



Waterwatch & EstuaryWatch

Citizen science in Victoria's waterways



Environment,
Land, Water
and Planning

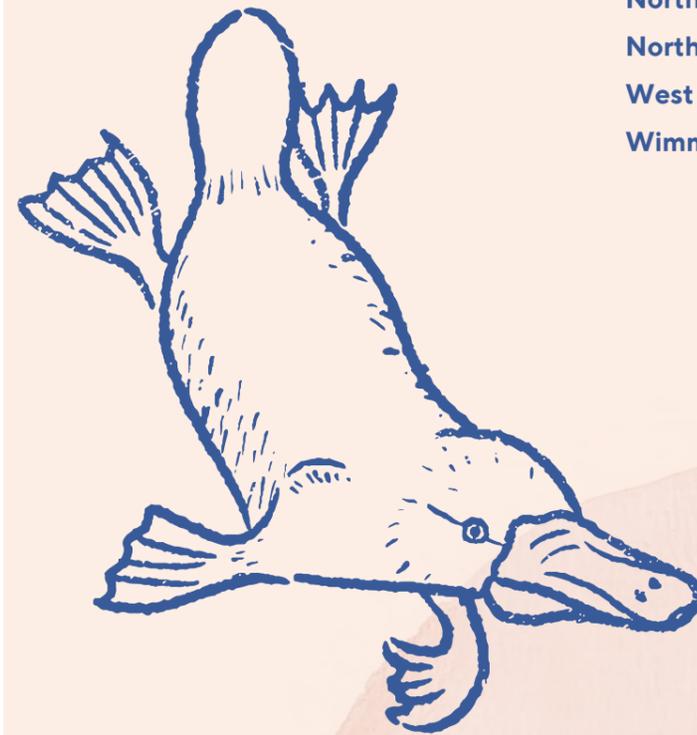


Waterwatch and EstuaryWatch have long played a significant role in improving knowledge of Victoria's waterways and fostering local stewardship actions. Citizen scientists involved in the 2021-2022 programs contributed a total of 65,722 hours to care for our waterways, equivalent to 8,763 volunteer days.

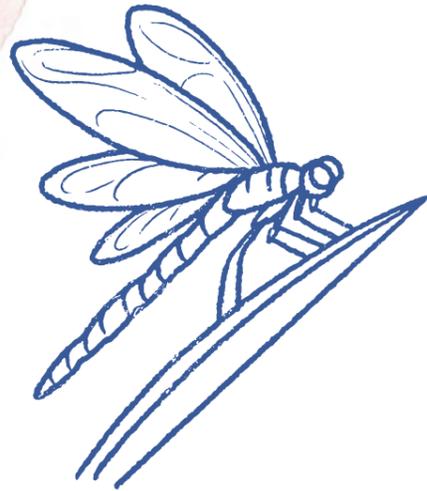


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Introduction



Waterwatch has led the way in creating opportunities for local communities to participate in the monitoring and management of Victoria's waterways for almost 30 years.

Paired with its sister program, EstuaryWatch, both programs have engaged volunteers to become waterway-stewards by monitoring water quality and aquatic species. The activities help foster positive working relationships with other organisations and environmental groups. The amount of quality data collected from volunteers and made available to environmental authorities is a true testament to the importance of citizen science across Victorian waterways.

Waterwatch and EstuaryWatch have long played a significant role in improving knowledge of Victoria's waterways and fostering local stewardship actions.

Citizen scientists involved in the 2021-2022 programs contributed a total of 65,722 hours to care for our waterways, equivalent to 8,763 volunteer days. This contribution provides an economic value of the 2021-2022 volunteer effort of \$2,743,236.

Aboriginal Acknowledgment

Estuary Watch and Waterwatch proudly acknowledges Victoria's Aboriginal community and their rich culture and pays respect to their Elders past and present. We acknowledge Aboriginal people as Australia's first peoples and as the Traditional Owners and custodians of the land and water on which we rely. We recognise and value the ongoing contribution of Aboriginal people and communities to Victorian life and how this enriches us. We embrace the spirit of reconciliation, working towards the equality of outcomes and ensuring an equal voice.



The EstuaryWatch and Waterwatch programs are achieving the vision of engaging, activating and empowering communities to care for and improve the health of Victoria's waterways. The program actively supports catchment management authorities (CMAs) and Melbourne Water in developing and delivering diverse opportunities for volunteer citizen scientists to connect and learn about Victoria's rivers, wetlands and estuaries, and contribute to waterway stewardship.

The EstuaryWatch and Waterwatch Annual Achievements Report 2021-2022 showcases the stories of citizen science and community heroes within local environments throughout Victoria. We would like to thank the thousands of volunteers who contribute their time and knowledge to the programs as part of a large and ever-growing community. Each citizen scientist's time is invaluable and greatly appreciated. We would also like to thank our delivery partners across the 10 CMA regions, including CMA's, water corporations, local government, management committee, Traditional Owners and other valued delivery partners.

These programs are funded through the Victorian Government's \$248 million investment over four years to improve catchment and waterway health across regional Victoria. This investment is a key component of Water for Victoria - the government's plan for management of our water resources now and into the future.

Working together we can create meaningful outcomes for Victoria's waterways and the communities that depend on them.



EstuaryWatch and Waterwatch



Citizen science is recognized as an asset to the scientific community in efforts to broaden community knowledge and boost research and monitoring.

With significant partnerships being established and more to come, the scope and capabilities of citizen science can only grow. Although the past year has not been without its challenges during a turbulent period in both programs' history, and with growing concern surrounding the health of our local waterways in years to come, our partnerships and the community's growing desire to make a difference will be more important than ever to the programs. Here is a snapshot of what has been developed in the past year and what there is to look forward to in the next.

Database and Portals

In partnership with the Centre for eResearch and Digital Innovation (CeRDI - Federation University), the Waterwatch and EstuaryWatch databases continue to provide essential resources to the community, providing data and knowledge generated by the programs. The Waterwatch and EstuaryWatch Data Portal provides valuable data and images of all monitored waterway sites in the state.

The Waterwatch data portal had a total of 23,057 users, & EstuaryWatch data portal had a total of 6,946 users in 2021-22.

The EstuaryWatch and Waterwatch Victoria programs are focused on supporting community volunteers as citizen scientists to actively participate in the monitoring of waterway health. The Waterwatch and EstuaryWatch Data Portal provide valuable data and images of all monitored waterway sites in the state.

