical Assessment Report fully considered the benefits and/or negative impacts. To do this they were given the opportunity to rank how well the technical assessment considered the benefits and/or negative impacts on a scale from 1 (all benefits and/or negative impacts had been considered) to 10 (other benefits or negative impacts need to be considered). They were also given an open text box to describe any other benefits and/or negative impacts.

All participants were provided an option to provide an email address so that they can be updated on the project as well as an option to follow the page for updates and able to provide additional feedback as relevant.

Community values of Lake Eppalock

Survey respondents were asked 'What do you currently value the most about Lake Eppalock?' and asked to select up to three values, shown in

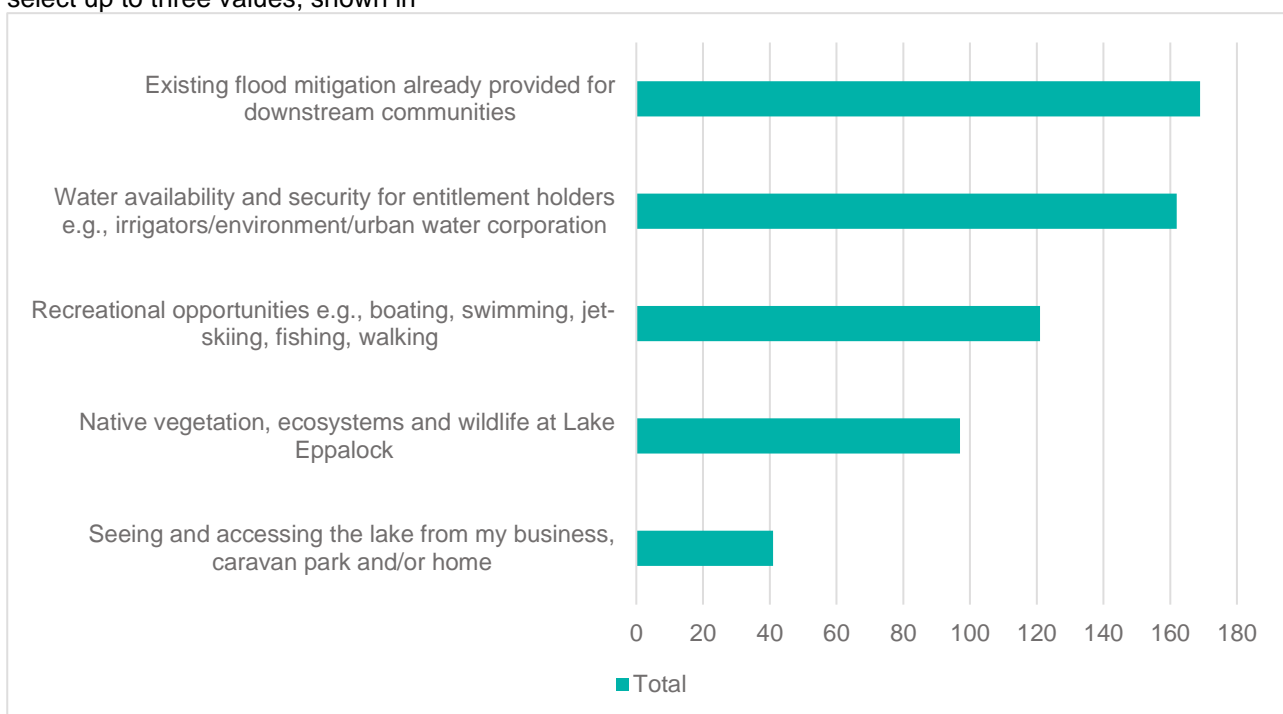


Figure 3. The overall top three values for respondents in this survey were;

- existing flood mitigation already provided for downstream communities
- water availability and security for entitlement holders (e.g. irrigators, environment, urban water corporation); and
- recreational opportunities (e.g. boating, swimming, jet-skiing, fishing, walking).

Note that approximately 13 of the 120 submissions did not provide any response for this question.

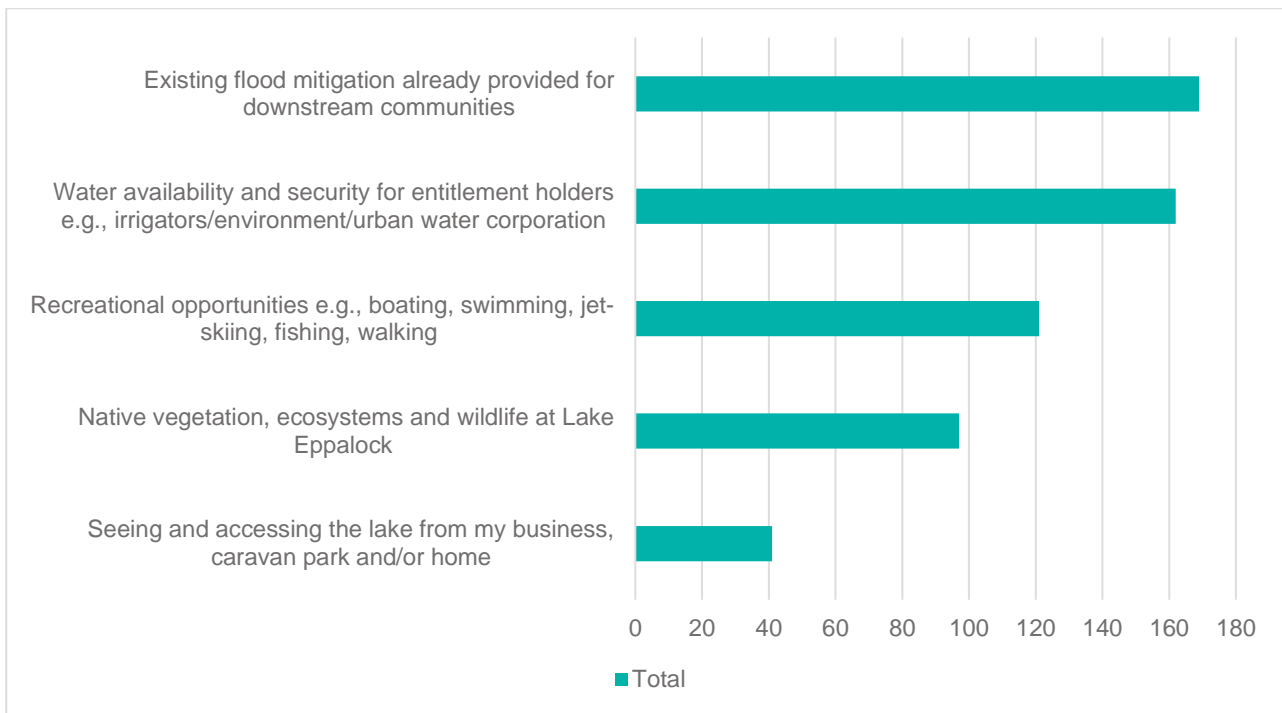


Figure 3 Distribution of responses to the top community values about Lake Eppalock.

Community priorities for Lake Eppalock

Survey respondents were asked 'What do you think are the priorities for Lake Eppalock?' and asked to select up to three of their top priorities as shown in **Error! Reference source not found.** The overall top three priorities for respondents in this survey were;

- flood mitigation for downstream communities.
- downstream health of the Campaspe River; and
- water availability and security for entitlement holders (e.g. irrigators, environment, urban water corporation).

Note that 2 of the 120 submissions did not provide any response for this question.

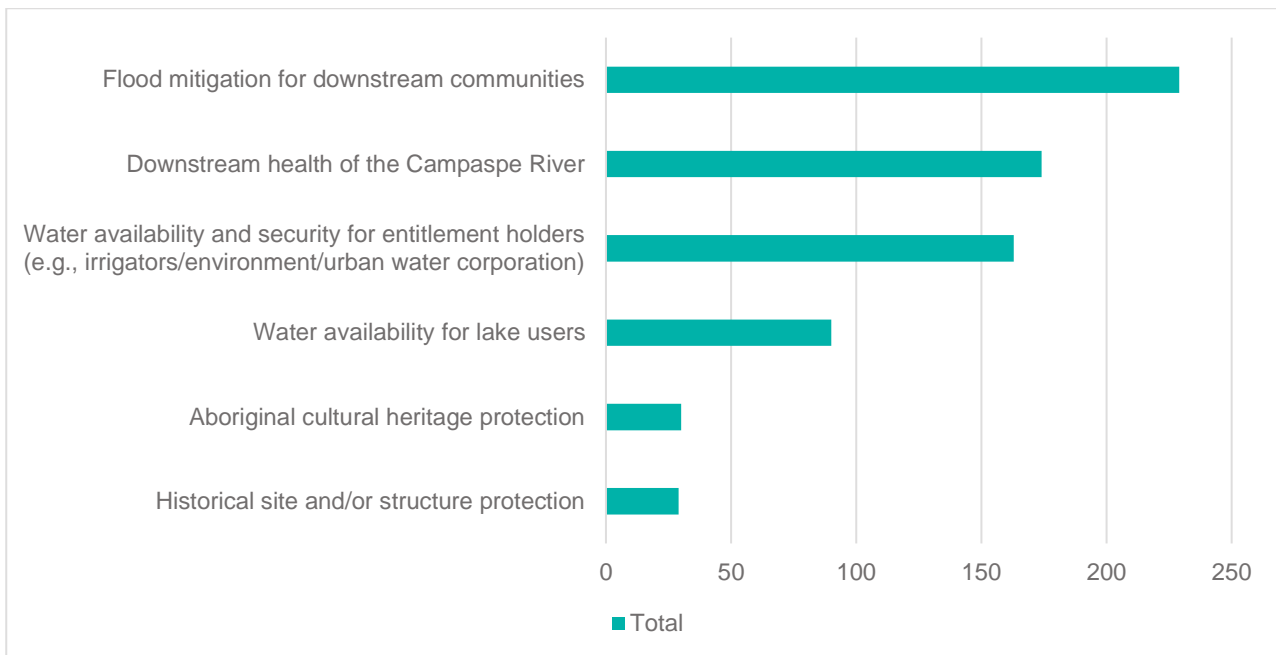


Figure 4 Distribution of responses for the top three priorities for Lake Eppalock

Feedback received on Options 2-5

The Lake Eppalock Technical Assessment Report investigated five options. DEECA used the survey to seek feedback and ask the following questions of all respondents for Options 2, 3, 4 and 5. DEECA did not seek feedback on Option 1 because the technical assessment found it is not a robust flood mitigation option.

- Do you think there are any other benefits that have not yet been considered?
 - Respondents were asked to rank their answer on a scale of one to ten, where one equalled 'all benefits have been considered' and ten equalled 'other benefits need to be considered'.
- Do you think there are other negative impacts that have not yet been considered?
 - Respondents were asked to rank their answer on a scale of one to ten, where one equalled 'all negative impacts have been considered' and ten equalled 'other negative impacts need to be considered'.
- For each of these sections' respondents were provided an open text box to describe any other benefits or negative impacts that had not been considered in the technical assessment of Lake Eppalock for the options.

Option 2 – Reduce Lake Eppalock target storage and increase outlet capacity

This option involves reducing the target storage at Lake Eppalock to 50%, 70% or 90% of the current FSL, and increasing the downstream outlet capacity so that operators have greater ability to release water from storage between floods.

