

Lower Limestone Coast Water Allocation Plan Review

Summary of information sessions held
during the review of the Lower Limestone
Coast Water Allocation Plan

Background:

The Limestone Coast Landscape Board develops and maintains water allocation plans as outlined in the *Landscape South Australia Act 2019*. The plans are developed with environmental, social and economic needs in mind and seek to ensure long term sustainability and security of the resource.

A water allocation plan for the Lower Limestone Coast Prescribed Wells Area was adopted in November 2013, which sets out the rules for managing and taking prescribed water. The Plan has been amended three times (2014, 2015 and 2019).

Under the *Landscape South Australia Act 2019* a water allocation plan must be reviewed on a comprehensive basis at least once in every 10 years. The purpose of the review is to evaluate:

- The principles in the plan
- The success of the plan considering the outcomes it sought to achieve
- Provide an assessment of whether the water allocation plan remains appropriate or requires amendment
- Assess or address any other matters prescribed by the regulations

Review of the Lower Limestone Coast Water Allocation plan commenced in 2022.

To find out more about the review visit: **Lower Limestone Coast Water Allocation Plan (WAP) | Engage Limestone Coast Landscape Board (lclandscapesa.com.au)**

In August 2022 the Limestone Coast Landscape Board formed a Stakeholder Advisory Group representing the diversity of community, environment, primary production and industry in the Lower Limestone Coast. The Stakeholder Advisory Group provides objective advice and recommendations to the Limestone Coast Landscape Board towards the sustainable use, conservation and management of water in the Lower Limestone Coast Prescribed Wells Area.

Purpose of information sessions:

The purpose of the information sessions was to provide stakeholder or interest groups from the Lower Limestone Coast the opportunity to contribute directly to the review process and broaden their understanding of the review and groundwater resource condition trends.

While there is an established Stakeholder Advisory Group, the Limestone Coast Landscape Board recognises that many other people have valuable contributions for the review that need to be considered.

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Summary of sessions

16 sessions were held with 280 participants in total.

- Energy and Mining
Wednesday 10 May 2023, 1.30 pm – 2.30 pm
- Forestry
Wednesday 10 May 2023, 4.00 pm – 5.00 pm
- Dairy
Wednesday 24 May 2023, 10.30 am – 12.30 pm
- Conservation and Environment
Wednesday 31 May 2023, 5.30 pm – 7.30 pm
- Cropping and Livestock
Thursday 29 June 2023, 10.00 am - 11.30 am and 2.00 pm – 3.30 pm
- Manufacturing and Processing
Thursday 6 July 2023, 9.00 am – 10.00am
- Horticulture
Thursday 24 August 2023, 5.00 pm – 6.00 pm
- Aquaculture
Monday 28 August 2023, 12.30 pm – 1.30 pm
- Intensive Farming
Monday 28 August 2023, 3.00 pm – 4.00 pm
- Zone 6A
Wednesday 30 August 2023, 4.00 pm – 5.00 pm
- Mid-South East Irrigators
Thursday 31 August 2023, 7.00 pm – 8.00 pm
- Community
Wednesday 6 September, 12.30 pm – 1.30 pm and 4.00 pm – 5.30 pm
Wednesday 13 September, 4.00 pm – 5.30 pm
- Viticulture
Tuesday 26 September 2023, 10.30 am – 12 noon

Key information

Rainfall, climate and latest resource condition trends

Rainfall, climate and resource condition trend information was presented at all sessions. The resource condition trend information can be found in a [full report for the Limestone Coast](#).

Observation well data

Some observation well data will be provided on the [Lower Limestone Coast Water Allocation Plan review project page](#).

Source data can be found on [WaterConnect](#).

Border Zone – The Border Groundwaters Agreement

The Groundwater (Border Agreement) Act 1985 came into effect in January 1986 to cooperatively manage the groundwater resources along the state border of South Australia and Victoria.

The Agreement establishes the [Border Groundwaters Agreement](#) Review Committee, with membership from both states, as the body responsible for jointly managing these groundwater resources in the two states within a defined area called the Designated Area. The Designated Area, a 40 kilometre wide strip centred on the border and extending for its full length, is divided into 22 Zones with 11 zones in each state.

The Border Groundwaters Agreement Review Committee [reports annually](#) on its activities.

Management area statuses and specific management area details

A new assessment of the risk to water resources in the Lower Limestone Coast was undertaken in 2019.

The methodology for the risk assessment was based on the Department for Environment and Water's Risk Assessment Framework, with input from the Stakeholder Advisory Group that was operating at the time. The Stakeholder Advisory Group recommended that the risk assessment be conducted by a panel of internal and external experts ('Expert Panel') to ensure the process was based on scientific evidence and not biased towards particular interests. The Stakeholder Advisory Group were involved in the development of the consequence criteria used by the Expert Panel throughout the risk assessment and in providing advice regarding resource condition limits.

The [2019 risk assessment](#) process identified three management areas that are at high risk (Coles, MacDonnell and Joanna), five management areas that were previously rated as high

risk and are now rated as low or medium risk (Short, Zone 3A, Frances, Hynam East and Zone 5A) and 53 management areas that remain at low or medium risk.

Groundwater modelling

Updated groundwater modelling to include a suite of subregional models that can answer specific management questions at a range of spatial and temporal scales are being developed. These models are:

- Mid-South East (Wattle Range) model (sub-regional)
- South Coast model (sub-regional)
- Upper LLC (Province 2) model (sub-regional)
- LLC regional model for the unconfined and confined aquifers

Sessions summary

Below is a summary for each session and the specific topics that were raised at each meeting. The responses provided are specific to the point of time of the meeting.

Energy and Mining

Management area risk statuses, in particular Joanna management area:

- What is the cause of the risk rating in Joanna?
 - Catastrophic consequences to GDE values in Joanna, including international and national values associated with Mosquito Creek (source catchment for Ramsar listed Bool Lagoon), nationally critically endangered Seasonal Herbaceous Wetlands, and national values associated with Deadmans Swamp, were possible. However, low confidence exists around the drivers of the declines and risk and therefore reductions were not applied following the 2019 risk assessment. Further investigations are being undertaken through the new Wattle Range subregional groundwater model.
 - **Summary of the risk ratings following the 2019 risk assessment.**

Groundwater modelling and data:

- The LC Landscape Board, in partnership with the Department for Environment and Water, are undertaking additional groundwater modelling in alignment with recommendations from the 2018 Science Review. Groundwater models are used to run different scenarios to understand what might happen in the future. Groundwater models will be critical in reviewing sustainable allocations and options moving forward.
- Visibility of science being undertaken is useful for energy and mining companies also undertaking groundwater science. Mining and energy companies may have useful data and scientific investigations that could support the review.
 - Once finalised groundwater models are available
 - Map showing groundwater model boundaries will be made available
 - As water allocations plans are statutory documents there are policies and procedures, set by the Department for Environment and Water (DEW), as to how science is developed to support a water allocation plan. All models are

being developed by DEW. All models are externally peer reviewed. All reports will be placed on **WaterConnect** when completed.

- Groundwater modelling timelines
 - In 2022 the South Australian Government invested an additional \$850,000 of accelerated funding to support the review. This has allowed groundwater modelling development to move forward at a greater pace and has also supported additional monitoring.
 - South Coast and Wattle Range models now done. Reports to be published shortly. Province 2 under construction (well on the way). Regional unconfined and confined have had an initial review in preparation for starting work on them – aiming for 2024 completion. Scenario testing is next step on from completing models although 2 base scenarios (best and worst case) are generally run for each model.
- Explanation as to why the groundwater models split the confined and unconfined aquifer. LC Landscape Board not best placed to answer this with DEW responsible for model development. Query will be referred to DEW.
- Can DEW provide a technical presentation to interested Energy and Mining representatives?
 - LC Landscape Board recognises that some industries have use and capacity for a greater technical understanding of the science, particularly industries contracting hydrogeologists to support development applications. Department for Energy and Mining work closely with DEW, this is likely the best mechanism for something like this to be facilitated.

Allocation and use:

What are the concerns around use being under allocation?

- Past risk assessment processes and when considering sustainability of the resource we consider that all allocation can be used. While there may be allocation that isn't being used technically it could be. Given current resource condition trends what might the impact of full allocation being used have on these trends? The LC Landscape Board does understand that there could be allocation that has a low probability of being activated but this is difficult to quantify. LC Landscape Board has a legislated responsibility to sustainably manage the resource.
- Confined aquifer, Kingston management area status and current declining trends - is allocation still not being used in Kingston?

- Kingston management area is over allocated but use is well under allocation. Additional modelling to determine sustainability of resource at different use levels was undertaken in 2015 and based on this a decision was made for no reductions unless the use reached a certain level, as per the principles in the water allocation plan. Extraction was considered acceptable at that point in time, impact was considered acceptable.
- Is cone of depression expanding in Kingston management area? LC Landscape Board didn't have this information on hand. Question will be referred to DEW.
- Are their known reasons for the declines? During 2001 to 2010 program was undertaken to cap wells in poor condition. Some stabilisation of declining trends was seen following this but declining trends are again being seen. Use of the confined aquifer in the Kingston area is higher than many places due to the unsuitable quality of the unconfined aquifer water.

