WATER MANAGEMENT ADVISORY COMMITTEE

14 June 2023

COMMUNITY STRATEGIC PLAN 2018-2028

ONE – CENTRAL COAST IS THE COMMUNITY STRATEGIC PLAN (CSP) FOR THE CENTRAL COAST LOCAL GOVERNMENT AREA

ONE – CENTRAL COAST DEFINES THE COMMUNITY'S VISION AND IS OUR ROADMAP FOR THE FUTURE

ONE – CENTRAL COAST BRINGS TOGETHER EXTENSIVE COMMUNITY FEEDBACK TO SET KEY DIRECTIONS AND PRIORITIES

One - Central Coast will shape and inform Council's business activities, future plans, services and expenditure. Where actions are the responsibility of other organisations, sectors and groups to deliver, Council will work with key partners to advocate on behalf of our community.

Ultimately, every one of us who live on the Central Coast has an opportunity and responsibility to create a sustainable future from which we can all benefit. Working together we can make a difference.

RESPONSIBLE

WE'RE A RESPONSIBLE COUNCIL AND COMMUNITY, COMMITTED TO BUILDING STRONG RELATIONSHIPS AND DELIVERING A GREAT CUSTOMER EXPERIENCE IN ALL OUR INTERACTIONS. We value transparent and meaningful communication and use community feedback to drive strategic decision making and expenditure, particularly around the delivery of essential infrastructure projects that increase the safety, liveability and sustainability of our region. We're taking a strategic approach to ensure our planning and development processes are sustainable and accessible and are designed to preserve the unique character of the coast.

Good governance and great partnerships

G2 Engage and communicate openly and honestly with the community to build a relationship based on trust, transparency, respect and use community participation and feedback to inform decision making

There are 5 themes, 12 focus areas and 48 objectives

COMMUNITY STRATEGIC PLAN 2018-2028 FRAMEWORK

All council reports contained within the Business Paper are now aligned to the Community Strategic Plan. Each report will contain a cross reference to a Theme, Focus Area and Objective within the framework of the Plan.

Meeting Notice

The Water Management Advisory Committee will be held at Nexus Boardroom and Remotely – Online, on Wednesday 14 June 2023 at 2.00pm

for the transaction of the business listed below:

Welcome, Acknowledgement of Country, Receipt of Apologies

We acknowledge the Traditional Custodians of the land on which we live, work and play.

We pay our respects to Elders, past, present and emerging and recognise their continued connection to these lands and waterways.

We acknowledge our shared responsibility to care for and protect our place and people.

1 Procedural Items

2 Reports

Jamie Loader
Chairperson

1.1 PREVIOUS BUSINESS: CONFIRMATION OF MINUTES, REVIEW ACTION LOG

Chairperson

Attachments

Nil

Item No: 2.1

Title: Water Supply System Status Report

Department: Water and Sewer

14 June 2023 Water Management Advisory Committee

Reference: F2019/01200 - D15681468

Author: Kate Gibbs, Executive Support Officer

Satpal Singh, Lead Engineer Water Resilience Assets and Planning

Manager: Luke Drury, Unit Manager. Assets and Projects

Executive: Jamie Loader, Director Water and Sewer

Recommendation

That the Committee notes the Water Supply System Status report for June 2023.

Report purpose

To provide the Committee with a summary of the status of the water supply system (Action Item 9).

Executive Summary

The Water Supply System Status report provides the Committee with a summary of the status of the Central Coast water supply system including dam storage levels, headworks operations statistics, water restrictions, status of important headworks assets, Hunter water storage levels and transfers, and climatic forecasts.

Background

The Water Management Advisory Committee (WMAC) requested staff to provide a summary of the status of the Central Coast water supply system, as a Standing Agenda Item (Action Item 24).

Current Status

1. Summary

Mangrove Creek Dam (MCD) remains close to full, sitting at over 99.5% for the last three months. Mooney Dam during the last three months has maintained an average storage level of above 75% and is currently 74.8%. Mardi Dam has been the source of water for Mardi Water Treatment Plant (MWTP) since mid-November 2022, initially due to Mardi to Mangrove Pipeline (M2MP) subsidence and later due to high manganese and low dissolved oxygen levels at the Bunning Creek Tunnel (BCT) offtake within MCD.

Mardi Dam was offline for about 2 weeks from 11 May to 24 May due to Blue Green Algae and as a result MWTP was offline until 24/5/2023. It is currently back online with improved water quality in Mardi Dam but with reduced capacity. Pumping from Wyong and Ourimbah Creek was also impacted due to Mardi Dam water quality issues.

The source water for MWTP will be swapped back to MCD as per current rules, once conditions in MCD at the BCT offtake are back within the acceptable water quality envelope for MWTP.

Meanwhile an air diffuser trial was conducted at MWTP, to reinstate the efficacy of the oxide coated media process by raising the Dissolved Oxygen (DO) in the MCD raw water. It was demonstrated that raising the level of DO is required for the coated media process to function effectively. Besides DO, the appropriate level of filtered water chlorine and pH are also required; effectively managing these parameters for coated media process function are part of normal MWTP operation.

Somersby Water Treatment Plant (SWTP) has been using water from Mooney dam and run of the river from Mangrove Creek Weir to meet increased production demand due water quality issues at MCD and Mardi Dam.

Recent La Nina climate conditions ended in mid-March 2023. The Pacific Ocean is currently ENSO-neutral (neither La Niña nor El Niño) with the Bureau of Meteorology (BOM) issuing an El Nino Alert on 6 June 2023.

The average weekly demand during the autumn months so far has been about 612ML with a maximum weekly demand of 716ML.

Hunter Water Storage level is 96.8% as of 30 May 2023. Currently Hunter Water is supplying Central Coast about 15ML/day

Report

1. Headworks Operations Statistics

The table below is the summary of where the water has been sourced from for supply, water demand, storage levels and other important information for Central Coast water supply for the report period.

Table 1 Headworks Operations Statistics

	Mar 2023	**Apr 2023**	**May 2023** (Until 29/05.2022)
Total Water Sourced for Supply (ML)			
MCD Release and Run of River D/S of MCD @ SWTP	673	1,206	2,288
Mooney Mooney Dam @ SWTP	762	1,027	1,844
MCD Release @ MWTP	-	33	220
Mardi Dam @ MWTP	1,816	1,590	155
Woy Woy Bores @ GWTP-Woy Woy	0	0	0
Net Hunter Transfers (+ from HW and – to HW)	-165	-246	371
Total Demand (ML)	2,877	2,434	2,456
Mardi Mangrove Transfers (ML)			
To Mangrove Dam	0	0	0
To Mardi Dam / Mardi WTP	0	33	220
To Mangrove Creek	0	0	0
Rainfall (mm)			
MCD Rainfall	98	69	17
Mardi WTP Rainfall	115	117	2
Mooney Mooney Dam	91	120	19
Total Sourced from environment for Storages (ML)			
Wyong River to Mardi Dam	1,261	721	124
Ourimbah Creek to Mardi Dam	338	33	92
Mangrove Creek Weir (run of river) to MMD via Spur Main	0	0	0
Mangrove Bore field to Mangrove Creek Weir	0	0	0
Ourimbah / Bangalow Bore field to Mardi Dam	0	0	0
Central Coast end of period Storage Levels (%)			
Total Storage	98.7	98.8	98.1
Mangrove Creek Dam	100	100	99.9
Mooney Mooney Dam	70.1	86.8	74.8
Mardi Dam	72.2	63.1	66.2
Hunter Water end of period Storage Levels (%)	95.2	96.9	96.8

2. Water Restrictions

The Council adopted triggers for Central Coast water restrictions are tabulated below. Water restrictions start at Level 1 when Mangrove Creek storage falls to 50%.

Table 2 Water Restriction Triggers

Restriction Level	Initiate Restriction Level when Mangrove Creek Dam falls to	Remove Restriction Level when Mangrove Creek Dam rises to
Level 1	50%	*55%
Level 2	40%	42%
Level 3	35%	37%
Level 4	30%	32%
Level 5	25%	27%

* Changed to 55% from 52% by the Council resolution on 13/02/2020

The restriction triggers are presented as a guide that should be applied within the overall context of the relevant factors influencing the security of the supply such as:

- The seasonal outlook (for stream flows, rainfall, and temperature)
- Achievement of the current restriction target
- The timing and risk associated with any contingency water supplies, and
- Any other relevant information.

