

Mataranka Tindall Water Advisory Committee

Meeting #: 14

Date: 19-20 July 2022

Time: 1:30pm

Venue: Mataranka Town Hall, Warloch Street, Mataranka and Teams meeting (video and telephone)

Present

Rebecca Mohr-Bell	Chair
Sarah Kerin	Tourism/environmental interests - Member (Parks and Wildlife Division, DEPWS) via TEAMS
Vin Lange	Irrigated agriculture/Aboriginal economic development interests - Member (Centrefarm / Top End Farm)
Clair O'Brien	Pastoral interests/Regenerative Agriculture - Member
Julian Martin	Irrigated agriculture interests - Member (Quintis) via TEAMS
David Ciaravolo	Recreational fishing interests - Member (Amateur Fishermen's Association of the NT) via TEAMS
Helena Lardy	Aboriginal water interests - Member (Jilkminggan Community Aboriginal Association), in person day 1, via TEAMS day 2.
Rohan Sullivan	Pastoral interests - Member (Cave Creek Station)
Bridie Velik Lord	Aboriginal water interests - (Northern Land Council) Observer
Allister Andrews	Aboriginal water interests - (Jawoyn) Observer
Ben Lewis	Aboriginal water interests - (Firestick) Observer

Apologies

Jenny Davis	Environmental interests - Member (Charles Darwin University) comments provided
Jocelyn James	Aboriginal cultural interests - Member (Jilkminggan Community Aboriginal Association)
Sarah Kerin (Day 2)	Tourism/environmental interests - Member (Parks and Wildlife Division, DEPWS) via TEAMS
Kerry Roberts	Aboriginal cultural interests - Member (Jilkminggan Community Aboriginal Association)

Not present

Judy MacFarlane	Regional community interests - Member (Roper Gulf Regional Council)
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Staff Present

Amy Dysart	Executive Director, Water Resources Division (EDWRD)
Adrian Tomlinson	Water Resources Planner, Planning and Engagement (P&E), DEPWS
Jayne Brim Box	Senior Scientist, DEPWS
Simon Cruickshank	Director Planning and Engagement
Liza Schenkel	Community Engagement, DEPWS, via TEAMS

Action table

Action arising/outstanding from Meeting 13 – 16 February 2022		
Action	Action Officer	Timeframe/comment/Status
<i>Actions arising</i>		
<i>Action 13.1 The Chair will resend members a copy of the Controller's response to her e-mail regarding the AWR</i>	Rebecca Mohr-Bell	
<i>Action 13.2: Provide members with a copy of the CSIRO paper</i>	Pru Ducey	
<i>Action 13.3: Report back at Meeting #14 whether it is feasible to prepare an ecohydrological model in time for the draft plan</i>	Amy Dysart	Response to be provided at Meeting #14
<i>Action 13.4: ED Water Resources will circulate or provide additional information about what considerations are made in renewing a licence.</i>	Amy Dysart	At or prior to Meeting #14. Addressed during the meeting
<i>Action 13.5: Water Planner (Adrian Tomlinson) to check whether Minyerri is in the plan area.</i>	Adrian Tomlinson	Advised Minyerri is not taking water from the Tindall Limestone Aquifer
<i>Action 13.6: Progress a paper on operationalising a precautionary principle in defining the estimated sustainable yield and circulate a discussion paper to the committee for discussion at the next meeting</i>	Adrian Tomlinson Rebecca Mohr-Bell	
<i>Actions outstanding</i>		
<i>11.9 Run agreed model scenarios and provide a report.</i>	Water Assessment & Clare Taylor Adrian Tomlinson	Partially complete – 1st phase of modelling complete. Limits to change presentation/discussion at Meeting #12. Further presentation/discussion Agenda Item 4 this meeting (#13) – environmental limits to change – science.
<i>11.10 Provide a summary of the previous work done by the Committee and key decisions.</i>	Clare Taylor Adrian Tomlinson	Partially complete – email from WAC Water 16/2/22 with a list of decisions. Outstanding – Adrian Tomlinson will email a more comprehensive list of work the Committee has done.

1. Opening 10:05am

1.01. Welcome and Introduction

The Chair welcomed everyone to the meeting, both those online and present. Director Water Planning and Engagement Simon Cruickshank was introduced. Pru Ducey acknowledged for her pre-meeting organisation.

1.02. Acknowledgement of Country

ED WRD acknowledged Country and Elders past, present and emerging.

1.03. Attendance and Apologies

As shown

1.04. Confirmation of Agenda

Agenda confirmed as shown.

1.05. Declaration of Interests

None declared

1.06. Nomination of meeting evaluator

It was agreed that the evaluation would be conducted by participants completing the form provided.

