Meeting 5 Notes

PROJECT:	Future Water Source Community Consultation Group
CLIENT:	Water Corporation
DATE:	December 2025
VERSION:	0.2

When will you have your next Aha! moment?

Aha! CONSULTING

Contents

1 Introduction

As part of exploring new water sources for the Lower Great Southern Towns Water Supply Scheme, the Water Corporation (the Corporation) has formed a Community Consultation Group (CCG). The expression of interest form set the purpose of this group as:

> "Consult with a diverse mix of community members to better understand the decision-making process the Water Corporation is undertaking for its future water source planning in the Great Southern Region. This will include consulting on potential sites for a seawater desalination plant in Albany."[1]

A series of meetings have been scheduled for 2025 and 2026. The fifth meeting was held on 9th December 2025 at the Water Corporation Offices in Albany from 5:00pm to 7:00pm.

The participants at the meeting can be found in Appendix One of this report.

The meeting covered four key topics:

1. Checking in on what CCG members are hearing
2. Providing updates on the investigations that are underway/planned
3. Providing updates on the Brine dispersion study
4. Overviewing upcoming engagement

What follows are the core discussion points from this meeting.

[1] Water Corporation: Lower Great Southern new water source investigations. Expression of Interest - Community Consultation Group March 2025.

2 Group Purpose and Agreements

The terms of reference define the group's purposes in the following way.

The **Albany Community Consultation Group (CCG)** is a place where community members and the Water Corporation can talk about future water plans for the Lower Great Southern Region.

CCG objectives

- Help obtain the views of members on the various options available to the Water Corporation
- Suggest ways to engage with the local community
- Offer advice to the Water Corporation on how issues or concerns may be addressed

Decision-making

The CCG doesn't make decisions; it is a forum for sharing information.

2.1 Agreements

Further to the code of conduct established as part of the CCG's terms of reference, the group discussed its own agreements that would contribute to robust, constructive, and productive delivery of the group's purpose.

- Respect
    - Not talking over other people
    - Making space for others to express their views (kindness)
    - Provide time for people to be able to respond
    - Make eye contact with people
- Be curious
    - Ask "what does it look like?" if you hear different views
    - Take the time to be clear about what the other is saying
- Work together
    - Working to a shared goal
    - Draw on each other's strengths
    - Be solution focused
    - Bring passion in a way others can receive
- Trust
    - Share with openness
    - Encourage two-way conversations

3 What are CCG Members hearing?

The meeting opened with a ‘check in’ to see what CCG members are hearing from around the wider community.

- There is some fear in the community about the Water Corporation doing private deals with land holders around Nanarup.
    - Some rumours that the Corporation is looking to buy the property called Maitraya
- Overall it was felt that desalination was becoming an accepted approach, through concerns that the Corporation and wider community lose the focus on other water sources. *
    - The concern is that if we stop harnessing water from other sources (ie: ensuring new land developments are harvesting water with rainwater tanks), then we will continue to need to expand the capacity of the desalination plant.
- There are mixed opinions about whether Nanarup or Sandpatch is the preferred site
- There is a petition underway, that is presenting information that is inaccurate (size of the plant and what it might look like)
    - It would be good for the Corporation to be on hand at the shops (Baynonet Head Shopping Centre) where these stalls are, to offer more accurate information.

*The Corporation highlighted the Waterwise town campaigns that are ongoing.
- 13 Mega Litres of water have been saved in the region in a single year, across 17 towns
- Continue to work with large water users (schools, clubs, hotels etc) to identify opportunities for water savings.

The Corporation will also continue to investigate water loss within the scheme and maintain infrastructure to reduce leaks and save water.

4 Investigations Update

The Corporation provided an update on the current and proposed investigations and overall project timelines.

