



# RiverScan

Citizen Science Project

River Health Snapshot Report 2022



WaterWatch  
Victoria



North Central WaterWatch supports people to actively care for their environment by participating in Citizen Science programs that monitor and report on the health of the region's land, water, and biodiversity resources.

North Central WaterWatch and the Native Fish Recovery Project (NFRP) deliver a citizen science program called RiverScan. Now in its sixth year, the program engages the local community through regular water quality monitoring, other citizen science activities and community events. The program also supports the North Central River Detectives program—connecting young people to nature.

Citizen scientists and Traditional Owners play an important role in monitoring the ecological health of four priority waterways in the region: the Little Murray River, Box-Pyramid Creek, Gunbower Creek, and the Loddon River. The data collected helps staff at the North Central Catchment Management Authority (CMA) make informed decisions about managing these priority waterways to continue to improve native fish habitat.

The longest contributing volunteer to North Central WaterWatch, Rob Loats, recently celebrated his 27th year of water quality monitoring! Previously based in Donald monitoring the Richardson River, Rob recently moved to Swan Hill and now monitors three sites on the Little Murray River to ensure it is kept in good health for the native fish that inhabit the waterway.

A flagship partnership event *Going with the Flow: River Detectives Kids on Country* was a major drawcard for over 100 local primary school students for a day of discovery at Tree Tops Scout Camp in the Gunbower Forest. Students from

St Joseph's Kerang, Gunbower, Leitchville and Koondrook primary schools were welcomed to Country in a smoking ceremony by Barapa Barapa Elder Uncle Ron Galway, before being treated to a range of hands-on activities to learn more about the Gunbower Forest and Cultural tradition. Partners Parks Victoria and Native Fish Australia were also in attendance, delivering hands-on activities to help students learn more about the waterbugs and native fish that call the Gunbower Forest home.

Clay creations produced by students on the day were exhibited at the Gateway to Gannawarra Visitor Centre in Cohuna to celebrate the watering of the Gunbower Forest floodplain over winter and spring. Artwork was returned to students as a memento of their day of environmental and cultural learning.

Another popular event was Wet n Wilder, a family friendly event on the banks of the Loddon River in Kerang. This event featured a carp catch, native fish talks and tanks, Turtles Australia display, waterbugs and a colouring competition for the younger attendees.



## Acknowledgement of Country

North Central Catchment Management Authority (CMA) acknowledges Aboriginal Traditional Owners within the region, their rich culture and spiritual connection to Country. We also recognise and acknowledge the contribution and interest of Aboriginal people and organisations in land and natural resource management.

## Summary of 2022 Results

Due to several of the program's regular monitors either moving away, retiring or handing monitoring over to others, the project saw limited water quality monitoring at sites on all waterways except for the Little Murray River during 2022. Due to the flood event in October 2022, the RiverScan project was unable to undertake annual waterbug monitoring as planned.

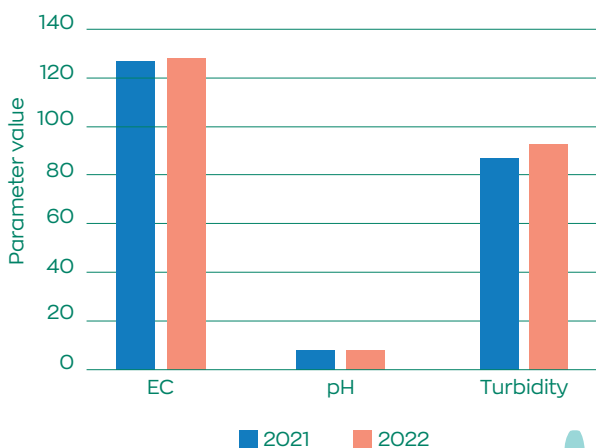
Barapa Barapa and Wamba Wamba Traditional Owners recently came on-board to assist in monthly water quality monitoring at twelve sites for the NFRP. Their contribution will greatly bolster the project and their data will be included in the 2023 report. A site selection process and training was undertaken during 2022 and water quality results will be included in future reports.

The Little Murray River is an anabranch of the Murray River and is the only waterway in the project area that had sufficient data collected in 2022 to be included in this report. Three sites along its length were monitored, with data being amalgamated to give a stream average.

The Little Murray River is characterised as having a very low electrical conductivity, indicating very low salinity. According to the water quality indicator levels, this is classed as good. Similarly, pH is also considered good to medium (pH ranging from 7.75 to 8.25) while turbidity is considered poor (average 93.6 NTU), likely due to surrounding land use causing erosion, carp muddling and poor water quality entering from the Murray River.

When compared with results from 2021, very little change in water quality has been observed.