1.07. Endorsement of Meeting 13 Minutes

Draft minutes from Meeting 13 were circulated for comment on 21 March 2022 until Monday 28 March 2022. Following member feedback revised minutes were circulated on 6 April 2022. As no comments on these minutes were received by 12 April 2022 the minutes were accepted as final and uploaded to the website on 14 April 2022.

Minutes and appendices are available at: [Mataranka Tindall Water Advisory Committee \(nt.gov.au\)](https://www.nt.gov.au/mataranka-tindall-water-advisory-committee/)

1.08. Recap on correspondence

Letter from CEO DEPWS to CEO NLC regarding request and response on membership to the WAC and agreement for NLC to attend as an observer - noted.

1.09. Status of meeting actions

Action 13.1 The Chair will resend members a copy of the Controller's response to her e-mail regarding the AWR

Complete

Action 13.2: Provide members with a copy of the CSIRO paper

Complete

Action 13.3: Report back at Meeting #14 whether it is feasible to prepare an ecohydrological model in time for the draft plan

The Department has spoken with CSIRO team led by Dr Eva Plaganyi-Loyd about ecosystem modelling and ecological models notably a report *Ecological modelling of the impacts of water development in the Gulf of Carpentaria with particular reference to impacts on the Northern Prawn Fishery*. This includes course-scale consideration of Roper River, which has been used in Dr Jayne

Brimbox's work. It is understood more detailed ecohydrological modelling of the Roper River is also planned but not reporting until late 2023. The department e-mailed Dr Plaganyi Loyd whether it would be possible to use CSIRO's models to investigate possible ecological implications of the water extraction scenarios and participating in any further work planned. While a response was not received the department is continuing discussions with CSIRO regarding potential further collaboration. [CSIRO Research Publications Repository - Publication](#)

Action 13.4: ED Water Resources will circulate or provide additional information about what considerations are made in renewing a licence.

For discussion in item 3

Action 13.5: Water Planner (Adrian Tomlinson) to check whether Minyerri is in the plan area

Water Planner confirmed Minyerri is not taking water from the Tindall aquifer.

Action 13.6: Progress a paper on operationalising a precautionary principle in defining the estimated sustainable yield and circulate a discussion paper to the committee for discussion at the next meeting

For discussion in item 13 of this meeting

Actions outstanding

Action 11.9: Run agreed model scenarios and provide a report.

Scenarios to be reported in item 8 of this meeting

Action 11.10: Provide a summary of the previous work done by the Committee and key decisions.

Incomplete.

2. Planner Update

Water Planner (Adrian Tomlinson) presented information on the updated process to finalise the plan. A copy of the slides from the presentation is at Appendix 1.

3. Update on Water Resources business

Members requested clarification on recent media on arid zone /top end classification. ABC media claim the planning process is rushed, no consultation and absence of science.

EDWRD advised the department had refuted the claims and provided talking points on the matter to the ABC however the department's response had not been reflected in the published article. Chair advised she had not been asked for comment.

Members commented:

- The concern about a lack of committee applies only to the Beetaloo plans, not the Mataranka plan.
- The story implied a water allocation plan was in place for Mataranka which is incorrect. Commenter suggested communication was needed to summarise the status of plans and when there would be opportunities for community input.
- The article is misleading, linking the arid zone to Roper River and disrespectful of the process to develop the plan. A member commented that it was disappointing that the NLC CEO had commented in the media. It should also be remembered that this is a 5 year plan not a 100 year plan.

- If the Arid Zone 80:20 aquifer storage reduction principle was applied then damage could be done within a five year period and hence precautionary principles must apply.
- Applying the limits to acceptable change in plan to determine the estimated sustainable yield (ESY) will give clarity and certainty that the plan can be implemented safely.
- NLC had written to the Minister regarding two licences in Larrimah zone, requesting that they be re-assessed using Top End contingent allocations. NLC had also raised concerns about the SREBA Beetaloo Reference Group being used as a water advisory committee for the Beetaloo plans.

In response to the above comments EDWRD advised

- The objective is to put in place a plan for Mataranka as soon as possible.
- It is better to have a plan than to not have a plan as this allows allocations to be considered specifically for an area when considering extraction licence decisions. As Mataranka is a complex area it is important that a plan is based on the best available science.
- The Northern Territory Water Allocation Planning Framework (NTWAPF) describes different approaches for allocating water resources in the Arid Zone and Top End. Essentially the top third of the Territory is treated as the Top End and the remainder as the Arid Zone. The characteristics of the water resource determines how a resource is assessed, Top End resources receive annual recharge based on rainfall and are managed on an annual basis via annual announced allocations. Arid zone, (including Larrimah) receive recharge episodically (for example Larrimah every 5-10 years) and therefore need to manage over a longer term basis. As arid zone recharge events can be very significant and do not occur annually allocations are based upon aquifer storage but the impact of decisions can be checked annually.