Partnership Plan

Acknowledging that in citizen science establishing effective partnerships is essential to achieving meaningful and useful outcomes in waterway management, a partnership plan has been created to path the way for waterway citizen science in Victoria in the future and will form a long-term collaborative strategy for Waterwatch and EstuaryWatch Victoria.

The Waterway Citizen Science Partnership Plan builds on the strong culture of collaboration characterizing Waterwatch and EstuaryWatch and aims to enable new opportunities for local communities to provide further contribution to the science and management of Victoria's waterways.

The Partnership Plan origins come from almost 30 years of formal and informal partnership, and the learnings that come along with this, as well as research, and statewide surveying of volunteers and stakeholders. Acknowledging that establishing effective partnerships in citizen science is essential to achieving meaningful and useful outcomes in waterway management.

The Plans

The EstuaryWatch & Waterwatch Plans (2015-2023) provides direction for citizen science in Victoria's waterways. With the current plan coming to the end of its lifecycle, an internal review was undertaken in 2022 and a new plan will be developed in consultation with our partners, to align with the timeline for the renewal of the Victorian Waterway Management Strategy. This review has been informed by a mid-term review survey of regional delivery partners, interviews and workshops from state and regional governments.

To support The Plans, an EstuaryWatch Waterwatch visionary workshop was held on 29 March 2022 in the Corangamite region. This workshop provided a great opportunity to reflect on the Waterwatch and EstuaryWatch vision, mission and identity.





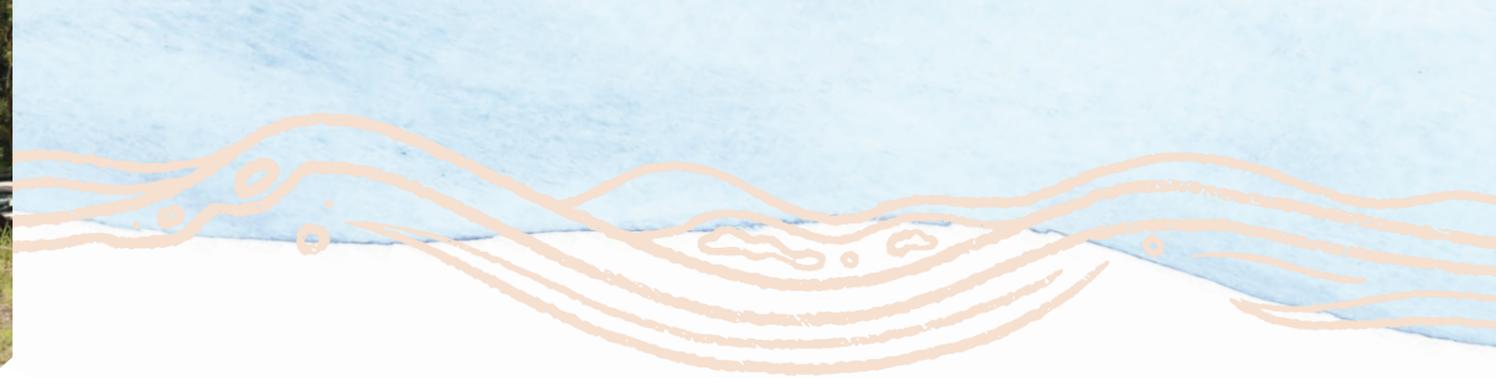
Partnerships

Partnerships are crucial to managing water resources sustainably, as well as addressing complex problems spanning multiple sectors and authorities. In citizen science, partnerships and other collaborative engagements can be an effective way to leverage the unique skills and knowledge of volunteers. Throughout their history, partnerships have been crucial to the success and longevity of Waterwatch and EstuaryWatch. They have created opportunities for collaboration, place-based learning, knowledge creation and resource sharing with a wide range of stakeholders, including governments, universities, schools and non-government and community-based organisations. These partnerships will continue to play a critical role in the future of both programs as they work towards safeguarding the health of Victoria's water environments and the well-being of its communities.

Protecting a National Icon

Waterwatch Victoria proudly partnered with the Odonata Foundation through the [Great Australian Platypus Search \(GAPS\)](#), a state-wide investigation into platypus populations using environmental DNA (eDNA). With samples collected from 2,000 sites across Victoria, the data produced as part of this project will help scientists to develop a comprehensive map of platypus populations across the state and will be used by waterway managers to better understand risks to our waterways and inform appropriate management efforts. Waterwatch Victoria worked closely with Odonata and the project control group which included the Department of Environment, Land, Water and Planning, enviroDNA and LaTrobe University, to influence sites sampled, align sites to existing citizen science sites, provide safety advice and engagement expertise, recruit volunteers, and promote the program to citizen scientists across Victoria.

Regular meetings were undertaken with Odonata and Environmental Education Victoria to streamline coordination of the registration of sites and promotion of the project to volunteers. As a result of Waterwatch Victoria's involvement, the project saw Waterwatch sites and additional Traditional Owner sites included as part of the project.