Need for Plan to specify that mining allocation is sourced within sustainable allocation

- The current Plan specifically refers to the Water for Good Plan in relation to mining and requires "mining ventures to provide their own water supplies within the sustainable framework of natural resources management planning and regional water demand and supply plans". Shouldn't all industries have this requirement?
 - LC Landscape Board agrees – allocation for all purposes needs to fit within the sustainable framework and it is not clear why this was specifically outlined for mining but likely relates to the fact that the Water for Good Plan spoke directly to it.

Will there be any changes in exemptions from what is in the current plan?

- There is currently an exemption from requiring a water licence in the Plan in relation to a well for hydrocarbon exploration. The industry would seek to see this exemption remain.
 - The LC Landscape Board has made no determinations on what will and won't be amended and welcomes this feedback from the industry.

Clarity of the plan

- A greater use of plain English would make the Plan clearer and more useful, particularly to those new to interacting with it. Nuances of the Plan aren't immediately obvious, some things were perceived as possible but when further investigation into the Plan was done they were not. Would have useful for plain English approach to how water could be managed in the front section not just included in the principles.

- Some definitions and principles not overly clear, would benefit for being written more clearly. Lack of clarity between the front sections of the plan and what the principles ultimately say and allow.
- More clarity around water having to be returned to source aquifer for mining and how managed aquifer recharge relates to mining. Returning water back to the source aquifer is likely not practically possible for most mining operations (e.g. losses by evaporation), see no benefit for energy and mining with these principles of returning water.
- Clarity around whether mining could fit under an industrial licence.

Forestry

Resource condition trends:

- In some management areas where reduction to forestry allocations have occurred there are some increasing trends in groundwater levels but increase hasn't brought water levels back up to where they were.
- What mechanisms are there to take action in light of resource conditions trends?
 - There are no further principles in the Plan to undertake reductions. There are mechanisms in the *Landscape South Australia Act 2019* to apply restrictions to allocations. If the Plan was to be amended the LC Landscape Board would investigate mechanisms that respond to resource condition trends such as an adaptive management framework.
 - Has bringing together salinity and groundwater level trends been explored to see the impact they are having on each other?
 - There is an objective to maintain hydraulic gradient but nothing around seeing how salinity and groundwater levels might be linked.

Allocation and Use:

- When the water allocation plan was introduced irrigators got licences that were unused (holding licences). Whereas forestry was accounted for with what was in the ground at the time, forestry only got what they needed. If changes to allocations are needed this is an area where forestry will be hit harder than irrigators unless there is some sort of mechanism to compensate. This is a potential inequity.

- Holding licences were carried over through previous water allocation plans. They were not granted to irrigators under the current LLC Plan. Holding licences were also subject to reductions.
- Trees naturally adjust growth to how much water is available and this isn't taken into account.
- How are other non-licenced uses (stock and domestic, farm forestry) estimated?
 - The actual level of stock use is unknown. How stock use is determined is outlined in the current Plan. Stock use was determined by predicting the potential stocking rate in terms of Dry Sheep Equivalents (DSE), based on a potential stocking rate of 1.3 DSE per hectare for each 25 mm/year of rainfall which exceeds 250 mm/year. As a result, potential stocking rate per hectare is determined in the Plan as: Potential stocking rate per hectare = ((Annual rainfall in mm - 250 mm) / 25) x 1.3 DSE. Water use is estimated at 6 L/DSE/day. Across the 61 management areas in the PWA in the unconfined aquifer the stock water use is estimated at 44,000 ML/year.
 - Domestic use was estimated by subtracting the population of every town and city in the South East from the total population of 65,000 people, to determine an approximate number of people who reside outside the major towns and cities. This number was then divided by the number of management areas in the PWA and thus each management area averages 330 people. This was multiplied by 450 L of water use per day per person, which equates to 55 ML/year domestic water use per management area. For the 61 management areas in the PWA, total domestic use is estimated at 3,355 ML/year.
 - As at 2012 farm forestry in the lower South East comprised 6,950 hectares (5,115 hectares softwood and 1,835 hectares hardwood) and is therefore currently a minor land use. The Plan excludes farm forestry, as defined, from requiring a forest water licence.
 - "Farm Forestry" means, for the purposes of the Plan, commercial forest where the net planted area does not exceed, or will not exceed 10 per cent of the total area of the land described in a Certificate of Title or Crown Lease, or 20 hectares per Certificate of Title or Crown Lease, whichever is greater and is situated on a farm. For the purposes of the Plan, farm forestry does not include plantings for shade and shelter for stock or crops, natural resources management including soil and water protection, habitat conservation, landscape and amenity values.

Groundwater modelling and data:

- In 2022 the South Australian Government invested an additional \$850,000 of accelerated funding to support the review. This has allowed groundwater modelling development to be occurring concurrently and has also supported additional monitoring.
 - South Coast and Wattle Range models now done. Reports to be published shortly. Province 2 under construction (well on the way). Regional unconfined and confined have had an initial review in preparation for starting work on them – aiming for 2024 completion. Scenario testing is next step on from completing models although 2 base scenarios (best and worst case) are generally run for each model.

Border Groundwaters Agreement:

- What are the implications for forestry under the Border Groundwaters Agreement?
 - Forestry is not included in the Border Groundwaters Agreement. The agreement applies to all existing and future bores within the Designated Area except domestic and stock bores which are exempt from the Agreement.

Social and economic values:

- There is a need to be transparent about the impact of any amendments on social and economic values.
- Economic values can be distorted if urban is in the mix as well.
- Socioeconomic use can be thought of as town use
 - There is funding through National Water Grid Authority to undertake some work around the economic and social value of groundwater in the region. It will look at demand value of water for key industries and forestry will be included as one industry.
- There was work done on landscape values several years ago that will feed into socioeconomic use.

Dairy

Assurances around access to water is of critical importance to the dairy industry:

- The LC Landscape Board acknowledges that there has been uncertainty around the current plan and this is an improvement we would seek to make.

Impacts of drainage:

- Concerns raised that the water allocation plan only deals with part of the water account. Allocations can be looked at but there is plenty of water going out through the drainage system and this needs to be considered.
- Can the drains be modified to hold water in the landscape?
 - The Primary Producers Water Sustainability Group partnered with the LC Landscape Board to undertake a managed aquifer recharge study, funded by the South Australian Government's Landscape Priorities Fund. This looks at the feasibility of using water from the drainage network and the report will be available publicly soon. There are limits to how much we can do with the drains. As the region is very flat when you start modifying drains you can easily flood vast areas of land that you don't want to. The coastal areas, like MacDonnell is one place it is possible and is happening to secure water for wetlands. The LC Landscape Board is also undertaking some work funded by the National Water Grid Authority to look at adaptation of the drainage network. Some of this work has also supported looking at alternate water sources such as a trial being undertaken with SA Water to use waste water from the Fingerprint treatment plant to provide water to wetlands.

Condition of coastal wetlands – algal blooms:

- Will there be any review of wetlands of significance and the effect of bore locations and the impact of extraction from bores near wetlands. Recent algal blooms in spring fed drains along the coast are a real concern.

Data to support amendment:

- Resource condition trend data is currently available up to 2021, if amendment commences in 2024 will the most recent data be used e.g. up to 2023.
 - There are some challenges around water use data with Forestry reporting their annual water use returns on a calendar year (they are required to report by end of March annually) while other licenced uses work to a financial year reporting. But the most up to date data allocation and use will certainly be

used to support any amendment. Resource condition trend data presented is what is currently publicly available.

- Recommendation to source data from 1969 to 1971. There was a three year survey measuring drainage, rainfall, water levels. This could be used as something to benchmark against. Would be interesting to see what it was then and what it is now.

Allocation and Use:

- How much of the difference between allocation and use is holding licences?
 - There are some holding licences but they only make up a small portion of the unused allocation.

Resource condition trends:

- How is data collected from the observation wells?
 - Water levels are obtained by both manual and continuous loggers.
 - Where measurements are manual they are taken in a way that is consistent and repeatable, they are taken at the same time each year. They are checked in spring after winter recharge. The annual maximum level is used as this represents the unstressed or recovered water level following pumping each year for irrigation and other uses. The recovered level is used as it is a more reliable indicator of the status of the groundwater resource.
- Are the declining trends south of Mount Gambier hitting the trigger levels?
- This year the region is experiencing higher rainfall will the data be looked at after this?
 - Rainfall is clearly a significant driver of resource condition trends. But rainfall also interacts with extraction. Groundwater models will be used to test different scenarios (e.g. climate and water use). These models will use the latest available groundwater level data.
- Looking at the map of trends there appears to be a link between declines and drains and forestry. Is the allocation for forestry correct?
 - Forestry doesn't have a water meter to measure water use. An accounting tool called the deemed rate is used to determine forestry water use and recharge interception. The deemed rate is underpinned by a range of inputs including forest management practices. The Stakeholder Advisory Group has made a

recommendation to the LC Landscape Board Governing Body to review the deemed rate and this recommendation has been endorsed.

- Area of declines on the 30 year trend map along the border - what management area is this?
 - Zone 3A management area. They had a first round of reductions but the reductions schedule was ceased following the 2019 risk assessment where the management area moved from high to medium risk
- Is there any impact to forestry if water levels under plantations drop below 6 m?
 - All commercial forestry requires a water licence (with the exception of forestry that meets the principles of farm forestry). Where water levels are between ground level and 6 m below forestry requires water to account for direct water use and for recharge interception. Where water level are more than 6 m below ground level they only require water to account for recharge interception. Regrowth in blue gums (known as coppice) also requires that the forest company hold sufficient water to account for this. Whether a plantation required water to account for direct use and recharge or only recharge was determined by what groundwater levels were on implementation of the plan. This has not been changed since even if groundwater levels have changed.
- Forestry accounts for about 30% of the water account in the Lower Limestone Coast and have a diffuse impact not point source.