To implement this option, a second downstream outlet would be required at Lake Eppalock. For this technical assessment, a total outlet capacity of 5,000 ML/d was selected. The increase in outlet capacity to 5,000 ML/day would have been sufficient to hold Lake Eppalock at a target storage below FSL in the lead-up to the 2011 and 2022 floods.

Benefits

When asked are there other benefits that have not been considered for Option 2, the average was 4 noting a slightly positive response that the technical assessment had captured benefits fully (Figure 5). For this question 22 submissions did not provide a response.

Additional to this question respondents were asked to describe any other benefits that need to be considered for Option 2, where 99 participants provided some input into the field.

“Climate change means that rainfall patterns from past years may not be good predictors of future rainfall, so water storage and irrigation requirements may need to change in unpredictable ways, whereas as the location of flooded towns is a consistent given.”

“Stored water is important but the ability to moderate the level quickly is also needed.”

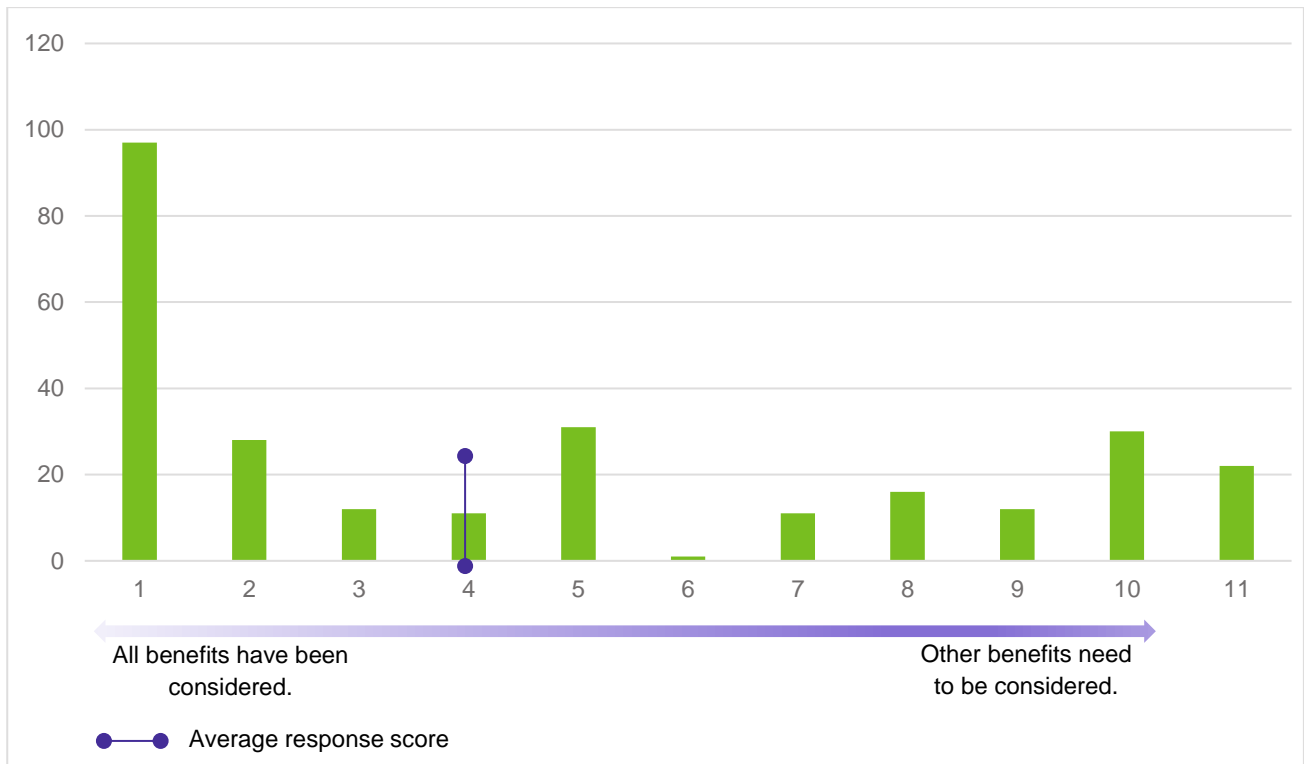


Figure 5 Distribution of responses to ‘do you think there are other benefits that have not yet been considered for Option 2?’ where respondents were asked to rank their answer on a scale of one to ten, where one equalled ‘all benefits have been considered’ and ten equalled ‘other benefits need to be considered’.

Negative Impacts

When asked are there other negative impacts that have not been considered for Option 2, the average was 5 noting a neutral response that the technical assessment had missed out on capturing other negative impacts or not captured all negative impacts fully (Figure 6).

For this question 35 submissions did not provide a response.

“If Lake Eppalock failed to exist, the flooding would occur regardless. It is hard to understand why Lake Eppalock would be used to control flooding, it was and is a storage facility and should not be used for anything other than that.”

“Need to understand wider socio-economic impacts of a reduction in entitlements /target storage levels. Who would pay to maintain/operate the storage if entitlements were reduced for to provide capacity for flood mitigation?”

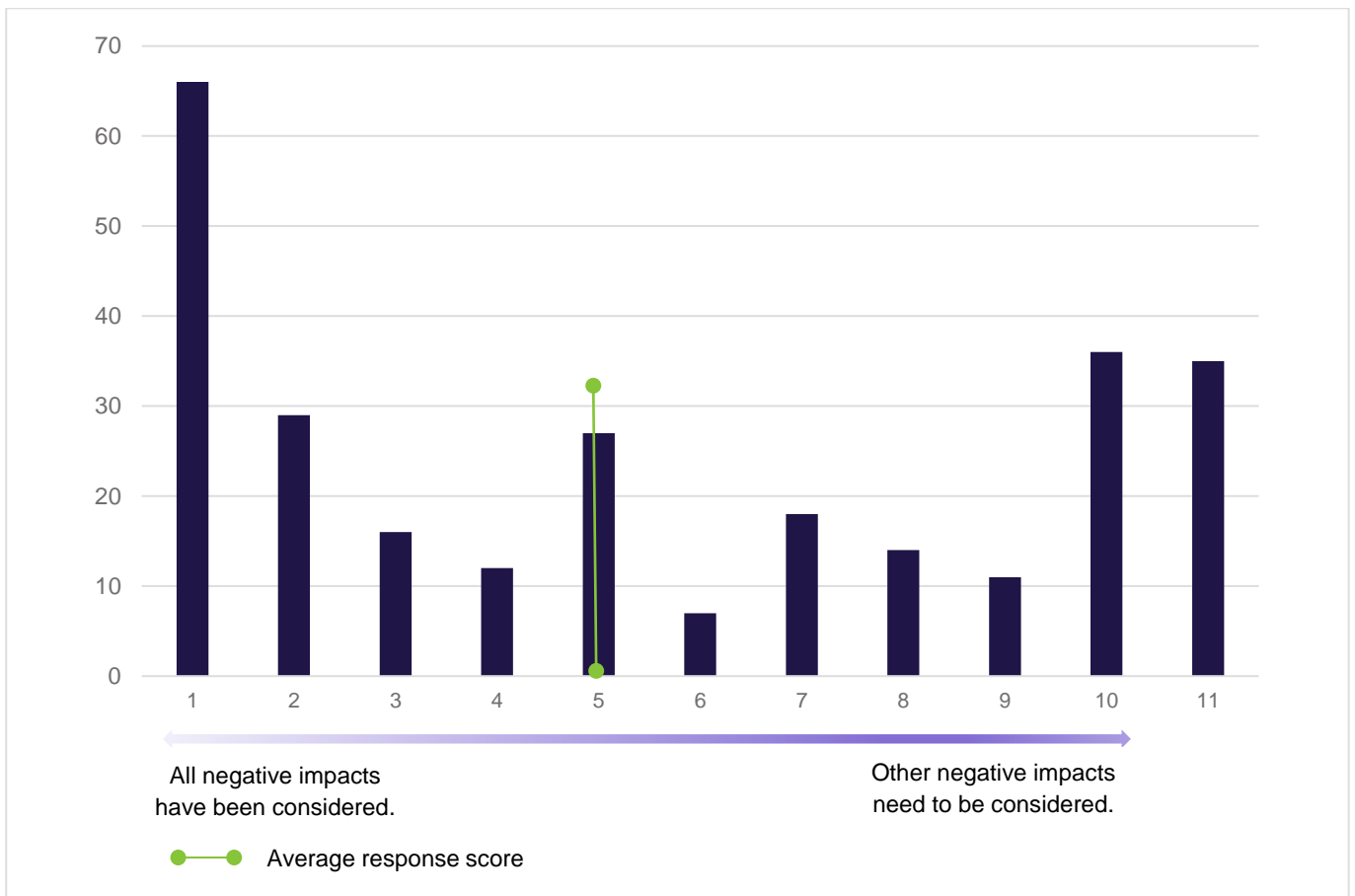


Figure 6 Distribution of responses to ‘do you think there are any other negative impacts that have not yet been considered for Option 2?’ where respondents were asked to rank their answer on a scale of one to ten, where one equalled ‘all negative impacts have been considered’ and ten equalled ‘other negative impacts need to be considered’.

Option 3 – Reduce Lake Eppalock FSL using a spillway slot

Permanently reducing the FSL at Lake Eppalock is another way of increasing the amount of airspace in storage prior to a flood.

This option involves installing a passive spillway slot to lower FSL by approximately 3 metres, which would reduce the volume held when the storage is full to 70% of the current FSL. However, inflows to storage preceding a flood may mean that the lake level is above 70% of FSL before the event arrives.

Benefits

When asked are there other benefits that have not been considered for Option 3, the average was 5 noting a neutral response that the technical assessment had captured benefits fully (Figure 7). For this question 44 submissions did not provide a response.

In addition to this question respondents were asked to describe any other benefits that need to be considered for Option 3, where 54 participants provided some input into the field.

“This provides mitigation for residents without having to have human intervention and decision making.”

“With the fear of flooding mitigated businesses and potential new businesses will be more secure.”

