ACT Government | ACT Health

*CHIEF HEALTH OFFICER'S REPORT 2020*

# HEALTHY CITY

**A healthy city is the foundation for good health. ACT Health is committed to ensuring that our air and water quality remains high. Canberra has one of the safest and cleanest environments in the world, however, it can be easy to forget that ongoing efforts to maintain clean water and air are critical in keeping a city's residents healthy.**

## Encouraging trends

### Clean air

Clean air is an important part of keeping a city healthy. By global standards, the ACT has excellent ambient air quality on most days; however, smoke from fires, both within our borders and beyond, can pose a threat to health.

ACT Health operates the Territory's air quality monitoring network. It comprises of two National Environment Protection Measure (NEPM) performance monitoring stations in Monash and Florey and a smaller station in Civic. These stations measure carbon monoxide (CO), nitrogen dioxide (NO2) photochemical oxidants such as ozone (O3), fine particulate matter less than 10 micrometres (PM10) and particulate matter less than 2.5 micrometres (PM2.5).

### Drinking water

The ACT has high quality drinking water and good health protection systems to prevent waterborne disease.

The ACT continues to have a low number of notifications of incidents related to our drinking water supply.

Between 1 July 2017 and 30 June 2019 twelve notifications were made by Icon Water to ACT Health relating to levels of blue-green algae, Escherichia coli (E.coli) and Cryptosporidium detections, that exceeded the levels set under the Australian Drinking Water Guidelines and 'potential imminent public health risks'. This represents a small decrease in the number of average yearly notifications from the previous reporting period.

### Recreational water

The ACT Government's recreational water monitoring and Waterways programs assist in maintaining recreational water quality and in monitoring risks for recreational water users.

The ACT and surrounds generally have good or fair quality recreational waterways, which is in line with most capital cities in Australia.

The ACT Government in partnership with Waterwatch publishes the annual Catchment Health Indicator Program (CHIP) Report www.act.waterwatch.org.au/data/chip-reports.

The 2019 CHIP Report found the catchment quality of ACT waterways was generally fair. Of the approximately fifty-eight surveyed catchment areas within the ACT; three (3) were found to be in poor condition; thirty-five (35) in fair condition; eighteen (18) in good condition; and two (2) in excellent condition.

Catchment quality is determined using the following three main catchment health indicators: water quality, macro-invertebrates (numbers and diversity) and riparian[1] condition.

The 2019 CHIP report found that drought and substantial urban water runoff, from both established and newly developing suburbs significantly impacted catchment quality.

1 The degree to which human-altered ecosystems diverge from local semi-natural ecosystems in their ability to support a community of organisms and perform ecological functions.

**CATCHMENT QUALITY IN THE ACT**

| 3 | 35 | 2 |
|---|---|---|
| poor condition | fair condition | excellent condition |

# Challenges and Opportunities

Australia's changing climate will continue to impact our environment. This includes an impact on our water resources and catchment environments, as well as an elevated risk of natural hazards. The changing climate is also increasing both the frequency and intensity of extreme weather events in Australia and other countries globally. It is predicted that we will experience more prolonged extreme heat events, elevated fire danger weather, and severe storms. Furthermore, changes to climate combined with nutrient pollution due to urban development may increase the frequency and length of algal blooms.

Bushfire smoke contains many different substances, from ash and particles we can see, to much smaller particles (measured as PM2.5) and gases. These particles and gases can cause a variety of health problems if present in high enough concentrations and are especially harmful to people who have breathing-related difficulties.

Dust storms occur when heavy winds blow loose sand, dirt and other fine particles from deserts and semi-arid landscapes into urban areas. Dust storms may have adverse effects on public health and is especially harmful for people who already have breathing-related difficulties.

## Air Quality

Canberra generally has very good air quality. Deteriorations in air quality are mostly due to increased levels of particulate matter (PM). High levels of PM occur from dust storms and smoke from fires. Fires include bushfires, wood heaters, hazard reduction burns, and industrial fires.

High levels of fine particles (PM2.5) are primarily associated with smoke from the use of wood heaters, hazard reduction burns and bushfires. PM10 measures fine and larger particles and is more commonly associated with dust when levels are high in the absence of high PM2.5 levels.

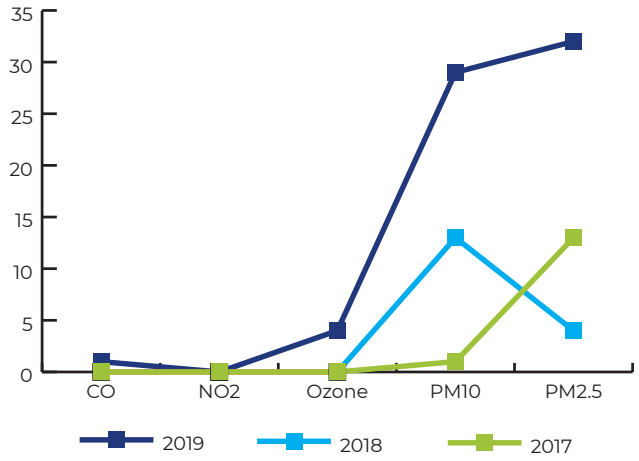
National air quality standards are set out in the National Environment Protection Measures (NEPMs) set by the National Environmental Protection Council. Readings above these standards are considered as breaches and are reported annually by the Environment Protection Authority.