Seawater intrusion:

- The aquifer system is not a closed system (not a sealed bucket), at the coast groundwater naturally discharges into the coastal system. Unique to the coast is where groundwater and seawater come into contact. Seawater forms a wedge that sits under the groundwater. The depth of this wedge can be impacted by changes in the pressure created for increasing or decreasing water in the aquifer system. A risk to reducing pressure in the aquifer at the coast is that the seawater wedge rises up causing deeper bores to be in the seawater not groundwater. A decrease in depth to seawater might also be a risk to deeper groundwater dependent ecosystems.
- Salinity can also come through irrigation practices and there is salt in the soil.
 - Maintaining through-flow of the aquifer is important to preventing build-up of salt in the system.

- The LC Landscape Board is undertaking some aerial geophysics work funded by the National Water Grid Authority to map the seawater and groundwater interface along the coast. This will be used to identify areas where risk exists.

Confined aquifer:

- Like the unconfined aquifer the confined aquifer is not a closed system. There is some limited interaction between the confined and unconfined aquifer. For the purposes of the Plan we consider it as not be recharged. Recharge is occurring but at such slow rates that it is not dealt with given the timeframe of the Plan. Source of recharge is in Victoria and it can take thousands of years for the water to move through.
- Pressure may have increased in some areas such as Mt Schank
- Fractures can occur between confined and unconfined. Mining operations can be a concern to integrity of aquifer systems
- The Kingston management area of the confined aquifer is over allocated. Additional groundwater modelling was done in 2015 to look at how changes in use might impact the system. Given what use is in comparison to allocation a decision was made to not implement reductions unless use increases to a certain point, as per the principles in the Plan.

Management area risk ratings:

- What do the risk ratings mean?
 - There were a range of risk statements used to determine the risk ratings. In terms of MacDonnell management area the high risk is due to the impacts of extraction on groundwater dependent ecosystems. Extraction has been increasing in MacDonnell creating a seasonal pumping effect where groundwater levels drop lower than they have historically, temporarily disconnecting groundwater dependent ecosystems that should be permanent.
- Businesses in the region who undertake bore drilling say groundwater levels have not changed, how can these observations be taken into account?
 - The LC Landscape Board acknowledges that primary producers and other business are working in the landscape and making observations in relation to groundwater levels. However, as this Plan is a statutory policy document the LC Landscape Board has a responsibility to ensure the Plan is underpinned by the best available science and data that is peer reviewed, repeatable, credible and defensible.
- There are examples in other places (e.g. the Murray Darling) where government has undertaken strategic purchase of water to fill wetlands of significance. Is this

something that could be considered in the Lower Limestone Coast? Used to get water to wetlands in the months where they are short of water.

- The LC Landscape Board believes many different actions will be required to protect and ensure wetlands have the water they need but no decisions have been made in regards to this.

Recharge:

- What are the recharge numbers for the management areas?
 - Recharge numbers are available in the Plan, the number is different for different management areas. It is important to remember that large uncertainty exists around recharge. Recharge is good at giving a ball park figure but recharge constantly changes.

Zone 2A management area:

- Water licence holders in Zone 2A would be interested to understand the impacts of the reductions to groundwater levels. As a management area that took reductions it would be interesting to understand whether this has had a positive impact on groundwater levels. Groundwater levels in 2A are still showing some declining trends. There are no principles in Plan to undertake further reductions. The Minister has powers under the *Landscape South Australia Act 2019* to implement temporary restrictions to use.
- It was noted that when reductions occurred in 2A that this increased the value of water in the management area.

Return of reduced water allocations:

- If groundwater levels are now under control could water that was reduced on this Plan be returned in the next plan?
 - The current Plan has a principle in regards to the return of water that was reduced requiring that it be demonstrated that the sustainable level of allocation is greater than the specified allocation limit. Given current resource condition trends the LC Landscape Board does not see that it would be likely this could be demonstrated.
 - The LLC Water Allocation Plan is currently bundled. The direction from the National Water Initiative which is reflected in the *Landscape South Australia Act 2019* is for water allocation plans to be unbundled. Under an unbundled system allocation is not permanently taken but instead temporarily changed based on resource condition triggers.

- Concerns were raised about how this system works for groundwater and how changing allocations annually creates uncertainty.
- Concerns were also raised about how unbundling will work for forestry.
 - The LC Landscape Board acknowledges these concerns and these are challenges that still need to be worked through.

Inequity between industries:

- Concerns raised that industries wouldn't be treated fairly, that some industries would be prioritised above others, particularly forestry, they are viewed to be more important for the economy and will not be hit as hard by any actions, farmers won't be treated fairly. Forestry will keep planting trees and then don't harvest for many years whereas irrigators get impacted straight away.
 - Equally, others spoke to the economic importance of the dairy industry and this shouldn't be underestimated.
- Government has growth agendas for the state and businesses are trying to grow in response to this but then get the mixed message and there isn't water to grow.
 - The LC Landscape Board recognises the concerns raised about equity and the State Government agenda to grow. The LC Landscape Board commits to treating industries equally and has no prioritisation. The LC Landscape Board also supports the sustainable growth of industries but has a legislated responsibility to take a balanced approach and manage the water resource for industry, community and the environment.
- Industries have in the past sought compensation from government but been unsuccessful.

Border Groundwaters Agreement:

- Forestry have lost some plantation in the region, are they just going to go to Victoria and plant these trees along the border and still impact the aquifer resources?
 - The Border Groundwaters Agreement is an inter-government agreement that applies along the border of South Australia and Victoria. The purpose of the agreement is to manage groundwater resources along the border so that the states aren't negatively impacting each other. It does have a range of powers.
 - As it is inter-government agreement it takes an act of parliament in both states to make change.
- Only relates point source extraction, does not address forestry.
- Are cross border transfers possible?

- Not currently but are being talked about.

Farm forestry:

- Concerns raised about farm forestry sitting outside of the water licensing requirements, particularly given carbon drivers – should this be allowed?
 - The LC Landscape Board acknowledges that there are concerns around whether the farm forestry principles are sufficient or whether they should exist. The Stakeholder Advisory Group has raised this concern and made a recommendation to the LC Landscape Board to review this which the LC Landscape Board Governing Body endorsed.

Piccaninnie Ponds:

- Have any decisions been made and what will happen next?
 - Piccaninnie Ponds is still being investigated and further communication will come out when more is known.

Conservation and Environment

Key issues raised for the environment:

- Piccaninnie Ponds and the current issues occurring around the algal bloom.
- Loss of wetlands around the Penola area.
- Whether metering and monitoring are sufficient.
- Lack of anything being done around nutrients in groundwater:
 - Not clear who's responsibility this is and appears to be no ones.
 - Plan is silent on nutrients and deals with salinity regarding water quality. EPA has a role with nutrients but plan is silent on this.
- Condition and options for Bool and Hacks lagoons and cross border creeks.

Gaps in the Plan around monitoring environmental impacts:

- Is there a gap between the preparation of the plan and its implementation in terms of monitoring environment impacts?
 - LC Landscape Board acknowledges that the Plan includes monitoring that ultimately wasn't resourced to be implemented. This is an issue occurring across the state in water allocation plans where the need for environmental monitoring can't be met and is an ongoing discussion between the LC Landscape Board and the Department for Environment and Water.

Mechanisms to restrict use:

- The current Plan has no further principles to reduce allocations. The Minister has powers under the *Landscape South Australia Act 2109* to temporarily restrict allocations.

Management area risk ratings:

- Significant concern raised around the number of management areas sitting at a low risk rating and whether this is truly reflective of what is happening from a resource perspective and especially from an environmental perspective. With them sitting at a low risk this indicates nothing needs to be done and this isn't the case because the environment is suffering. Should the risk assessment be redone now as the risk ratings may have changed?
- Risk Assessments are open to interpretation and can change depending on who is undertaking it and it is a concern that such emphasis and weight is held on the risk assessment.

- The public perception of only 8 management areas having a status of medium and high risk and the other 50 odd management areas are low risk sends the wrong message to the community and the government and politicians that the resource is in good condition and there is nothing to worry about.
 - The LC Landscape Board acknowledges there have been challenges about the role and process of the risk assessments for this Plan and welcomes these concerns being raised. There is no intent to run a risk assessment at this point. The LC Landscape Board believes the role and process of risk assessment needs to be reviewed and for the purpose of the evaluation there is sufficient data and evidence to support the process.
- The risk assessment has not been effective in delivering the Plan's objectives. An adaptive management framework would be of benefit in an amended plan.
- The risk assessment is not representative and sends the wrong message.

Ramsar:

- The region has two Ramsar wetlands, one is closed due to algae and the other has no water – can we get better standards to aspire to? Need something more than what we're doing now.
- Are Ramsar values and condition requirements included in the water allocation plan?
 - Ramsar values are not included in the current plan nor are the conditions that Ramsar set. This feedback will be included and consideration given to how Ramsar values and the Plan interact.