Date	Activity/Milestone
Completed /underway	• Zero Liquid Discharge study • Shore crossing and marine works study • South Coast subsurface intake study • Ecotoxicology* study Phase 1 (desktop) • Brine dispersion modelling and preliminary Environmental Impact Assessment • Flora and fauna surveys • Drone survey • Land discussions
Future	• Ecotoxicology study Phase 2 (testing in a laboratory, examines the effect of brine on the larvae and juveniles of selected marine species to determine the number of dilutions required – this information informs the diffuser design) • Aboriginal Heritage survey • Geotechnical study – land and marine • Coastal hazards and inundation • Metocean (waves, tides, currents) and marine water quality monitoring • Benthic habitat mapping (flora & fauna communities growing on the seabed, including seagrass, coral, and marine life) • Bathymetric surveys (underwater depth and seabed features)

*Water Corporation explained the Ecotoxicology studies are used to establish the brine dilution required to protect various species of ocean flora and fauna. Phase 1 desktop studies were not site dependant and were used to identify locally relevant/important species that could be included in an extended suite of laboratory tests. Species identification was done in conjunction with the fisheries and ecosystem scientists within DPIRD (WA Department of Primary Industry and Regional Development). Phase 2 will involve the actual testing and again is not specific to either of the two sites under consideration.

5 Brine Dispersion modelling

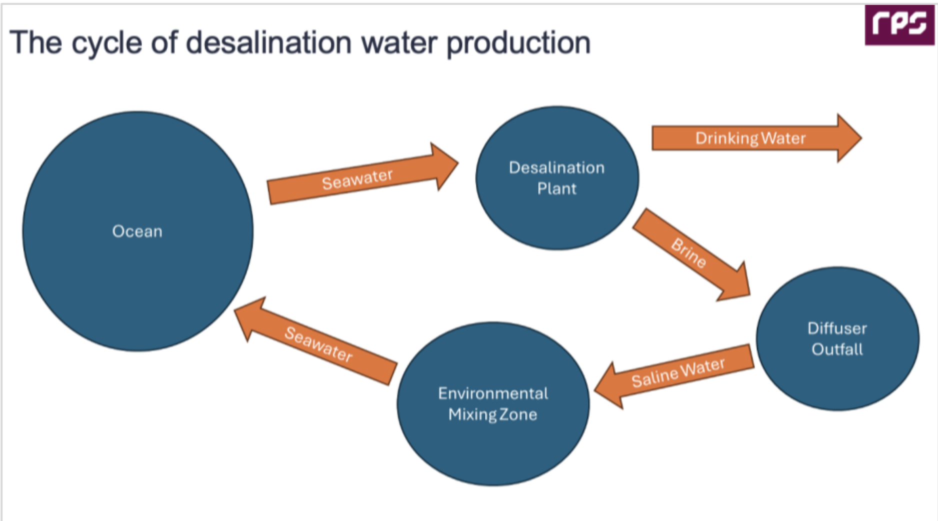
Ryan Alexander from RPS consulting presented the current findings of the Phase 1 brine dispersion modelling. The phase one modelling was designed to help respond to the following questions

1. Impact to Marine Life from Brine Water/Saline Water
   - What is the level of salinity that will impact local marine life?
2. Impact to Marine Life from Other Substances
   - Are there any other chemicals present that may have more effect than brine?
3. Salt Accumulation on the Seabed
   - Does a layer of salty water remain on the seabed, and could this reduce oxygen for organisms living there?
4. Long-Term Changes in Ocean Salinity
   - Will local ocean currents be strong enough to disperse any remaining saline water over time?