Council transitioned from Level 1 Restrictions to Water Wise Rules on 7 December 2020.

3. Status of Important Headworks Assets

The table below is the list of operations affected or at risk / offline by any current or potential asset issues. These affected operations may or may not impact on system yield.

Table 3 Status of Important Headworks Assets

Operation Impacted	Status	Asset Impacting	Status Comments	Date due back in service	Responsible Officer for return to service
Raw Water Transfers to Mardi Dam	Available				
Mardi to Mangrove Transfers	Available		Raw water issues at MCD offtake (DO + Manganese) impacted WTP production balance but not system yield through May.		
Raw Water Transfers from MCW	Available				
Mooney Dam to WTP	Available				
Mardi Dam to MWTP	Available				
Coastal Transfers	Available				
Western Transfers	Available				
HW Transfers	Available				
Woy Woy Borefield	Mothballed				

4. Dam Storage Levels

As of 29 May 2023, total storage is 98.1%, MCD storage level is 99.9%, Mooney and Mardi Dams are currently at 74.8% and 66.2% respectively.

Figure 1 Total Dam Storage Level

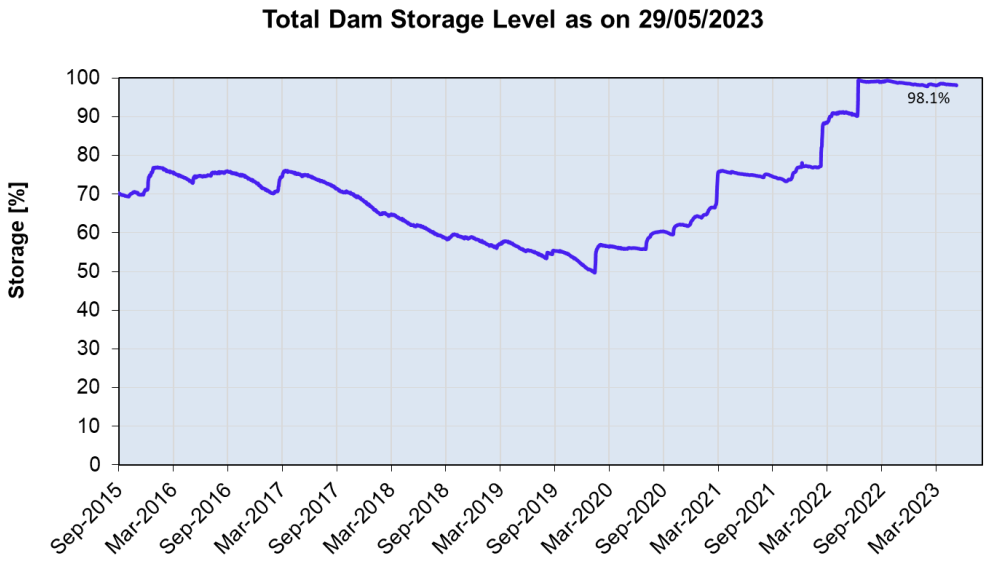


Figure 2 Mangrove Creek Dam Storage Level

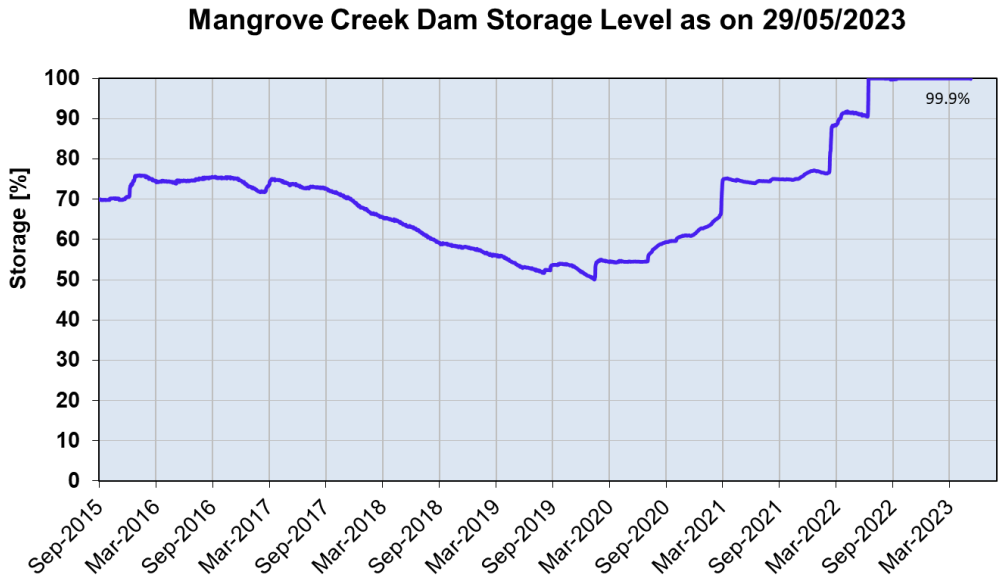


Figure 3 Mooney Dam Storage Level

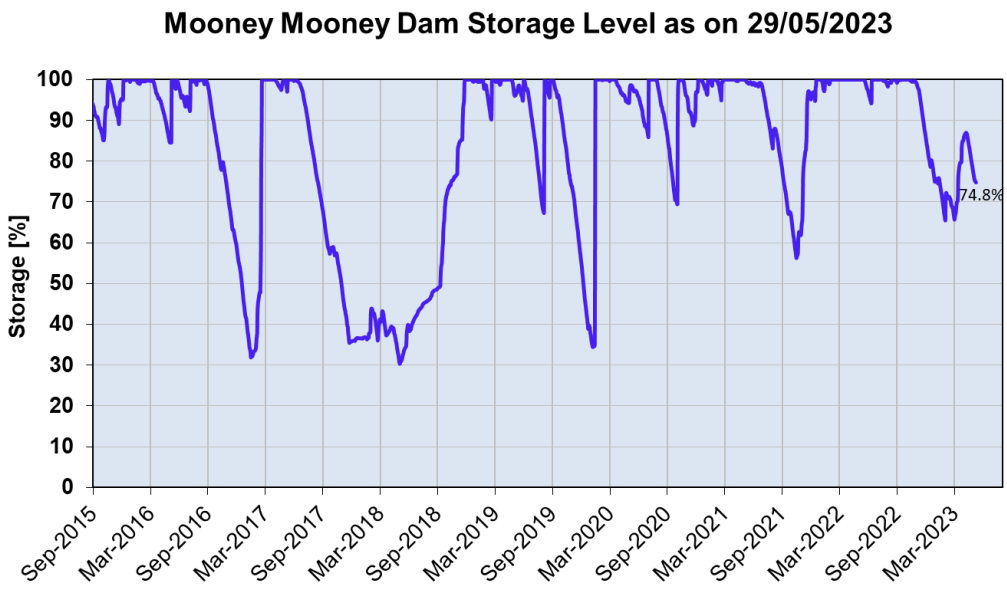
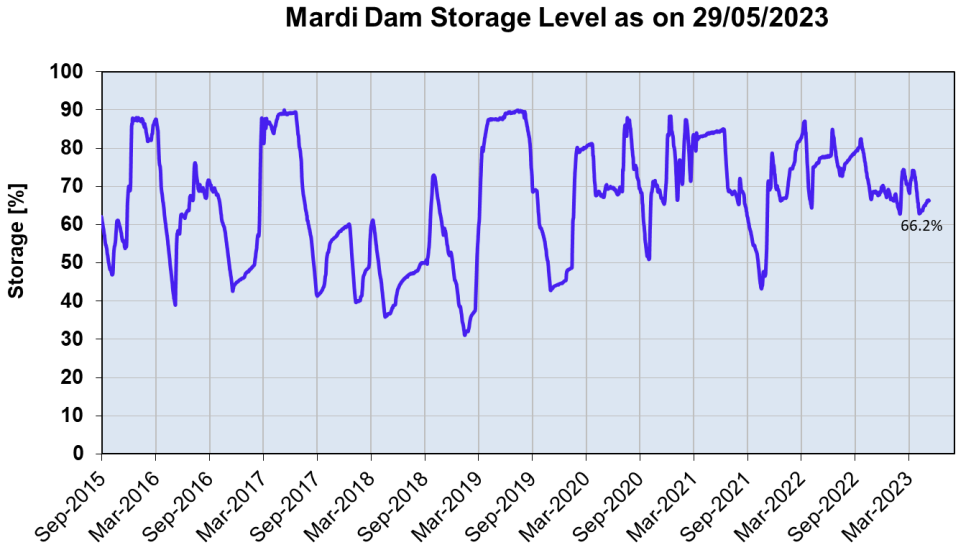