Discussion followed:

- It was queried how the precautionary approach would apply. EDWRD advised that the five year review allows recharge and impact of extraction to be assessed.
- It was queried whether the framework rules were policy or legislation. EDWRD advised the NTWAPF was applied as a policy approved by Cabinet but not embedded in the legislation.
- It was commented that the NTWAPF is a contingent position where there is limited science. Where the NTWAPF is applied, an 80% storage reduction equates to 0.8% annual use of the resource for 100 years. EDWRD advised that the 80% storage reduction assumes no recharge so in reality when recharge occurs, the impact on storage reductions were less than 0.8% per year.

[Subsequently added to minutes for clarity]

The NTWAPF is generally applied outside of planning areas where there is limited science and limited use/competition for water, ie the risk of over allocation is extremely low. Within plan areas where there is greater use and/or competing use the department undertakes the science to improve understanding of the resource and enable a bespoke allocation that recognises and balances allocations to the objectives of the plan.

For example the current Western Davenport Water Allocation Plan 2021-22 allocates approximately 4% of storage over 100 years.

- The origin of NTWAPF was queried. The Chair advised this was out of scope (particularly given above additional comments).
- It was queried which parts of the Mataranka plan were to be treated as arid zone versus Top End.
Answer: North Mataranka and South Mataranka are treated as Top End systems while Larrimah is treated as an arid zone.

EDWRD advised that in a previous meeting (Meeting 11) information was provided that demonstrates Larrimah is behaving like an arid zone aquifer.

- Resource connection between the Georgina and Mataranka plans was acknowledged. EDWRD advised Mataranka is being done first as there is considerably greater demand for development. The Strategic Regional Environmental Baseline Assessment (SREBA) will provide the scientific information that will allow characterisation of Beetaloo system. Once resource assessment are completed the Beetaloo Regional Reference Group will be involved in formulating the Beetaloo plans (Georgina and Wiso) with drafts provided for comment.
- It was commented that there was a communications risk in putting three plans out at the same time. EDWRD acknowledged this risk but noted that on acceptance of an application the Controller must make a decision, so there is a benefit in having a plan in place.
- It was commented the information provided shows recharge occurs in some years in Larrimah. Objective of the WAC is to provide an ESY beyond the NTWAPF based on the additional science which can take into account this nuance. Any extraction will have an impact but monitoring and modelling gives us the ability to predict impact of extraction scenarios, with confidence.
- It was queried whether there was interest in the Larrimah zone for onshore gas. EDWRD advised that geoprospectivity maps show energy resources South and West of the plan area. Exploration activities are occurring in the Georgina, Wiso and Gulf regions. (All petroleum titles can be viewed in the STRIKE website: [STRIKE \(nt.gov.au\)](http://STRIKE.nt.gov.au))

4. Estimated sustainable yield

Water that can be used for consumptive purposes is referred to as an Estimated Sustainable Yield (ESY). This is not defined in the Water Act 1992 (Act) and a revision of the Act has been proposed.

The department's adopted definition for the ESY is consistent with the National Water Initiative. It is; *"the amount of water that can be allocated from the water resource to support declared beneficial uses without compromising key cultural and environmental values, or ecosystem functions or the productive base of the resource or declared water quality standards, criteria or objectives."*

The ESY is a volume but also needs to consider quality.

A four stage process is applied to establishing an ESY.

1. Understand the resource, the potential water available from the resource.
2. Identify water values and water requirement that depend on the water resource.
3. Consider limits of change through options to provide water to these values
4. Establish ESY to provide water for extraction.

The presentation from the modeller summarises the resource knowledge (stage 1) and potential water availability and the scientist provides information on environmental values (stage 2)

It was queried where water quality was considered in the process to establish an ESY. EDWRD advised that water quality and quantity is considered throughout all of the four steps.

Break 15:10 – 15:30

5. Cultural values - limits to change

Discussion to occur during other parts of the workshop.

6. Environment values – finalised limits to change

7. Presentation of modelling scenarios

8. Analysis - How do the scenarios comply with limits to change?

Water Planner Presentations for items 6, 7 and 8 were run concurrently.

1. Provided a water resources status update and framing considerations including a description of the water resource, how it supports different environmental and cultural water value and current use.
2. Outlined the six modelling scenarios that were tested against key water supply considerations to arrive at a potential available yield.