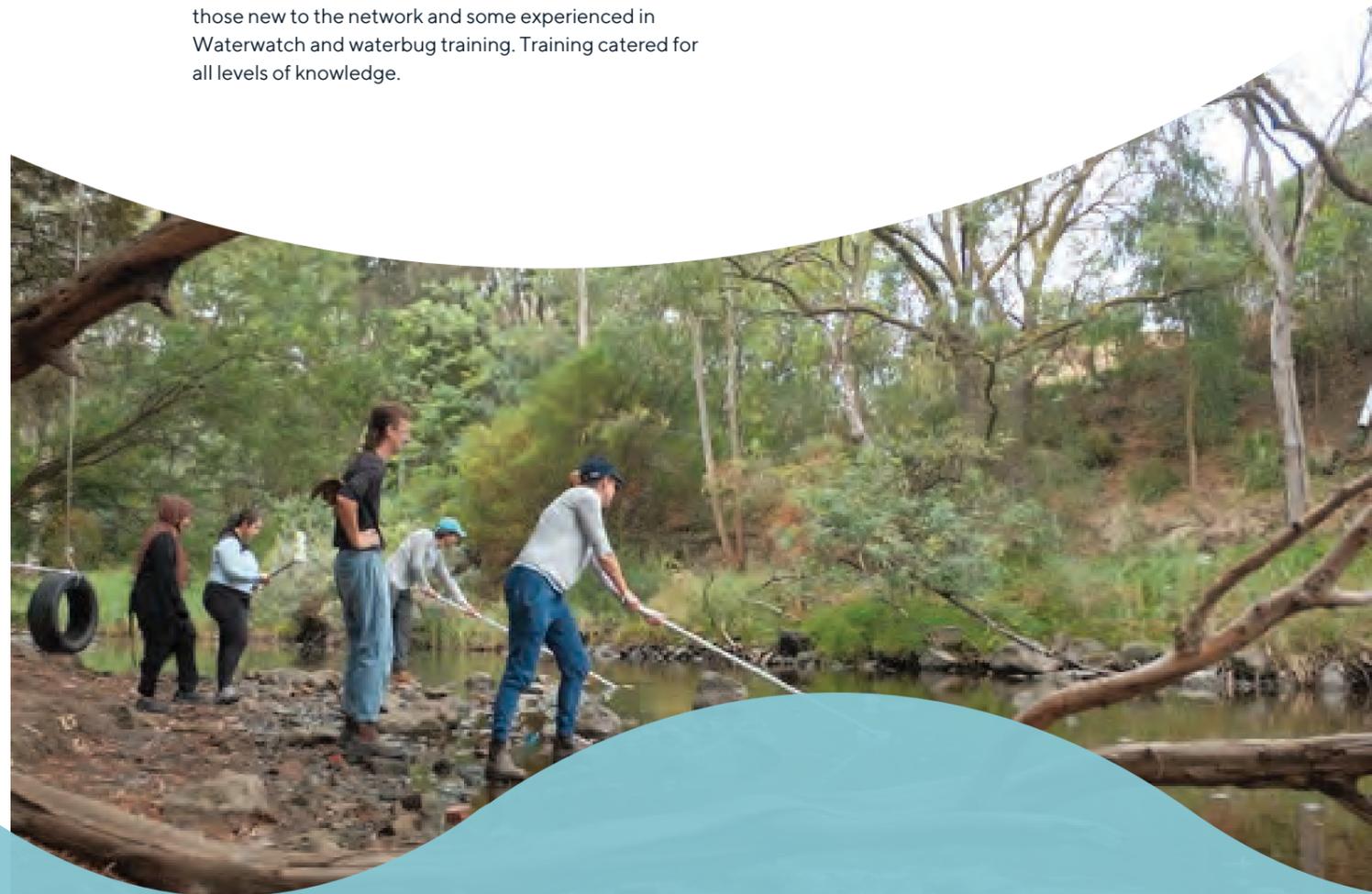


Regional Coordinator Support

The Statewide EstuaryWatch Waterwatch Facilitator is supporting regional delivery of citizen science, ensuring that the CMA regions are provided opportunities to share information and knowledge, expand their skills and build capacity.

Training events were held with regional coordinators to expand their skills and build capacity. Highlights included statewide waterbug training. 14 participants received training across the two-day event, including those new to the network and some experienced in Waterwatch and waterbug training. Training catered for all levels of knowledge.

To extend waterbug training, the state budget funded four regional community waterbug workshops to encourage the community to become 'citizen scientists' and investigate how healthy their local waterways and wetlands are. Volunteers did this by exploring and identifying what waterbugs were living in these areas. The type and number of waterbugs found in a waterway can give a strong indication on how healthy that waterway is.



Where and what we are monitoring

Type of Monitoring Sites

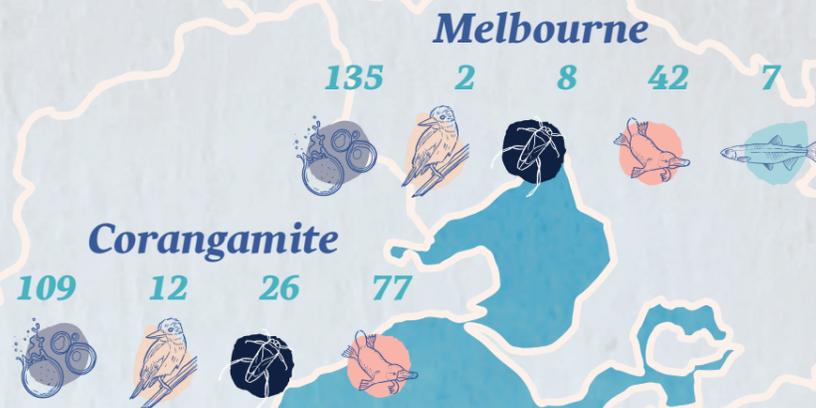
The diversity of projects undertaken across the state as part of EstuaryWatch and Waterwatch monitoring shows just how special Victoria's ecosystems are and speaks to the knowledge and dedication of all the volunteers involved.

From bird monitoring to waterbug surveys, all citizen science activities within the programs serve a valuable purpose.

Thank you to all the volunteers and regional coordinators for supporting the work that goes into these monitoring activities.



To find out more, visit [Waterwatch Victoria](#) or [EstuaryWatch Victoria](#).



132 Active Groups

10410 Event Participants

650 Active Sites

1956 Active Volunteers

Delivery Partners

CMA's, water corporations, local government and other delivery partners play a crucial role in successfully facilitating on-ground citizen science programs across Victoria.

There continues to be strong community support for getting involved in caring for our waterways and catchments across the State, through citizen science activities. By working in partnership with individuals and community-based natural resource management groups, we can achieve better, more lasting change.

- Corangamite CMA
- East Gippsland CMA
- Glenelg Hopkins CMA
- Goulburn Broken CMA
- Mallee CMA
- Manningham Council
- Melbourne Water
- Merri Creek Management Committee
- North Central CMA
- North East CMA
- Petaurus Education Group
- Rural City of Wangaratta
- West Gippsland CMA
- Wimmera CMA

Waterwatch and EstuaryWatch regional coordinator network, attending a Regional Network and Training event in Milawa, North East Victoria in April 2022



Stories from across the state



28 
Active
Groups

121 
Active
Sites

98 
Active
Volunteers

2191 
Event
Participants

Corangamite

Case Study 1 – Wadawurrung Traditional Owner Aboriginal Corporation Murrabul Yaluk Water Quality Monitoring Program

Corangamite Waterwatch and Wadawurrung Traditional Owner Aboriginal Corporation (WTOAC) have been walking together on a journey for Wadawurrung water since 2018 when their partnership began with a Wadawurrung Family Fishing Day. Out on Wadawurrung Country beside the Murrabul Yaluk, community shared their aspirations for Wadawurrung rivers and a desire to skill share. Many of the visions of that day have influenced important work in both the citizen science and environmental watering sectors of the Corangamite CMA and in the establishment of dedicated Water Officer positions within WTOAC.