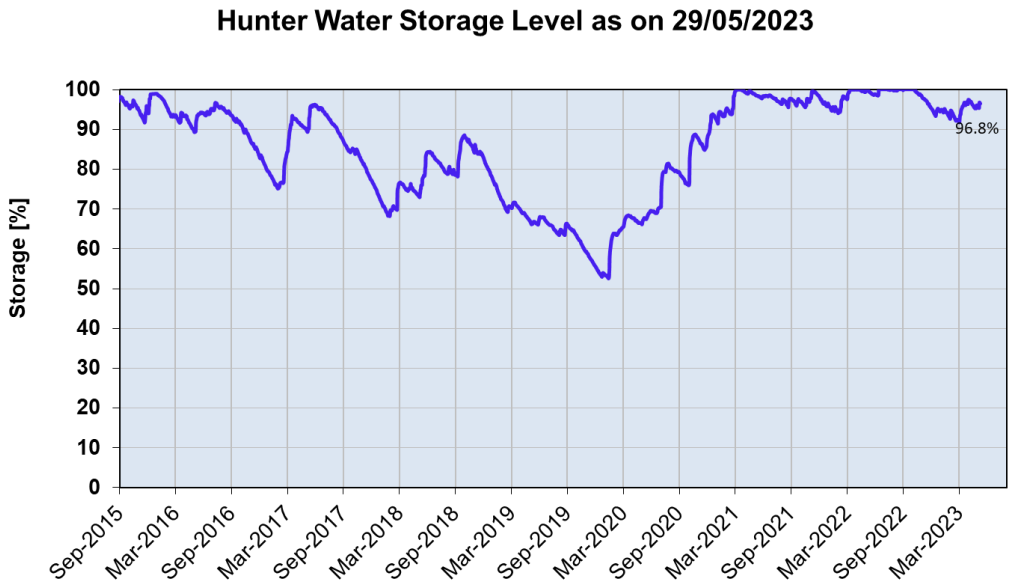
Figure 4 Mardi Dam Storage Level



5. Hunter Water Storage Level and Transfers

As of 29 May 2023, Hunter Water's storage is 96.8%. Currently water quality transfers are happening at around 15 ML/day from Hunter Water to Central Coast.

Figure 5 Hunter Water Storage Level



6. Groundwater

Woy Woy Borefield

Currently bores are run once a month to keep operational and for basic water quality readings. The extracted water is bypassed to sewer and water treatment plant remains mothballed.

7. Rainfall

Table 4 shows long term annual and monthly average (current month) rainfalls with up to date annual and monthly rainfall for the current year and the month.

Table 4 Rainfall Statistics

Period	Rainfall mm				
	Gosford[1]	Norah Head[2]	Mangrove Creek Dam[3]	Mardi WTP	Mooney Dam
Total for 2022	2,318	1,528	1,886	1,992	2,187
Total for 2023 up to 30 May 2023	516	433	415	468	472
Long Term Annual* Average	1,350	1,214	953	-	-
Monthly to 30 May 2023	47	107	69	2	19
Long Term Monthly Average (May)	125	132	62	-	-

1. BOM Station 061319 (closed 2015) data from 1985 to 2015 has been used for long term average figures and BOM

   Station 061425 (opened 2013) data has been used for 2021 to 2022 figures
2. BOM station 061273 (closed 2004) data from 1970 to 2004 has been used for long term average figures and BOM station 061366 (opened 1989) data has been used for 2021 to 2022 figures

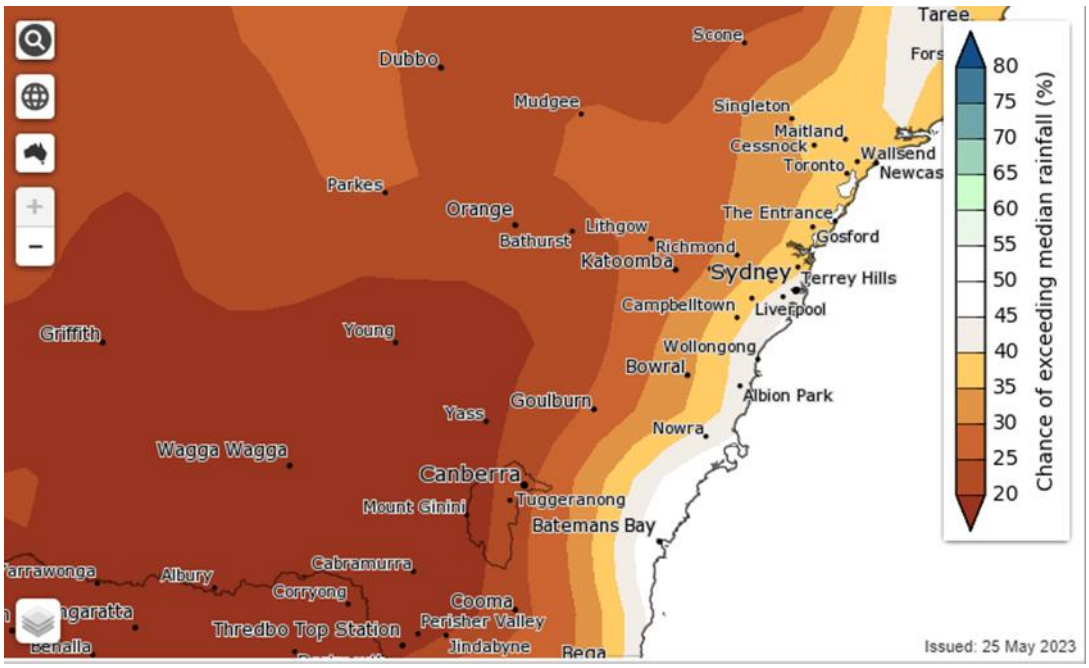
3. BOM Station 061394 (opened 1982) data from 1982 to 2020 has been used for long term average figures

* Calendar year

8. Seasonal Outlook for Rainfall and Temperature

The seasonal rainfall outlook issued by the Bureau of Meteorology on 25/05/2023 predicts 35-40% chance of exceeding the median rainfall for Central Coast in the three-month period from June to August 2023(refer **Figure 6**).

