

## Water management

Water is critical for day-to-day operational purposes at Port Waratah. Captured water is managed in a way that ensures water quality is suitable for site reuse. We use water for operational purposes, such as dust suppression, wash downs and firefighting systems.

Responsible water management is a careful balance between storing adequate levels for operational reuse, while ensuring we maintain stormwater catchment capacity for wet weather events and meet compliance obligations.

Our water management systems operate by capturing surface water runoff from rain events together with returned water that has been used in terminal operations. The water is then channelled into a series of drains and sumps that replenish our ponds and lagoons for settling and clarification prior to recirculation back to the plant for reuse.

The water management systems across both terminals performed exceptionally well with no wet weather overflows recorded at Carrington or Kooragang. We achieved our 2023 performance target to reduce the amount of sediment contained within excess water released to the Hunter River with the consistent use of the Controlled Discharge Filtration System (CDFS) at our Carrington Terminal and no discharges at Kooragang Terminal.

Following one of the wettest years recorded at Port Waratah in 2022, total rainfall received in 2023 was lower than average, recording just 817mm at our Carrington Terminal compared to 1,467mm the previous year. The lower than average rainfall received throughout 2023 and high water use demand due to the drier weather experienced, placed additional pressure on our water management system and water harvesting efficiency, which has been a primary focus for us in 2023.

During low rainfall years, the operational demand for water is generally higher. This means there are higher volumes of water used, however the recapture rate is lower due to higher evaporation and an increased volume of potable water is needed to meet demand.

Water management system performance was reliable throughout the year. Design capacity at the Kooragang Terminal was temporarily reduced in consultation with the EPA to facilitate emergency embankment repairs on Detention Pond D. Following engineering design, repairs were successfully completed in December 2023.

## Water management improvements

Improvements at the Carrington Terminal focused on further optimising stormwater treatment and reuse via our Controlled Discharge Filtration System (CDFS). The CDFS removes entrained sediment from site water and allows us to either transfer and reuse onsite or discharge to the harbour within EPA licence criteria, allowing us to maintain storm surge capacity. This capability enables flexibility to increase water harvesting and reuse onsite as well as reduce the sediment load of water discharged.

Installation of additional water quality monitoring technology and embedding the use of flocculation products formed the primary focus at the Kooragang Terminal resulting in significant improvements to the water quality stored onsite. An upgrade to the Kooragang Terminal Shiploader 7.08 launder system was completed, providing additional secondary containment and improvement to housekeeping.



### CASE STUDY

#### **New flocculant capabilities – transition to business as usual**

Water quality improvement trials continued in 2023 with the commissioning of a flocculation dosing system at the Kooragang Terminal. Flocculation dosing assists the sedimentation process by clumping fine particles together. The mobile dosing system is mounted on a trailer and allows flexibility in trialling different locations for treatment within our water management system. Optimising flocculation rates, in particular following storm events, will be a focus in 2024.



### CASE STUDY

#### **Detention Pond D repair**

Routine condition monitoring last year identified cracking on the northeastern corner of one of our major storm water holding facilities, Detention Pond D. As a conservative asset protection measure, we minimised the stored water levels in Detention Pond D while geotechnical modelling and detailed design for corrective repairs were undertaken. Civil repairs were completed, returning Detention Pond D to full capacity of 44ML.





Kooragang Terminal 5,604ML Carrington Terminal 224ML

= 5,828ML

WATER USE FROM CAPTURED AND STORED SUPPLY IN 2023 (80.9%)



19.1% WATER USE FROM POTABLE WATER (1,379ML)

Kooragang Terminal

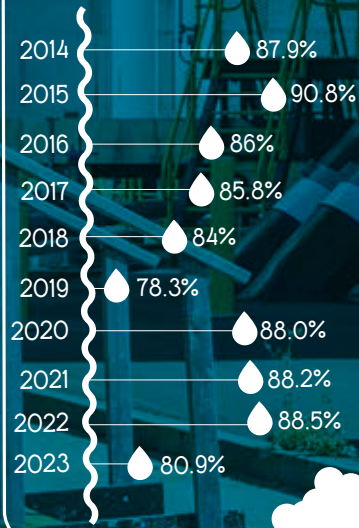
1,130ML

Carrington Terminal

249ML



YEARLY RESULTS



## Environmental footprint

We describe our environmental footprint as our demand on the capacity of natural resources and the environment in which we operate. This demand, or impact, is reduced through identifying and implementing opportunities to use potable water more efficiently, producing less waste and diverting more from landfill, as well as enhancing onsite biodiversity and improving land use practices.