In 2019, Wadawurrung representatives were key members of the technical advisory panel for the “Upper Barwon, Yarrowee and Leigh River FLOWS study”. Cultural flow goals designed to support Aboriginal Cultural values on Wadawurrung Country were developed and now form an important part of annual Seasonal Watering Plans on Wadawurrung waterways. As part of monitoring the impact of environmental watering on these Wadawurrung Cultural values,

“We will continue to walk together on this Wadawurrung water journey.”

- Greg Robinson, Wadawurrung Traditional Owners Aboriginal Corporation

WTOAC staff have committed to a water quality monitoring program to capture data before and after the release of environmental water or “freshes” and conducting Autumn and Spring macroinvertebrate sampling at four sites of Cultural significance on the west branch Murrabul Yaluk.

We thank the thousands of dedicated Waterwatch and EstuaryWatch volunteers who visit local waterways to monitor water quality and collect valuable environmental information.

The annual WTOAC Citizen Science Water Quality Report has been made to provide a data summary for the year, contribute to Wadawurrung water knowledge and to promote this citizen science partnership on Wadawurrung Country. In future years Corangamite CMA aim to analyze the data alongside flows data. Through the growth of this program, WTOAC is now developing their own strategies and waterway monitoring objectives to deliver on goals set in their “Paleert Tjaara Dja – Healthy Country Plan.” Corangamite Waterwatch will continue to walk together on this Wadawurrung water journey.



Kristen Lees and Kaelan Morrison with the Murrabul Yaluk Water Quality Monitoring Program Report 2021

Case Study 2 – Snake Bite First Aid Training for Volunteers

Post COVID lockdowns, the Corangamite CMA citizen science program engaged Waterwatch and EstuaryWatch volunteers from Winchelsea through to Barwon Heads came together to learn more about snakes. This training helped reconnect with citizen scientists in a unique way to provide a network and training opportunity involving health and safety when in the field.

The program worked with an experienced wildlife handler and a first aid provider to deliver a snake-focused training session to educate volunteers on snake behaviour and other biting and stinging species like spiders and scorpions.

An important part of the event involved how to treat someone who’s suffered a venomous animal bite or sting. Volunteers’ monitoring kits are now equipped with a snake bite first aid kit and instruction in treatment

The event was rounded off with a discussion of the volunteers’ own management of hazards and risks using a Safe Work Method Statement and how the Corangamite CMA supports a safe citizen science program.

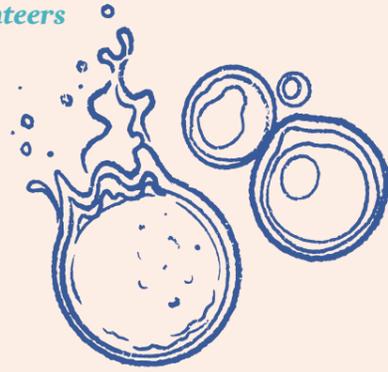


2 Active Groups

16 Active Sites

15 Active Volunteers

East Gippsland



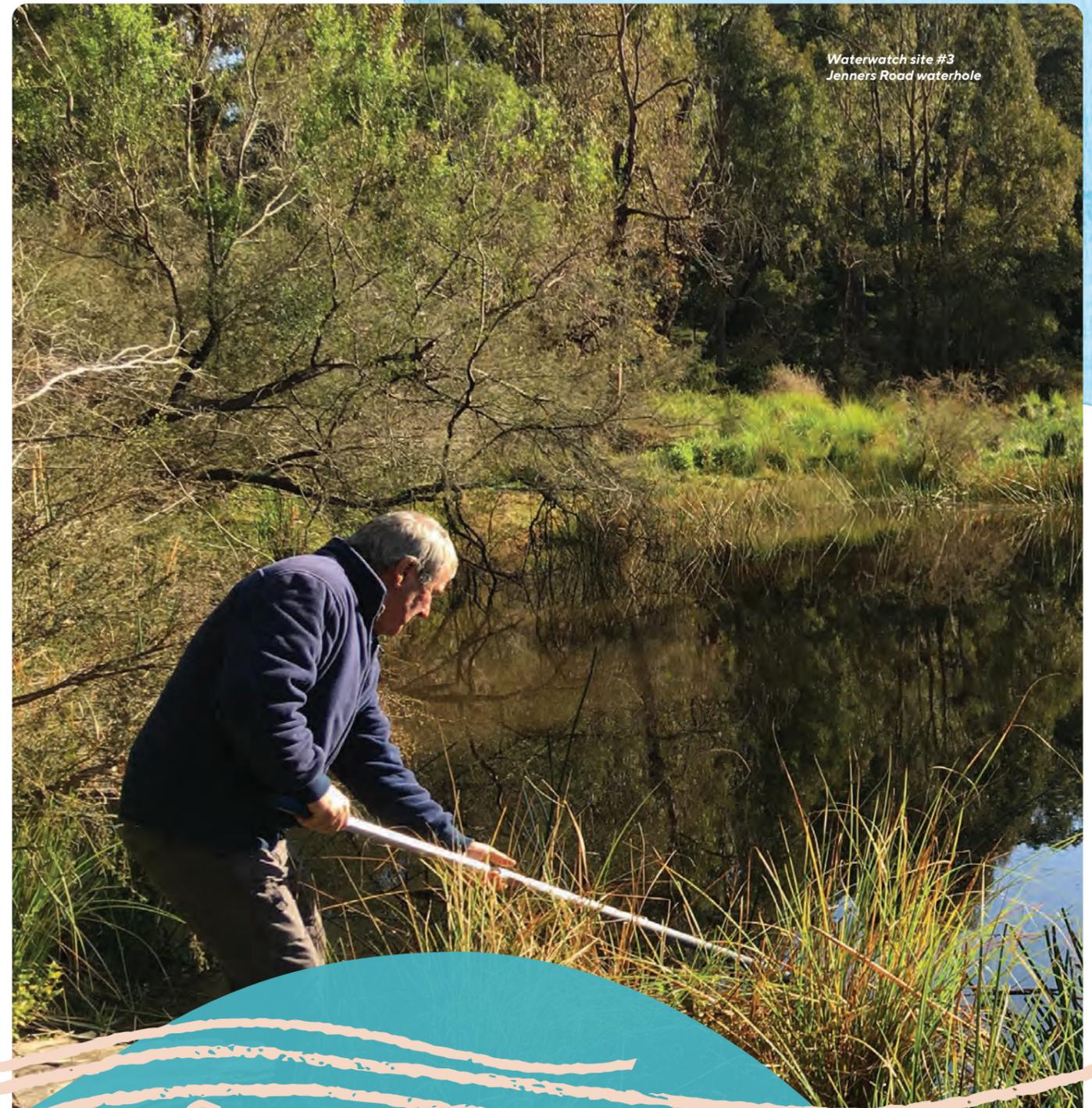
Case Study 1 – Alistair Mailer & EGCMA

Romawi Landcare has continued its monthly surveys of Forge Creek throughout their reporting period as the dedicated volunteers put their Waterwatch skills to work. Volunteers sampled seven locations along the creek, from Centre Goon Nure Road in the west (near Bairnsdale Aerodrome) to Forge Creek in the east (before it merges into the Newlands Backwater).