Scenario	Description	North (ML/yr)	South (ML/yr)	Larrimah (ML/yr)	Surface water (ML/yr)	Total (ML/yr)
SC0	Natural conditions with no extraction	0	0	0	0	0
SC1	Full entitlements	2,097	22,095	8,256	1,940	34,388
SC2.1	SC1 plus additional GWEL entitlements equal to the draft AWR proportions for the North and South Mataranka WMZs.	2,673	31,348	9,173	1,940	45,224
SC2.2	Full entitlement + 1GL/yr in South Mataranka	2,097	23,154	8,256	1,940	35,447
SC2.3	SC1 plus additional GWEL entitlement (~4 GL/y) in the South Mataranka WMZ. Total extraction equals 20% of the upper range of gauged dry season flows of the Roper River (i.e. 28.4 GL/y)	2,097	26,303	8,256	1,940	38,596
SC3.1	SC3.1 – SC1 plus additional GWEL entitlements in the Larrimah WMZ totalling ~35 GL/y. Based on 40% of storage volume for a 100 mBGL economic base over a period of 100 years	2,097	22,095	35,238	1,940	61,370
SC3.2	SC3.2 – SC1 plus additional GWEL entitlements in the Larrimah WMZ totalling ~70 GL/y (Based on 80% of storage volume for a 100 mBGL economic base over a period of 100 years)	2,097	22,095	70,238	1,940	96,370
SC4	Recommended scenario based on "Potential Water Available"	2,097	23,154	35,238	1,940	61,370

3. From this the following potential available yield was selected for detailed assessment of performance against limits to change for environmental values. Traditional owners will also be asked to advise on the acceptability of scenarios at maintaining cultural values.

Groundwater management zone	Amount (ML/yr)	Description
North Mataranka	2,097	Current entitlements
South Mataranka	23,154	South Mataranka WMZ (current entitlements plus 1 GL)
Larrimah	35,238	additional 26,982 (ML/yr) beyond current entitlements

4. The key environmental values for which limits to change to be established and tested were:
 - a. Terrestrial GDE (5-15)
 - b. Shallow terrestrial GDE (e.g. palms)
 - c. Wetlands
 - d. Waterholes
 - e. Springs
 - f. Waterways
 - g. Subterranean
5. Senior Scientist had been asked to focus in the first instance on the following “umbrella limits to change” to test the scenarios:
 - a. Dry season flows exiting the plan area via the Roper River
 - b. Palms
 - c. Springs
 - d. Flows in tributaries
 - e. Deep terrestrial GDEs
 - f. Aquatic GDEs, such as Longreach Waterhole (i.e. c and d in the above list)

Dr Davis’s comments were read to the group.

Dr Jenny Davis (comments regarding Day 1)

My sincere apology for not being able to attend MTWAC Meeting 14 due to a CDU teaching commitment this week. I have prepared the following notes on two of the agenda items. Hopefully they can be added to the meeting discussion where relevant.

Kind regards,

Jenny

Agenda Item #3: Top End/Arid Zone delineation

Bruwer and Tickell (2015) noted that there is evidence of recharge into the Tindall Limestone aquifer as far south as Daly Waters, based on water level data from available bores. This indicates that region from Mataranka to Daly Waters appears to lie within the Top End Zone. More recently, the finding of substantial Oberprieler et al. (2021), suggests that Top End Zone Rule is more relevant to the Larrimah region than the Arid Zone Rule.

Agenda Item #4: Establishing an estimated sustainable yield (ESY) – guideline

A recent paper by Lamontagne et al. (2021) described the inherent complexity of the groundwater sources in the region encompassed by the Mataranka Tindall Water Allocation Plan. Bruwer and Tickell (2015) noted that the Tindall Limestone Formation is a karstic aquifer that displays high variability in permeability and transmissivity at the local scale. These findings indicate that there is currently high uncertainty as to how groundwater extraction may affect groundwater dependent ecosystems (GDEs) within this region. This high uncertainty indicates that a conservative approach is needed to establishing an estimated sustainable yield (ESY).

[Department response subsequently added to minutes for clarity]. Bruwer and Tickell are department staff and the quotes provided were representative of system knowledge in 2015. Since that time there has been significant work undertaken by the department (including Tickell) in support of this plan which has refined our knowledge of these systems. Presentations to the WAC in previous meetings reflects current knowledge.

Day 1 End 17:30

Day 2

Commenced: 8:20AM

Apologies: Sarah Kerin

Other members as per Day 1, except Helena Lardy who attended Day 2 via Teams

Dr Jenny Davis's written comments were read out:

Dear Adrian and Jayne,

Many thanks for providing me with the information that you have both presented to Meeting 14 of the MTWAC. I am really heartened to see the rigorous approach that you are bringing to providing a scientific basis to the decision-making process for water allocation. The terrestrial, aquatic and subterranean groundwater-dependent ecosystems supported by the waters of Tindall Limestone aquifer are amongst the most intact and representative of the ecosystems, and the biodiversity they support in this climatic zone, both within Australia and globally. It is of utmost importance that you are provided with the time needed to finish your work to ensure that the most robust, evidence-based ESY's are determined. This time is also needed to ensure that independent peer reviews are obtained to ensure that the ESY's, and ensuing water allocations, are regarded with the highest possible confidence.