Allocation for the environment:

- Is there an allocation for the environment in the current Plan and if not could this be considered?
 - The Plan nominally reserves 10% of recharge for the environment but there are management areas where it is less than this. Outside of this there is no allocation for the environment. These are new ideas that can be considered in amending the Plan.
- A lot of the 10% that was for the environment is not reaching the wetlands, this idea that there is 10% for the environment is flawed.
- There is no margin of error with 90% for industry and 10% for environment.

Success of Plan in regards to the environment:

- The Plan hasn't given the environment a chance.
- In reality very few wetlands are included in the Plan and at the time of creating the current Plan there was pressure to reduce the number. More need to be considered.
- The 13 priority wetlands are complexes so include more than 13 wetlands. These were not the canaries in the coal mine and groundwater was already developed in these regions and so the policies did not have the impact or could not have the impact that was necessary. In the amendment of the Plan better protection is required for these 13 wetland complexes and the 267 wetlands of high or very high conservation value.
- Protection principles in the Plan have done little to protect wetlands. Some of the protection principles still allow declines that negatively impact wetlands. Should the hydro assessment allow GDEs to decline? It should be only allowing for no decrease in groundwater level.
- Could the setback be greater for forestry?

- Plan is not clear on how it was going achieve what it said it would for the environment, needs more clarity and be clear on how it can be achieved.
- Plans we produce often don't go well. This Plan has been a failure for environmental water. If it continues the same way it will fail industry as well.
- We need to be aspirational in setting targets and not accept incremental decline.
- Environmental impacts from groundwater declines are broader than just wetlands, having impacts to paddock trees.
- There is no margin of error for how the water has been allocated and there is no way of adjusting for changes to recharge from rainfall.

Drains

- Plan should have included discharge via drains.
- Is there a mechanism to reduce extraction if extraction is causing seawater intrusion to intrude further into the landscape and causing issues?
 - The current Plan has no further principles to reduce allocations, the Minister has powers under the *Landscape South Australia Act 2019*.
- Drains have impact and are opportunity for recharge.

Environmental monitoring:

- What monitoring of wetlands is in place?
- Likely to never have enough resources to monitor as many wetlands as we would like.
- Discharge at coastal springs should be included in the Plan as a principle for management.
- Wetland monitoring - What do we have and will there be more? The monitoring for wetlands and surrounding groundwater could be seen as a failure.

Border Groundwaters Agreement:

- Cross border groundwater issues between Victoria and South Australia are governed by the Border Groundwaters Agreement which is the superior legislation. There is inequity in it with forest licensing between states different.

Cropping and Livestock

Resource condition information:

- Will any amendment use the latest data?
 - Yes, when amendment is worked through the most recent science and data will be used.
- How often do you monitor the groundwater observation wells?
 - Water levels are obtained by both manual and continuous loggers
 - Where measurements are manual they are taken in a way that is consistent and repeatable, they are taken at the same time each year. They are checked in spring after winter recharge. The annual maximum level is used as this represents the unstressed or recovered water level following pumping each year for irrigation and other uses. The recovered level is used as it is a more reliable indicator of the status of the groundwater resource.
- There is a need to consider what acceptable declines are?
 - Acceptable impact is a very important consideration and other water allocation plans that we're working on are moving to this idea of acceptable impact. But this will be a challenging concept to work through as views will differ on what is and isn't acceptable.
- At what point do we get to irrigators getting a cut in irrigation levels?
 - No decisions are being made about allocations at this time. What the LC Landscape Board takes away from these resource condition trends is that we need to understand more about these declines, are they looking like they'll continue and what does this mean for various uses, from wetlands, to stock and domestic to irrigators. It is clear to the LC Landscape Board that we need to look at sustainable allocation with the new groundwater models available to us to better understand what is happening with the resource.
- Is there going to be anything in the holding licence and the development of those? There are people holding water licences that do not even own the land (e.g. have sold the farm but have not sold water licence).
 - No decisions have been made in regards to holding licences but they don't make up a large volume of the unused water.
- Will forestry be managed the same as other industries?
 - There are unique elements to forestry that have meant they have needed specific principles to in order to administer water licencing for forestry. The LC Landscape Board commits to treating industries equally and has no prioritisation but also recognises there are unique requirements of many industries that need to be understood and considered.

Groundwater dependent ecosystems:

- Who review GDEs and whether they are actually present in the landscape? Zone 5A is an example of a management area that has GDEs listed but you can't find them if you actually go looking for them.
 - The LC Landscape Board recognises the concerns from water licence holders around GDEs. The LC Landscape Board is undertaking some work around GDEs and recognises there is a need to consider GDEs in light of a changing climate.

Reductions to allocations:

- Are there any further reductions planned for the Short management area?
 - Irrigation reductions for Short have been discontinued. There are reductions for forestry on hold in relation to 2017 clearfell. This process will need to determine an outcome for these reductions.
- Are livestock irrigators being impacted because blue gums have come in to the region and taken the water?
 - There are many factors impacted groundwater condition trends. This includes changes in climate and rainfall but also changes in land use. The expansion of blue gums certainly had an impact on groundwater levels. But all extractive uses are impacting each other.
- Are water licence holders who have been impacted by reductions being compensated? There are other industries where loss of licence is compensated.
 - There was no compensation for those who have taken reductions.

Water use:

- How do forestry measure their water usage - is it the same as licensees?
 - Forestry doesn't have a water meter to measure water use. An accounting tool called the deemed rate is used to determine forestry water use and recharge interception. The deemed rate is underpinned by a range of inputs including forest management practices.

Monitoring

- Is there an increase in monitoring bores in the Coles / Spence area?
 - There have not been additional monitoring bores placed in Coles or Spence.

Allocation, use and licences:

- Is it possible to see a breakdown of allocation and use per management area?
 - LC Landscape Board will explore what data we can provide.

- If you have an allocation converted from a holding allocation to a taking allocation is there any consideration for asking for the allocation back? Or rewarding licence holders for not using water?
 - There isn't anything under the current Plan but these ideas can be considered.
- Is there any incentive for flood to be converted to spray irrigation?
 - The Plan has some principles that prevent trade and transfer of flood but don't ultimately seem to have reduced the amount of flood. Flood might be a better option for those needing to flush salts or those in areas where native vegetation can't be cleared for pivot infrastructure
- Is anyone seeing an increase in outside licence holders purchasing water licence when they have no connection to agriculture or primary production in the region?
 - Not that the LC Landscape Board is aware of.
- Is this Plan bundled or unbundled?
 - The LLC Water Allocation Plan is currently bundled. The direction from the National Water Initiative which is reflected in the *Landscape South Australia Act 2019* is for water allocation plans to be unbundled. The LC Landscape Board will need to consider this in the review of the plan.
- What is stopping people not owning land buying water licences? In an unbundled situation, can someone buy a licence not attached to land?
 - One of the aspects of unbundling is detaching water from being linked to land. There is nothing to prevent someone purchasing water without land. But having the water doesn't automatically give them a right to extract that water. There are principles and conditions in place that need to be met before the water can be taken.
- Why is the current legislation unbundled? Why would we not seek an amendment to the legislation? How will you correct the fact that people have purchased licences and have not land attached?
 - Owning water and having the ability to extract that water are different. Just because someone owns water doesn't mean they have a point of take for that water. Where water is extracted from matters in a groundwater system and partial unbundling can be used to ensure the need for a point of take.

Farm forestry:

- Recent information from carbon meetings suggested 20% of a farm should be allocated towards building organic carbon—how do we navigate in regards to principles for farm forestry, particularly if these principles can change?
 - Plantings for biodiversity don't fall under farm forestry. Farm forestry does not include planting for shade and shelter for stock or crops, natural resources management including soil and water protection, habitat conservation, landscape and amenity values.

- Titles alongside each other don't follow soil type, they follow the title line which is not particularly useful when considering farm forestry.

Border Groundwaters Agreement:

- Is there any alignment between the management planning / usage between Limestone Coast and Victoria?
 - Cross border groundwater issues between Victoria and South Australia are governed by the Border Groundwaters Agreement which is the superior legislation. The Border Groundwaters Agreement is an inter-government agreement that applies along the border of South Australia and Victoria. The purpose of the agreement is to manage groundwater resources along the border so that the states aren't negatively impacting each other. It does have a range of powers.

Return of allocation that has been reduced:

- Can the reductions to 5A be revisited and could the water be returned?
 - The current Plan has a principle in regards to the return of water that was reduced requiring that it be demonstrated that the sustainable level of allocation is greater than the specified allocation limit. Given current resource condition trends the LC Landscape Board does not see that it would be likely this could be demonstrated.
 - There is currently an insufficient evidence base to demonstrate that the sustainable limit is greater than current allocation.
 - The LC Landscape Board recognises that there have been concerns in regards to the original risk assessment and that improvements were identified in the 2018 science review but this does not result in the return of water.

Uncertainty in weather in climate conditions:

- Weather predictions aren't always right, weather is variable, how can we rely on these predictions?

Monitoring network:

- Is it possible to use farmer's bores not just the observation well network? Some of the readings from the observation well network are impacted by extraction in the area.
 - It can be possible. Consideration is given to surrounding land use when looking at the trends seen in observation wells.

- Have new observation well locations been determined in consultation with landholders?
 - The Department for Environment and Water are responsible for the state wide monitoring network and determining the location of observation wells. Of particular consideration is the groundwater modelling and where gaps in data might be. We are not aware that they choose locations in consultation with landholders.
- It would be good to expand monitoring in areas where new mining claims are appearing.