Sample locations west of Barkhill Road had maintained its good water quality numbers with optimal pH readings as well as very low turbidity, and very low nutrient concentration. Sample locations east of Barkhill Road showed a steady increase in turbidity, with electrical conductivity increasing and pH readings slightly lower in the optimal band. Nutrient levels had increased steadily (following higher than normal rainfall) at the 'Roosting site' wetland – reflecting the land use change of the lower reaches of the creek.

Very wet conditions over the last 12 months has led to reasonable flow being observed in Forge Creek that also led to more runoff from surrounding farmland and urban areas.

The Romawii Landcare Group's large amount of revegetation work along the length of the Forge Creek Reserve, designed to filter and reduce farmland runoff into Forge Creek, has worked well under normal or even above rainfall conditions to improve water quality. This revegetation also helped improve biodiversity along the creek and in the long-term will provide more healthy habitat for native animal species.



Waterwatch site #3
Jenners Road waterhole



Waterwatch site #2
Corner Bend, Romawi Road

A big thanks goes out to Romawi Landcare for their all-round hard work in helping their local creeks by working to improve the health of the areas and make sure their work is making a difference with their monitoring activities.

2  Active Groups

9  Active Sites

12  Active Volunteers

19  Event Participants

Glenelg Hopkins



Case Study 1 – Community Sampling and Identification workshop, National Waterbug Blitz

Cold and windy weather didn't get the better of eager waterbug spotters on April 28 2022, when community volunteers and Glenelg Hopkins staff joined leading Australian aquatic ecologist John Gooderham for a waterbugs workshop in Warrnambool.

The workshop was delivered along with the National Waterbugs Blitz, an Australian-wide monitoring initiative that encourages community volunteers to become 'citizen scientists' and investigate how healthy their local rivers, creeks and wetlands are, simply by exploring and identifying the waterbugs they contain. The type and number of waterbugs found in a river or creek can tell us a lot about how healthy it is.

As part of the activities, water samples were taken at three sites. Two of those were high priority sections of the lower Merri River in Warrnambool. These sites, and the baseline data gathered as part of this workshop will be important in measuring the improvement in the river and its streams over coming years. This is because Glenelg Hopkins CMA undertakes project work as part of its Rivers of Warrnambool Flagship Waterways project. This major project will include riverbank protection and rehabilitation activities and the decommissioning of the Bromfield Street Weir.

Skills and knowledge developed on the day were also brought into the classroom, with a waterbug and water quality presentation held at St. Joseph's Primary School Warrnambool on June 3, 2022. This in-school workshop was part of the school's Science, Technology, Engineering and Math (STEM) learning, which has a particular focus on engaging female students. Simple STEM education such as waterbug monitoring is crucial to developing engineering, technology, and life sciences disciplines, and it was fantastic our citizen science activities could contribute to this learning.



The National Waterbug Blitz's aquatic ecologist John Gooderham explaining sampling techniques and waterbug sorting processes, Lake Pertobe Warrnambool, April 28 2022



The National Waterbug Blitz's aquatic ecologist John Gooderham explaining key steps in the waterbug classification process at the Warrnambool Waterbugs workshop, April 28 2022

Case Study 2 – Hopkins and Merri EstuaryWatch

Despite a short COVID interruption in January, it has been all systems go for the Hopkins and Merri EstuaryWatch volunteers in the southwest of our state during 2021 and 2022.

The volunteers are as well organised and diligent as ever, producing high quality water quality data and estuary observations on a monthly basis. This information has continued to build on a thorough and important dataset which is consistently used in Glenelg Hopkins CMA Estuary Entrance Management system, as well as in on-ground works planning and monitoring projects.

“This year we have seen a steep change in the level of engagement and connection from fishing enthusiasts about what we are doing and how our monitoring can make a difference.”.

- Mr Brad Clingin, EstuaryWatch volunteer, Hopkins River estuary Warrnambool

Along with monthly monitoring, the volunteers have extended themselves to support a number of other project activities, including the GAPS. Brad said “Throughout the year, the team on the Hopkins has really enjoyed participating in other monitoring opportunities such as platypus eDNA sampling and expanding our skillset and waterways travelled. Kate, Dina and Brad enjoyed getting out on the Mount Emu, Brucknell, and Deep Creeks as well as new reaches of the Hopkins River”.

The volunteers have also been involved in the Glenelg Hopkins CMA's Rivers of Warrnambool Flagship Waterways project which focuses on the long-term protection and rehabilitation of the lower Merri and Hopkins estuaries. Brad said “Being involved and informed of the Rivers of Warrnambool project and knowing why our task of reporting estuary health is important has been very satisfying. Thanks to the great support and communication from Jarred, we feel part of a bigger collective of citizen scientists contributing to healthier waterways in our region”.



Merri EstuaryWatch volunteers Tom, James and Eleanor undertaking bird observations and photo-point monitoring at the Rutledge's Cutting estuary mouth, Illowa



1
Active
Group

34
Active
Sites

10
Active
Volunteers

Goulburn Broken

Waterwatch Victoria would like to acknowledge the tremendous efforts of volunteers in the Goulburn Broken catchment for their work along major waterways and creeks in the region.

10 volunteers sampled 34 different sites throughout 2021-2022. Their work and dedication reflect the devotion of all EstuaryWatch and Waterwatch volunteers across Victoria.

We thank them for their time and passion for the environment as outstanding citizen scientists.



3 
Active
Groups

71 
Active
Sites

40 
Active
Volunteers

218 
Event
Participants

Mallee

Case Study 1 – Kings Billabong Turtle Citizen Science Event - Becoming Ambassadors for Threatened Turtle Species

In May 2022, 22 community members joined Mallee CMA, EnviroEdu, local Zoologists and Ecologists Sarah and Alex Holmes, at Kings Billabong to learn about native turtles in the area. In the Mallee region there are three species of turtle, the Broad-Shelled Turtle, Eastern Long-neck Turtle and Murray River Turtle – all of which are listed under the Flora and Fauna Guarantee Act 1988 as endangered or critically endangered, mainly due to predation by introduced species such as foxes and feral pigs.