In 2017, air quality readings above the national standards occurred due to smoke, predominantly due to woodfire heaters. Twelve of the thirteen exceedances for PM2.5 were related to woodfire smoke. The other instance was attributed to a hazard reduction burn. There was also one breach of the PM10 standard which was attributed to hazard reduction burns.

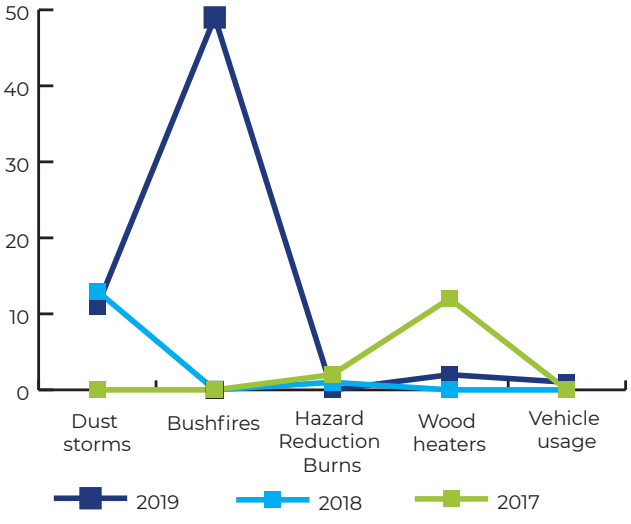
Conversely in 2018, exceedances of air quality standards were attributed almost exclusively to dust storms. Of four PM2.5 breaches, three were due to dust storm and one to a hazard reduction burn. There were additionally 13 exceedances in PM10 due to dust storms.

Exceedances of the air quality NEPMs in 2019 were due to a number of sources, one of which was the extreme events of the 19-20 Australian bushfires. There were a total 32 exceedances for PM2.5, 27 of which were attributed to bushfires, three due to dust storms and two to woodfire smoke. Additionally, 21 out of 29 exceedances in PM10 were due to bushfires, with the remaining eight attributed to dust storms.

**2017 to 2019 exceedence by pollutant**




**2017 to 2019 exceedence by cause**




*Source: ACT Air Quality Index*

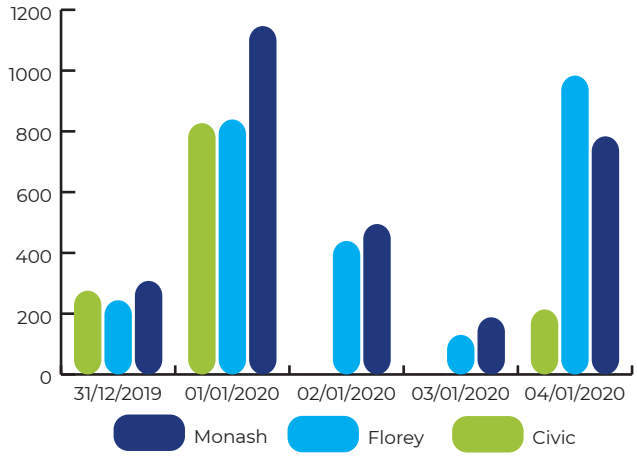
# 19-20 Australian Bushfire Impact on Canberra Air quality

Throughout the summer of 2019-20, high levels of bushfire smoke impacted Canberra as fires burned in the surrounding states. The Canberra region was affected by smoke between 28 November 2019 and 28 January 2020. Within this period there were 47 days where at least one station recorded an Air Quality Index (AQI) above the national standard (100-Poor). On the days that exceeded the standard, 35 days also exceeded the Hazardous (200) threshold. The extreme fires produced pollution across several air quality measures.

Breaches of the NEPMs occurred in particulate matter (both PM2.5 and PM10), ozone, carbon monoxide and nitrogen dioxide. Throughout the smoke event, ACT Health provided updated information to the community through the ACT Health website, development of fact sheets, addition of hourly PM2.5 data and interactions on social media platforms.

The highest level of PM2.5 recorded by ACT Health was on 5 January 2020, which reached an hourly reading of 2,496µg/m3 (microgram per cubic metre) at the Florey monitoring station.

**PM2.5 readings 31/12/2019 – 04/01/20**




# Recreational Water

The ACT has many water bodies that support various recreational activities. ACT suburban lakes are designed to capture urban water runoff from both established and newly developing suburbs and reduce the impact this has on the Murrumbidgee River. These lakes support a range of secondary uses including recreational enjoyment, however, water quality fluctuates and can pose a risk to public health.

The primary health concern related to recreational water sites is when users are exposed to water that may be significantly impacted by Cyanobacteria (blue-green algae) or human or animal faeces.

To safeguard the health of ACT recreational water users, ACT Health along with the Environmental Protection Authority (EPA) regularly monitor Canberra's recreational waters; Lake Ginninderra; Lake Tuggeranong; Molonglo Reach; and the Murrumbidgee River Corridor.