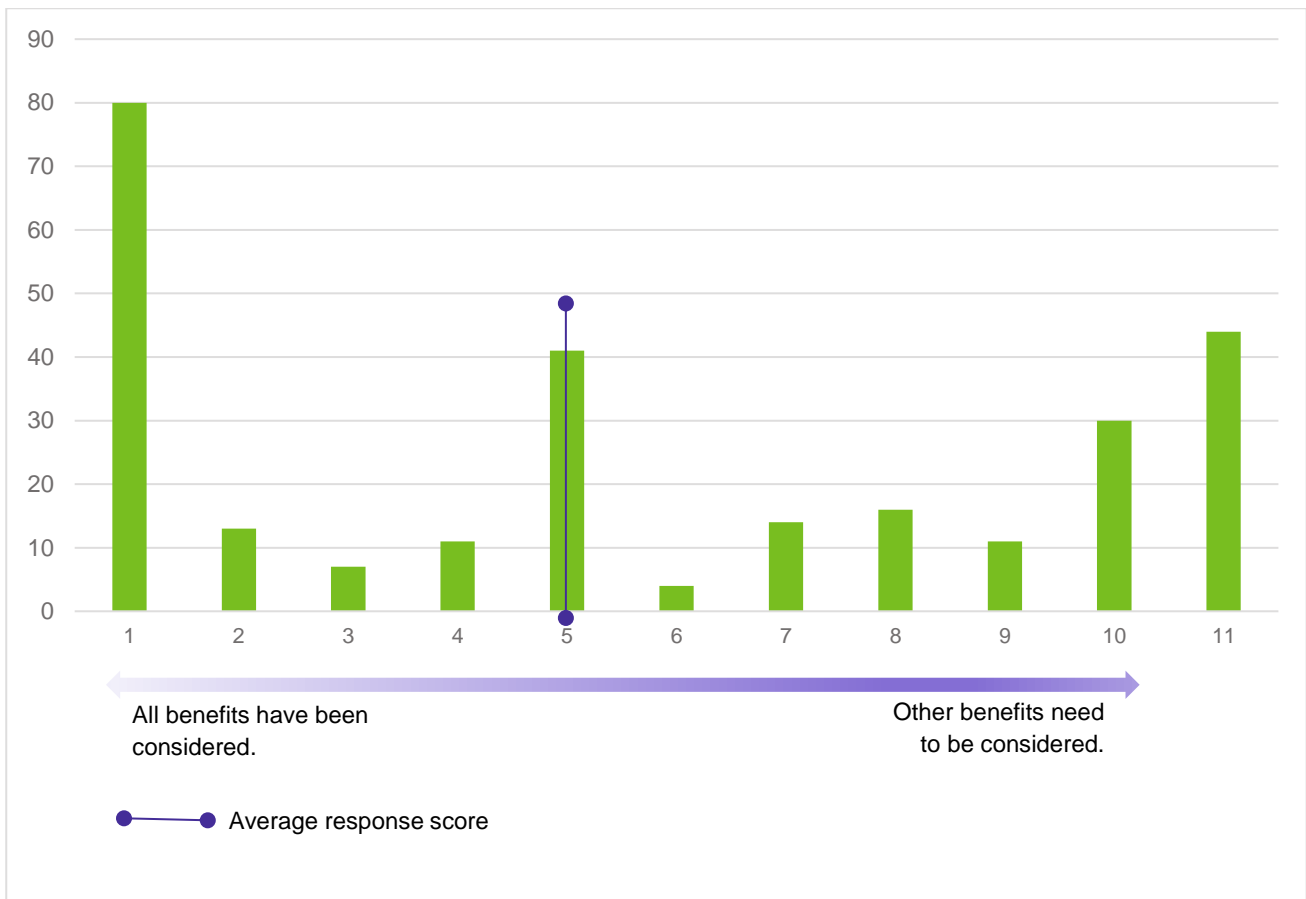


Figure 7 Distribution of responses to ‘do you think there are any other benefits that have not yet been considered for Option 3?’ where respondents were asked to rank their answer on a scale of one to ten, where one equalled ‘all benefits have been considered’ and ten equalled ‘other benefits need to be considered’.

Negative Impacts

When asked are there other negative impacts that have not been considered for Option 3, the average was 5 noting a neutral response that the technical assessment had missed out on capturing other negative impacts or not captured all negative impacts fully (Figure 8). For this question 49 submissions did not provide a response.

In addition to this question respondents were asked to describe any other negative impacts that need to be considered for Option 3, where 80 participants provided some input into the field.

“Protecting downstream towns from future floods MUST be the priority.”

“By reducing the storage to 70% does not take into consideration the growth of the population, farming needs and our increasing need for fresh water which is paramount to survival.”

“Financial hardship and employment loss for existing caravan parks and other businesses situated around the lake. Loss of visitation and recreational activities on the lake.”

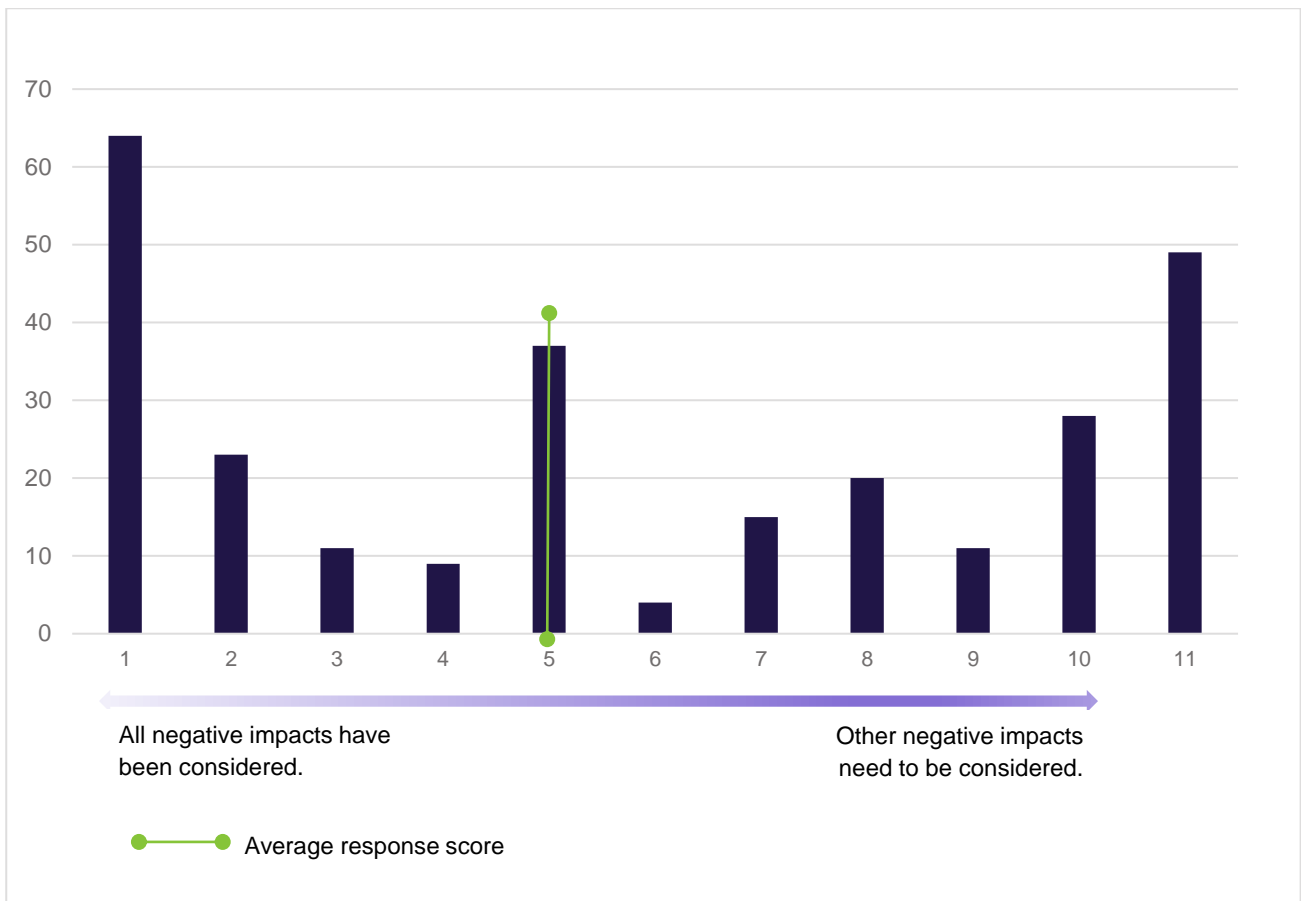


Figure 8 Distribution of responses to ‘do you think there are any other negative impacts that have not yet been considered for Option 3?’ where respondents were asked to rank their answer on a scale of one to ten, where one equalled ‘all negative impacts have been considered’ and ten equalled ‘other negative impacts need to be considered’.

Option 4 – Add spillway gates

Option 4 involves adding spillway gates to the primary spillway and maintaining the existing FSL.

The uncertainty in rainfall forecasts constrains the degree to which storage operators can confidently make pre-releases without either a) releasing water that cannot be replaced by subsequent inflows or b) worsening downstream flooding. Therefore, the concept design for this option was based on adding gates to the existing spillway (to minimise the cost), rather than lowering the spillway crest and using the gates to maintain the existing FSL.

Benefits

When asked are there other benefits that have not been considered for Option 4, the average was 4 noting a close to neutral response that the technical assessment had captured benefits fully (Figure 9). For this question 58 submissions did not provide a response.

In addition to this question respondents were asked to describe any other benefits that need to be considered for Option 4, where 51 participants provided some input into the field.

“This is an excellent idea, allows for much better control while maintaining lake serviceability, amenity and flora and fauna.”

“It seems to be the highest cost option with the most potential risk to lake surrounds. While minimization of flood damage below the lake is critically important, upstream residents and lake users need to be considered.”

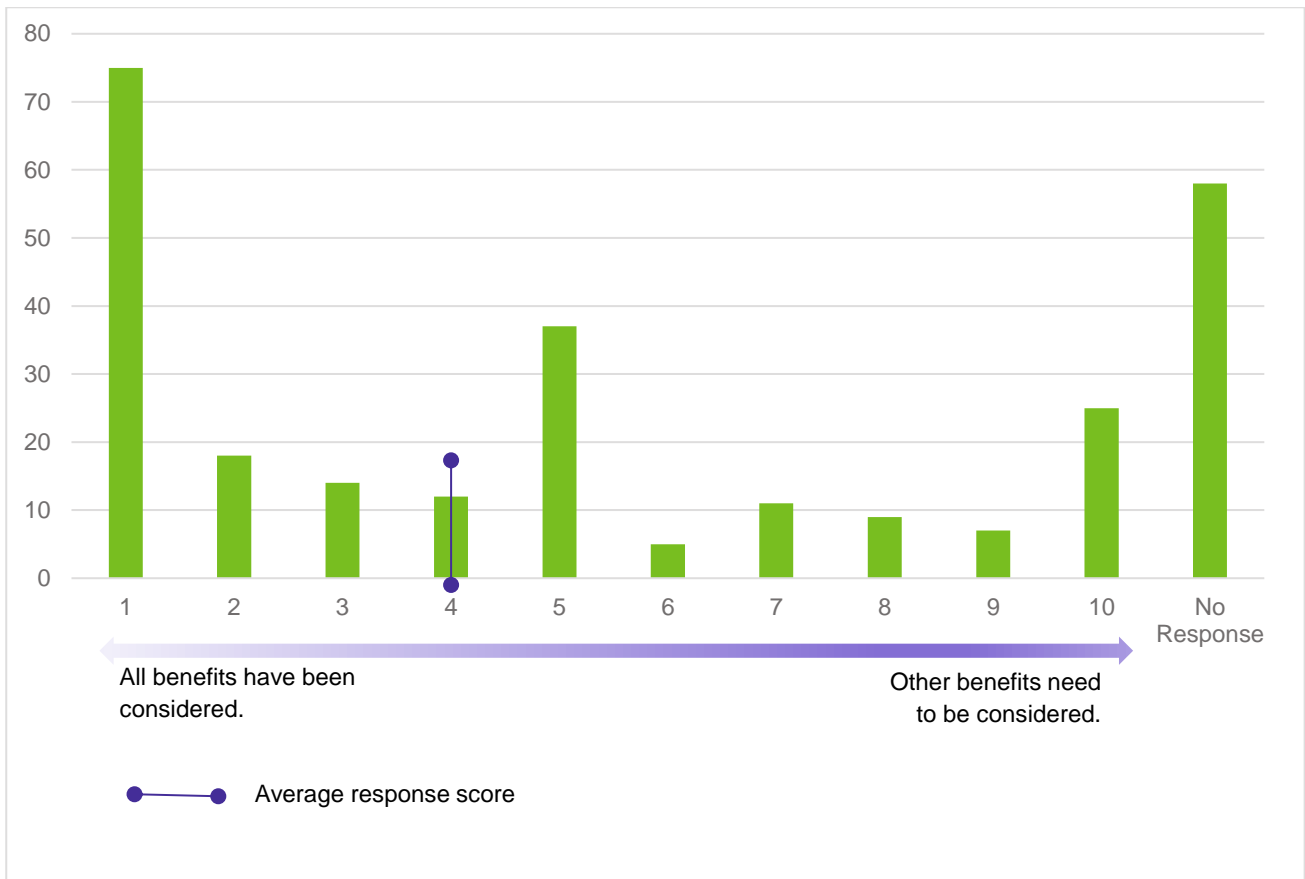


Figure 9 Distribution of responses to ‘do you think there are any other benefits that have not yet been considered for Option 4?’ where respondents were asked to rank their answer on a scale of one to ten, where one equalled ‘all benefits have been considered’ and ten equalled ‘other benefits need to be considered’.