Figure 6. Chance of exceeding median rainfall

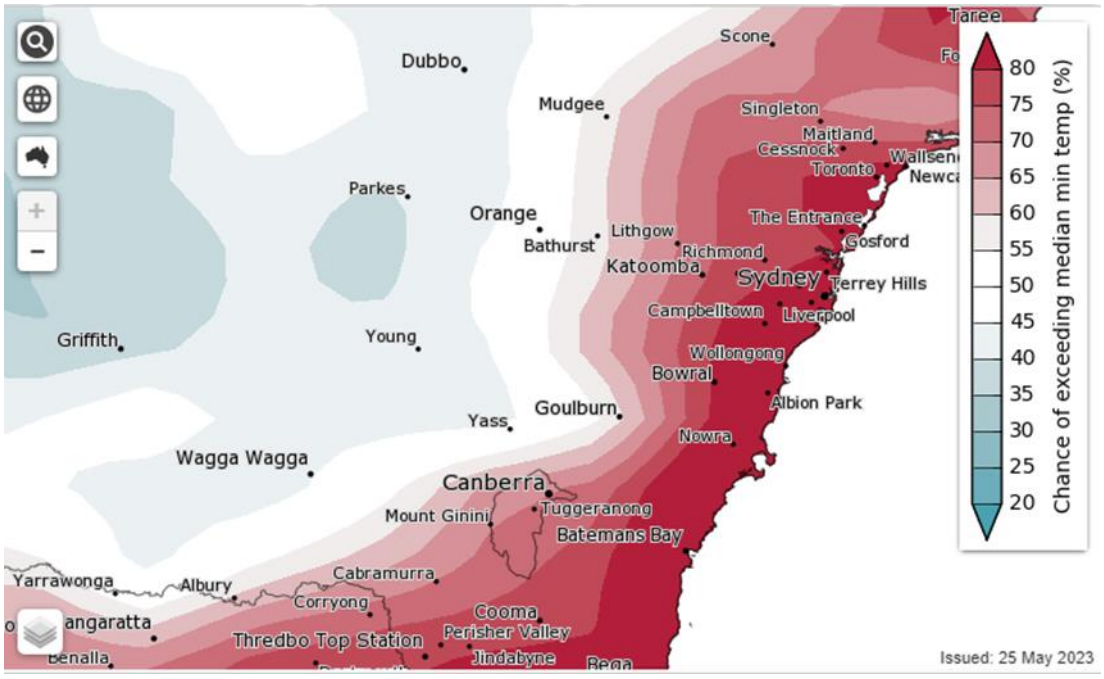


The seasonal projections for the Central Coast region predict above 80% chance of exceeding the median maximum temperatures during the three-month period from June to August 2023 (refer **Figure 7**).

Figure 7. Chance of exceeding median maximum temperature

The seasonal projections predict above 80% chance of exceeding the median minimum temperatures during the three-month period from June to August 2023 (Refer **Figure 8**).

Figure 8. Chance of exceeding median minimum temperatures



9. Climate Driver Update

El Niño ALERT activated; positive Indian Ocean Dipole also possible

The Bureau's ENSO Outlook has been shifted to El Niño ALERT, indicating a 70% chance of El Niño forming this year. This equates to roughly three times the normal chance of an El Niño forming. Central and eastern Pacific sea surface temperatures (SSTs) have warmed to El Niño thresholds. All models surveyed by the Bureau are forecasting the likelihood of further warming and that these SSTs will remain above El Niño thresholds at least into the southern hemisphere spring. Some atmospheric indicators such as the Southern Oscillation Index (SOI) have shifted towards El Niño thresholds, but wind, cloud and broad-scale pressure patterns indicate the Pacific Ocean and atmosphere are yet to reinforce each other, as occurs during El Niño events. El Niño typically suppresses rainfall in eastern Australia during the winter and spring months.

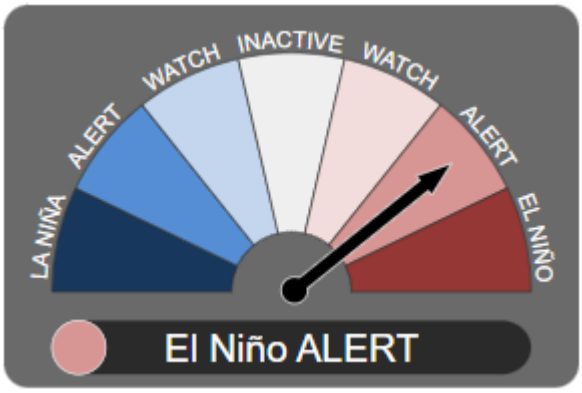
The current status of the ENSO outlook does not change the Bureau's long-range forecast for drier and warmer conditions across much of Australia for winter. The Bureau's climate model takes into account all influences from the oceans and atmosphere when generating its long-range forecasts.
The Indian Ocean Dipole (IOD) is currently in a neutral phase, with the IOD index at +0.32 °C. All models suggest positive IOD event thresholds may be reached in winter. A positive IOD typically supresses winter and spring rainfall over much of Australia, and if it coincides with El Niño, it can exacerbate El Niño's drying effect. Long-range forecasts of IOD made at this time of the year have generally had low accuracy and thus should be viewed with caution beyond June.

A weakening Madden–Julian Oscillation (MJO) pulse lies over the western hemisphere. Most models indicate the signal will become weak or indiscernible in coming days. While some models indicate a pulse will strengthen over the eastern Indian Ocean or western Maritime Continent region, north of Australia, in about a week, others maintain a weak or indiscernible signal. The MJO has little influence on Australian rainfall patterns at this time of the year.

The Southern Annular Mode (SAM) index is currently neutral and is expected to hover around positive thresholds for the coming three weeks. During winter, a positive SAM often has a drying influence for parts of south-west and south-east Australia.

Climate change continues to influence Australian and global climates. Global SSTs were the highest on record for the months of April and May. The Australian continent has warmed by around 1.47 °C over the period 1910–2021. There has also been a trend towards a greater proportion of rainfall from high intensity, short duration rainfall events, especially across northern Australia. Southern Australia has seen a reduction of 10 to 20% in cool season (April–

October) rainfall in recent decades. This is due to a combination of natural variability on decadal timescales and changes in large-scale circulation caused by an increase in greenhouse gas emissions.



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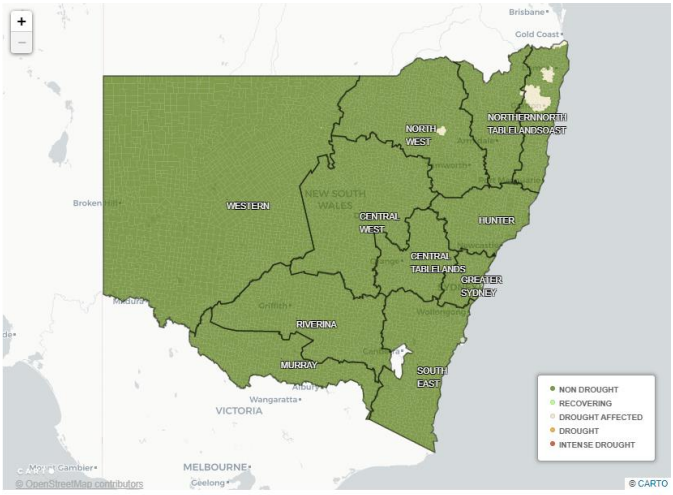
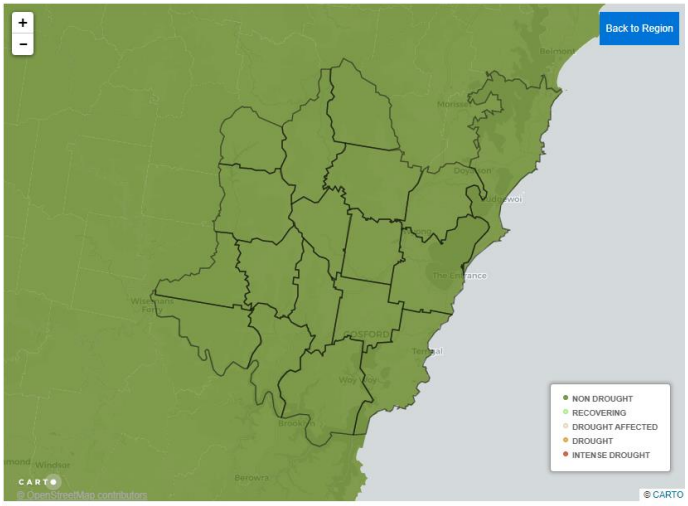
10. Department of Primary Industry Combined Drought Indicator

Figure 9 Combined Drought Indicator map for NSW



Data current to 28/5/2023 (AEST)

Figure 10 Combined Drought Indicator map for the Central Coast

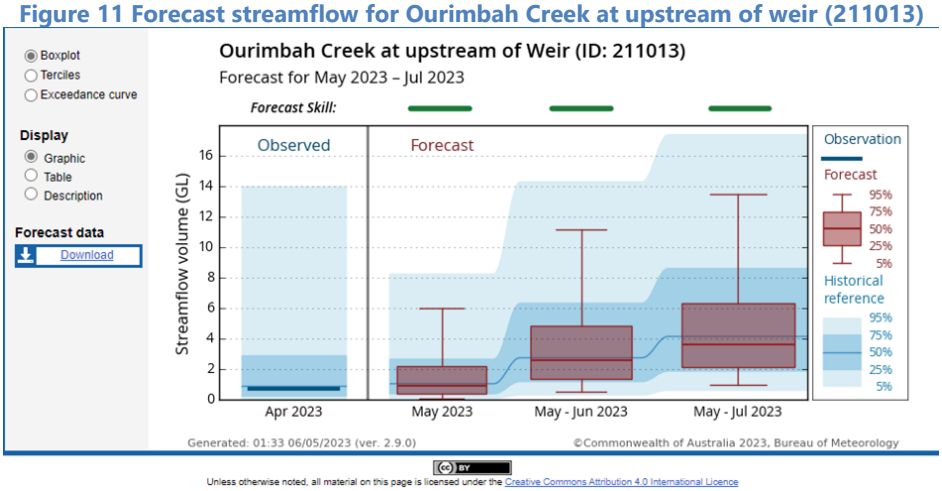


Data current to 28/5/2023 (AEST)

11. Forecast for Ourimbah Creek streamflow

- The Bureau of Meteorology forecast stream flow for the Ourimbah Creek (211013) as shown in the Box Plot and table of statistics below along with historical references.