Water quality is assessed against the ACT Guidelines for Recreational Water Quality (the guidelines) which provides a framework for the management of the recreational water sites.

Lake Burley Griffin is administered by the National Capital Authority which undertakes its own water monitoring programs and manage the lake in accordance with the guidelines.

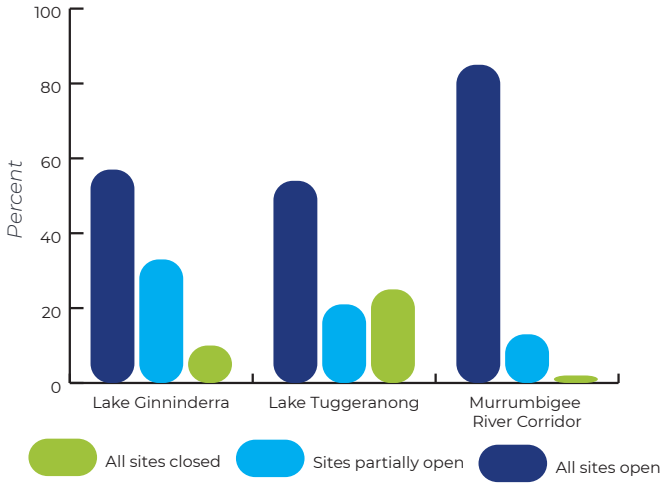
Between 2017-2019 the major recreational water bodies of Lake Ginninderra, Lake Tuggeranong and the Murrumbidgee River corridor had all recreational sites open for over 50% of the swimming season (October to April). The Murrumbidgee River corridor had all recreational sites open for the majority of the period (at 85%).

Partial recreational water body closures are a result of high bacterial levels at various individual sites during the swimming season.

The majority of whole lake closures in both Lake Ginninderra and Lake Tuggeranong resulted from blue-green algae blooms throughout the summer periods in both 2017/2018 and 2018/2019.

The Murrumbidgee River Corridor and Molonglo Reach experienced higher water quality throughout the period with all recreational sites along the corridor being closed for only 2% of the period.

**Recreation water bodies status 2017-19**




*Source: ACT City Services*

# Achievements

## Recreational water

The 2019 CHIP report found that water quality in a select few sites improved due to low water flows and mixing. Water bank quality and biodiversity was also a significant contributor. The 2019 CHIP report found that new wetlands projects significantly helped to improve the water quality of certain catchments. This highlights the importance of the ACT Healthy Waterways program.

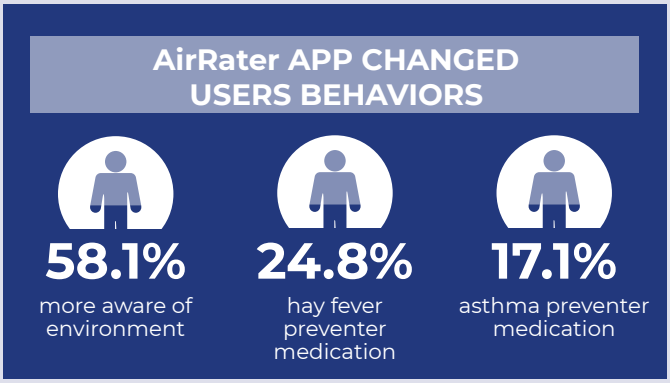
## Air Quality

In response to the 2019-20 bushfires the ACT, together with all Australian jurisdictions, through the Australian Health Protection Principle Committee, endorsed nationally consistent categories and public health messaging related to smoke exposure. ACT Health webpages have been updated to reflect this information. The information can be found at: https://health.act.gov.au/airquality

The AirRater app was launched in the ACT on 1 September 2017. It provides real-time, localised information on air quality, airborne pollen and weather conditions, tracks individual symptoms, and provides alerts to users when adverse conditions are forecast. It helps the user better manage their symptoms to the effects of air pollution and pollen.

The first evaluation of the app was carried out in December 2017. At the time of the evaluation there were 465 registered users. Of the respondents, 84% reported the app was useful. Of the registered users, approximately 19% had self-reported or doctor-diagnosed asthma, 26% had allergic rhinitis and 15% had both.

When asked whether using the AirRater app had changed respondents' behaviour, the largest response was that users were more aware of their environment (58.1%), followed by use of hay fever preventer medications (24.8%) and asthma preventer medications (17.1%).As of March 2021 there are over 11000 users of AirRater in the ACT.




*Source: ACT Health Protection Service*

**Glossary:** ABS Australian Bureau of Statistics; ACT Australian Capital Territory; ACTPANS ACT Physical Activity & Nutrition Survey; AIHW Australian Institute of Health & Welfare; ASSAD Australian Secondary Students' Alcohol & Drug survey; BOD Burden of Disease; CODURF Cause of Death Unit Record File; GHS General Health Survey; MPDC Maternal Perinatal Data Collection; NDSHS National Drug Strategy Household Survey; NHMRC National Health and Medical Research Council, NHS National Health Survey.

Data included in this report are the most recent available at the time of publication. For more information, see: stats.health.act.gov.au