Recharge opportunities:

- There has been a lot of emphasis placed on controlling and measuring the aquifer but there are significant opportunities to recharge the aquifer. In wet years with excess water there could be schemes developed to see that water returned. There needs to be a greater focus on recharge opportunities.
 - The LC Landscape Board agrees that there are some recharge opportunities in the region and is undertaking a range of work to explore the extent this opportunity presents. The Primary Producers Water Sustainability Group partnered with the LC Landscape Board to undertake a managed aquifer recharge study, funded by the South Australian Government's Landscape Priorities Fund. This looks at the feasibility of using water from the drainage network and the report will be available publicly soon. There are limitations but the LC Landscape Board agrees there are some opportunities.
- Can bores be used to drain water back into the aquifer?
 - Drainage bores do exist and can be put in but there is complexity in this process for example in meeting water quality requirements.

Unbundling:

- Will unbundling be considered?
 - The LLC Water Allocation Plan is currently bundled. The direction from the National Water Initiative which is reflected in the *Landscape South Australia Act 2019* is for water allocation plans to be unbundled. The LC Landscape Board will need to consider this in the review of the Plan.

Kingston Management Area (confined aquifer):

- Is there a plan for the Kingston management area?
 - It is over allocated, currently stable, have not met threshold, additional modelling done in 2015 is being looked at again.

Manufacturing and Processing

Mechanics of carryover:

- For businesses with highly variable water use how does carryover work? If use is low one year can you bank it for another or multiple years?
 - A water licence holder is entitled to take (in addition to their annual allocation) a volume of water known as a carry-over. It is equivalent to the unused volume of allocation at the end of the preceding water use year, or 25% of the licensee's annual allocation for the preceding year, whichever is the lesser. So the maximum you can carry-over is 25% and it can't be carried over multiple years, there can't be an ongoing banking of water.

Allocations:

- Does the Board envisage that allocation will be increased or decreased with the amendment of the Plan?
 - No decisions have been made in regards to allocations. But based on resource conditions trends the LC Landscape Board sees a need to re-evaluate what sustainable allocation is. Using modelling and latest data we will be able to run scenarios to look at future groundwater condition trends.

Horticulture

Impact from other industries:

- Does the Plan take into account the impact from forestry?
 - The Plan is accounting for blue gum and pine plantations, both in what they directly extract and what recharge they intercept. The accounting for forestry water use is very different and perhaps not well understood.

Connectivity between confined and unconfined aquifers:

- Is there connectivity between confined and unconfined aquifers? Is there reduced pressure in the confined as water levels are declining in the unconfined?
 - There have been studies that have looked at connectivity between the confined and unconfined aquifers. There are places where there is known to be some connection and leakage between the aquifers.

Risk assessment:

- When will the next risk assessment be run?
 - No plan to run a risk assessment in this evaluation stage. There will be a process to review and reconsider the risk assessment and its role. If another risk assessment is run it would occur closer to when the Plan will be introduced.

Rotational crop principles:

- How much are these principles used?
 - Mostly try to avoid the need to use them as it is administratively difficult to achieve e.g. passing the hydro test. But principles are still needed as there are times when they need to be used. Industry wouldn't want to see these principles removed.
 - Mainly an issue for people who are near a boundary or straddle a boundary, principles can be important in these instances.

Aquaculture

Support for aquaculture industry:

- No demonstration from the State Government that it supports aquaculture in the region. Businesses are closing, industry has been reduced because it is too difficult and expensive with the cost of the water licence among many other things. It is disappointing and the industry needs support.

Volumetric conversion:

- Concerns over how the volumetric process was undertaken.
 - Some had their pumping allowance reduced.
 - Data was taken during drought when bores was going dry, not reflective of average conditions.
 - In an aquaculture setup all water used stays on property, only a very small amount is lost to evaporation. There is no acknowledgement of this, there should be a mechanism to recognise the contribution made back into the aquifer.
 - Water used from the aquifer is not as important as what is happening with recharge.

How the process is undertaken:

- Antagonism through last review towards farming community due to lack of understanding. Staff should be going out and cooperating instead of telling people what to do.

Impacts of drainage:

- There has been a long call for putting weirs in drains in the region so it has chance to get back to the aquifer, this is something that should be implemented.

Intensive Farming

- Resource condition trends were of interest along with allocation and use.
- Exemption from reductions for the purpose of use of intensive farming was important.
- There are significant limitations on trade and transfer in small management areas coupled with the border zone.

Frances and Bangham (Zone 6A)

Current use and resource condition:

- Not using as much water now as previously have in the past due to changes in land use, now irrigating for a bit of cereal, using more for drought-proofing than anything and it has been wet in recent years. Expecting to see resource condition being stable and the potential to get full allocation back.
- Reductions occurred in the Frances management area in 2016.
 - It was acknowledged that Frances management area underwent reductions to allocations in 2016 in line with the reduction schedule in the Plan.
- Is there observation well data further back in time (e.g. back to the 1940's) and rainfall data?
 - There is a substantial rainfall record, including that far back. In terms of observation well data, there is very little observation well data back that far and particularly in this area. There is some observation well data back to the 1920's in the Mount Gambier area but typically observation well data starts earliest in the 1970's.
- There is a slight increase in groundwater level around 2016/17 in one of the observation wells shown – is this due to the Morambro recharge program?
 - Not clear what that change in groundwater level would be attributed to, the LC Landscape Board will look further into the Morambro recharge area.
- Could water buybacks like what occurs on the river be something that could be applied in this region?
 - No decisions have been made in regards to mechanisms like this.

Drainage bores:

- There is a considerable number of drainage bores in this region – some properties have dozens. Would have expected to see some impact in the observational wells from the drainage back into the ground from these bores. There is a belief in the area that groundwater levels are good and potentially rising due to the water returning from the drainage.
- It was noted that while many of these drainage bores are registered and can be viewed in WaterConnect a considerable number are likely historical bores and not recorded.
- The area gets very wet in winter, quite flat landscape that holds water and potentially a clay layer involved so water is drained off the land through the drainage bores.

- Can they get credit for the drained water back into the aquifer?
 - There currently isn't a mechanism in the Plan to provide credit for the water being drained through this drainage bore system. Observation well data doesn't reflect that water making it back into the aquifer.
- Can recharge through drainage bores be measured? It was noted that one drainage bore had been running for months and the land owner estimated to have had GL going down it.

Salinity:

- No salinity issues have been identified in the area, though land owners noted that there are local variations in salinity – Morambro has high salinity 2100 ppm nearer Conkar Road to ~1100 ppm. Morambro are thought to be saltier because no drainage bores in the area to freshen it up.

Border Zone:

- If the aquifer is recharged in Victoria and they're not using it why can't we use it?
- When the water gets to SA it is past them – why do they have a say in how much we use?
 - The Border Groundwaters Agreement is an inter-government agreement that applies along the border of South Australia and Victoria. The purpose of the agreement is to manage groundwater resources along the border so that the states aren't negatively impacting each other. It does have a range of powers. The *Border (Groundwaters) Act 1985* is the superior legislation.

Trade and transfers:

- Not a lot of transfers happening. Frances is a very small management area, not clear why water can't be moved anywhere within Zone 6A, rather than being restricted to Frances.
- Trades are quite the process, hydro test has prevented some and border zone seems to be limiting.

First Nations involvement in the process:

- What about Indigenous people in the region - are they concerned about our water? Will they be included in the process? Do they want things like Lake Cockatoo filled all the time, if it's a dry year how can that happen?
 - The LC Landscape Board will be including First Nations in the process. The LC Landscape Board has been having an ongoing water conversation with the South East Aboriginal Focus Group and Burramies Aboriginal Corporation since commencing the review of the Padthaway Water Allocation Plan. The LC

Landscape Board intends to continue this conversation and build First Nations understanding and involvement in the sustainable management of water resources.

Mid-South East Irrigators

Review process:

- Will stakeholders see amendments before they go to Minister? If stakeholders don't then it's too late.
 - No amendments are being proposed in this evaluation stage. This stage is about determining whether amendment is required and the evidence that supports that. A version of the evaluation will be made publicly available. The Minister will be provided with a report recommending or not recommending amendment and the reasons behind that. It won't speak to actual amendments to be made as we won't look at this until we know if amendment has been endorsed by the Minister.
- How long will the amendment process take? It creates uncertainty for licence holders.
 - The LC Landscape Board recognises that review creates uncertainty and is committed to running a timely process. However, amendment will take some time as we need to ensure we allow sufficient time to bring proposed amendments out to water licence holders, get their feedback and then come back out and discuss them again. This will take time and we suspect amendment will take at least a couple of years.
- What are the LC Landscape Boards gut feel around issues that the Plan might have?
 - The LC Landscape Board and Stakeholder Advisory Group have identified some areas that may need exploration under amendment. Some of the key elements the LC Landscape Board are considering are:
 - Sustainable allocation – given resource condition trends have we got the sustainable limits in the Plan right.
 - Whether the Plan has a sufficient and meaningful adaptive management framework in it.
 - Whether the Plan sufficiently consider the impacts of a changing climate.
- Why does the LLC Water Allocation Plan cover such a big area compared to the other water allocation plans in the Limestone Coast?
 - It is not clear how the decision on the size of the prescribed well area was made.
- Will stable areas showing stable resource condition trends be impacted by management decisions being applied to those in areas with declining resource condition trends? Who sets the goals of reduction actions?
 - No decisions are being made around management actions needed, this would occur if the Plan went to amendment. If amendment is required and management actions are needed to sustainably manage the resource the LC Landscape Board sees a diversity of management actions will be required, that

different actions will be needed in different place and we need to be very clear and transparent about what outcomes we want from those management actions. The LC Landscape Board wouldn't seek to impact an area with management action if it didn't achieve an outcome.