Helping to demonstrate the physical make up of a turtle, Clay and Fuzzball (pictured) patiently displayed the carapace (upper hard shell), plastron (underside of shell) and scutes (hard scales on shell), giving participants a tactile and interactive experience. After learning about turtle diet, breeding habits, nesting times and incubation, the group headed off for a walk along Kings Billabong to see if they could identify any nesting sites, being prewarned that it can be quite tricky. Turtle mums are very good at filling in the nest, heaving their bodies up and down to compact the dirt before covering it back over with leaves and twigs, hoping to hide it from predators. Unfortunately, a really good sense of smell leads foxes and feral pigs to the nests where 95% of eggs are eaten.

While the group were unable to locate an intact nest, they did find evidence of a disturbed nest not far inland from the billabong with egg shell scattered around the dug-out nest opening. The ambassadors were encouraged to download TurtleSat, a mobile app used for recording turtle sightings, nests and predator activity so while the community members examined the nest Mallee CMA and their partners logged their find, showing how quick and easy it is.

Providing opportunities for community members to experience different citizen science activities is just one way the Mallee CMA are supporting and encouraging citizen science volunteerism, helping to build on the invaluable data their dedicated volunteer's supply.

“The activity informed me about turtles. Allowed me to get to know the ecologists and talk about citizen science possibilities.”



Fuzzball and Sarah
from EnviroEdu



Ambassador Greg Dixon and Sarah
from EnviroEdu

Case Study 2 – Mildura West Primary School - Collaborating to Inspire our Future Environmental Leaders

Kings Billabong was Mallee CMA's destination on a Thursday morning in May for Mildura West Primary School's (MWPS) 120 year one and two students to experience some hands-on learning.

The Mallee CMA were joined by Parks Victoria, Mildura Rural City Council and Maritime Safety Victoria to host an activity day supporting the classes unit of enquiry focusing on ecosystems.

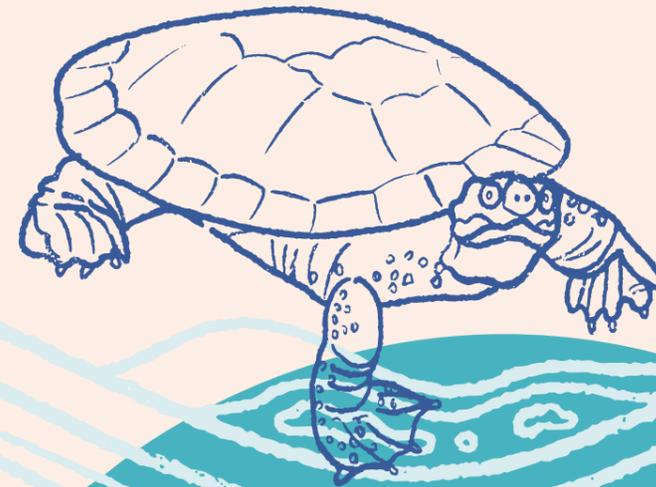
Students rotated through five 30-minute activities, learning about the importance of wetland health and the role waterbugs play in the wider ecosystem, the importance of safety while boating along rivers, how to recycle household rubbish properly and how to be wildlife detectives whilst looking at the environment around them.

The students were also taken on a cultural journey of traditional plant use, tracking and implement making. The Aboriginal leaders present spoke about the uses of plants including inland Pigface, Ruby Red Saltbush and Golden Wattle. They learned about how the gum, or resin, from native trees such as the Black Box was used as an adhesive when making tools and implements. Students examined nearby gums for the claw marks of resident goannas before arriving back at the treasure tree where they placed some of the plants and treasures found on the walk.

Once the students headed back to the classroom, they reflected on the activities and what they had learned and provided feedback to the presenters in a very special way through personalised thank you cards and artwork.

“I loved fishing for waterbugs and then we released them back into the water.”

– Asta, MWPS



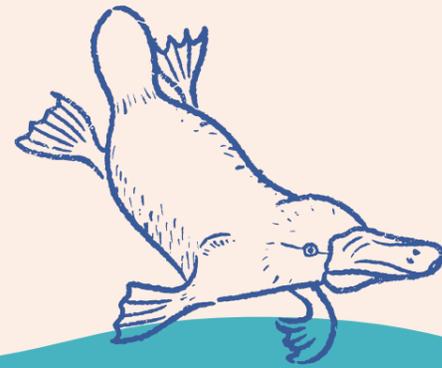
67
Active
Groups

186
Active
Sites

1618
Active
Volunteers

7165
Event
Participants

Melbourne



Case Study 1 – Platypus back in the Merri? Meet the Merri Platypus Paddle

During 2022, the Friends of Merri Creek (FoMC) formed a sub-group called the Merri Paddle alongside the Australian Conservation Foundation. The Merri Creek is an 80km tributary of the Yarra River (Birrarung), running through the northern suburbs of Melbourne from Heathcote Junction to Dights Falls, Abbotsford. It was once a home to the platypus, but the species has since been driven out by sediment and pollutants, and its ecology is regularly disturbed by abnormally high flows caused by urban run-off.

Merri Paddle advocates for the restoration of the Merri Creek to create healthier habitat for platypus. In order for platypus numbers to increase, the Merri Creek needs to:

- Restore healthy and diverse populations of waterbugs as a primary food source
- Decrease toxins and stormwater pollution (including sediment, detergents and litter) in the creek
- Help return regular stream flow to the creek



Merri Paddle advocates for the restoration of the Merri Creek to create healthier habitat for platypus.

As a very ambitious project these goals are long term and will need ongoing work and support from Friends of Merri Creek, Merri Creek Management Committee (MCMC), local councils, Melbourne Water and other stakeholders and the community.

MCMC Waterwatch have partnered with the Merri Paddle and have been a big supporter in 2021-2022. So far they've been able to help by:

- Co-running a webinar - To introduce the Merri Paddle to the community, highlight the current plans to get platypus back in the Merri Creek and explain how individuals can help, the Merri Paddle ran a webinar with Melbourne Water and MCMC's Waterwatch Coordinator. Dr Mel Klamt delivered a fascinating presentation on platypus biology, habitat requirements and threats as 120 local residents watched eagerly online.
- Gathering water quality data - Running two field days collecting Waterwatch water quality data and platypus eDNA samples added valuable information to the Waterwatch Victoria data portal and to the GAPS project. These field days culminated into a research report by renowned platypus specialist, Josh Griffiths, of EnviroDNA. His 'status report' collated all the information available on the historic presence of platypus in the Merri Creek and nearby tributaries. It also assessed platypus habitat along the Merri Creek to identify what needs to be done to improve these areas.