The study focuses two main aspects of the water production cycle (image below). The two areas of focus are;

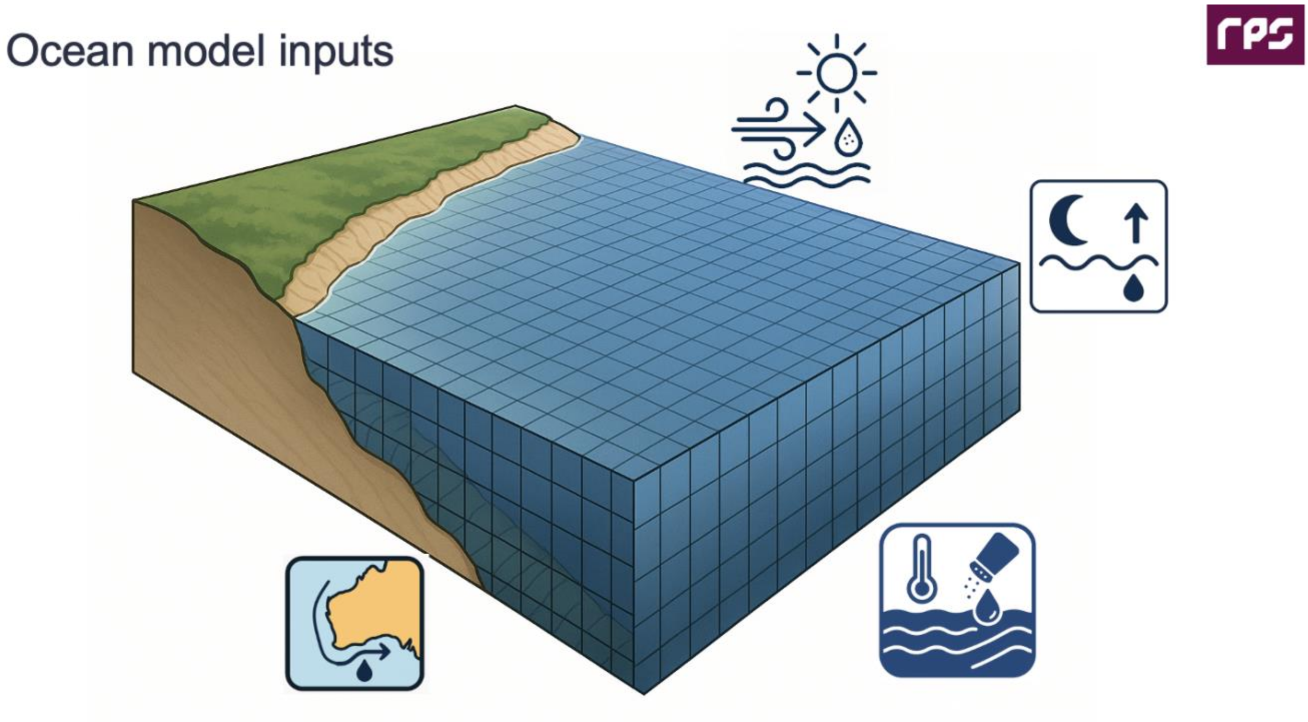
(1) What happens at the **DIFFUSER OUTLET,** the point at which the brine from the desalination plant is released into the water. This is the main opportunity for mechanically dispersing the brine and encouraging its dilution back to the surrounding salt levels.

(2) What happens at the **ENVIRONMENTAL MIXING ZONE**, the point at which any remaining brine settles on the seabed (approx 50cm height) and requires environmental factors like tide, wind action etc, to complete the dilution back to the surrounding salt levels. As such it is important to test the ability of these environmental factors to achieve the require dilutions.