- Could amendment to the Plan change the types of meters water licence holders are required to have?
 - The Plan doesn't determine the technical specifications for water meters. Some specifications are outlined in the water regulations with the Landscape South Australia Act 2019 and otherwise they are determined by the Department for Environment and Water. This process will not create change around meter requirements.

Resource conditions trends:

- How is observation well data collected?
 - Water levels are obtained by both manual and continuous loggers
 - Where measurements are manual they are taken in a way that is consistent and repeatable, they are taken at the same time each year. They are checked in spring after winter recharge. The annual maximum level is used as this represents the unstressed or recovered water level following pumping each year for irrigation and other uses. The recovered level is used as it is a more reliable indicator of the status of the groundwater resource.
- Is the data cross referenced with extraction? This process could be used to identify leaking bores.
 - Both observation well information and extraction data are kept but the LC Landscape Board does not know if the Department for Environment and Water undertake a process to attempt to identify leaking bores. Question will be referred to the Department.
- There are impacts of changes in pressure in the unconfined (e.g. due to groundwater level declines) on the confined aquifer. There are also differences in barometric pressure that can impact confined aquifer observation well records.
- Reasons for improvements in confined trends in southern area of LLC?
 - There are some areas of the confined aquifer that have been studied where it is known there is some interaction or connection between the confined and unconfined aquifers.
- Does the time of observation well data collection vary based on how the season is actually playing out (e.g. on the ground autumn and spring can be very different year on year) or are they set dates in Autumn/Spring? Actual seasonal variance could impact readings e.g. when irrigation actually starts on stops.

- Timing of readings is not altered based on annual seasonal variation. Some notes are recorded against readings including if irrigation has recently been occurring.
- Observation well data would be better displayed as a bar chart.
 - Presentation of the observation well data on the slides is consistent with how groundwater levels are presented in technical reports.
- If there is an unusual reading in an observation well (e.g. an unusual drop) is this being logged for follow up, it could be indicating a bore that is leaking.
 - There are sometimes notes recorded but this question will be referred to the Department as to whether there is a formal process to note and follow up on observation well readings that may indicate that a bore is leaking.
- Is the spring or autumn reading more important as an indicator?
 - The trend is what is really important but the recovered level is considered the more reliable indicator of the status of the groundwater resource.
- Confined aquifer data – if you go back further and what does it look like?
 - The age of observation wells is different across the prescribed wells area. Some go back to the 1970's but some are more recent bores and we don't have records any further back in time.
- There are a lot of different things that could be impacting or creating variance in observation well readings e.g. screens blocking flow.
- From the graphs and trends shown Bowaka area looks to be remaining stable/robust.
- 2017-21 is not very long for data, it isn't a long term trend.
 - The 2017 – 2021 shows the recent short term trend for the observation wells. In addition there are the 30 years trends from 1987 – 2017. Groundwater modelling can also be used to look forward at what the recent short term trend (2017 – 2021) might do moving forward under different climate scenarios.
- Unconfined observation well readings - when they are they taken?
 - The trends are shown based on spring data.
- How have the forestry reductions occurred in Coles/Short blue gums?
 - For forestry, they take the reduction when they undertake clearfell in a management area that is undergoing reductions. When they report annually this includes clearfell undertaken and if a reduction is required they will then take that equivalent to clearfell and are not able to replant that plantation.
- The decline in the Mount Benson area would align to forestry and, viticulture establishment 1990-2004, and perhaps horticulture.

- Is Mount Benson fully allocated?
 - Mount Benson is nearly fully allocated, very close to.
- Why are there additional bores/more monitoring in the southern area of the Lower Limestone Coast?
 - Reflection of the intensity of allocation and use in these areas. Tends to be more monitoring in areas of higher use.
- How/who collects the observation well data? Given decision are made based on this data it needs to be accurate.
 - Staff in the Department for Environment and Water are responsible for collecting the observations. There are some observation wells that have telemetered loggers that collect real time data and these can be viewed at Water Data SA (www.water.data.sa.gov.au). All data is publicly available on WaterConnect (www.waterconnect.sa.gov.au). There is also a project looking to increase the number of telemetered loggers across the state over the next 5 years which will improve the access to data.
- Could the licence fee invoice come with relevant condition trends information?
 - The LC Landscape Board agrees that these are improvements that could be made to ensure that licence holders better understand the condition of the resource throughout the life of the Plan, not just at time of review. This is something being looked at for the Padthaway Water Allocation Plan.

Impacts of drainage:

- What effect have the drains had on groundwater trends? Are there any consequences for this area from the drain water diversion (SE Flows)?
 - Drainage has had and does continue to impact groundwater levels. In some places the drains are playing a critical role in moving salt out of the environment.
 - There are water commitments to the Coorong from the upper south east drains.

Water quality:

- Is there a possibility of including water quality in the Plan? We have seen iron issues in Mt Benson/Wangolina similar to what has been seen at Coonawarra.
 - Salinity is included in the current Plan but no other water quality measure. However water quality, such as nutrients has been raised elsewhere. We acknowledge that other organisations play a role in water quality such as EPA but take the feedback that the Plan may be able to do more.

Costs of a water licence

- Is there any expectation that the increase in licence fees will have an impact on licence holder behaviour or lead to surrender of water licences?

- We don't expect to see any change in behaviour or increased surrender of water as a result of CPI increases to water licence fees.

Unused allocation:

- Unused allocation is unlikely to be accessed/activated and therefore there should not be an overemphasis on what this water being activated might mean for resource conditions. There are limits such as land use capability, investment required and impact of land prices that are holding usage where they are.
 - The LC Landscape Board recognises that there are a whole range of factors that are contributing to why allocation and use are so different and these vary across the prescribed wells area. However, it is not possible to quantify how much might or might not be used, particularly over the life of the Plan as so there is a need to consider use at full allocation as a possible scenario.
- Will allocation into the future be based on declining trend areas?
 - No decisions are being made on allocations at this time. The LC Landscape Board sees that there is a need to ensure we understand what sustainable allocation is but in terms of what allocations might be there are many things that need to be considered including acceptable impact.

Community (online)

Border Zone:

- How is the Border Zone involved in the review process? Is it included in modelling scenarios?
 - The Department for Environment and Water is undertaking a range of modelling work some of which crosses into Victoria. The modelling is predominantly being used to support this review process but the Border Groundwaters Agreement Review Committee is regularly updated on what modelling is occurring and when relevant will be used by the committee. The Province 2 model which has just recently started does have particular interest from the Border Groundwaters Agreement Review Committee.
 - The work the LC Landscape Board has done through airborne electromagnetic data acquisition did cross into Victoria and may have interest around the Glenelg estuary and related Ramsar wetlands.

New knowledge:

- We have a greatly increased knowledge of climate. Is there a need to reduce allocations? If there is are we going to include reductions and if so will there be political will to implement those reductions? The graphs show steady decline over millennium rather than variations suggesting it is rainfall decline and hard decisions need to be made.
 - The LC Landscape Board is not making any decisions around allocations in this stage of the process. We acknowledge that reductions have significant impacts on industry and so these processes are highly controversial. At this point we think we need to better understand what resource condition trends will do moving forward under different climate scenarios and reconsider what sustainable allocation is. From this we would look at a suite of management actions that might need to be implemented.

Community (Mount Gambier)

Environmental allocation:

- Environment is not listed a purpose of use, does this mean it doesn't get an allocation?
 - The purposes of use relate to the purposes that a water licence can have. Environment does get an allocation but it is not licenced, similar to stock and domestic, it is accounted for in the water balance. The allocation in the current Plan for the environment is 10% of recharge.

Management areas:

- Are the management areas the same as hundreds, are they hundred based?
 - The management areas are very similar to hundreds but in places do not align.

Reductions to allocations:

- How were reductions allocated across the different industries? Did forestry receive a buffer to reductions? The 30 year resource condition trend map shows those areas where forestry have reduced groundwater levels.
 - Reductions to allocations were spread evenly across industries. For example if a management area required a 50% reduction to allocations that was spread evenly across licence holders, including forestry. The key difference is how allocations were taken. Water (taking) licences (e.g. irrigators) took their reductions on a set schedule. Forestry take their reductions on clearfell. When they report annually they report clearfell and if it occurs in a management area undergoing reductions they take a reduction to their allocation and can't replant that portion of plantation.
- How did forestry get a reduction if before 2013 they didn't have water?
 - On the implementation of the Plan forestry received water required to cover the plantation that they had. Reductions were then applied which started to take back that allocation as they undertook clearfell.
 - Forestry water allocation can be thought of similar to what irrigation allocation was before volumetric conversion. Forestry got a certain amount of water to cover the hectares of plantation based on an accounting tool called the deemed rate. The deemed rate takes into account a range of science around how trees use water and intercept recharge and different silviculture practices to determine plantation forestry use.

- Do forestry allocations take into account groundwater levels?
 - Forestry receive an allocation of water based on recharge interception. In places where groundwater is deeper than 6 m that is the only allocation they required. If groundwater is shallower than 6 m they also need an allocation to account for trees directly extracting water.