## Results Comparison 2021 and 2022



## Great Australian Platypus Search

WaterWatch volunteers and Traditional Owners in the RiverScan project took part in the Great Australian Platypus Search (GAPS) in 2021. GAPS was a citizen science project that aimed to map platypus populations across Victoria from the presence of environmental-DNA (eDNA) in water samples. North Central CMA staff supported traditional owners from Yorta Yorta, Barapa Barapa and Wamba Wamba to collect samples from waterways within their respective countries during an engagement event in spring 2021. Results from the study were released in 2022 and have been included in this report.

The project identified two 'possible detections' - one in the Gunbower Creek near Koondrook and another in Black Charlie Lagoon in the Gunbower Forest near Torrumbarry. This is supported by the knowledge of a known population of platypus in the Gunbower Creek.

For more information and to see the Platypus Results Report, go to <https://www.thegreataustralianplatypussearch.org/>

## 2022 RiverScan Citizen Science Activities

- 8 schools registered in the River Detectives education program delivering water science to 268 students within the project area
- 1 Professional Development session for River Detectives teachers
- 1 RiverScan 'Project Prattle' with North Central CMA staff and teachers delivering River Detectives in the project area
- 'Going with flow' day on country for 100+ River Detectives students in Gunbower Forest
- 3 WaterWatch training sessions with Traditional Owners on Country
- 15 sites established for future monitoring by Traditional Owner groups
- 3 sites actively monitored by 1 WaterWatch volunteer
- 33 site visits and data entries into WaterWatch portal
- Wet and Wilder Kerang, 10 April attended by 80 people
- Carp Catch and waterbug search at the Cohuna Farmer's Market for World Fish Migration Day, 23 May attended by 100+ people

## River Detectives

Schools continued to be impacted by Covid-19 during 2022 and found it difficult to continue to test water quality monthly but continued the River Detectives journey in ways that suited their unique situation.

Koondrook PS were able to maintain their testing regime with 5 tests during 2022. They were inspired by the 'Going With The Flow' event at Treetops and reached out to learn how they could engage with Traditional Owners in their area more regularly.

St Joseph's PS Kerang sent thank you letters to all speakers of the Treetops event and students wrote reports for the school newsletter. They seized the opportunity to connect with the North Central CMA's Plains Wanderer project and receive copies of their Wildlife of Native Grasslands on Victoria's Northern Plains and Plants and Vegetation of Native Grasslands on Victoria's Northern Plains. These were studied by students and placed in the library for borrowing.

Gunbower PS students added to their River Detectives learning by joining North Central CMA Ramsar project staff in December to revamp a garden at the Gunbower Recreation Reserve with native plants.

### St Joseph's Primary Kerang

Site Code: LME001\_RD, LOD621a\_RD

### Koondrook Primary School

Site Code: MUR400\_RD

### Lake Boga Primary School

Site Code: LBG001\_RD

### Kerang Christian College

Site Code: LOD627\_RD

### Leitchville Primary School

Site Code: GUN401\_RD

### Lake Charm Primary School

Site Code: LCH001\_RD

### Boort District P-12

Site Code: LBO001\_RD

### Gunbower Primary School

Site Code: GUN400\_RD



Park Victoria staff helping students to identify waterbugs. Photo: Bill Conroy



Students enjoyed getting to know some local fish species. Photo: Bill Conroy



Native Fish Australia with their live fish display were a hit.



Students learn traditional weaving. Photo: Bill Conroy

## Little Murray River

Site Code: LMU300, LMU600 and LMU900

Monitor: Rob Loats

The Little Murray River is characterised as having a very low electrical conductivity, indicating very low salinity. According to the water quality indicator levels, this is classed as good. Similarly, pH is also considered good to medium (pH ranging from 7.75 to 8.25) while turbidity is considered poor (average 93.6 NTU), likely due to surrounding land use causing erosion, carp muddling and poor water quality entering from the Murray River.

### Water Quality Indicators

pH	EC	Phos	Turbidity
129	7.85	8.23	93.6



### Gunbower Creek

Site Code: GUN148

GAPS Result: Possible

### Gunbower Creek

Site Code: GUN105

GAPS Result: Possible

## Interpreting results

Water quality parameters in this report have been analysed using new indicator levels for the North Central CMA region developed in 2022 by Leon Metzeling and David Tiller. These indicators advance upon the State Environment Protection Policy (SEPP) guidelines, used in previous snapshot reports, to determine the ecological health of a waterway. This project lies within the Murray Plains, Campaspe, Loddon and Avoca sub-segment of the surface water geographic region of the new Environmental Reference Standard (formerly the Murray Plains Bioregion).