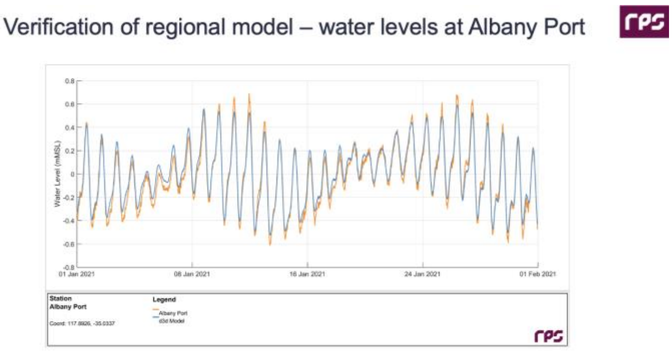


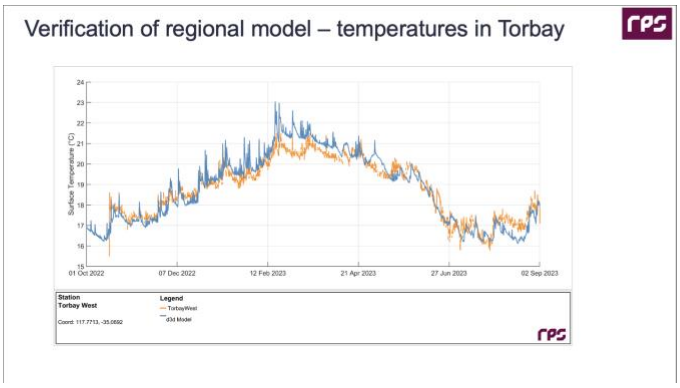
5.1 Developing the model

An overview was provided on how the dispersion models are developed. The area of ocean is segmented into 'blocks' that allows different data (ie: temperature, salinity, tides and current) to be inputted at the model boundaries and then transmitted to the study area. This allows the consultants to model the ocean movements at various depths and distances to the shoreline. Through this they can begin to simulate and predict the ability to disperse brine from a particular location in an environmentally effective way.



The model starts with larger scale 'blocks" (approx 1 km in width, but much thinner in depth) that are informed by data from global ocean and weather models to build a regional level model that spans the past on 5 years of historical data. There are a series of verification steps to test that this regional level model is accurate.





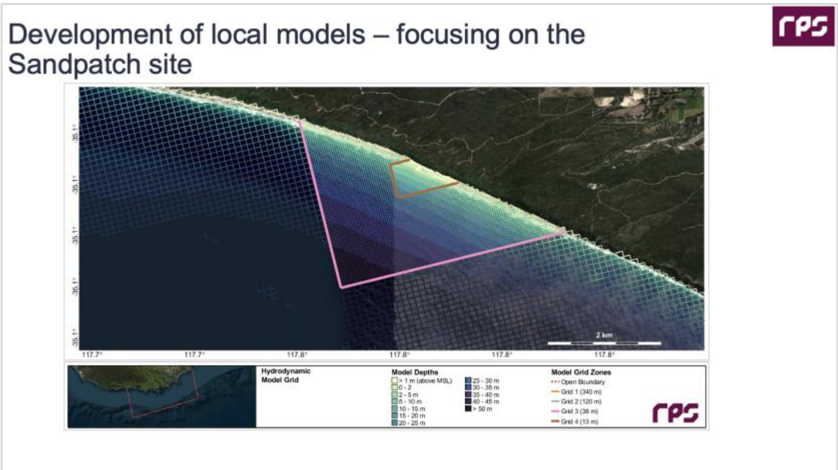
5.2 Development of study sites models

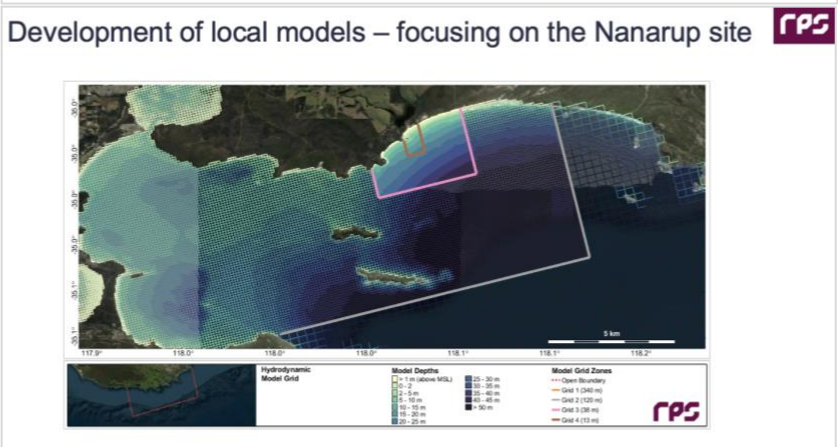
Once the regional level model is developed, this is then used to inform the development of more refined models for the study sites.