Kind regards,
Jenny

8. Analysis - How do the scenarios comply with limits to change? (continued from Day 1)

Spatial distribution of groundwater drawdown

Water planner presented maps showing spatial distribution of areas where dry season groundwater drawdown exceeded 1m and there was a high probability that groundwater dependent ecosystems occurred. It was noted that under all scenarios these areas were extensive. While further work is needed to identify where palms and other ecosystem types with a low tolerance to changes in drawdown occurred it was likely that all scenarios were unacceptably drawing down the water table in shallow GDEs.

Note: Slides presented were based on modelling using the older Daly Roper Model Version 1, not the revised Daly Roper Model Version 2 – slides are updated in the revised presentation provided to members.

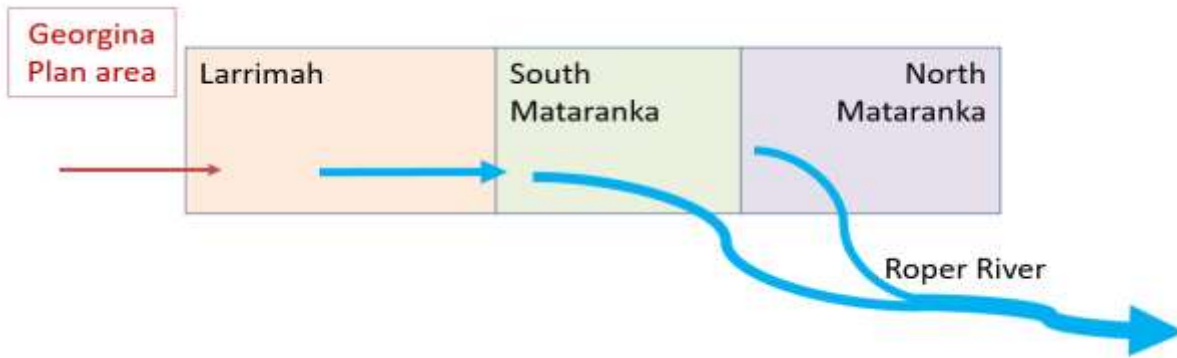
Limits to change to ensure cross boundary flows meet overall plan management rules

Water Planner described limits to change were needed at management zone boundaries to ensure:

- Objective 1. Adequate cross-boundary flows occur to ensure water allocations in neighbouring zones are met
- Objective 2. Ensure acceptable impacts on values in neighbouring management zones

Objective 1: Adequate Cross boundary flows

Based on the following groundwater flow conceptualisation in addition to direct recharge, South Mataranka plan relies on inflows from Larrimah and Larrimah relies on inflows from the Georgina Plan area.



Water Planner presented groundwater level contour maps for scenarios SC0, SC1A, SC22 and SC4 on the 15 October 1990 and 15 October 2020. These showed that there was potential to change groundwater levels such that the volumes of and potentially directions of flow could change.

Note: slides presented were based on model outputs using the older Daly Roper Model Version 1, not Daly Roper Model Version 2 – these are updated in the revised presentation provided to members.

To ensure adequate cross boundary flows:

At the South Mataranka/Larrimah boundary the following limits to change are proposed:

1. A minimum annual groundwater inflow requirement to South Mataranka from Larrimah
2. A groundwater level associated with this

At the South Mataranka/Larrimah boundary the following limits to change are proposed:

1. A minimum annual groundwater inflow requirement to Larrimah from the Georgina water allocation plan area
2. A groundwater level associated with this.

Objective 2: acceptable impacts on values in neighbouring management zones

This was identified as a particular consideration for allocations in Larrimah which have potential to impact on ecosystems and cultural values in the South Mataranka groundwater management zone such as levels and flows in Elsey Creek, springs and terrestrial GDEs.

To address this:

1. a metric determine that correlates to acceptable water regimes in Elsey wetlands and other ecosystem and cultural values

It was commented that if levels are set groundwater level monitoring is needed to support modelling concepts and provide confidence.

Wrap up of information provided in items 6, 7 and 8 (for consideration during the day's ESY workshop)

1. SC1A may already exceed key limits to change for palms, springs and flows in Elsey Creek in the South Mataranka zone.
2. SC22, which involves more extraction than SC1A would therefore have an increase the level of exceedance of these limits to change.
3. SC4, which includes additional allocations in Larrimah zone is difficult to evaluate because its effects are confounded by the impact of extraction in South Mataranka.
4. Additional modelling was needed for extraction in Larrimah (and North Mataranka) using an agreed ESY for the South Mataranka zone to test compliance in these zones with the limits to change.