## Potable water consumption

Water use at Port Waratah is a critical aspect in nearly all areas of our operations. Recycled site water is used preferentially for operational activities, with potable water purchased from Hunter Water being used for amenities, and if required, to top up supplies during periods of insufficient water availability onsite. We aim to be conservative with the amount of potable water used for operational purposes, and continually strive to improve our onsite water efficiency and reuse opportunities. We also reduce our potable water consumption by reusing our onsite water resources regardless of regional weather conditions.

Although rainfall across the region was much lower than that experienced in 2022, there were no water restrictions in place and no areas of water stress. Hunter Water catchment storage capacity reduced slightly throughout 2023, ending the year with storage volumes at more than 83 per cent. Our water management system capacity did not change throughout 2023, however there was a short period of reduced capacity at Kooragang Terminal as Detention Pond D underwent repairs, which were managed without impact. In addition, the implementation of new flocculation assets at the Kooragang Terminal enabled the ability to improve site water quality and reuse potential.

Despite a reduction in regional rainfall and 150.6ML reduction of inflows to the Carrington Terminal's CDFS compared to 2022, the system retained 485.5ML of filtered water, an increase of 35.9ML for onsite operational reuse. This demonstrates Port Waratah is utilising available tools to reduce reliance on the region's potable water supply, particularly in drier weather.

In 2023, we established a target to reduce our potable water consumption compared to the previous five-year average (2018-2022). Due to lower levels of harvestable rainfall, and periods with elevated sediment levels in our site water storages, there was an increase in potable water consumption to meet operational demands. Our total potable water consumption was 1,379ML, an increase of 46 per cent compared to the five-year average.

## Land use and biodiversity

Our Kooragang and Carrington terminals are nestled amongst areas rich in industrial history and border areas with great ecological significance. This is especially true for Kooragang, with the 2.1km<sup>2</sup> terminal being situated immediately adjacent to the Hunter Wetlands National Park and the internationally recognised Hunter Estuary Wetlands Ramsar site. These wetlands are of significant ecological value, supporting 45 species of migratory birds listed under international agreements and more than 110 species of waterbirds.

Port Waratah also manages two non-operational land holdings adjacent to Kooragang Terminal. These sites are established seasonal habitats of the Green and Golden Bell Frog (*Litoria aurea*), a species listed Vulnerable on the IUCN Red List. Since 2010, Port Waratah has collaborated with the University of Newcastle in conducting a research programme on the Green and Golden Bell Frog population on Kooragang Island. The programme involves rigorous monitoring during the breeding season, which is typically between November to March each year. Research continued during 2023 and aims to provide insight into population dynamics as well as other factors that may contribute to the persistence of the species on the island.

Our land management activities across our sites and land holdings focus on maintaining native biodiversity through effective weed management. Port Waratah conducts regular site inspections to identify and prioritise weed treatment as required and in accordance with the *Biosecurity Act 2015*.



## CASE STUDY

### LTO Hazard Guide

This year we launched our LTO Hazard Guide, with the aim of providing all workers with an easily accessible and simplified summary of the behavioural controls concerning seven critical LTO Hazards. These include material tracking, intrusive noise, offsite spills and discharges, dust generation, impacts to biodiversity, waste generation and hydrocarbons and chemicals.

While Port Waratah has a suite of physical and automated controls in place to minimise harm to the environment, the LTO Hazard Guide provides a checklist for workers about the behavioural controls that can be implemented to reduce risks, as well as high-risk settings for each of the hazards. The guide was designed to fit inside shirt pockets and Port Waratah's Take 5 booklet. It is also available online and features in work area signage onsite.