To build the refined model for the study sites the following steps were taken:

- Ocean conditions from 2020-2025 were reviewed to identify patterns and trends near Nanarup and near Sandpatch
- Times of 'low' ocean energy can result in inhibited dispersion of brine/salt discharges
- These times can lead to reduced dispersion, or more accumulation potential, for brine/salt discharges
- A seasonal pattern was found for the lowest-energy periods – they happen most often in summer
- Periods representing low-energy ocean events were identified as the target simulation periods for the high-resolution local models developed for Nanarup and Sandpatch

The horizontal grid 'Blocks' used in the refined modelling decrease in size nearer to the study sites. At the Nanarup and Sandpatch sites the size of the model blocks was reduced to 13m, this allows the consultants to test different DIFFUSER OUTLET designs and assess the capacity of the ENVIRONMENTAL MIXING ZONE to complete the dilution back to the surrounding salt levels.

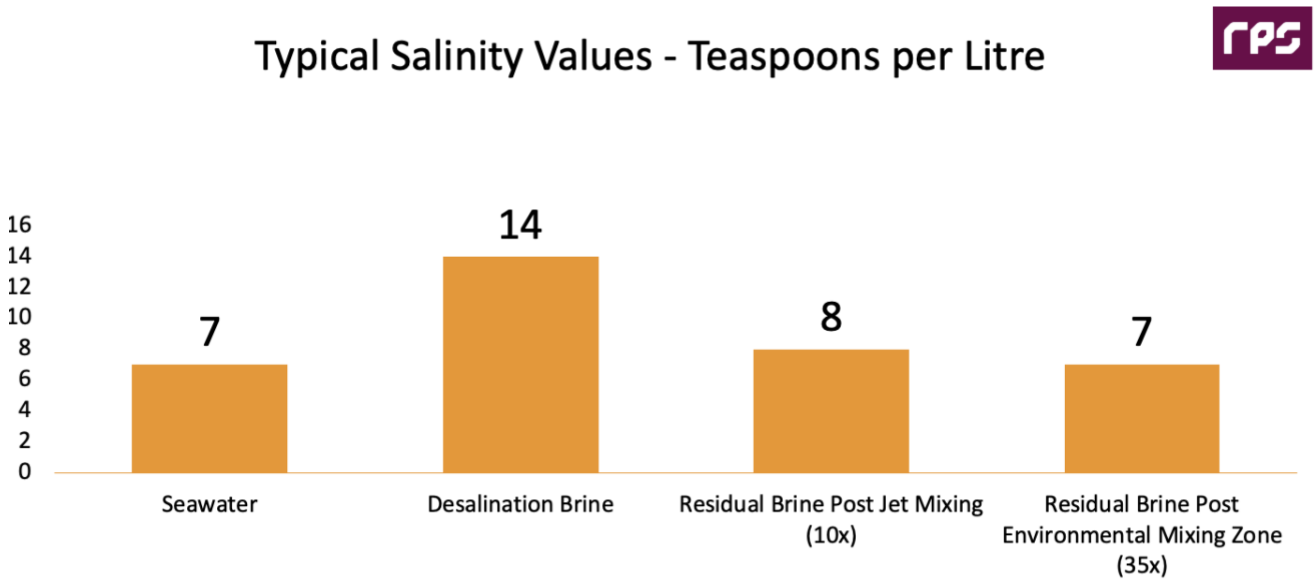




5.3 Brine Dispersion

In simplest of terms the number of "teaspoons" of salt per litre of water, was used to describe the salinity at different stages of the desalination process. The chart below shows that