Negative Impacts

When asked are there other negative impacts that have not been considered for Option 4, the average was 5 noting a neutral response that the technical assessment had missed out on capturing other negative impacts or not captured all negative impacts fully (Figure 10). For this question 62 submissions did not provide a response.

In addition to this question respondents were asked to describe any other negative impacts that need to be considered for Option 4, where 58 participants provided some input into the field.

“Where the money to do this would come from, and if the river could cope with a sudden lowering of Eppalock level?”

“Not good for downstream users, experiencing variable, constant water level changes. Every property on the river must be notified of flow variations. Again, consideration to flora & fauna, riverbank erosion.”

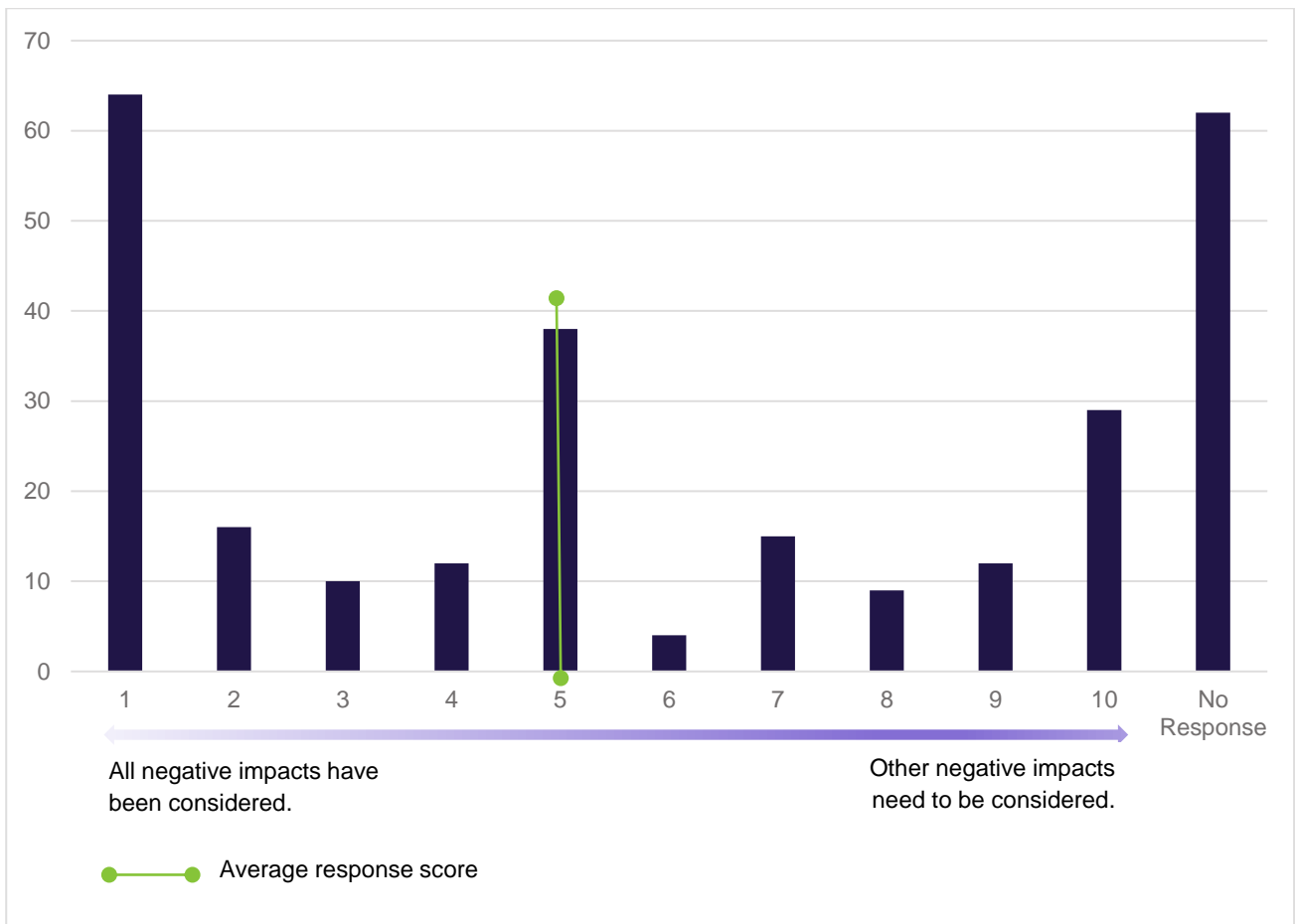


Figure 10 Distribution of responses to ‘do you think there are any other negative impacts that have not yet been considered for Option 4?’ where respondents were asked to rank their answer on a scale of one to ten, where one equalled ‘all negative impacts have been considered’ and ten equalled ‘other negative impacts need to be considered’.

Option 5 – Reconfigure spillways, by installing piano key spillways

This option involves reconfiguring the primary, secondary and tertiary spillways – without reducing FSL or adding spillway gates – so that more storage at Lake Eppalock is utilised during floods. The method selected for investigation was the installation of piano keys on part of the primary spillway and all the secondary spillway.

By adding piano keys either side of the central portion of the primary spillway, a slot could be created through which Lake Eppalock outflows below a given threshold would be ‘throttled’.

Benefits

When asked are there other benefits that have not been considered for Option 5, the average was 5 noting a neutral response that the technical assessment had captured benefits fully (Figure 11). For this question 63 submissions did not provide a response.

In addition to this question respondents were asked to describe any other benefits that need to be considered for Option 5, where 51 participants provided some input into the field.

“Storing more water is a great overall outcome provided mitigation for downstream is effective.”

“Perhaps a softer approach to mitigation, both economically & in practise.”

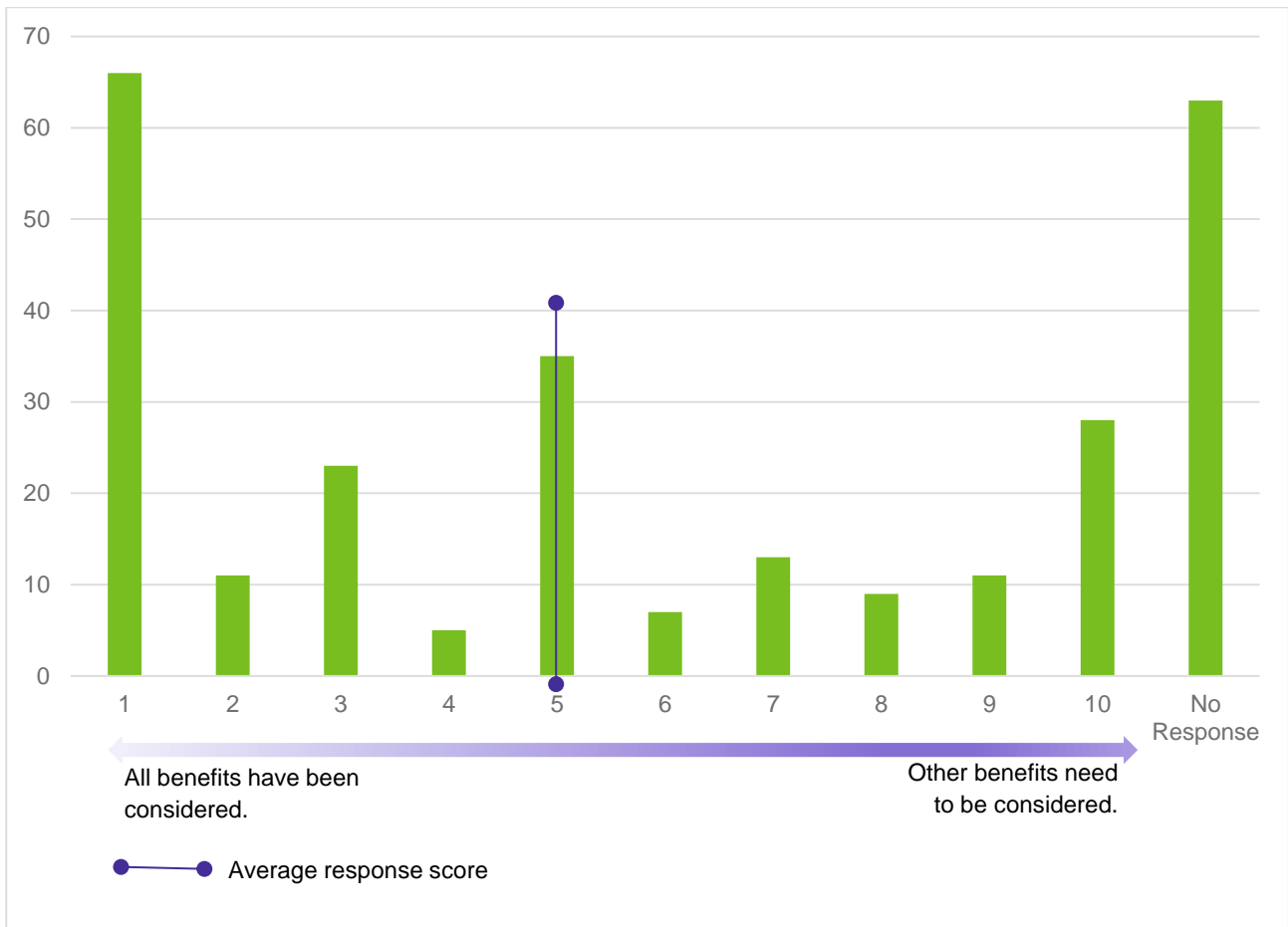


Figure 11 Distribution of responses to ‘do you think there are any other benefits that have not yet been considered for Option 5?’ where respondents were asked to rank their answer on a scale of one to ten, where one equalled ‘all benefits have been considered’ and ten equalled ‘other benefits need to be considered’.

Negative Impacts

When asked are there other negative impacts that have not been considered for Option 5, the average was 4 noting a close to neutral response that the technical assessment had missed out on capturing other negative impacts or not captured all negative impacts fully (Figure 12). For this question 64 submissions did not provide a response.

In addition to this question respondents were asked to describe any other negative impacts that need to be considered for Option 5, where 58 participants provided some input into the field.

“There are no other negative impacts if preventing downstream towns from flooding is kept as the priority.”