Figure 11 Forecast streamflow for Ourimbah Creek at upstream of weir (211013)



Forecast boxplots Ourimbah Creek at upstream of Weir (ID: 211013) May 2023 - July 2023								
	Streamflow forecast (GL)			Historical reference (GL)			Historical reference for observation (GL)	Recent observation (GL)
Percentile	May	May - Jun	May - Jul	May	May - Jun	May - Jul	Apr	Apr
5%	0.1	0.5	1.0	0.1	0.3	0.6	0.1	0.8
25%	0.4	1.4	2.1	0.4	1.2	1.9	0.3	0.8
50%	1.0	2.6	3.6	1.1	2.8	4.2	0.9	0.8
75%	2.2	4.9	6.4	2.7	6.3	8.6	2.9	0.8
95%	6.0	11.2	13.5	8.3	14.3	17.4	14.1	0.8

Table 5 Ourimbah Creek at upstream of weir streamflow Forecast Statistics

12. Water Demand

The graphs below show the historical monthly and weekly demand for the Central Coast Council.

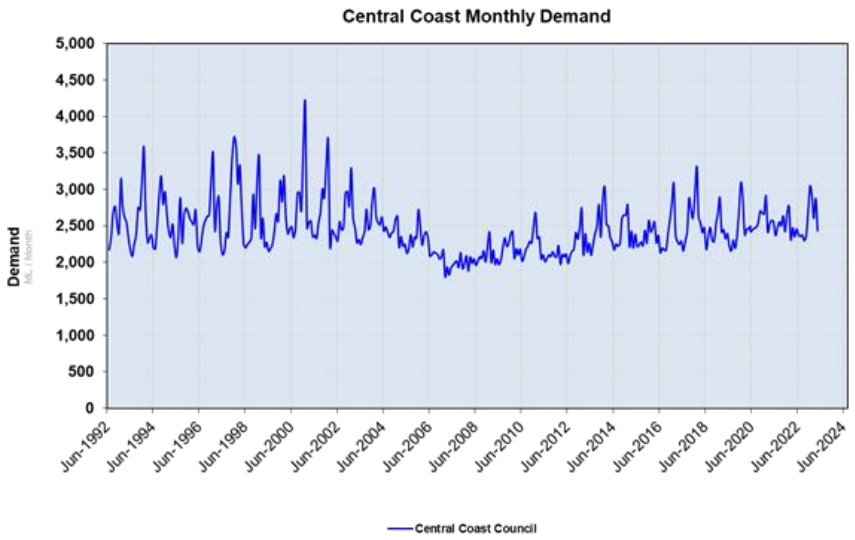


Figure 12 Monthly Water Demand for Central Coast Council

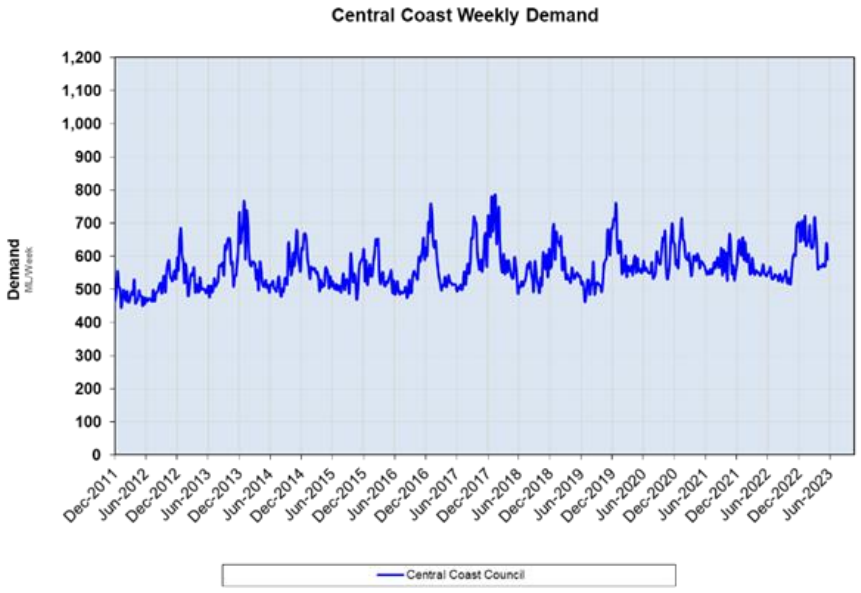


Figure 13 Weekly Water Demand for Central Coast Council

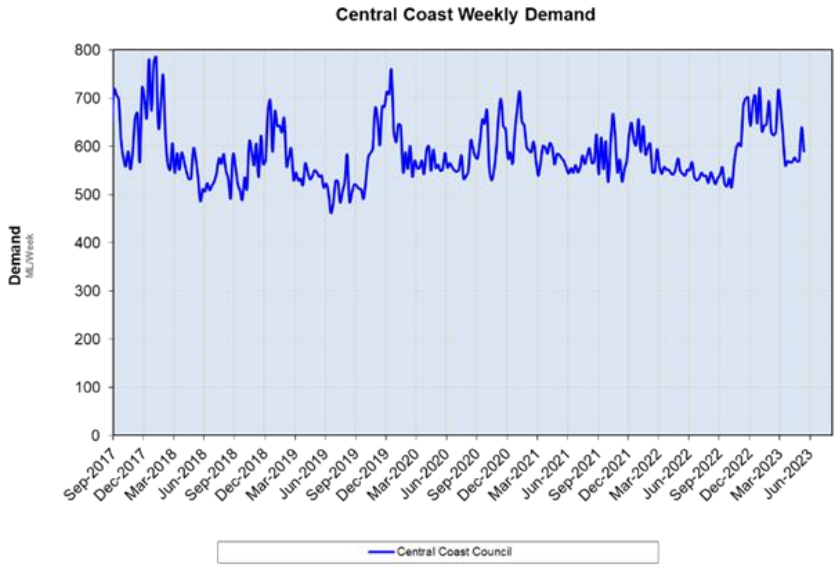


Figure 14 Weekly Water Demand (short term) for Central Coast Council

Link to Community Strategic Plan

Theme 4: Responsible

Goal H: Delivering essential infrastructure

R-H4: Plan for adequate and sustainable infrastructure to meet future demand for transport, energy, telecommunications and a secure supply of drinking water.

Risk Management

There have been no risks identified in the preparation of the Water Supply System Status Report.

Options

1. That the Committee note the report.

Attachments

Nil

Item No: 2.2

Title: Water Resilience Project Status Update

Department: Water and Sewer

14 June 2023 Water Management Advisory Committee

Reference: F2019/01200 - D15703535
Author: Kate Gibbs, Executive Support Officer
Manager: Luke Drury, Unit Manager. Assets and Projects
Executive: Jamie Loader, Director Water and Sewer

Recommendation

That the Committee notes the Water Resilience Project Status Update for February 2023.

Report purpose

To provide the Water Management Advisory Committee with an update of key water resilience projects for the Central Coast.

Executive Summary

The Water Resilience Project Status report provides an update on the water security works that are currently underway and the status of each project.

These works are reported within the three pillars identified in the Central Coast Water Security Plan (CCWSP):

- Pillar 1 Conserve and use water efficiently
- Pillar 2 Maximise existing water supplies to delay new water supplies
- Pillar 3 Develop new rainfall independent water supplies for an adaptive future.

