



# Managing Blue-Green Algae in Torrens Lake

The **River Torrens / Karrawirra Pari** is the main river in Adelaide, flowing from the Mount Lofty Ranges to the sea at West Beach. **Torrens Lake** refers to the section of river from Torrens Weir to Frome Street Bridge. Together they form one of Adelaide's most recognisable landscape features, and make an important social, economic, and environmental contribution to the city and the wider metropolitan area.

Each year over summer, water stops flowing into the lake and it slowly heats up, becoming susceptible to blue-green algae blooms. At high concentrations, when an algae bloom occurs, some blue-green algae can be harmful to people and wildlife. When blooms have occurred in the past, the lake has been closed for recreational use. Through monitoring algae levels, and using managed flows of fresh water, we can successfully control blue-green algae in the lake. The most successful strategy to date is to provide a managed flow of fresh water down the river from Kangaroo Creek reservoir. This flow dilutes and displaces algae, cools the lake water and keeps it well mixed.

The amount of water released depends on summer weather conditions and the frequency and volume of recent rainfall.

To help the water out to sea, a small channel is excavated annually across the beach from the Torrens Outlet to the sea at West Beach. Even if a flow is not required, the excavation at the Torrens Outlet provides benefit by directing the water from the Torrens out to sea. Water quality monitoring has shown this reduces the risk of having water sit on the beach, encouraging dilution and promoting safe use of the beach.





## 5 facts about the excavation

1. Depending on the extent of works required, **the excavation can take between 3 and 5 days.**
2. If a managed flow from upstream is required, the excavation at the channel **allows water to be directed out to sea, reducing the risk of having stormwater sitting on the beach.**
3. **The excavation is done regardless of whether a flow is required as it allows quick decision making if blue-green algae levels do increase.** A flow can then proceed without needing to wait for excavation works to occur. Plus in the event of a high summer rainfall, water is more effectively directed out to sea, reducing the risk of having water sitting on the beach.
4. **As hooded plovers sometimes nest along the beach** near the outlet, staff from BirdLife Australia will be onsite to monitor any nesting birds.
5. If a flow is required, **high-use beach groups and stakeholders will be notified** in advance that a flow is coming.



## Monitoring

- Remote water quality monitoring at a permanent station in the lake throughout the year.
- Twice weekly water quality monitoring at 7 locations in the lake over summer.
- Twice yearly fish monitoring along the river and around the lake.



## Minimising nutrients

- Duck feeding station in the lake closed.
- Over 15,000 native aquatic plants placed in the lake to take up nutrients.
- Floating wetlands (aquatic plants grown on a floating platform) trialled near Torrens Weir.
- Phoslock (a chemical that gets rid of phosphorus) trialled in 2006.



## Catchment Management

- Regular removal of carp – over 3.5 tonnes removed to date.
- Erosion prevention and riverbank planting.
- Woody weed removal and replanting with native plants along River Torrens Linear Park .
- Regular dredging and clean-up after major storms (3000m<sup>3</sup> of rubbish removed in 2017).
- Fencing-off stock from rural areas.
- Wetland and stormwater reuse schemes created at First Creek, Kensington Gardens Reserve and Felixstow Reserve.
- Biofilter and stormwater reuse schemes established at Linde Reserve and Klemzig Reserve.



## Improving water quality

- Aerators to add oxygen to the water, trialled for a number of years
- 2008 and 2012 trials of transportable biofilter to clean up the water
- Flows trialled at different flowrates from 3–5 days, to mix up, cool and exchange the water



## Hydrogen peroxide trials

- Hydrogen peroxide was trialled at low doses as it kills blue-green algae but not other aquatic species.
- 2014-2015 trials undertaken in the laboratory and small ponds.
- 2016-2018 trials undertaken near the Adelaide Zoo and Torrens Weir.



## Infrastructure

- Gross pollutant traps on all stormwater entering the lake and throughout the catchment, including First, Second, Third, and Fourth creeks capturing over 5000 tonnes in the last two years.
- Upgrading the gross pollutant trap on Second Creek at St Peters to increase litter trapping effectiveness.



*The project is a collaboration between Green Adelaide, Department for Environment and Water, SA Water, Environment Protection Authority, the City of Adelaide and the City of Charles Sturt.*