“Failure of system would result in worse flooding downstream due to increased capacity of lake.”

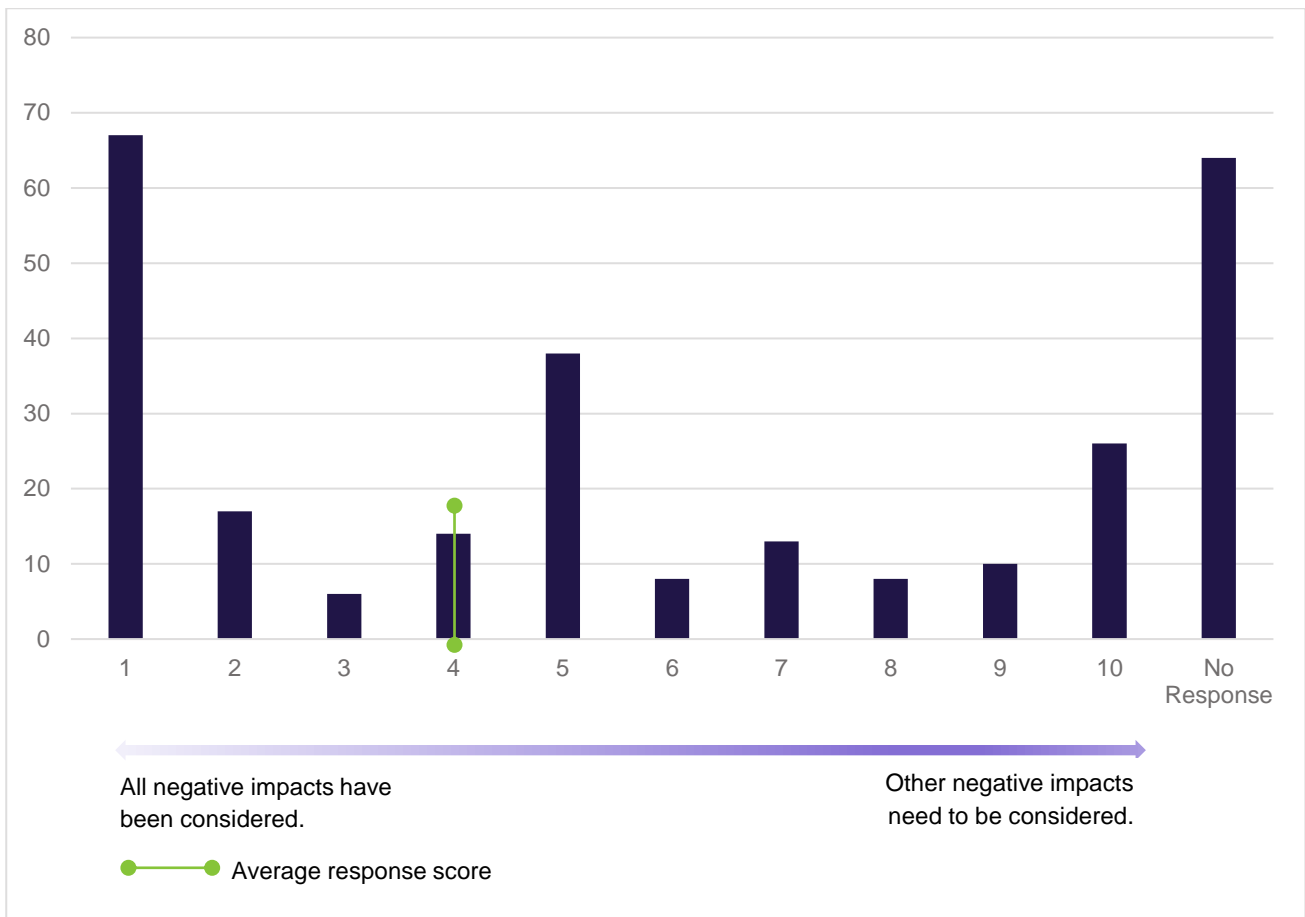


Figure 12 Distribution of responses to 'do you think there are any other negative impacts that have not yet been considered for Option 5?' where respondents were asked to rank their answer on a scale of one to ten, where one equalled 'all negative impacts have been considered' and ten equalled 'other negative impacts need to be considered'.

Themes in survey comments

Themes raised through the open feedback section of the survey and other written submissions have been summarised below;

Feedback Topic	Number of Submissions
Alternative Storages	25
Business	13
Climate Change	20
Environment	36
Flood Mitigation	99
Recovery/Community Health Impacts	46
Recreation/Tourism	48
Socio-economic	53
Storage Management	132
Water Security	36

Alternative Storages

There were 25 comments received relating to the use of alternative storages and/or retarding basins to provide flood mitigation benefits for downstream communities. These comments suggested that additional options, with storage bodies either above or below Lake Eppalock, in combination with the options within the assessment could provide extra flood mitigation benefits for Rochester and other downstream communities.

Suggestions included diverting flood waters to Lake Cooper or Greens Lake, the use of the superpipe and also creating a 'flood only' river system before Rochester, to reduce downstream impacts of large rainfall events.

“There must be somewhere between Rochester and Eppalock where water could go, instead of flooding Rochester.”

Feedback discussed complementary flood mitigation options, including natural retardation or diversions before upstream of Lake Eppalock, the upkeep of the siphon between Rochester and/or building levee banks and better building codes in flood affected areas.

“Additional flood storage should be provided by way of Retarding basins in the upper catchment plus some storage in Eppalock provided by Rapid drawdown limited to weir height of 2.41 metres. Drawdown limited to 2.41 metres will have minimal impact on upstream businesses and recreational users.”

“Construction of a retarding and overflow infrastructure arrangement upstream of Elmore on the Campaspe River that then diverts any pre-release water/ water during the events via the construction of a 30,000 ML/DAY grassed overflow to the Bendigo creek, which then flood ag (agricultural) land out that way and then discharges into the Murray River.”

Suggestions also included the deepening or widening of Lake Eppalock could improve the storage volumes held without impacting water security for entitlement holders.

“Benefit of water security and protecting infrastructure by tiering Lake Eppalock, this will enable additional water to be held and released as needed without breaching the spillways and desecration of infrastructure. Dig the lake deeper during the next low rainfall event using the dirt in environment and government projects.”

DEECA Response:

Under the Lake Eppalock Technical Assessment, the transfer of water to Greens Lake or Lake Cooper was considered during the initial workshops. However, this option was not assessed to the same level of detail, because it is unlikely to significantly increase the flood mitigation provided by Lake Eppalock. An example was provided in the report, where Greens Lake and Lake Cooper were already near or above capacity during the 2011 flood, and in October 2022 the spare capacity in Greens Lake was a small fraction of the inflows to Lake Eppalock. Further details on the feasibility of these options are provided in the Lake Eppalock Technical Assessment Report in section B.4 (pg 137).

As part of the Rochester Flood Management Plan the review of all mitigation options for Rochester will be considered. The information provided on alternative options will be passed to Campaspe Shire Council for their analysis.

Business

There were 13 comments relating to impacts on businesses with apprehensions related to upstream business impacts caused by lowering lake levels permanently (options 1, 2 and 3) or temporarily surcharging the lake during flood events (options 4 and 5).

Feedback explained that the impacts to caravan parks and other recreational user groups when the lake is lower than FSL have been underestimated. Additionally, concerns were raised about security of the agricultural land surrounding the lake (i.e. because of the lower lake levels there is increased opportunity for theft of property and/or stock from the lakebed exposure) and costs associated with accessing water from the lake for options that seek to reduce the FSL.

Furthermore, even under current operations, when the lake surcharges and inundates additional agricultural land, it causes impacts to grazing land and has land management implications such as increased weed distribution and the establishment of river red gum saplings as seen after 2016 floods.

“Financial hardship and employment loss for existing caravan parks and other businesses situated around the lake.”

Some respondents noted that by lowering the lake by any percentage would save a percentage of homes and businesses in downstream communities and the lower risk of flooding would reduce the ongoing stressors to businesses and future economic viability of communities downstream.

Comments were also made raising significant concerns that if the new infrastructure failed there would be severe impacts to businesses downstream.

DEECA Response:

DEECA recognises that any change to operations and/or management of Lake Eppalock may cause socio-economic impacts not only for downstream communities but also may impact those that reside on or have businesses on the lake because it would impact their access to Lake Eppalock.

As part of the review of the Rochester Flood Management Plan it will be critical to have widespread community consultation that will include residents and businesses in and around the lake to ensure these impacts are fully understood during the process.

Climate Change

A total of 20 comments relating to climate change impacts were received where impacts of future climate change on water availability for lake users, urban water supply, irrigators and the environment was of concern. This was notably around options where the FSL was permanently lowered through infrastructure, or the lake was held lower than current FSL going into a dry period.

“A complete waste of time even to include as an option. Primary objective of the study is to improve flood storage capabilities without reducing stored volumes for entitlement holders or security of supply during long drought periods”.

Feedback was also received on whether the proposed new infrastructure would withstand larger floods or be able to handle larger flows than seen in October 2022, given the unpredictability of future weather events.

“Any new engineering solution is risky as the full extent of Climate Change patterns are unpredictable.”

Some respondents preferred the focus to be on other flood mitigation works to protect downstream communities and the maintenance of the current water security. They did note that climate change may impact the way water is used and needed in the Campaspe system, with the only constant that can be controlled being flood protection for where towns are now situated.

“Climate change means that rainfall patterns from past years may not be good predictors of future rainfall, so water storage and irrigation requirements may need to change in unpredictable ways, whereas as the location of flooded towns is a consistent given.”

DEECA Response:

The Lake Eppalock Technical Assessment Report recognises that the climate projections for Victoria point to long-term drying conditions driven by decreases in seasonal rainfall and increases in temperature. Climate projections suggest there will be more extreme events, including both flood and drought, which will need to be considered through the Rochester Flood Management Plan review.

Environment

A total of 36 comments were received relating to impacts to the environment and outlined a need to further consider the impacts both upstream and downstream of the lake.

Lowering the lake permanently may cause increased occurrence of blue green algae blooms, impacts to native vegetation around the lake, impacts to water quality for environment or urban water customers (i.e. salinity, manganese, and iron) and increase the risk to water availability in drier times, especially with consideration of climate change predictions and therefore lower availability for environmental water deliveries. There may also be impacts for land management changes for areas no longer seasonally inundated if the lake is kept permanently lower than current FSL i.e. weed management. Also, there may be flow on effects of low-quality water in the lake when it is released downstream on native fish and wildlife, including platypus and birds.

“The lake and surrounding environment would be miserable for the vast majority of time, just to reduce impact of a rare flood event.”

There was some feedback around the risks and/or benefits for increased managed releases through the option to increase the outlet capacity for riparian and riverine health downstream of the reservoir in the Campaspe River. But where larger releases were able to occur for flood mitigation purposes (i.e. spillway gates) the larger sudden flows may harm the ecological health downstream of the reservoir. Some benefits were discussed, as increased capability to deliver environmental flows due to the increased outlet capacity was seen as a positive for downstream ecological health in the river system.

Additionally, some responses requested that impacts on the environment caused by surcharging or increasing the water levels in the lake be assessed further. It was seen that increased levels of any timeframe may impact the environmental health of the areas in and around the lake, as well as have consequences for upstream tributaries where water backs up into those systems, impacts including erosion. Feedback related to the increased habitat for wildlife when the lake is kept full was also captured.