Background

The Water Management Advisory Committee (WMAC) requested staff to provide a table that lists the water security works that are currently underway and the status of each project, as a Standing Agenda Item (Action Item 24).

These works are reported within the three pillars identified in the Central Coast Water Security Plan (CCWSP).

Report

1. Pillar 1 Conserve and use water efficiently

1.1. Overview

Water conservation and efficiency is the cornerstone of our Water Security Plan. Achieving long term reductions in demand increases the resilience of the water supply to population growth and future drought.

Council outlined the key resources and activities required to develop and implement a long-term water conservation program within its Water Resilience Step Change Business Case in the 2021 IPART submission. The following roles are now planned to be recruited over the next 12 months to assist the program:

- Strategy Lead Water Conservation
  Mohan Seneviratne has started in this role in January 2023

- Water Education Officers
  Dylan Magrin joining the team in March 2023
  Second role to commence FY2023/24

- Water Communications Officer
  Sasha Crichton has started in this role in December 2022

1.2. Trial of Water RoadMap for large customers

Council has not proactively promoted water conservation to large water use customers since the lifting of restrictions post the millennium drought in 2012. There is no specific tool or staff to serve large customers and promote water savings. There has been no follow up action with customers who developed Water Efficiency Management Plans (WEMPS) during the millennium drought.

Council is proposing to use the Water Roadmap, which is a proprietary product of Water Stewardship Australia (t/a Water Stewardship Asia Pacific). It provides customers a strategic pathway towards improved water and wastewater management, addressing water security and water efficiency. The consultant team gave a live trial of the Water Roadmap to Water and Sewer management team, treating council as a water production business. The output report was prepared and circulated to identify gaps in our business processes.

The proposal is to now target our 100 top high usage non-residential customers. This program will align itself with our proposed initiatives such as monthly billing and installation of smart meters for this cohort.

Project Status

Stakeholder engagement plan being developed in conjunction with Water Roadmap subscription procurement.

1.3. Water Conservation Messaging in Customer Water Bill

Council staff have identified that there is an opportunity for water conservation messaging through the water bill in addition to currently provided information. The proposed layout will align with water conservation messaging used by other utilities e.g., Hunter Water and Origin Energy. The graphics comparing actual water usage with that as per water wise rules' target of 150 litres/per person per day will be included to empower residential customers to proactively save water. The redesigned water bill will start from July 2024.

1.4. Department of Planning & Environment Programs

The Department of Planning and Environment (DPE) is leading water conservation on several fronts and Council staff are participating in various programs and workshops to keep abreast of the state initiatives and leverage future opportunities that may become available.

Recent Milestones/Activities:

System leakage detection and technology application

Council participated in DPE sponsored surveys and workshops for understanding levels of maturity in assessing and managing network leakage across various water utilities. DPE intends to use the outcomes to guide future pilot projects and initiatives. Council could not participate in pilot projects due lack of staff to manage these additional projects however Council participated in staff awareness and training programs for pressure management, active leak detection and metering held in March 2023.

Water Efficiency Framework

Water efficiency framework is a best practice guide for developing and delivering water efficiency. The department has provided a workbook based, self-rating tool to progress towards best practice.

Council is also participating in Reference Group Workshops for valuation of costs and benefits of water conservation initiatives for preparing a catalogue and Economic Level of Water Conservation (ELWC) for use by water utilities. The project is sponsored by DPE, and Frontier Economics is doing the cost benefit analysis.

The objective of the project is to develop a framework for evaluating the costs and benefits of approaches to water conservation undertaken by NSW water utilities. This includes applying the framework and guidance material to a range of indicative case studies to:

- Demonstrate that the framework is fit for purpose when applied to real world scenarios which will maximise the 'lessons learnt' from this project.
- Ensure the guidance material is user friendly and can be applied by the intended audience.

DPE has consulted with various utilities and is developing a Best Practice Guideline for utilities to follow for non-residential water efficiency programs.

Next Milestones

Ongoing participation in DPE led programs and integration of future Council resources into those programs.

1.5. Active leak detection program

Background

Leak Detection Project involves acoustic scanning of reticulation and trunk supply mains to detect leaks on various pipe materials including cement lined cast iron, asbestos cement, mild steel cement lined and PVC water mains.

The project will reduce operating costs associated with the supply of treated water to customers since the net overall volumes of water supplied via the distribution network will be reduced as leaks are progressively detected and repaired. Consequently, the cost recovery will also improve for water supplied to customers.

Central Coast Council operates a water distribution network comprising 2,019km of watermains up to DN450 and an additional 167km of trunk watermains up to DN1200 size.

Further benefits of the Leakage Detection Project will identify longer term asset issues in the water distribution network and assist with targeted water main renewals to improve network reliability and decrease the age of network assets.

Project Status

Ongoing

Recent Milestones

a. Eleventh quarterly package of work completed. Twelfth quarterly package of work commenced encompassing:

- Green Point
- West Gosford

- East Gosford
- Mannering Park
- Toukley
- Lake Munmorah
- Noraville
- Ourimbah
- Palmdale
- Wyoming
- Phegans Bay
- Horsfield Bay
- Woy Woy Bay
- North Avoca
- Umina Beach
- Terrigal
- Pearl Beach
- Wyongah
- Wadalba
- Daleys Point
- Saratoga
- Woongarah

b. Leak detection contractors are currently working in Terrigal. Mannering Park and Lake Munmorah have been acoustically scanned in the previous quarterly package of work and represent the first scan of these locations under the new program. The scan is most likely the first time these two locations have been scanned for leaks since 2005-2006. The results obtained reflect the lower operating pressure in this part of the network and the leaks detected were related to meters, connection couplings and hydrants. Similarly, Ourimbah and Palmdale were acoustically scanned for the first time since 2005-2006, with 8 leaks detected across both locations.

c. The eleventh quarter of leak detection work was 547km of watermain in line with the increased budget available from the IPART determination. The current twelfth quarter of leak detection work is for 533km of watermain.

d. The estimated leakage rate per km of water main for each suburb is continuing to be used as a prioritisation technique to gain maximum benefit from the project. Good results were obtained in Tascott with 8 leaks detected across 9.4km of watermain, equating to an estimated loss rate of 7.0kL/km/day. Wyoming, once again, continues to yield good results with 16 leaks detected equating to an estimated loss rate of 2.6kL/km/day. Woy Woy Bay also yielded good results with 3 leaks (one leaking main tap & two hydrants) detected for 3.0km of watermain

equating to an estimated loss rate of 16.6km/kL/day. Woy Woy Bay had not been scanned previously. Results from Tascott indicate that this area may need to be scanned with greater frequency (at least once per year minimum) as the previous scan was performed in April 2020.

e. Estimated water losses identified to early April 2023 through leak detection prior to repairs being completed was 1.02ML/day for the eleventh quarter of work. The estimated loss rate was 1.87kL/km/day based on 187 leaks detected.

Next Milestones

- Twelfth quarter of work commenced from 11th April 2023 and is continuing to progress.
- Data from customer calls reporting leaks is also being used for prioritisation especially for locations not reporting a high frequency of water main breaks per 100km of main such as Umina Beach, Toukley and Green Point. Locations will continue to be prioritised on recorded leakage data and frequency of watermain breaks per 100km.
- Recruitment and onboarding of additional Operations Engineer to assist the planning and implementation of shutdowns for subsequent repair work.

Forecast completion date

- Mid-2023 for the initial scan of the entire network.
- Continue to target locations throughout the network based on historical leakage results, prioritising locations with high leakage rates.

2. Pillar 2 Maximise existing water supplies to delay new water supplies

2.1. Overview

Upgrades and refurbishment of existing, under-utilised surface water, recycled water and groundwater infrastructure can provide cost effective yield benefits before constructing new supplies.

Council outlined the key resources and activities required to maximise existing supplies within its Water Resilience Step Change Business Case in the 2021 IPART submission. The following roles are now planned to be recruited over the next 12 months to assist the program:

- Strategy Lead Water Resources Tarni Penn has started in this role in January 2023
- Senior Asset Planning Engineer Mano Jayasekara started in this role April 2023

2.2. Mardi Water Treatment Plant Stage 3 Upgrade ($65M)

Background

The Mardi Water Treatment Plant Stage 3 upgrade will secure up to 160ML/d nameplate treatment capacity at current treated water quality targets under contemporary raw water quality conditions, catering for peak day demand for the Central Coast now and into the future while also meeting inter-region transfer commitments.