Case Study 2 – Cannibal Creek eDNA

In collaboration with Melbourne Water's Integrated Planning team, Melbourne Waterwatch assisted in data gathering for an environmental DNA regional surveillance program. Waterwatch coordinators partnered with Cannibal Creek Landcare to collect a number of samples throughout the reach of Cannibal Creek in the Bunyip catchment. A large number of high-quality samples with an increased volume of filtered water were collected each day, thanks to the recent acquisition of a pump-powered eDNA sampler.

Along with collecting samples to be analysed for the presence of multiple species, there was a focus on including sites previously looked at for broadening the distribution of dwarf galaxias, a threatened species of fish in the area. Replicating sampling from important sites and wetlands will help in uncovering any changes to populations on monitoring sites over the coming years.

Additional areas of interest to the group were sampled to assist Cannibal Creek Landcare's strategic focus on engaging and influencing other landholders in the catchment to get involved in biodiversity projects.

Partnering with the Landcare group ensured that site selection along the creek was based on known safe access points and also gave monitors the opportunity to access private property sites through the group's network. There is the potential for longer term regular collection of eDNA samples by the Landcare group in the future, and a similar model of work is planned for specific research into biodiversity in other catchment hotspots.

The Merri Paddle team hard at work, taking water samples to check for platypus eDNA and testing the water quality of Merri Creek approx 100 metres upstream of the confluence with Kalkallo Creek, in Donnybrook



6
Active
Groups

96
Active
Sites

63
Active
Volunteers

503
Event
Participants



North Central

Case Study 1 – Waterwatch on Country

In mid-November 2021, North Central CMA Waterwatch staff were joined by Barapa Barapa Traditional Owners for three days of macroinvertebrate sampling in and around Kerang. Samples were collected from 23 sites along important rivers and creeks in the Native Fish Recovery Plan area (NFRP): Gunbower Creek, Loddon River, Box-Pyramid Creek, and the Little Murray River. Through the NFRP project, North Central CMA work on riparian and instream activities to improve the condition of these areas to support the recovery of native fish in north central Victoria.

Together, with water quality data collected by dedicated Waterwatch citizen scientists, the annual macroinvertebrate surveys allow environmental authorities to report and track changes in the ecological condition of the river systems. NFRP Project Manager Dr Peter Rose says that because of the dedicated community members “the project now has comprehensive river health data which will become invaluable over time to inform the success of management actions.”

The data collected with Barapa Barapa will inform the annual RiverScan report which monitors the ecological health of the rivers and creeks within the NFRP footprint. The Riverscan citizen science program has been running since 2016.

As well as collecting waterbug and water-quality data, eDNA samples were collected this year as part of the GAPS partnership with Waterwatch Victoria. This citizen science project aims to detect eDNA from all aquatic vertebrates, meaning that scientists will be able to develop a comprehensive cross-section of species living in river systems across the state. While some results may not reveal that platypus live in the area being sampled, they will still offer scientists an understanding of what other species are in the river systems.

“The project now has comprehensive river health data which will become invaluable over time to inform the success of management actions.”

**- Dr Peter Rose,
NFRP Project Manager**



Freshwater ecologist John Gooderham with participants collecting waterbugs

Case Study 2 – Waterbugs Workshop with John Goderham

With support from the statewide program, North Central Waterwatch hosted the ever-engaging freshwater ecologist John Gooderham for a waterbug workshop with Waterwatch volunteers in early May.

Twelve North Central volunteers joined Conservation and Landscape Ecology students from Bendigo TAFE and gathered at No. 7 Park in Big Hill, Bendigo on May 4 for a morning of catching and identifying waterbugs from the frog ponds within the park.

John’s passion and delivery style ensured that the morning was full of practical information on how to conduct a waterbug survey. By identifying the waterbugs that live in our rivers and creeks, volunteers can learn a lot about how healthy rivers and creeks are, as different species are more sensitive than others to certain changes in conditions like salinity, pH and dissolved oxygen.

During the afternoon, the group embarked on some water quality QA/QC (quality assurance and quality control) to ensure that the Waterwatchers continue to collect quality data and check that everyone’s equipment was in working order.



Aunty Ester Kirby and Dixie Patten (Barapa Barapa) counting and sorting waterbugs for the Native Fish Recovery Plan with NCCMA resident fish expert, Dr Peter Rose. Credit: Tania MacLeod



3 
Active
Groups

20 
Active
Sites

13 
Active
Volunteers

264 
Event
Participants

North East

Case Study 1 – Positive partnerships at Mullinmur Billabong

Mullinmur Billabong on the Lower Ovens Floodplain in Wangaratta is a special place, named for the Bpangerang word for Platypus. Since 2018, volunteers from Wangaratta Landcare Sustainability Inc have been instrumental in enhancing the environmental, cultural and educational values of the site with support from many partners including the local community, Galen, Borinya, Bpangerang Aboriginal Corporation, NECMA, and the Rural City of Wangaratta.

A management plan guides the activities at Mullinmur and the site regularly hosts environmental and cultural education activities and community events that highlight the importance of the Ovens River and its associated wetlands. Recently, Mullinmur has benefited from Bpangerang cultural burning practices which were featured in Bitja Wokka (Fire Country) – a virtual reality film about caring for country.

In addition to ongoing weed and pest animal control, revegetation, installation of additional habitat for aquatic and land species and the re-introduction of small bodied native fish, this year has also seen upgrades to stormwater management infrastructure and the installation of telemetry infrastructure to provide continuous data for water temperature, dissolved oxygen and water level to build on existing data and monitor the effects of environmental water at the site.

Dedicated Waterwatch volunteers monitor dissolved oxygen, turbidity, reactive phosphorus, temperature, pH and electrical conductivity and recently, four new volunteers have taken on this important role.

The Waterwatch data collected from four sites including the main billabong, two storm water ponds and the Ovens River, is used to keep an eye on the health of the wetlands and nearby Ovens River.



Students learning about eDNA at Mullinmur
Credit: Josh Hartwig

The Waterwatch program at Mullinmur is facilitated through a partnership of the North East CMA and the Rural City of Wangaratta with Council staff supporting the volunteers through training and technical guidance.