Fish movement, via fishways, was raised for all options where construction is required to the storage outlet to ensure fish passage, as well as including the costs should any option be progressed.

“60 years of damage to the waterway by having (Lake) Eppalock there. Don't make it worse.”

DEECA Response:

DEECA notes that the construction of a larger outlet capacity or changes to the FSL of Lake Eppalock may have both positive and negative impacts on the environment.

Additionally, should any option progress that requires construction or impacts to water levels a referral may be required if works or changes to operations at Lake Eppalock would potentially impact any matters protected under the *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*. Also, any works at Lake Eppalock may require the preparation of an Environmental Effects Statement under the

Environment Effects Act 1978. This process can take several years to complete and the final step in the process determines whether the likely environmental effects of a project are acceptable.

Flood Mitigation

There was a total of 99 comments on flood mitigation and the general consensus was that increasing flood mitigation to protect downstream communities is supported, but that other factors must be considered if any of the options were to be moved forward with.

“Flood mitigation measures need to be put in place to protect the Rochester township - businesses, infrastructure, services such as the hospital and protection of resident homes.”

“As we saw in January 2024 flood the water that impacted Rochester came from below Eppalock. None of these options work if the flood comes from below Eppalock.” Many comments were supportive of most options as they reduced stress and associated mental health impacts by reducing the flood risk to downstream communities, this would also extend to reduction of insurance premiums, increased liveability for those communities and housing prices would be maintained or increase.

Feedback also discussed the cost of implementation of the options and the timelines to construct. Questions were raised around who would pay for the infrastructure itself, the ongoing costs of retiring entitlements and the ongoing storage operating costs. There was support for lowering the storage in the short term, as a cost-effective and time-efficient option of improving flood mitigation, whilst other options are explored.

There were also concerns about the structural integrity of the lake, and whether there are additional risks that the dam wall could fail with the new infrastructure proposed.

“Failure of system would result in worse flooding downstream due to increased capacity of lake.”

Town planning was brought up in the feedback, and that the regulations and schemes should be looked at in the first instance to assist with downstream towns flood resilience.

“LGA planning and urbanisation of rural locations without adjusted building codes is a much bigger issue than the lake experiencing large scale flooding three times in 20 years.”

For the lake and surrounding upstream areas, there were concerns that the landscape has been developed with the current FSL in mind, and any option that surcharged the lake pushes the flood risks upstream. Impacts upstream that were mentioned included damage to fences and grazing land etc. Further considerations required should these options be pursued were to build up roads, bridges and infrastructure where they may be flooded when the lake is surcharged. A question of how upstream landholders/businesses would be compensated in these times also arose.

Feedback also mentioned that these flood mitigation options do not mitigate the flooding impacts downstream if a large rainfall event occurred below the storage (via tributary inflows below the lake).

“Recent floods of Jan 7 & 8 2024 highlight water flows coming into the Campaspe River from more urbanised areas i.e. Strathfieldsaye. Tributaries coming into the river like Mt Pleasant or Axe Creek carry significant water flows in very short bursts, compounding the issue. If Lake Eppalock did have higher outflows in this recent rain event, flooding would have been more considerable. We perhaps dodged the silver bullet, purely by good luck than judgement. Recent 2011& 2022 floods also highlight sewerage inflows from “breached” septic systems along all parts of the catchment.”

DEECA Response:

Flood mitigation can be enabled via variety of mechanisms including but not limited to a combination of modifications to buildings (i.e. raising homes), water storage and retention, waterway rehabilitation and physical flood barriers (i.e. levees) For any location at risk of flooding the flood mitigation solution or solutions will differ, and therefore options need to be thoroughly assessed to ensure the best outcomes for that community.

Flood mitigation options are locally prioritised via Regional Floodplain Management Strategies as local communities are best placed to determine local solutions. Then any flood mitigation option that is prioritised is then evaluated through the government capital investment criteria (e.g. locally agreed, cost effective, evidence-based solutions, etc). If it meets investment criteria the funding may be available through a competitive process and shared between the Australian and Victorian Governments and the relevant LGAs.

Should any of the options move forward as part of the Rochester Flood Management Plan, the ongoing costs of flood mitigation infrastructure is the responsibility of the beneficiaries, who may be represented by the Local Government Authorities (LGAs).

Recovery/Community Health Impacts

There were 46 feedback comments around the recovery and/or community health impacts of the options in this assessment. Most comments related to supporting increased flood mitigation for downstream communities as priority, noting that the community's mental health, physical and emotional health would be increased if the risk of future flooding was not addressed. There would be recognised economic benefits if changes were implemented, these include a reduction in recovery costs for communities and more people and businesses staying in the area. These concerns also linked into the timeliness to implement options discussed, and further requests for an immediate option to be actioned (i.e. lowering the storage now) until further flood mitigation options are worked through.

"Something needs to be done as soon as possible to Lake Eppalock before this all happens again and who will be responsible for Rochester people and all the mental sickness from all the stress this will cause knowing there is a problem at Lake Eppalock."

There was some feedback received that the impact of flooding is underestimated for downstream communities and businesses, and that recreational benefits should not be considered more important.

Additionally, further benefits and negative impacts should be considered with potential compensation for upstream landholders impacted by these options when comparing the options against the cost implications for recovery funding required for downstream communities for the next major flood.

"The impact of the Oct 2022 flooding in Rochester is far beyond devastating damage to homes and businesses. It continues in the lives of residents today and in the future. It poses an effect far beyond the physical, for mentally residents will never be the same. The Environmental damage goes on, as building companies, not only replace an item (eventually) but due to incompetence or shoddy workmanship have to replace it 3 or 4 times. Residents have post-traumatic stress not only caused by the actual flooding, gutting of homes, restorations that leave much to be desired but worst of all they are forced to fight so hard to enlist the changes to protect their town for the future."

DEECA Response:

DEECA acknowledges the destructive impacts the floods in October 2022 had on downstream communities, including Rochester and understand that these types of disasters have a devastating impact on many lives. Emergency Recovery Victoria (ERV) can help communities access the services that they may need during their recovery including financial support, accommodation and housing support, mental health support, support for businesses. These services are available by calling the hotline on 1800 560 760 or visiting the website: <https://www.vic.gov.au/2022-flood-recovery>.

In addition to the undertaking the Lake Eppalock Technical Assessment, the Victorian Government has also provided funding to the Campaspe Shire Council to update the Rochester Flood Management Plan. NCCMA will provide technical support to the council to deliver the updated flood management plan.

Recreation/Tourism

The recreation and tourism theme had 48 comments, which included both benefits and negative impacts of permanently lowering the lake, maintaining the FSL, as well as surcharging the lake during flood events.

Options within the technical assessment that reduce the FSL of Lake Eppalock will reduce amenity from surrounding businesses (i.e. caravan parks and boating clubs) and may impact on the level of investment in redevelopment in the area. This is likely to have implications for tourism, local jobs and economic benefits. There may also be impacts for recreation such as reducing the available volume of water for access, increasing the lake's congestion and potential safety implications of that (i.e. power boats and jet skis in confined areas), dangers due to submerged woody debris for boat users and swimmers, increased occurrence of blue green algae blooms.

Further consideration is required to understand the implications of changes to lake infrastructure, including waterfront infrastructure for boating, fishing, skiing and other water sports and the movement of pumps for water access (stock and domestic use) and boat ramps.

“Reducing the Lake Level will have a significant impact on wildlife and vegetation and this very important meeting place for families in the Central Victorian area. This is a very important place for families to enjoy recreation from Bendigo, Heathcote etc.”

Where the FSL is maintained at the current FSL, the feedback stated that it will support the local businesses and recreational activities that currently reside at the lake, maintaining tourism in the region.

Maintaining the FSL of the lake and constructing the spillway gates was seen as a positive for lake users and entitlement holders whilst also providing flood mitigation for downstream communities.

DEECA received some feedback that options that maintained the FSL were viewed as placing recreational needs over the flood mitigation of downstream communities.

“One of the option points was to keep the lake full for water sports etc. What is more important people's lives and mental health or weekend recreation for a minority.”

“This option would benefit the surrounding towns for tourism as well as protecting the surrounding towns during heavy rainfalls and flood. Wildlife is in abundance when the lake is high.”

“The Lake is a water supply and shouldn't be used for power boats.”

DEECA Response:

DEECA recognises that any change to infrastructure and/or operations of Lake Eppalock may cause socio-economic impacts, including for the region's tourism and recreational industries and associated businesses.

As part of the review of the Rochester Flood Management Plan, it will be critical to have widespread community consultation that will include those businesses and interested communities in and around the lake to ensure these impacts are fully understood during the process. Pending the outcome of the Rochester Flood Management Plan, for a flood mitigation option to progress, a business case for implementation and

construction will need to be developed, these are typically led by local councils. The business case for implementation and construction will be required to provide supported evidence of rigorous flood modelling, environmental impacts, mechanisms for offsetting any water entitlement impacts, together with the proposed benefits of the changes and effectiveness in reducing flood risk when compared with the cost.

Socio-economic

For feedback on socio-economic impacts, 53 comments were received. Much of the feedback was around the need for further work to understand the wider socio-economic impacts of a reduction in entitlements/target storage levels, and who would pay to maintain/operate the storage if entitlements were reduced for flood mitigation.

Respondents wanted this to include consideration of cost and benefits of increased flood mitigation on the reduction of people/businesses leaving the region due to flood risk, impacts on housing and real estate values, and to explore those impacts under drought or climate change scenarios where water availability is reduced.

Feedback said that maintaining the FSL of Lake Eppalock provides social and economic benefit to the lake and surrounding area's businesses and tourism operators and that the financial and social impacts from the costs of building and operating a gated storage have not been recognised in full.

"We need to see a comparative study on the current downstream impacts vs the proposed upstream impacts with this option. I would expect the proposed impacts would be substantially less than the current impacts we are seeing downstream. If you take into account the cost of rebuilding the town of Rochester Vs rebuilding lakeside infrastructure, this would have to be a lot less of a cost to the state government. Not that we want to be flooding others to save ourselves at Rochester, but you do need to consider the total cost to the taxpayers. Storing more water is a much better option that will be better for all current stakeholders in the lake including providing a more secure water supply for towns such as Bendigo as populations increase."

For the piano key spillway (option 5), this doesn't allow for the managed control of water during flood events and may have adverse effects on the upstream and downstream communities.

"Importantly, we strongly support a detailed analysis of the socio-economic impacts of options including all costs, operational risks, implementation timelines and regional growth implications."

DEECA Response:

As part of the review of the Rochester Flood Management Plan it will be critical to have widespread community consultation that will include those businesses in and around the Lake to ensure these impacts are fully understood during the process. Pending the outcome of the Rochester Flood Management Plan, for a flood mitigation option to progress, a business case for implementation and construction will need to be developed, these are typically led by local councils. The business case for implementation and construction will be required to provide supported evidence of rigorous flood modelling, environmental impacts, mechanisms for offsetting any water entitlement impacts, together with the proposed benefits of the changes and effectiveness in reducing flood risk when compared with the cost.