12. Thoughts and expectations for Day 2

The following comments were made:

- Several comments that a very large amount of information was presented which should have been available beforehand. The information is needed but members need time to review presentations off line to consider all information provided. (It was confirmed the presentations would be provided.)
- Members would like further clarification regarding how the NTWAPF would be applied.
- Helena Lardy presented a message from the Mangarrayi people regarding their cultural values and consideration in setting the estimated sustainable yield:

"We all have cultural values. Here in the NT we pride ourselves on having the best outdoor spots, usually a body of water. Families have their favourite spots, this is part of their culture, what they value.

So to have this clean water is a priority, it's valued everywhere by everyone. Having enough water is a cultural value too. Our people have been walking this land for a long time. They know the flows, know the value and treat our waterways with respect. Today, as before, they are able to observe weather patterns, they understand climate, much like the Bureau of Meteorology does. They are good scientists.

Today governments take a leaf out of our 'book' with regards to fire management. What else can we learn? This water system is sensitive - we can't carve it up, it's all interconnected. It has so far sustained what we are using, but how much more can it really support with unpredictable weather and further calls for use?

The less fresh water going downstream will mean saltier water for communities. Will it come to closing communities? Or trucking in water?

Let's not create another Murray Darling or Black river or Juukan Gorge here in the NT. Another part of cultural water values is to sustain our food sources, both in the river and out, our bush foods and medicines, domestic and wild animals - we rely on these to supplement our food intake. Food is expensive. Our bushfood helps to keep costs down, but they need water.

Cultural sites of significance and Dreamings are numerous and detailed. We pick up the Marlu Dreaming from the Centre, coming across from the West down the Roper River system through Jalmamula, Mudawale, Bulula, and springs where it rests and onto Alawa Country. Generally speaking everyone has a spiritual connection to these Dreamings and sites of significance are a part of life/culture and spiritual values that our people have, they belong to land, river to us. We should not lessen this by giving out too much water than can be managed- let's manage what has been given to date.

Our people are very worried, they may not be in our faces so much but we know that they are feeling powerless to these changes. Let's show them we are listening and value their values, their culture as it is a part of everyone's culture throughout Australia.

Another part of our values is looking after our families. We need to join the 'business scene' to develop economically, to create jobs. We need to consider a water plan for us. Wouldn't it be a positive legacy to create the first strategic aboriginal water reserve in Australia?"

- NLC Observer thanked all involved for the facilitated session with Traditional Owners on Monday 18 July 2022. Further time would be needed to communicate with interest groups after the meeting.
- The technical approach was excellent, methodology on steps good, model predictions very useful. Overall this is on the right track.
- An online member noted the difficulty of participating on line.
- Water for Country is very valuable. Would like to see water better protected from extraction by neighbours and stakeholders.

- ESY definition when broken down does not fit with basing the available yield on storage reduction over 100 years. Rather than Top End vs arid zone is a transitional zone a better approach? Member would like to see Larrimah modelled in two or three ways for example annually and using 10 year balance. While the ESY is needed acceptable extraction locations, security levels and other tools beyond volume are needed. Make sure the plan establishes not just an extractable volume but also considers where, when and water quality requirements are addressed.
- If beneficial use of water allocated is to be for agriculture then water should be available indefinitely under the arid zone guidance, not just 100 years.
- Generally the information gives clarity but detail regarding extraction and drawdown impacts is important. Modelling is great for determining how much water is available but be aware of model limitations and take a precautionary approach, considering not just plan area but impacts downstream. Use monitoring data to see how water use is going before increasing the amount of water that is taken
- There are plans for off stream storage downstream of the plan area, this plan needs to be cognisant of taking water upstream given these pressures and potential impacts on sentinel species. This means be additionally precautionary.
- The committee has an opportunity to set an ESY for Larrimah (using a methodology) other than NTWAPF.
- EDWRD advised that in the Western Davenport water allocation plan area only taking 4% of available storage was to be taken. It was clarified that this was calculated over full 600m aquifer depth in the current plan but the new Western Davenport plan would consider only the productive base (i.e. that part which is economically accessible). Member responded that they were not aware of this and supported consideration only of the productive base. They queried how much of the productive base was to be taken in Western Davenport plan, noting it would be more than 4% given the lesser amount of water stored within the productive part of the aquifer.
- This information can be misleading if not fully understood. Concentrate on principles rather than a number. Intergenerational equity needs to be kept front of mind, and consider licence conditions and other opportunities to come up with something we are confident and comfortable with.
- The importance of considering current water quality and not impacting on this was emphasised. Director DWPE advised periodic comprehensive monitoring reports were produced and the previous report would be made available to the member.