Allocations:

- There is no encouragement to conserve the water. Water licence holders are charged based on allocation not what they use. When people don't extract all their licence they are conserving/holding water for the environment or future generations but there is no incentive for this. Is it now possible to track actual use so why not charge based on use, then people will be more efficient. Water costs should be by use not allocation.
- A lot of operators will be frugal as it costs a lot to run irrigation. Needs to be some incentive for people to conserve their water.
- Water licence should only have to pay for what they use, not their full allocation.
- Use is roughly 50% of allocation, what happens if people start using more water (activating it). We need to manage that risk.
- Can allocations be changed?
 - An amendment of a water allocation plan can change the allocation. This is not part of the evaluation phase that we are in now.
- Has there been any consideration from the Board on reimbursing water users who don't use their full allocation?
 - No mechanism to do this under the current Plan, we take that feedback on board.
- Can unused allocations be taken back? Could be a use it or lose it approach. And if so can future people get water back if they then needed?

New knowledge:

- Is there a cut off time after which new science can't be introduced?
 - The LC Landscape Board partners with the Department for Environment and Water to deliver the science that underpins water allocation planning. Science used to support the Plan needs to meet a range of requirements to be considered. Some of the groundwater modelling work will continue through 2024.

- Is there sufficient resourcing to do the science and monitoring needed? Based on what is happening at Piccaninnie Ponds clearly not enough funding to support what's needed. It's not just an environment issue, resourcing of science and monitoring affects everyone.
 - The LC Landscape Board has worked with the Department for Environment and Water to secure an additional \$850,000 to support this process and the LC Landscape Board is also budgeting annually to support the work. We recognise there is always more that can be done but need to focus on having the right science and monitoring to support the management actions that are required to sustainably manage the resource.

Resource condition trends:

- Will there be any rainfall graphs in the presentation to show what rainfall has been doing? Rainfall is not consistent across region or from place to place.
 - A rainfall graph was not provided in the presentation but it is an important point when it comes to sustainably managing the resource – rain doesn't fall consistently from place to place which also means how much water is making it back into the aquifer is also highly variable. This is one of the challenges in the current Plan as to whether we have the recharge number right.
- What consideration will be given to the landholders who can demonstrate a net contribution of water to the aquifer? What consideration is given to farmers who do contribute e.g. runaway holes.
 - The LC Landscape Board is aware of places where runaway holes may play a role in resource condition and where known they are modelled. The LC Landscape Board takes this feedback on board.
- Can a map be provided to see bores where water isn't fit for purpose e.g. too saline. Is it relevant to include the bore if the water is not fit for purpose as it won't be used?
 - We don't see it as appropriate to exclude those bores, the whole observation network provides a picture of the resource condition trends. All levels are important when giving consideration to maintenance of the hydraulic gradient.
- There was a well rehabilitation project in the Bowaka area where confined wells were leaking – what is the outcome of this on observation well data
 - Bores that were monitored prior and after the rehabilitation scheme do show the recovery following the program. The more recent declining trend is very slight and that could be those wells finding a new level post rehabilitation.
- Does groundwater modelling account for if people used their full allocation?

- Yes, one of the scenarios that can be run with the modelling is allocation being fully used.

Other planning:

- The Regional Plan for the Limestone Coast is now being undertaken, how will this plan feed into the process?
 - LC Landscape Board is aware of this process. It could be a question of timing of the two processes but this will be kept in mind.

Community (Naracoorte)

Resource condition trends:

- How much have groundwater levels declined where they have recorded a decline over the 5 year period?
 - Further information on the decline range is available in the online report. The median decline is 0.12 m/year with a range of 0.02 m/y to 0.95 m/y.
- If resource condition trends are indicating that in the future allocation is taken off licensees, given climate change is contestable, if allocation is taken off licensees will it be returned if wells recover, and will there be compensation to licensees?
 - No decisions are being made about allocations at this time or in this part of the process. Resource condition trends are an indication that we may need to look at sustainable allocation but are not sufficient at this point to make determinations around allocations. New groundwater modelling will give us the ability to look forward at what these trends will do. Equally this is not a stage where compensation is being considered but this feedback has been provided in other sessions and we take it on board. In terms of return of water, there is a principle in the current Plan that allows for the return of water allocation that has been reduced but it requires a demonstration that that allocation is sustainable. If the Plan was amended there could be other mechanisms considered that allow a change of allocation such as unbundling and an adaptive management framework.
- What factors are taken into account when looking at what has impacted changes in land use that are impacting groundwater levels – it is only climate change or economic? There have been changes that mean in some places irrigation wasn't worth doing, are these considerations?
 - Changes in the economics of industries and changes in markets certainly result in changes in water use that impacts resource condition trends. These are all considered.
- The observation well east of Naracoorte (JES004), is that at the abattoir?
 - Don't have the exact location for it but it is out that way.
 - What is the level of drop on that particularly well?
 - It has dropped approximately 2.5m in the time since it was monitored.
- Has the management of the drains changed things? Is there any science looking into recharge from the drains?

- There is no question the drains have had an impact on groundwater levels and do in places directly interact with groundwater. Outside of the water allocation plan review the LC Landscape Board is undertaking some research funded by the National Water Grid authority to look at the water resource management challenges and opportunities that might exist through the drainage network in the Lower Limestone Coast.
- Did the confined wells recover after the rehabilitation of wells? And what was the impact on the confined aquifer and its salinity?
 - There is an increase in the groundwater levels in confined aquifer bores that were part of the well rehabilitation program. That recovery looks to have levelled off. No salinity issues linked to the confined wells leaking.
- Last review period there was lots of discussion about the 10% to the environment should be more, is that something that is being discussed this time around. Previously it was presented that 30% was more appropriate.
 - The allocation for the environment of 10% of recharge has been discussed and is comparatively low in comparison to other regions with groundwater dependent ecosystems. This was a finding from the Science Review in 2018 that the allocation of 10% of recharge, given the high uncertainty in recharge, might not have been enough. With groundwater modelling we can move away from allocating percentages of recharge and look at sustainable allocation.

Licensing:

- Stock and domestic – will it be required to be licensed under this Plan?
 - Licensing and metering of stock and domestic has not been identified in the evaluation to date and we don't anticipate that it will be. We would suggest there is a need for technological advances in metering to be applied to other extraction before going down this path. With current mechanisms it would apply a significant administrative burden.
- When licensing was introduced it was supposed to be cost recovery, not go into general revenue.
 - Agreed. The National Water Initiative drove a user-pays approach to cost recovery for water planning management activities.
- Has the delivery component for flood irrigation been discussed?
 - The Stakeholder Advisory Group has discussed the complexity of licensing components. This is a Plan with significant level of complexity that creates difficulty in its administration. We have also seen that licence holders who weren't a part of the creation of the current Plan have a relatively low level of

understanding of what all these different components mean and what can be done with them. The complexity of components was meaningful in adoption of the Plan because it was about honouring what people previously had, but may no longer be appropriate. The Stakeholder Advisory Group has made a recommendation that this complexity be looked at further.

- What about where can licenced water be used and moved to? People can take water from Kingston and use it in Millicent.
 - This isn't quite accurate and does depend on what aquifer you're referring to. The confined aquifer management areas are large and do allow movement over greater distances. But the language of moving water isn't accurate, you don't take the water with you, the movement is subject to a range of protection principles in the Plan and in many cases the unconfined aquifer water movement is quite restricted. The hydro test also plays a significant role in the movement.
- What about people deepening bores – going down to into the confined?
 - There are principles in the Plan that govern take from the confined aquifer. Just because someone has an unconfined aquifer licence doesn't mean they can move take to the confined.
- What about people who have water licences for investment?
 - Whether you hold the water licence as an investment or for any purpose you are subject to the same rules in terms of extracting the water.
- What about someone new coming into the region such as rare earth mining, could they amass large volumes of water push water and prices up which would be disastrous for landholders?
 - The Plan doesn't allow for new allocations in recognition that the resource is fully or over allocated in some instances. For any new venture that comes into the region that requires a licence it does need to source water on the market. Water prices will be in part market driven and actions of a new venture could impact market prices.

Reductions to allocation:

- In regards to Zone 5A the science was proven wrong and yet the water still hasn't been given back. It has cost businesses a lot of money.
 - The LC Landscape Board is communicating directly with the Zone 5A Irrigator Group to better understand these issues. The direct meeting will be a better forum to work through this.

Climate change:

- What do you draw on to determine how climate change has occurred? There is much science that says climate change is wrong. There should be an opportunity to challenge this if you intend to use climate change models.
 - The LC Landscape Board has an obligation to use the most up-to-date and relevant science data to underpin the Plan and this includes using the climate modelling that is provided and supported by the South Australian Government.

Groundwater monitoring:

- How often are bores monitored – is it manual or automatic?
 - Groundwater bores are monitored 6 monthly, in autumn and spring. The majority are manual, some have loggers and more are starting to get telemetered.

Town water supply:

- With regards to the town supply is there a concern that there may be a decline in water availability for town supplies? People are being encouraged to get out into the regions.