Storage Management

A total of 132 comments were received on storage management. These included the need for water policies and procedures to change to allow storage managers to release higher volumes of water prior to events to increase airspace. Where options required human-decision making (i.e. spillway gates and increased outlets) or passive options (i.e. piano keys) there was both positive and negative feedback – while some viewed the option for storage managers to make decisions on releases earlier as positive, there were others who would support passive options where operations are out of storage managers hands.

“State government legislation must change so GMW can better manage the catchment.”

“If Lake Eppalock failed to exist, the flooding would occur regardless. Why is a storage facility being used to control flooding? If Eppalock is to be a flood control tool, then one could argue drain it completely. My grandparents farmed on the Campaspe River well before the construction of the Lake in any form. The river was always subject to flooding (sometimes sudden and sometimes severe).”

“Tributaries coming into the river like Mt Pleasant or Axe Creek carry significant water flows in very short bursts, compounding the issue. If Lake Eppalock did have higher outflows in this recent rain event, flooding would have been more considerable. We perhaps dodged the silver bullet, purely by good luck than judgement.”

Comments around the potential risks to the lake’s current infrastructure and ability to safely alter/upgrade to deliver any of the options (i.e. spillway gates, increased outlets, piano key spillway) was questioned. There was a request that larger outlets were explored than the 5,000 ML/day outlet in the assessment, to increase flood mitigation benefits as well as the reinstatement of the hydropower turbines to release more water and receive economic benefit during those releases. Operational issues, such as infrastructure getting blocked by debris during floods and causing increased surcharged levels was also noted.

“Storage integrity could be compromised by modifications. In high flow situations the piano keys could be blocked with debris and flows reduced. Who, what or how will this be fixed in a high flow situation?”

As part of the feedback received under this theme, the removal of carryover for the environmental entitlement holders was suggested to reduce the water held in storage.

“Additional dams for environmental water and no carry over of environmental water. Environmental water sits at the bottom of dam carried over causes additional pressure on other water users.”

DEECA Response:

Changing the infrastructure at Lake Eppalock for the purpose of flood mitigation would have significant capital costs and increased maintenance costs. The Victorian Floodplain Management Strategy provides policy and guidance for investment in flood mitigation infrastructure and maintenance. Any flood mitigation infrastructure is assessed through the government capital investment criteria, which includes being locally agreed, cost effective and evidence based etc. Infrastructure which meets these requirements may seek funding through a competitive process and that it will be shared between the Australian and Victorian Governments and the relevant LGAs.

Ongoing maintenance costs of flood mitigation infrastructure is the responsibility of the beneficiaries, who may be represented by LGAs.

In addition, the future management of infrastructure and any future construction feasibility scopes will need to be completed in partnership with the Storage Manager, GMW, and engineers to ensure that the structure is sound and there are no unacceptable risks for the operations and management into the future.

Changes to carryover rules to reduce the impact of environmental water on spill risk cannot occur under the current legislation which was set up to protect the environmental water reserve. Under the *Water Act 1989* the Minister cannot make amendments to environmental entitlements unless the Victorian Environmental Water Holder is of the opinion that the amendments would be of benefit to the environmental water reserve.

Water Security

There were 36 responses that touched on the general water security theme, these were a mixture of reducing the FSL permanently or maintaining the current FSL. Specific feedback was also received related to urban water security.

General Water Security

The options which would lower the lake's FSL permanently caused some respondents to raise concerns over the increased risk to water availability in drier times, especially with consideration of climate change predictions for environment, agriculture and urban customers. Respondents questioned whether agricultural damage was considered during the technical assessment and suggested that irrigation and urban water reliability had not been given appropriate consideration.

Respondents raised concerns that the Millenium Drought has been forgotten, and that by lowering the storage, there would be no water in Lake Eppalock for communities who rely on the lake for water security. Respondents asserted that reduced access for domestic and stock use from the lake during dry periods, would result in water users having to pay for bore pumps, extensions to pipelines, larger pumps or water carting into properties.

Respondents also raised concerns about access for stock and domestic use around Lake Eppalock and indicated that this negative impact was not considered by the technical assessment. In addition, they raised concerns that lower lake levels will increase security risks for lakeside properties, where people may access properties undetected from the lakebed (that is usually under water).

There was a suggestion that any reduced water security from lowering the lake permanently should be offset by the Victorian Environmental Water Holder taking the majority of the reductions required.

“This is madness - water is our lifeline do not even consider trying to manage flood using a water storage dam.”

“Access to water will become very expensive and energy consuming for some local residents. Running a pump with greater capacity, extending pipelines and damage to pipelines from recreational activities (cars and motor bikes).”

“As this is the most expensive option for both build and maintenance how would this impact the cost of water to those of with high and low water shares?”

For options where FSL is maintained, there was positive support that irrigators and entitlement holders do not get impacted under this option. Although concerns that the cost of building, implementing and ongoing operations for these options will be passed onto entitlement holders was mentioned. Some feedback suggested that Lake Eppalock could be increased in size to hold more water back without losing any reliability, whether by digging out the lake in the next dry period or building up the embankments.

Urban Water Security

There was feedback received around the security of water reliability for urban water customers if Lake Eppalock's FSL was permanently lowered, taking into account population growth and climate change predictions. This could result in more frequent and longer lasting water restrictions for urban water customers. These comments also raised concerns about why you would reduce water security given the

significant investment in Victoria's water grid, with planned further investment to secure supply to other regional towns that has already occurred or planned to occur.

Furthermore, the options that reduce FSL increase the risk of poor water quality and increase treatment costs associated with lower operating levels in Lake Eppalock including salinity, manganese and iron for urban water supply.

Some feedback received stated that Coliban Water holds a large percentage of Lake Eppalock's water, but don't use any, because of future drought proofing requirements, and whether this is appropriate given the need for downstream flood mitigation.

"Coliban Water relies heavily on Lake Eppalock to supply its northern system which includes the City of Greater Bendigo and Heathcote as well as over 1,300 licence holders in their rural network. The system provides water to more than 124,000 people and has a forecast population growth rate of around 2% per annum. The total water demand is expected to increase from 14,000 ML/year to more than 35,000 ML/year by 2070. Coliban Water also plans to add to Victoria's water grid by taking water from Bendigo to Castlemaine, Maldon, Newstead and surrounding towns to improve their future water security."

"Central Highlands Water relies on Lake Eppalock to supplement its water supply to Ballarat, Creswick, Ballan, Skipton and surrounding communities. The system provides water to more than 135,000 people is forecast to grow to 300,000 within the next 50 years. The total water demand is expected to increase from 13,500 ML/year to more than 23,000 ML/year by 2070. In addition, Central Highlands Water has invested \$15 million for a 14-kilometre pipeline connection from the Goldfields Superpipe to Daylesford. The project is currently under construction. Further grid expansion from the Goldfields Superpipe is expected to secure Maryborough's long-term water supplies."

"Both regions also face supply side impacts due to increasing climate variability and ongoing climate change. The urban water strategies of both water corporations highlight the significant challenges associated with continuing to meet level of service obligations into the future."

DEECA Response:

DEECA recognises that unless offset, any option which reduces the volume of water stored in Lake Eppalock would impact the reliability of water supplies for entitlement holders.

To avoid or offset this impact, water sharing arrangements would need to be adjusted through some form of water recovery program that reduces the amount of entitlement held. When making changes to water sharing arrangements, the Minister must have regard to (among other things) the impact the change would have on third parties (including holders of entitlements and water shares) and the environment.

Where to from here?

Public consultation for the Lake Eppalock Technical Assessment concluded on 30 April 2024.

The Lake Eppalock Technical Assessment Report and public consultation feedback has been provided to Campaspe Shire Council for consideration of use in the review of the Rochester Flood Management Plan.

The review of the Rochester Flood Management Plan, being led by council with technical support from North Central CMA, will include the benchmarking of all flood mitigation options for Rochester such as levees, housing raising or changes to the operations/infrastructure at Lake Eppalock. The review is underway and will include significant community and stakeholder engagement including a robust governance and management framework and a community reference group.

See Figure 13 for a visual representation of how this the technical assessment report (and therefore this consultation report) feeds into the Rochester Flood Management Plan review.



Figure 13 Review of the Rochester Flood Management Plan and the input from the Lake Eppalock Technical Assessment including feedback from this consultation.

For those survey respondents that have chosen to stay informed with both the Lake Eppalock Technical Assessment and review of the Rochester Flood Management Plan, the Engage Victoria and DEECA website for the Lake Eppalock Technical Assessment will continue to be updated with any new information. Campaspe Shire Council will also provide email correspondence for those respondents to the survey on the Rochester Flood Management Plan, further updates on the review will also be available on Campaspe Shire Councils website.

Appendix A – Public consultation communications and engagement

Communication	Description	Date	Location/Link
Engage Victoria website	Public consultation over 81 days	29 February – 30 April	Lake Eppalock Technical Assessment Engage Victoria
DEECA website	Public information	Various dates updated in 2023 and 2024	Lake Eppalock operating arrangements assessment (water.vic.gov.au)
Lake Eppalock Technical Assessment Report	Full technical assessment report	30 November 2023	Lake Eppalock Technical Assessment Engage Victoria
Lake Eppalock Technical Assessment Summary Report	Summary report of technical assessment	30 November 2023	Lake Eppalock Technical Assessment Engage Victoria
Lake Eppalock Technical Assessment Consultation Factsheet	Simple description of the five options and project	29 February 2024	Lake Eppalock Technical Assessment Engage Victoria
Lake Eppalock Technical Assessment Consultation Q&As	Answers common questions around the project	29 February 2024	Lake Eppalock Technical Assessment Engage Victoria
Lake Eppalock Technical Assessment Explanatory Note	Summary of project in relation to intent, policy context and next steps	30 November 2023	Lake Eppalock Technical Assessment Engage Victoria
Lake Eppalock Technical Assessment Webinar	Online presentation summarising the key information and outcomes of the technical assessment report.	18 December 2023	MS Teams, recording published on Engage Vic and DEECA website
Social media	Facebook posts with images and a link to Engage Victoria site	29 February 2024	We're working to help protect... - DEECA Loddon Mallee Facebook
Emails and Phone Calls	Emails and phone calls to stakeholders responding to questions	Various dates between November 2023 to May 2024	
Community Sessions	Drop-in sessions for community discuss and provide feedback on options	21 March 2024 9.30am-6.30pm	Rochester Community Recovery Hub
Community Sessions	Drop-in sessions for community discuss and provide feedback on options	26 March 2024 8.30am-12.00pm	Goulburn-Murray Water Rochester
Community Sessions	Drop-in sessions for community discuss and	26 March 2024 1.30pm-5.30pm	Bendigo Yacht Club

	provide feedback on options		
Community Sessions	Drop-in sessions for community discuss and provide feedback on options	16 April 2024 9.30am-12.30pm	Galkangu – Bendigo GovHub
Newsletters	GMW's bi-monthly newsletter with link to Engage Victoria website	March 2024	
Posters in Rochester Community Recovery Hub	Poster with a QR code to link to the Engage Victoria site		

Appendix B – Survey Questions from Engage Victoria

Overview

In October 2022 the Campaspe River experienced major flooding, with flood waters causing significant damage to farms, townships, roads, water supply infrastructure and communities.

Following the floods, the Department of Energy, Environment and Climate Action (DEECA) engaged Hydrology and Risk Consulting (HARC) to undertake a technical assessment of Lake Eppalock.

The purpose of the assessment was to determine if changing the operating and infrastructure arrangements could improve protection for downstream communities from future flooding, and the associated financial and non-financial implications of such changes.