13. Applying a precautionary approach in the Mataranka Tindall WAP

EDWRD advised the following:

- North Mataranka and South Mataranka zones differ from Larrimah from both a use and resource perspective
- There is an opportunity to implement a precautionary principle in setting the ESY for Larrimah. Understanding of the resource based on, modelling and monitoring is relatively good and we have a reasonable understanding of potential water availability. Existing use in North Mataranka and South Mataranka zones gives us an understanding to how the resource reacts to usage, allows us to improve our systems, build knowledge of the complexity of the system and understand the water requirements of environmental assets.
- In South Mataranka it is evident that current use is having an impact, and therefore may need higher levels of management. This has not been seen in North Mataranka and Larrimah.
- We can use a precautionary approach rather than adaptive management using limits of acceptable change for systems and monitor to see how they respond. Monitoring has been undertaken for a long time in this system but we can refine monitoring based on learnings (for example more information is needed regarding Bitter Springs). We need to build confidence in areas of uncertainty.

- North and South Mataranka entitlements have already been issued for the available water but in Larrimah this is not the case so we should take a more precautionary approach. Under SC4 extracting 35GL/year was modelled but current use is 42ML/year (maximum entitlement is 8GL). Let us identify the consumptive pool which could be a portion of the amount of water available, then monitor the impact of extraction before releasing next water for release if all ok. So two numbers would be published in the plan. The ESY and what should be released in a staged approach. This allows time to monitor and verify impact. A low risk could be maintained by taking a slower approach to releasing water.

Members raised the following:

- What is the review process by the department year on year? EDWRD replied: In Top End where there is significant annual variability and many licences, we consider use and climatic and resource conditions each year and apply tools to reduce annual entitlements. This annual process is less applicable in arid zone where impact is identifiable on a longer term basis, every five years. We have the data and undertake the analyses, but recognise we need to provide an annual status report for each system to demonstrate the status of resource and impact from extraction on the resource. The report will include outcomes from compliance monitoring, we did 120 compliance visits this year, provided 25 show cause notices, and issued instructions to a number of licence holders to install meters. We have had to manage a lot of licences in last five years but only 13 new licences last year and can now concentrate on compliance.
- Water Planner noted that real time data is published for some groundwater monitoring bores and all long term surface water monitoring sites so the public can visualise the data themselves. See <https://water.nt.gov.au/>
- The EDWRD noted that the missing element is comment from community, in particular a lack of comment from Traditional Owners (TOs) who have intimate knowledge of the landscape and the river systems. We need to consider how TOs consider what they are seeing and the department is encouraged to use Aboriginal knowledge acknowledging that the current approach is focussed on a western and legal base. In applying a precautionary approach we need to recognise the views and opportunity of WACs and TOs and Aboriginal reference groups to better understand cultural requirements. This is the start of a process. There is ongoing funding available to support an Aboriginal Reference Group in the Daly and extend this approach to advising on implementation of the plan.
- Would a precautionary approach paper would be provided? The EDWRD advised the approach was presented as a discussion today to minimise information overload, but a paper could be provided.
- Why would a high ESY value be adopted in the plan and then staged release as suggested rather than a low ESY? EDWRD advised this was a practical approach. The plan has taken many years to get to this stage, including a significant amount of work to identify a potential yield. We are reluctant to ignore that knowledge, given the overall objective is to make water available but in a sustainable manner.
- It was commented that committee's had previously arrived at a recommended ESY but as their role is only advisory this did not result in a plan being published.
- It was commented that the scientific guidance available now will make the committee more efficient in arriving at an ESY.
- It was commented that the plan needed to recognise flow conditions required downstream, outside of plan area. Senior scientist advised the department could model limits to change for species for good and bad years and outside of the plan area.

Items 14-17 Estimated sustainable yield workshop

Refer attached workshop outcomes. Based on this it was identified that following information and/or actions are required before setting the ESY:

1. Documenting of environmental and cultural values and their water requirements in each management zone based on the currently available science and information.
2. Confirmation of the impact extraction in South Mataranka may have on North Mataranka and Larrimah management zones.
3. Modelling of scenarios to determine:
 - a. The level of extraction that would meet the acceptable limits of change for environmental and cultural values in South Mataranka
 - b. The impact on flows at Elsey Homestead and Red Rock based on b and c above.
 - c. The impact of setting an ESY of 15GL and 25GL/yr for the Larrimah management zone on environmental and cultural values across the whole plan area (with extraction in South Mataranka set at its recommended ESY).

18. Process from here

EDWRD advised the department is proposing to simplify the plan and adopt a common template for all future plans. New format would address the resource, legislation, ESY and “rules” within the plan with supporting detail in a background document. A third document would address implementation and accessible reporting details, for public accountability.

It was queried what the Minister would approve. EDWRD advised that all the documents would be provided as a package to the Minister, but the Minister would approve/declare only the plan document. All three documents would be provided for public comment.

The next steps are:

1. Provide the WAC with an environmental and cultural values report.
2. Propose ESY values for each management zone and all zones combined that considers environmental and cultural flow requirements.
3. Develop and circulate out of session first draft of water allocation plan and implementation plan. WAC members to prepare comments.
4. WAC to meet face to face to review plan and implementation plan and set adaptive management triggers and responsibilities.
5. Finalise and circulate out of session 2nd draft of plan, implementation plan and the background document.
6. Endorse 2nd draft of plan, implementation plan and the background document out of session or face to face if required.