- Seawater: is typically the equivalent of 7tsp per litre
- Desalination: produces brine typically the equivalent of 14tsp per litre
- Residual brine: is typically the equivalent of 8tsp per litre. This occurs within ~10-20m around each diffuser and is achieved through using mechanical jets (eg: underwater sprinkler) to spray the water up to 10m height to maximise dispersion.
- Residual Brine: is typically the equivalent of 8tsp per litre. This is where the desalination output is returned to the salinity of the surrounding seawater in the ENVRIONMENTAL MIXING ZONE. This zone requires appropriately 50m around each diffuser.



The following example shows the design of the diffuser port operating in calm conditions and the typical distances required to achieve the dilution back to the surrounding salt levels.

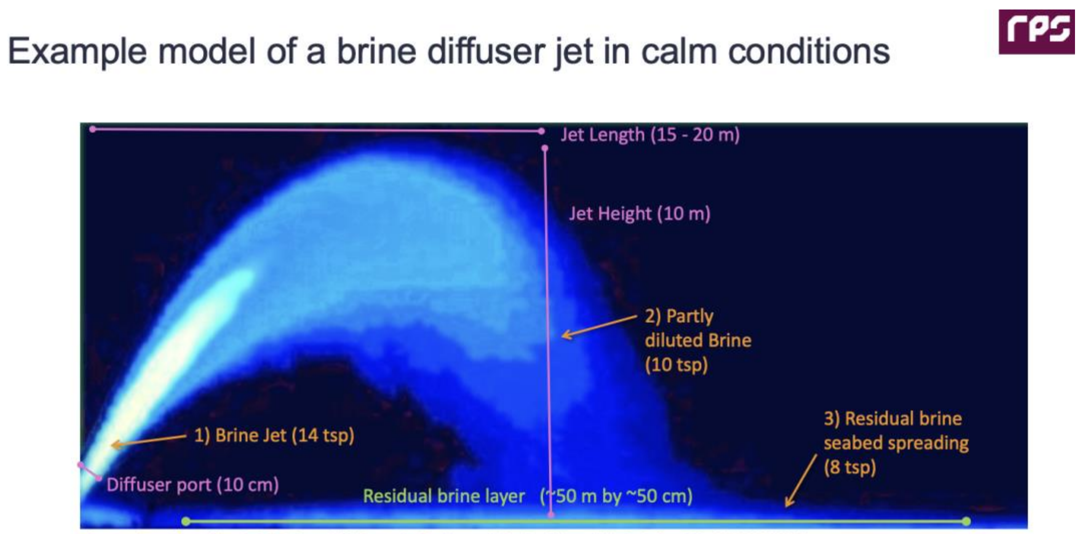


Image adapted from Abessi, O & Roberts, PJW. Dense Jet Discharges in Shallow Water. J. Hydraul. Eng. 142, 04015033 (2016).

5.4 Outcomes and next steps

The preliminary outcomes of the modelling showed that, at both sites, the brine was able to be typically dispersed through the ENVIRONMENTAL MIXING ZONE within 10s of metres.

The preliminary modelling results also showed that general salinity levels at both sites did not appear to increase over time.

This was seen as a positive outcome in phase one, but extended modelling and analysis is required to conclude about the performance of the conceptual designs. This next phase of brine dispersion modelling will include:

- Incorporation of infrequent 'pulse' events (local inlet breakthrough flows) into local models
- Completion of brine dispersion scenarios and analysis/interpretation of results
- Assessment of discharge compliance in the context of species protection thresholds

Phase 2 – incorporate water quality and metocean (waves, currents and water heights) data collected at the chosen location to **further refine the brine dispersion modelling**

Phase 3 – incorporation of all data (measured and publicly available) to complete the model refinement and to **inform the optimum diffuser design** for the chosen location using a comprehensive, evidence-based understanding of the marine environment