Tatiara Water Allocation Plan:

- Tatiara is much more advanced in the process than the Lower Limestone Coast Water Allocation Plan, what are the key changes or amendments being proposed there as an indication of what might happen with this Plan?
 - It is important to remember the prescribed wells areas are very different and what is happening in one isn't necessarily an indication of what will happen here. The Lower Limestone Coast is significantly more complicated. The key changes being proposed in Tatiara are changes to support partial unbundling and the introduction of an adaptive management framework that includes resource condition limits and triggers.

Political nature of water:

- Is it a level playing field politically or does one industry, such as mining, have the ear of Canberra more than others and we'll all have to fall in line?
 - There is no question water can be political. The LC Landscape Board is not in a position to comment on what industries are doing politically. The LC Landscape Board works closely with the South Australian Government to ensure they are well informed on this process.

Viticulture

Process:

- Is there time by which review and amendment must be completed by? The last one took ten years which could be catastrophic.
 - There is no time specified under the *Landscape South Australia Act 2019* (the Act) as to how long a review should take. There is a principle in the Act that who prepares the water allocation plan can be changed if a landscape board fails to prepare a water allocation plan in a timely manner. In this case the preparation would likely go to the Department. There is no definition of timely. The LC Landscape Board is committed to keeping the process moving forward and will need to do so while still ensuring sufficient consultation.
- Is consideration given to whether a planting is permanent planting versus annual crops such as pasture? Permanent plantings need to be secure with what water you have access to. Need to know what is going to happen to plan ahead, it's important for continued investment e.g. in the Murray system need to have water covered before you can get investment.
 - Yes, the Plan has attempted to take into account the industry diversity and if amendment occurred this would be considered.
- What are the top three complexities for viticulture?
 - Frost SPR.
 - Viticulture – long term industry.
 - Two types of unused water- converted.
 - Trades and transfers.
- What are the other industries focussing on?
 - Resource condition trends.
 - Limited flexibility in moving water.
 - Water quality.
- Farm forestry – viticulture industry has put in a submission asking that farm forestry be included in the Plan as licence use.

Resource condition trends:

- How does a season like 2022 affect recharge? If declines continue, is there a tipping point and loss of holding capacity of the aquifer e.g. land subsidence?
 - The reality of recharge is seasonal variation will have a big impact. The Plan has assumed an average rate of recharge but how often that level of recharge is reached or not is not known. How and when rain falls all impacts recharge.

Even if we get the same annual rainfall how it falls, the patterns of rain impact what makes it back into the aquifer.

- Why are you only using 5 years of data? Previous 5 years were wetter.
 - The LC Landscape Board acknowledges that the trend shown is only a 5-year trend. The full 10 years of the Plan is sitting there in the data presented and we'll show some graphs that show the 10 year period. Context matters when it comes to groundwater levels, long terms trends are very important. We don't want to only look at the 10 years of the Plan because what has happened before does matter, particularly from the perspective of the environment and in managing the resource sustainably.
- From the data it is obvious the blue gums are causing a lot of issue, are they subject to reductions?
 - Forestry were subject to reductions in Coles and Short and have ongoing reductions in Coles as they are yet to take the required reductions. Forestry do take their reductions very differently, they are not on a schedule the way irrigators were. Forestry take the reduction in relation to clear fell. When they undertake clear fell in a management area undergoing reductions they have a reduction of allocation equivalent to that of the clear fell, so they can't replant that plantation. This can take some time due to the timing of clear fell. Forestry is required to have an allocation to cover for direct take and recharge.
- There's an imbalance in the way the Plan is written. Blue gums put in the ground have 14 yrs to react, pines have 35yr rotation. If they have multiple plantations in a zone they could manage those but it is an inequity.
- Under a blue gum plantation the first 4-6 m of soil profile is very dry, even with clearing might not wet up.
- The saline water near Kingston is that an issue of seawater intrusion?
 - The unconfined aquifer out towards Kingston had long term salinity issues and is not considered a saltwater intrusion issue. We do consider saltwater intrusion to be a potential risk on the south coast of the region and have been undertaking some additional monitoring in that area to better understand this risk.
- Assuming Zone 3A will have to undergo permanent reductions again will consideration be given to flexibility to support trades and transfers between water management zones or within. Need to be options to manage the impact of reductions. Last Plan we all felt we would get options for more water movement and then things like the hydro test really circumvented those options.

- The LC Landscape Board hasn't made any decisions in regards to reductions and won't in this part of the process. If the Plan went to amendment then this could be something considered. There were principles in the Plan that seemed to have the intent to provide that flexibility, it's good in theory but practically doesn't work so this is useful feedback that perhaps those principles didn't really achieve their intent.
- Our usage is below allocation and the water table is still dropping, this is concerning.
 - The reality that use is roughly sitting at 50% of allocation is another layer on the resource condition trends. What would activation of that water mean for resource condition trends, acknowledging that there might a low likelihood of some of that water being activated.
- Places like Bool Lagoon will they be taken in to consideration if you cannot control what is happening in Victoria?
 - Consideration will be given to groundwater dependent ecosystems like Bool Lagoon but we also need to consider the impacts of climate moving forward as well.
- Has there been discussion about buy backs?
 - The LC Landscape Board hasn't had any discussion about this yet but it has been raised in multiple sessions we've held.

Groundwater modelling:

- Assuming modelling is about vertical recharge—how does model take in to account the border agreement?
 - New groundwater models that are being developed are crossing over to take into account impacts just across the border. This will allow us to look at some of this. In terms of extraction from bores there is significantly more use on the South Australia side in comparison to the Victorian side.
- Victorian side doesn't yield the same.
 - Correct, you don't tend to get the same yield across the border so you see a lower dependence on groundwater. It should also be acknowledged that forestry isn't licenced in Victoria.
- What are your observations of the modelling?
 - The groundwater models have not yet been run for scenarios, we would undertake this if the Plan moved into amendment.

- Can the modelling look at linking declines to realistic extraction from different parts of the aquifer? Look at pumping rates and declining of yields? In some years we've seen water quality decline, yield decline.
 - We can refer this question to the Department for Environment and Water, Water Science and Monitoring Team. We have had in other sessions comments around declining yields and the need to change pump types to still get the yields needed. This could indicate impacts already occurring from declining trends.

Specialised production requirements (frost) and the rolling average:

- Does unused allocation include SPR/frost protection?
 - Yes it does.
- 3 year rolling average for the SPR is confusing in the current Plan.
- Reporting of meter reads July to November- can be hard to report especially if you do not have separate meters – some use in this time period might not be frost it might be for irrigation and then it might impact how much frost SPR you have available in the next years.
- Some licence holders itemise out use from one meter to either irrigation or frost SPR, in past has been accepted but in the most recent year it wasn't.
- Is there anything stopping the Department providing where you are at with your rolling average for SPR when you get your invoice?
 - We can raise this with the Department but certainly acknowledge that would be useful. Not known to us how they are keeping that information, how administratively complex it would be to provide that. Noting it is unique to this Plan, not something that other plans have.
- Rather than a three year rolling average can we have just a total figure?
- This doesn't necessarily take in to account a bad frost year and the need to use more.
- So frost SPR does not really matter as if you go over you just use your current allocation, is there really any point or need for the separate allocation?
- SPR may be critical for horse trading with other industries.
- Will the new system send out automated alerts telling licensees if you are close to the allocation limit? When you are entering data? Can you get an alert?
- It's about frost SPR not being tradeable. Do you think SPR could be a trading element when negotiating amendment?
- Technological improvements will change how easy it is to report and record different licencing components.

- For some provisions the rolling average is super critical. Really valuable to keep 3 year rolling average.

Licensing:

- Rare Earths development how would they qualify for the licence application? What type of licence would they have? Would it be industrial as the purpose of use?
 - Any entities coming into the region that don't have a water licence need to source water on the market. Both the unconfined and confined aquifers did not allow new allocations. There are some exemptions from this and mining is one – they can get a new allocation but it comes with the requirement that they need to return it to the aquifer in the same quality and quantity.
 - There has been some confusion around purpose of use. In the current Plan there are some mining operations with an industrial licence. This is legacy, they had an industrial licence prior to this Plan and as an intent of the Plan was to honour what existed before they got industrial licences in this Plan. There was no mining definition in the plans before this one. This Plan does have a clear definition of mining and the operation of mining rare earths meets the definition of mining in the current Plan.
- Which legislation would Rare Earths be under?
 - Their development sits under the Mining Act. The LC Landscape Board will have a responsibility in terms of water affecting activities.
- Are we to believe Rare Earths will be able to use the confined aquifer?
- Indenture risk like the Penola pulp mill is an example, it gets political, they work outside of current regulations.
 - An entity wanting to access the confined aquifer could purchase a confined aquifer licence. There are no new allocations. Mining is an exemption but they would need to return the water to the confined aquifer.
- With trades and transfers are all licences tied to areas/ land parcel? Bundled.
 - Plan is currently bundled but legislation is now unbundled. But legislation allows for partial unbundling which is important for groundwater because where you take it from matters.

Trades:

- Trading of water and the water market are a big issue.
- Typically handled by agents in the region, some roadblocks - administrative and valuation of water attached to land, banks wanting more appraisals done. Water agents have learnt by being in the market. Agents are creating most of the contracts

for sales of water (water+land). But then bank wants a valuation, solicitors get involved.

- When land is sold the value of water portion is increased to reduce stamp duty on land.
- Very important issue when appraising land – what's a licence value?
- Other complexity a forest licence can't be converted to irrigation in the border zone.
- Value of water – people are probably looking in this area given value of water in other areas of Australia.