Partial project funding obtained under the NSW Safe and Secure Water Program.

IPART Determination May 2022 found the project to be prudent but suggested opportunities to improve delivery efficiency which led to an Early Contractor Involvement phase with the preferred tenderer in early 2023.

Department of Planning and Environment (DPE) issued an approval under Section 292 of the Water Management Act for the project under the new framework on the basis of the preliminary design.

Project Status

- The Early Contractor Involvement (ECI) phase is near complete after collaborating with the preferred tenderer to optimise delivery efficiency through site investigations, program and scope refinement and value engineering.
- Council is poised to enter into a loan arrangement with a commercial bank to maintain the Water Fund's cashflow in consideration of substantial price escalation of the project in recent years.
- Desludging a lagoon is now complete, preparing the lagoon for the Stage 3 upgrade works and future desludging activities.

Recent Milestones

- Approval under Section 292 of the Water Management Act.
- Completion of ECI scope of services and commencement of negotiations with the ECI Contractor to enter into a delivery contract.
- Completion of desludging the south-west lagoon having excavated, dried and disposed of over 30,000 ML of sludge since November 2019.

Next Milestones

- Enter into a loan arrangement to secure shortfall funding for the forecast budget
- Negotiate award of the delivery contract

Scheduled completion date

- Late 2025

2.3. Mooney Dam Water Pump Station Upgrade ($4.4M)

Background

Mooney Raw Water pumping station requires a capacity increase from 30ML/d to 60ML/d. The project objectives are as follows:

- Enable Southern Average Day Demand (ADD) to be taken solely from Upper Mooney Dam. This greatly simplifies treatment as raw water alkalinity is consistent (as compared to mixing Mangrove and Mooney water)
- Provide security of supply to the Southern area. If Mangrove creek pumping station fails, the current 30ML/d Mooney duty is not sufficient to supply the south on a peak day.

Project Status

Construction funding request placed on hold while options phase is reassessed.

Recent Milestones

Initial stakeholder project review workshop.

Next Milestones

Project constructability and options confirmation.

Scheduled completion date

TBC post reassessment of options and concept design.

2.4. Recycled Water Scheme Review and Refurbishment

Background

Council operates several sewage treatment plants (STPs) and stormwater capture systems, which potentially yield water for reclamation for a variety of applications. Council supplies recycled water to diverse users including residential customers, groundkeepers, holiday parks, mines and construction companies. This project is the preliminary review of the refurbishment of recycled water scheme (Phase 1). This was commissioned to review the Council's schemes to understand the current challenges, capacity, regulatory status and potential end users.

The major drivers for this project are to:

- understand the refurbishment/upgrade requirements to return the schemes to a fully operational status and obtain current regulatory approvals
- develop a prioritised strategy to identify where capital/operational investment into the existing reuse schemes provides the most value.

Project Status

The main investigation has been completed and, with Council input, the final report has been issued. Recommendations were reviewed by Council's Water Resilience Committee in July 2020. The report confirmed compliance issues in relation to end water quality for the recycled water schemes.

Recent Milestones

Completion of detailed water quality monitoring in 2022.

Next Milestones

Onboard new resources on recycled water scheme details.

Review of detailed water quality monitoring data and determination of upgrade/renewal requirements.

Scoping and prioritisation of required works.

Forecast completion date

This project was the preliminary review of the refurbishment of recycled water scheme (Phase 1) – completed July 2020

Scoping of Phase 2 will commence by June 2023 with a program of works to be determined throughout FY2023/24.

2.5. Porters Creek Transfer System Readiness Assessment

Background

Porters Creek Transfer Scheme (PCTS) was used an additional water source during millennium drought, which was operational from 2006 to 2008. The PCTS involved transferring raw water from Porters Creek and pumping it to upstream of the Wyong River Weir for storage and treatment at Mardi Dam and Mardi Water Treatment Plant respectively. Porter Creek catchment is fast growing urban catchment and PCTS was installed just upstream of creek's merger with Wyong River. The system was installed as an emergency water supply under the Water Act 1912. The water license approval was only temporary, for a maximum period of 2 years.

Council adopted a Drought Management Plan (DMP) in 2020. The DMP was prepared in accordance with the NSW Government Best-Practice Management of Water Supply and Sewerage Guidelines (2007) which requires Local Water Utilities such as Council to have a sound Drought Management Plan in place and be ready to implement their plan when drought conditions arise. The DMP identified the PCTS as a historical water source that could be implemented during a future drought if required. The DMP identified the opportunity to re-examine the option but also highlighted the constraints that would need to be overcome.

Central Coast Water Security Plan (CCWSP) also involves a drought response, developed to implement alternate water supplies quickly in the case of a drought emergency. One such action is to undertake a readiness assessment for the PCTS to ensure it is 'Plan Ready' in the event of a future drought. This includes seeking a water supply works approval and extraction license for the scheme and any amendments required to the Wyong River extraction rules.

Project Status

The tenders have been received to undertake staged gap analysis for implementing actions to be plan ready for any future drought

Recent Milestones

Tenders being processed

Next Milestones

To bring the consultant on board

Forecast completion date

FY 2023/24

3. Pillar 3 Develop new rainfall independent water supplies for an adaptive future

3.1. Drought Response Desalination Readiness Activities

Background

Following the conclusion of the Drought Response Desalination Readiness Assessment, the recommendation to revise the originally proposed horizontal collection well intake structure in favour of a traditional direct ocean intake and to progress the project to a construction ready state is being pursued. To facilitate this, staff have commenced works associated with the additional studies and investigations necessary to formally request for a modification to the original planning Development Consent, to the NSW Department of Planning, Industry and Environment (DPIE).

Project Status

Due to the current high levels of our water storages, this project has been put on hold – recommencing FY 23/24.

Recent Milestones

The works associated with the direct ocean intake location shortlisting has been completed with the final report submitted.

Forecast completion date

Additional investigations that were identified as required to progress have an anticipated completion period of 3 years once the overall project is restarted pending relevant budget approvals and resourcing availability.

Investigations scheduled to recommence FY2023/24.

Link to Community Strategic Plan

Theme 4: Responsible

Goal H: Delivering essential infrastructure

R-H4: Plan for adequate and sustainable infrastructure to meet future demand for transport, energy, telecommunications and a secure supply of drinking water.

Risk Management

No risks have been identified in the preparation of the Water Resilience Project Status Update for February 2023.

Options

That the Committee notes the report.

Attachments

Nil

Item No:	2.3
Title:	Environmental Protection Licence (EPL) non-compliance summary
Department:	Water and Sewer

14 June 2023 Water Management Advisory Committee

Reference:	F2019/01200 - D15681699
Author:	Kate Gibbs, Executive Support Officer
	Stephen Shinners, Team Leader Water Compliance
Manager:	Danielle Hargreaves, Unit Manager Headworks and Treatment
Executive:	Jamie Loader, Director Water and Sewer

Recommendation

The Committee notes the Environmental Protection Licence (EPL) non-compliance summary report.

Report purpose

To provide the Committee with a summary of the recent Environmental Protection Licence (EPL) non-compliances.

Executive Summary

At the 15 April 2021 Water Management Advisory Committee (WMAC) meeting, a summary of historical Environmental Protection Licence (EPL) non-compliances was requested. The Committee asked staff to provide ongoing annual summaries to the Advisory Group of any breaches of Environmental Protection Licences after the relevant annual returns are submitted as well as an update on any major incidents in the network should they occur (Action Number 35).