6 CCG Questions

1. **Can the global ocean model data source be made available for people who are interested in oceanography and whale migrations**
   The CMEMS global ocean product can be accessed at:
   https://data.marine.copernicus.eu/product/GLOBAL_MULTIYEAR_PHY_001_030/description

2. **What happens to heavy metal that area taken out of the seawater and concentrated through the desalination and then returned to the seawater?**
   - Typically, the same dilution principles apply, where the concentration is returned to surrounding levels

3. **Can the amount of water taken from desalination be reduced during the periods of low energy in the ocean?**
   - The modelling is based on worst case scenario/mixing which the infrastructure will be designed to operate in, so we wouldn't have a need to reduce the amount taken from the ocean in calm conditions.

4. **What happens to the cleaning agents used in the desalination equipment and its dispersion into the ocean?**
   - All cleaning agents are food grade (eg: citric acid) and would be held to the same standards of dilution, that will be set by the ecotoxicology studies.

5. **Will a site be selected before the more detailed brine dispersion modelling is completed.**
   - To assist with site selection the 12 week modelling and 'pulse' event modelling is planned to occur prior to completion of site selection
   - The rest of the phase 2 and 3 modelling will be occurring at the preferred site

7 Next Steps

The CCG is free to share what they are learning through these meetings and are asked not to share the specific reports posted on the portal, due to the level of explanation required for them to be useful. The Corporation is planning a workshop for the community at Lower Kalgan Hall on 10th December to walk through the Brine dispersion modelling and will be considering different ways to present the information publicly.

The next meeting is scheduled for 2nd February 2026.

In 2026, there will be another EOI for CCG membership. So that current members and other members of the community are able to consider their membership in light of the preferred site being identified.

8 Appendix One – Attendance

CCG Members

	Name	Meeting 5	Meeting 4	Meeting 3	Meeting 2	Meeting 1
1	**Aaron Williams**	Apology	Apology	Apology	Apology	Present
2	**Anthony Wise**	Present	Apology	Apology	Present	Present
3	**Chris Meuzelaar**	Present	Present	Present	Present	Present
4	**Derek van Buren**	Present	Present	Present	Present	Apology
5	**Diane Evers**	Present	Apology	Present	Present	Present
6	**Frank Ruggera**	Present	Present	Present	Present	Present
7	**Gary Crockford**	Present	Present	Present	Present	Apology
8	**Harm Mulder**	Present	Present	Apology	Present	Present
9	**Jeremy Hadlow**	Present	Present	Present	Apology	Present
10	**Joy Mealor**	Present	Present	Apology	Present	Present
11	**Laura Bird**	Present	Present	Present	Present	Present
12	**Natalie Reeves**	Present	Present	Present	Apology	Present
13	**Rebecca Freeman**	Present	Present	Present	Present	Apology
14	**Sam Williams**	Apology	Apology	Apology	Apology	Present
15	**Sandra Swain**	Present	Present	Apology	Present	Present
16	**Sarah-Louise Collins**	Present	Apology	Present	Present	Present
17	**Wendy Coffey**	Present	Present	Present	Present	Present

Water Corporation Staff

	Name	Meeting 5	Meeting 4	Meeting 3	Meeting 2	Meeting 1
1	**Adrian Stewart**	Present	Present	Present	Present	Present
2	**Julia Phillips**	Present	Present	Present	Apology	Present
3	**Matthew Bowman**	Present	Present	Present	Present	Present
4	**Sally Courboules**	Apology	Apology	Apology	Present	Present
5	**Joel Mclure**	Present	Present	Present	Present	Present
6	**Kym Williams**	Present	Present	Present	Present	Present
7	**Carina Harris**	Present	Present	Present	Present	Apology
8	**Palenque Blair**	-	-	Present	-	-

– END –

EMAIL: admin@ahaconsulting.net.au
WEBSITE: ahaconsulting.net.au
PHONE: +61 8 9443 9474