The assessment looked at 5 options in detail that could be put in place to improve protection for downstream communities from future flooding.

The assessment found that Option 1 was not a robust flood mitigation option, and so feedback is now being sought on Options 2, 3, 4 and 5.

The outputs from the assessment and public feedback will provide valuable input to the review of the Rochester Flood Management Plan being undertaken by Campaspe Shire Council, with support from North Central Catchment Management Authority (NCCMA).

DEECA is seeking public feedback on whether you think there are any other **benefits** and **impacts** that need to be considered for Options 2, 3, 4 and 5, that have not already been identified.

DEECA is not seeking feedback on which is your preferred option, as further work is needed to determine which, if any, of these options should be considered in the review of the Rochester Flood Management Plan.

About You

Question: Have you read the following documents?

- Lake Eppalock Technical Assessment - Consultation Factsheet
- Lake Eppalock Technical Assessment – Consultation Q&As
- Lake Eppalock Technical Assessment Report – Summary
- Lake Eppalock Technical Assessment Report
- Lake Eppalock Technical Assessment – Explanatory note

Question: Have you watched the Lake Eppalock Technical Assessment Webinar?

Question: Do you live in the North Central region?

Question: What category best describes your interest in the Lake Eppalock Technical Assessment Report?
(select up to two options)

- Environment
- Traditional Owner/First Nations Peoples
- Irrigator
- Urban Water Security
- Recreation/Tourism
- Business/Organisation
- Downstream flood affected resident
- Lake Eppalock Foreshore/upstream user/resident
- Other

What do you value about Lake Eppalock?

In this section we want to understand what you value about Lake Eppalock, how you use Lake Eppalock and what you think are the priorities for its operations.

Question: What do you think are the priorities for Lake Eppalock? (select top three)

- Water availability and security for entitlement holders (e.g., irrigators/environment/urban water corporation)
- Water availability for lake users
- Flood mitigation for downstream communities
- Aboriginal cultural heritage protection
- Downstream health of the Campaspe River
- Historical site and/or structure protection

Question: What do you currently value the most about Lake Eppalock? (select top three)

- Water availability and security for entitlement holders e.g., irrigators/environment/urban water corporation
- Recreational opportunities e.g., boating, swimming, jet-skiing, fishing, walking
- Aboriginal culturally significant sites
- Native vegetation, ecosystems and wildlife at Lake Eppalock
- Seeing and accessing the lake from my business, caravan park and/or home
- Historically significant places and structures
- Existing flood mitigation already provided for downstream communities

Operating and infrastructure options

The technical assessment of potential operating and infrastructure options for increasing the flood mitigation provided by Lake Eppalock has examined five options:

The first three options involve lowering the target storage or FSL at Lake Eppalock. These options would therefore reduce the volume of water stored in the Campaspe system for entitlement holders.

The other two options would maintain the existing FSL at Lake Eppalock but hold more water behind the dam wall during floods. These options would therefore increase the number of recreational and commercial tourism sites around Lake Eppalock that are inundated during floods.

In the next section of this survey, you will be asked to indicate if there are any other benefits and/or negative impacts that you think need to be understood if any of the options were to be investigated further.

A brief description of the options is given along with images as applicable.

For further information on the technical analysis of the five options, and the other options that were considered but were not selected for a more detailed assessment, visit the DEECA webpage [Lake Eppalock operating arrangements assessment \(water.vic.gov.au\)](http://water.vic.gov.au) and read the technical reports.

Option 1 – Reduce Lake Eppalock target storage using existing infrastructure

Feedback on this option is not being sought through this survey because the technical assessment found it is not a robust flood mitigation option. It is being described here for completeness and to show that changes to the dam infrastructure are required to provide robust flood mitigation.

This option involves using the existing outlet for downstream releases to hold the storage – to the degree possible – below or at a targeted proportion of FSL, rather than allowing Lake Eppalock to fill to FSL. The additional airspace in Lake Eppalock could further reduce flood peaks as events passed through the storage. In this technical assessment, options to reduce the target storage to 50%, 70% or 90% of the current FSL were investigated.

The degree to which this option reduces peak outflows from Lake Eppalock would vary by event because the current outlet capacity is only 1,600 ML/d.

Option 1 would not have significantly changed the outcomes observed in January 2011 and October 2022 floods. This is because in 2011 and 2022 inflows in the months prior to the floods were such that the storage could not have been held at a defined target before either event because the current outlet has a maximum capacity of 1,600 ML/d.

Option 1 is also likely to cause some negative environmental impacts due to shifts in the flow regime downstream. This option would reduce flows in winter and early spring and increase flows in late spring and early summer. This is because the outlet would often be operating near the 1,600 ML/d capacity during late spring and early summer to bring the reservoir level back to the target storage, and in winter and early spring there would be more airspace compared with the base case and therefore fewer spills.

Option 2 - Reduce Lake Eppalock target storage and increase outlet capacity

This option involves reducing the target storage at Lake Eppalock to 50%, 70% or 90% of the current FSL, **and** increasing the downstream outlet capacity so that operators have greater ability to release water from storage between floods.

To implement this option, a second downstream outlet would be required at Lake Eppalock. For this technical assessment, an outlet capacity of 5,000 ML/d was selected. This increase in outlet capacity would have been sufficient to hold Lake Eppalock at a target storage below FSL in the lead-up to the 2011 and 2022 floods.

This option would:

Benefit

- Reduce the flood damages downstream.
- Increase the outlet capacity sufficiently to deliver on some environmental objectives recommended for the Campaspe River, such as the 1,800 – 2,000 ML/d winter freshes.
- Allow for adaptive management, whereby operational rules could be updated in the future and the target storage percentage refined.

Negative impact

- Reduce the reliability of water supplies for existing entitlement holders, unless offset by reducing the amount of water entitlement held in the storage.
- Reduce the volume of water stored in Lake Eppalock and therefore reduce the lake level.

Question: Do you think there are other benefits that have not yet been considered? (Ranked on a scale of 1 to 10 where 1 = All benefits have been considered 10 = Other benefits need to be considered)

Question: Please describe any other benefits that you think need to be understood if Option 2 was investigated further (free text)

Question: Do you think there are other negative impacts that have not yet been considered? (Ranked on a scale of 1 to 10 where 1 = All negative impacts have been considered 10 = Other negative impacts need to be considered.)

Question: Please describe any other negative impacts that you think need to be understood if Option 2 was investigated further (free text)

Option 3 - Reduce Lake Eppalock full supply level using a spillway slot

Permanently reducing the FSL at Lake Eppalock is another way of increasing the amount of airspace in storage prior to a flood.

This option involves installing a passive spillway slot to lower FSL by approximately 3 m, which would reduce the volume held when the storage is full to 70% of the current FSL. However, inflows to storage preceding a flood may mean that the lake level is above 70% of FSL before the event arrives.

In summary this option would:

Benefit

- Reduce the flood damages downstream.

Negative impact

- Reduce the reliability of water supplies for existing entitlement holders, unless offset by reducing the amount of water entitlement held in the storage.
- Reduce the volume of water stored in Lake Eppalock and therefore reduce the lake level.

- Not allow for adaptive management into the future as Lake Eppalock would be permanently reduced to 70%.

Question: Do you think there are other benefits that have not yet been considered? (Ranked on a scale of 1 to 10 where 1 = All benefits have been considered 10 = Other benefits need to be considered)

Question: Please describe any other benefits that you think need to be understood if Option 3 was investigated further (free text)

Question: Do you think there are other negative impacts that have not yet been considered? (Ranked on a scale of 1 to 10 where 1 = All negative impacts have been considered 10 = Other negative impacts need to be considered.)

Question: Please describe any other negative impacts that you think need to be understood if Option 3 was investigated further (free text)

Option 4 – Add spillway gates

Option 4 involves adding spillway gates to the primary spillway and maintaining the existing FSL.

The uncertainty in rainfall forecasts constrains the degree to which storage operators can confidently make pre-releases without either a) releasing water that cannot be replaced by subsequent inflows or b) worsening downstream flooding. Therefore, the concept design for this option was based on adding gates to the existing spillway (to minimise the cost), rather than lowering the spillway crest and using the gates to maintain the existing FSL.

In summary this option would:

Benefit

- Reduce the flood damages downstream by allowing the storage operators to reduce peak outflows during floods by surcharging the reservoir to levels higher than would otherwise occur with a fixed crest spillway.
- Maintain the existing reliability of water supplies for entitlement holders.
- Outside of flood events, maintain the existing volume of water stored in Lake Eppalock.

Negative impact

- Increase the flood damages upstream by increasing the number of recreational sites and buildings around Lake Eppalock that are inundated compared with current conditions due to surcharging the reservoir during floods.
- Have significant ongoing operation and maintenance cost and operational risks.
- Has the highest implementation costs of all the 5 options.

Question: Do you think there are other benefits that have not yet been considered? (Ranked on scale from 1 to 10 where 1 = All benefits have been considered 10 = Other benefits need to be considered)

Question: Please describe any other benefits that you think need to be understood if Option 4 was investigated further (free text)

Question: Do you think there are other negative impacts that have not yet been considered? (Ranked on a scaled of 1 to 10 where 1 = All negative impacts have been considered 10 = Other negative impacts need to be considered.)

Question: Please describe any other negative impacts that you think need to be understood if Option 4 was investigated further (free text)

Option 5 – Reconfigure spillways, by installing piano key spillways.

This option involves reconfiguring the primary, secondary and tertiary spillways – without reducing FSL or adding spillway gates – so that more storage at Lake Eppalock is utilised during floods. The method selected for investigation was the installation of piano keys on part of the primary spillway and all of the secondary spillway.

By adding piano keys either side of the central portion of the primary spillway, a slot could be created through which Lake Eppalock outflows below a given threshold would be ‘throttled’.

Once flows were above this threshold the keys would engage to increase the spillway flow and thus ensure dam safety is not compromised. Piano keys would also be required on the secondary spillway, and an erodible crest raise on the tertiary spillway, so that the frequency at which these emergency spillways are operating does not increase despite the changes to the primary spillway.

In summary this option would:

Benefit

- Reduce the flood damages downstream by storing more water in Lake Eppalock during floods.
- Maintain the existing reliability of water supply for entitlement holders.
- Outside of flood events, maintain the existing volume of water stored in Lake Eppalock.

Negative impact

- Increase the flood damages upstream by increasing the number of recreational sites and buildings around Lake Eppalock that are inundated compared with current conditions due to surcharging the reservoir during floods.

Question: Do you think there are other benefits that have not yet been considered? (Ranked on a scale from 1 to 10 where 1 = All benefits have been considered 10 = Other benefits need to be considered.)

Question: Please describe any other benefits that you think need to be understood if Option 5 was investigated further (free text)

Question: Do you think there are other negative impacts that have not yet been considered? (Ranked on a scale from 1 to 10 where 1 = All negative impacts have been considered 10 = Other negative impacts need to be considered.)

Question: Please describe any other negative impacts that you think need to be understood if Option 5 was investigated further (free text)

Question: Any Other Feedback? (free text)

Future contact

Question: The Lake Eppalock Technical Assessment findings will feed into the review of the Rochester Flood Management Plan. Would you like to be kept updated on the progress of the Rochester Flood Management Plan and Lake Eppalock Technical Assessment?