Timing of steps 1-6 to be verified after Water Resources internal consultation.

19. Next meeting

The information described in the “Next steps” is to be considered for endorsement by the Committee out of session with response via the Chair.

The next face to face meeting would be to review a draft plan and consider endorsement.

The department will review the time needed to undertake this work and propose dates for this meeting.

Attachments:

Workshop outcomes: Summary of principles and key actions to establish an Estimated Sustainable Yield

Appendices

Appendix 1. Water Planner Presentation

Appendix 2. Environmental Limits to Change Presentation

Meeting closed 3.00pm

Attachment 1.

Mataranka WAC Workshop: Summary of principles and key actions to establish an Estimated Sustainable Yield

Principles

The following principles apply to all management zones, North Mataranka, South Mataranka and Larrimah, when establishing the Estimated Sustainable Yield (ESY).

1. Extraction of water from Larrimah management zone must not result in reversal of flows- from South Mataranka management zone.
2. Surface water flows maintained by groundwater discharge exiting the South Mataranka management zone must meet the needs of non-consumptive uses downstream of the water allocation plan boundary.
3. Ensuring sufficient water supply for additional consumptive use downstream of the water allocation plan boundary is not a consideration when setting the ESY.
4. Water allocated within the Mataranka Tindal Water Allocation Plan must not impact on quality and quantity of water required for environmental, cultural and potable water supply downstream of the water allocation plan boundary.
5. An ESY will be set for each management zone and for the collective plan area.
6. Staged release of an ESY may be established in the plan (likely only apply to Larrimah management zone).
7. In setting the ESY, the timeframe for applying the ESY should be considered long term i.e. not limited to a 10 year planning cycle, albeit recognising that the ESY can change over time in response to improved knowledge of the resource, water values and their water requirements.

Outcomes

The following points were agreed during the workshop discussion

1. Usage and entitlements are very low in North Mataranka, reduction to entitlements may have little or no impact on acceptable limits of change to environmental and cultural values within the entire plan area.
2. Further work is required to establish the limits of acceptable change, document the water requirements of environmental and cultural values and establish if current entitlements exceed limits of acceptable change.
3. Preliminary assessments indicate environmental and cultural values may be already impacted in South Mataranka management zone echoing anecdotal information by local community.
4. If it is established that the South Mataranka management zone is over allocated, the plan should recommend that:
 - a. there is no increase in current entitlements
 - b. no new licences approved and
 - c. future additional use should occur via trade.
 - d. a reduction to entitlements to bring total entitlements within the ESY.
 - i. Any reduction to entitlements must be staged over a number of years to minimise economic impact to non-consumptive users.
 - ii. All available tools should be used to reduce entitlements where required including:
 1. Provisions under the Recovery of Unused Water Licence Entitlements (use it or lose it) Policy.
 2. Investigating the opportunities to shift extraction points away from the zones of greatest impact.
5. Concise and effective communication products will be required to inform all stakeholders.

6. The Water Advisory Committee (WAC) agreed to Water Resource's proposal for the plan to be presented as three documents:
 - a. A concise document (the plan) limited to legislative requirements, plan scope and objectives, ESY, management rules, risk and uncertainty.
 - b. A background document with all supporting information
 - c. An operational implementation plan

Further Information Required

The following information and/or actions are required before setting the ESY.

4. Further refining the water requirements of environmental and cultural values in each management zone based on the currently available science and information.
5. Confirmation of the impact extraction in South Mataranka may have on North Mataranka and Larrimah management zones.
6. Modelling of scenarios to determine:
 - a. The level of extraction that would meet the acceptable limits of change for environmental and cultural values in South Mataranka
 - b. The impact on flows at Eley Homestead and Red Rock based on b and c above.
 - c. The impact of setting an ESY of 15GL and 25GL/yr for the Larrimah management zone on environmental and cultural values across the whole plan area (with extraction in South Mataranka set at its recommended ESY).

Next Steps

(Subject to internal confirmation) Water Resources to:

7. Provide the WAC with an updated environmental and cultural values report.
8. Propose ESY values for each management zone and all zones combined that considers environmental and cultural flow requirements.
9. Develop and circulate out of session first draft of water allocation plan and implementation plan. WAC members to prepare comments.
10. WAC to meet face to face to review plan and implementation plan and set adaptive management triggers and responsibilities.
11. Finalise and circulate out of session 2nd draft of plan, implementation plan and the background document.
12. Endorse a 2nd draft of plan, implementation plan and the background document out of session or face to face if required.

Timing of steps 1-6 to be verified after Water Resources internal consultation.