Four water quality parameters were monitored by WaterWatch volunteers and Traditional Owners: pH, electrical conductivity, reactive phosphorus, and turbidity. Site data was analysed for monitoring sites where there were five or more data entries and water quality results are the 75th percentile of all data entries at each site during 2022. For pH, the 25th percentile was also analysed to give an indication of the range of pH and diversion from neutral. The 25th percentile denotes the lower end of the range and the 75th percentile the upper end of the range of pH results during the 2022 calendar year.

## Water Quality Colour Coding

Sites have been colour coded and interpreted as follows:

- Good:** Water quality is acceptable and has minimal impacts on aquatic ecosystem health.
- Moderate:** Water quality and aquatic ecosystem health are moderately impacted.
- Poor:** Water quality and aquatic ecosystem health are largely impacted.
- Very Poor:** Water Quality and aquatic ecosystems are severely impacted.

## Water quality indicator levels

Murray plains, Campaspe, Loddon and Avoca sub-segment

Indicator	Electrical conductivity (EC)	pH lower (25th percentile)	pH upper (75th percentile)	Turbidity	Reactive Phosphorus	Dissolved oxygen
Units	(µS/cm)	pH	pH	NTU	(mg/L)	% Saturation
Good	≤1,500	≥7.0	≤8.2	≤20	<0.045	≥70
Moderate	>1,500 ≤2,000	<7.0 ≥6.0	>8.2 ≤8.5	>20 ≤50	>0.045 ≤0.050	<70 ≥60
Poor	>2,000 ≤4,000	<6.0 ≥5.0	>8.5 ≤9.0	>50 ≤100	>0.055 ≤0.100	<60 ≥40
Very Poor	>4,000	<5.0	>9.0	>100	>0.100	<40

## Native Fish Recovery Project Cumulative Ongoing Achievements

- CREATION OF DEEP POOLS: 4
- INSTALLATION OF INSTREAM HABITAT STRUCTURES: 155
- FENCING INSTALLED AND MAINTAINED: 56KM
- WEED CONTROL: 283HA
- REVEGETATION: 111HA
- CAPTIVE BREEDING PROGRAMS: 3
- THREATENED WETLAND SPECIALIST FISH RELEASED: 5000+
- AUSTRALIA'S FIRST SELF-CLEANING FISH SCREEN, COHUNA
- FISHWAYS COHUNA AND KOONDROOK: 2
- IRRIGATION PUMP FISH SCREENS: 2

## Future Monitoring

In addition to water quality and waterbug monitoring, the staff have also been exploring opportunities to involve the community in other monitoring techniques and there are some exciting programs planned for future years.

One such technique that is being utilized more frequently is environmental DNA (e-DNA) monitoring where a water sample is collected, filtered and sent to a laboratory for DNA analysis. Many species living in or accessing the waterway can be identified from fragments of DNA. This program will partner with a La Trobe University study to determine the presence or absence of 24 native and invasive fish species of interest to the Native Fish Recovery Plan.

North Central citizen science programs have also been supporting a study into the presence of pesticides in Australian waterways led by Deakin University. A pilot study for 'Pesticide Watch' was conducted in the region during Spring 2022 and is planned to be rolled-out across Australia throughout 2023. All citizen scientists and River Detectives schools in the north central region were offered the opportunity to participate in 2023, with findings due later in the year. Results are expected to give an indication of which kinds of pesticides are present in the catchment, as well as noting the legal status of their usage.

## Want to get involved?

We are looking for volunteers to help with monitoring activities on the Gunbower Creek, lower Loddon River, and Box/Pyramid Creek.

Citizen scientists are supported to help build people's knowledge of waterway health and contribute vital data to the project team.

If you'd like to get involved and become a volunteer citizen scientist, please register your interest with one of our Citizen Science project officers at:

Email: [citizenscienceteam@nccma.vic.gov.au](mailto:citizenscienceteam@nccma.vic.gov.au)

Ph.: (03) 5448 7124

Office: 628-634 Midland Hwy, Huntly Victoria 3551

## Acknowledgments

The RiverScan Project would like to acknowledge and thank the tireless efforts of dedicated volunteer citizen scientists, who have contributed greatly to the program and this report.

Also like to thank Native Fish Recovery Plan project manager, Dr Peter Rose for his enthusiasm and dedication to the program.

We would also like to acknowledge Barapa Barapa, Wamba Wemba, and Yorta Yorta Traditional Owners for their interest, involvement and contribution to the program.



Colouring in competition winners with their prizes - chocolate Murray cod



Families hearing about the Native Fish Recovery Plan at Wet n Wilder Event, Kerang.

The Victorian Government is supporting community partnerships over the next four years through WaterWatch and other citizen science initiatives to address local waterway priorities. These priorities are being addressed as part of the Victorian Government's \$222 million Water for Victoria investment over the next four years to improve catchment and waterway health across regional Victoria.