Background

Central Coast Council (CCC) has three Environmental Protection Licences (EPLs) that relate to the management and operation of its sewerage schemes. The EPLs are based on the respective outfalls which may include multiple Sewage Treatment Plants (STPs). The EPLs are regulated by the NSW Environment Protection Authority (EPA) and the current EPLs and associated STPs are outlined below:

a. EPL 1802 – South Sewage Treatment System
- Kincumber STP
- Woy Woy STP

- EPL 1942 – Bateau Bay Sewage Treatment System
    - Bateau Bay STP

- EPL 2647 – North Sewage Treatment System
    - Charmhaven STP
    - Gwandalan STP
    - Mannering Park STP
    - Toukley STP
    - Wyong South STP

All three EPLs were reviewed by CCC and EPA in 2021. A number of changes to monitoring points and pollutant concentration limits were incorporated into the updated EPLs issued by EPA. The daily flow limit to the Norah Head outfall for EPL 2647 was increased from 40,000 kL to 60,000 kL.

It is noted that CCC operates within other EPLs that relate to the Mooney Mooney and Cheero Point sewage reticulation system, Waste Management Facilities and certain waterways. Those EPLs are not discussed within this document. Full details relating to each EPL held by CCC can be found at the Council website.

Current Status

Council submitted Annual Returns for EPLs 1947 and 2647 in February 2023. Five instances of non-conformance with EPL 2647 conditions and two instances of non-conformance with EPL 1942 conditions were reported and these are summarised below.

Report

Non-Conformance	Actions Taken
EPL 2647	
Condition L2.2: Calculated annual loads of total nitrogen, total suspended solids and zinc were greater than the load limits specified in the EPL. Ammonium concentration in the feed of treated wastewater to the Norah Head outfall was elevated during the reporting year, due to the high ammonium concentration in the effluent discharged from the Charmhaven STP aeration tanks.	Condition L2.2: Pumping of water from the Wyong South STP wet weather pond ceased when the pond level was reduced to improve storage capacity to accommodate inflow from future storm events. Desludging activities have increased at all STPs to improve solids management and reduce pollutant loads to the ocean outfall. Consultants have been appointed and are currently undertaking design options for improving capacity and

Suspended solids and zinc concentration in the feed of treated wastewater to the Norah Head outfall was elevated during the reporting year, due to the high solids concentration in the effluent from Charmhaven STP aeration tanks and Wyong South STP wet weather pond.	performance of Gwandalan, Charmhaven, Wyong South and Toukley STPs and the associated effluent transfer network.
Condition L4.1: Four instances of daily volume of water discharged to the Norah Head outfall was greater than the limit of 60,000 kL. Storm events in the STP network catchment (220 mm to 8 July), caused high volumes of stormwater infiltration into the sewage reticulation system.	Condition L4.1: Pollution Reduction Studies 5 and 11, and Pollution Reduction Programs 6, 7, 12 and 13 have been included in the EPL to improve management of stormwater inundation during extreme wet weather events, and to manage increased inflows to the STP network due to regional growth.
Condition M2.2: Monitoring of water quality parameters added to the modified EPL was not undertaken at the frequency prescribed, due to delays in updating monitoring point sampling and analysis program following issue of the modified EPL.	Condition M2.2: The sampling and monitoring program was reviewed and modified to ensure compliance with this condition.
Condition O6.3: Inflow to Toukley Sewage Treatment Plant bypassed secondary treatment at flow rates less than the 830 L/sec threshold specified in the EPL. Secondary treatment of sewage flow to Toukley Sewage Treatment Plant was bypassed during periods of high inflow volume following a series of high intensity storms in the sewage reticulation catchment.	Condition O6.3: A consultant is currently developing options for improving performance of Toukley STP, including improved capacity during high inflow events.
Condition P1: Water was pumped from the Wyong South Wet Weather Pond to Ourimbah Creek, in contravention of the designated discharge points listed in the EPL. The Central Coast region experienced multiple heavy rainfall events in 2022 causing high inflow volumes to the Wyong South STP catchment. High inflows to the STP caused the designated wet weather pond to rapidly fill to capacity. To avoid an uncontrolled discharge, the pond was pumped to Ourimbah Creek in a controlled manner to ensure the pond wall integrity was and public safety was maintained. A	Condition P1: Works to be undertaken under PRS 5 and PRP 6 & 7 of EPL 2647 will address the issues contributing to filling of the wet weather pond, including reducing inflow volumes during storm and flood events, increasing the storage capacity of the wet weather pond and improved pumping capacity from the Wyong South STP to Norah Head outfall.

pre, during and post monitoring program was undertaken to monitor the water quality in Ourimbah Creek.	
EPL 1942	
Condition L3.4: The concentration of ammonia in the final effluent to Wonga Point ocean outfall was above the limit of 30 mg/L specified in the EPL. Surfactant foaming was observed at the clarifier outlet pit at the time of this event. It is possible that higher loading of surfactants into the sewer during the late December holiday period may have disrupted the sewage treatment process at the plant.	Condition L3.4: The aeration basin of the treatment plant was reseeded with sewage sludge from a less affected part of the treatment plant, in order to recover biological processes and stabilise operation of the plant. Increased process monitoring has been undertaken to help identify process disturbances more promptly and assist in identifying the source of contamination that may disrupt sewage treatment processes.
Condition L4.1: Daily volume of water discharged to Wonga Point outfall was greater than the limit of 36,000 kL specified in the EPL. Storm events in the STP network catchment (400 mm to 8 March, 217 mm to 8 July), caused high volumes of stormwater infiltration into the sewage reticulation system.	Condition L4.1: Consultants are currently undertaking design options for the improving capacity and performance of Bateau Bay STP.

Link to Community Strategic Plan

Theme 4: Responsible

Goal H: Delivering essential infrastructure

G-E2: Improve water quality for beaches, lakes and waterways by minimising pollutants and preventing litter entering our waterways.

Risk Management

Actions taken or proposed to manage the risks associated with each non-compliance are listed in the above table.

Attachments

Nil.

Item No: 2.4

Title: Delivering the IPART Determination - community forums and customer charter

Department: Water and Sewer

14 June 2023 Water Management Advisory Committee

Reference: F2019/01200 - D15692907
Author: Scott Gordon, Business Manager Business Performance
Manager: Jamie Loader, Director Water and Sewer
Executive: Jamie Loader, Director Water and Sewer

Recommendation

That the Committee note the report.

Report purpose

To provide the Water Management Advisory Committee with an update on progress in delivering on Water and Sewer's IPART Determination, specifically in relation to community engagement and development of a Customer Charter.

Executive Summary

Council is focussing on placing the customer at the centre of our business through better and targeted engagement with the community.

Council's current round of engagement to date has resulted in the community determining a set of values for water and sewer, providing feedback on the relative importance of Council's performance metrics, and determining the contents for a Customer Charter.

Background

Council's current round of engagement with the community commenced on 1-2 March 2023 with the first of a series of Deliberative Forums. Phase 2 of the forums were held on 9-10 May 2023 with the same participants. All sessions were held in Gosford and Wyong and externally facilitated by Woolcott Research.

The forums sought input from our community on what they valued most about our services, how we are performing, targets for the future, and what they would like included in our very first Customer Charter between the community and water and sewer.

Two focus group sessions were also facilitated by Woolcott Research on 25 May 2023 to seek community feedback on a draft Customer Charter based on the contents identified by the community.
The community determined the following values for water and sewer:

- Good quality water
- Quality treatment (sewer)
- Reliable service
- Affordable
- Environmental focus
- Effective planning
- Transparency and education

Quality and reliability were considered the priority values for both water and sewer. However, the other values should also be considered in Council's decision.

Current Status

Phase 3 of the current engagement program is a customer survey of residents which commenced 5 June 2023 and concludes on 3 July 2023.

The forums and focus groups have enabled Council to co-design with the community its first detailed Customer Charter for Water and Sewer, including a Summary Charter.

The draft Customer Charter (including the Summary) is due to be presented to Council at its meeting of 25 July 2023, seeking approval to place the Charter on public exhibition to receive further community feedback.

The final Charter will incorporate feedback from the community and is due to be presented to Council at its meeting of 26 September 2023 for adoption and publication.

Link to Community Strategic Plan

Theme 4: Responsible

Goal G: Good governance and great partnerships

R-G2: Engage and communicate openly and honestly with the community to build a relationship based on trust, transparency, respect and use community participation and feedback to inform decision making.

Critical Dates or Timeframes

25 July 2023 – Council to consider Draft Customer Charter for public exhibition
26 September 2023 – Council to consider adoption of final Customer Charter

Attachments

Nil.

2.5 GENERAL BUSINESS