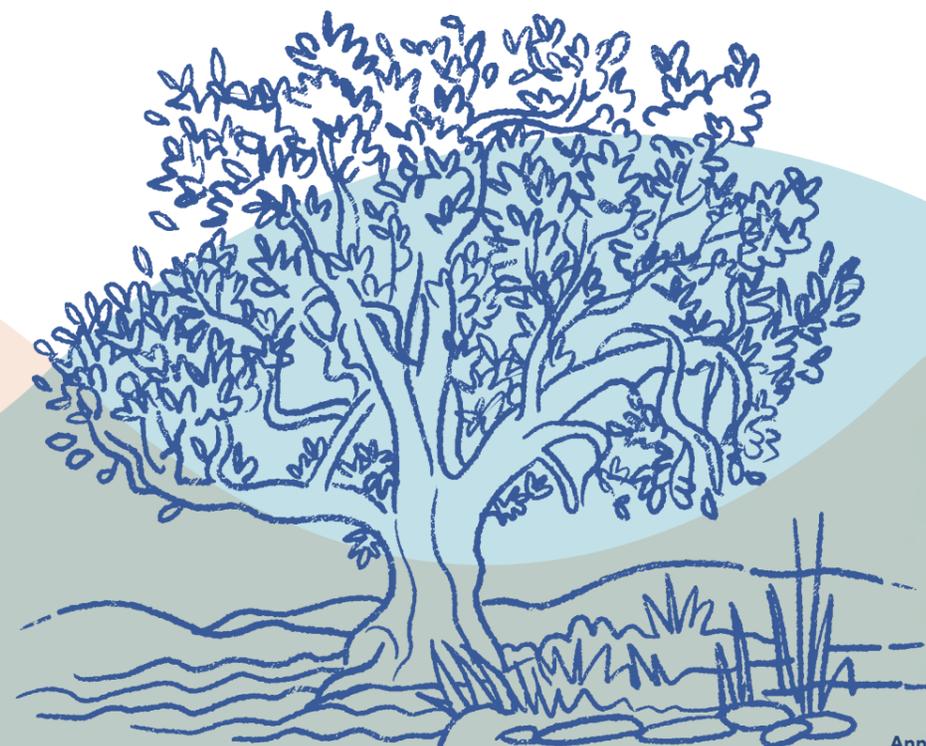
The recently opened Mullinmur education hub is regularly used as a venue for school group sessions, bush playgroup and community engagement events. This year it was also the base for Waterbug Blitz training and eDNA sampling as part of the GAPS, providing school groups and community members the chance to hone their citizen science skills and contribute to their understanding of the species composition and water quality of the wetlands.

The combined effort of many has achieved some truly great environmental, cultural and educational outcomes at Mullinmur Billabong with the community embracing this special place for all.

“The dedication and amazing effort from all the community volunteers at Mullinmur is awe inspiring.”

- Catherine McInerney, Senior Environmental Water Resources Officer, North East CMA

Students and community members getting to know Mullinmur's macroinvertebrates at Waterbug Blitz training in April.
Credit: Vanessa Thompson



6
Active
Groups

34
Active
Sites

32
Active
Volunteers

26
Event
Participants

West Gippsland

Case Study 1 - Putting the fish back into Fish Creek

In December 2021, the Fish Creek Landcare group begun testing at their first Waterwatch site. As group chairperson Robin Stevens said: "The intention is to work in with the project we are running for cleaning up the waterways and putting the fish back into Fish Creek." The group has been working hard over many years to fence, revegetate and control weeds along the highly modified Fish Creek and its tributaries.

The group's interest in testing the creek's water quality is driven by the desire to monitor any long-term changes that occur due to these conservation and revegetation efforts in the catchment, with the hope of demonstrating improved water quality. They also hope to use it to identify any sources of pollution or sediment that enter the creek to help with planning future projects.

While their Waterwatch volunteering has just begun, the committed group are looking to engage more volunteers to ensure the collection of their water quality data continues well into the future.

Robin Stevens and Merran Wilde from the Fish Creek Landcare group learn how to analyse their water sample under the guidance of Tash Marty-Cripps (Waterwatch coordinator, WGCMA)



Case Study 2 - Thanks for over a decade of Waterwatch

It's the end of an era for retiring Waterwatch volunteer Peter Repschlager as, just after his 83rd birthday, he handed back his monitoring kit to spend more time with his family and talking to colleagues around the world through his ham radio hobby.

After moving to Glenmaggie over fifteen years ago, Peter and his mate Curly, put on their boots and monitored their local river along the Thomson River and then in Heyfield Wetlands. When Curly passed away three years ago, Peter kept up the tradition on his own.

Not one for computers, Peter diligently recorded his measurements by hand on record sheets and sent them to West Gippsland CMA to enter into the state-wide portal.

After moving to Glenmaggie from Pearcedale, becoming a citizen scientist was a logical step for Peter who has planted many trees on his own properties and within his community.

"I could have done it with my eyes closed after 12 months and enjoyed it all," said Peter who also says another Waterwatch highlight was that he never fell in while taking measurements - even when he hobbled down just after having a hip replacement.

"It's been very interesting. I've seen quite a few snakes and many rabbits across my time. I've seen the whole place flooded and also had to water plants via a Furphy in times of drought," he recalled.

"I loved the trees and the space and spending time with Curly."

"I could have done it with my eyes closed after 12 months and enjoyed it all."

- Peter Repschlager, Waterwatch Volunteer, Heyfield Wetlands.



Mr Repschlager proudly monitored the Heyfield Wetlands for over ten years until he recently retired. Here he is handing back his Waterwatch kit in June 2022



1 
Active
Group

8 
Active
Sites

4 
Active
Volunteers

Wimmera

Case Study 1 – River salinity at Jeparit more settled over the last five years

In May 2022, Jeparit Waterwatch celebrated its 27th birthday of data collecting and testing along the lower Wimmera River at up to 10 sites. In all their time monitoring this important part of the river, they've seen both good and bad trends and shared this with the community and CMA.

Jeparit Waterwatch group member, Jeanie Clark, said that salinity is considered to be the major concern. In 2016, the group recorded a major rise in salinity to 10,000 us/Cm EC's, but that it had improved since then.

"The river does seem to have had a much more settled pattern of annual salinity rises and falls in the last five years. It will also be noticed that while the river has had a typically high salinity level, it has rarely reached 'saline' water levels in this period, varying between about 1500 EC's in late winter-early spring and about 5000 EC's in late summer- early autumn."

Another long-term member, 90-year-old Frank Pitt commented, "Today's high salinity would kill the vegetables that used to grow in market gardens alongside the river. When I was a child and teenager, in the 1930's and 40s, the gardens were run by a Mr Huncher. But, by the 1950's, they were gone."

Despite the Covid interruptions to schooling, Jeparit Primary School 'River Detectives' were able to do five samples at their site through the last year.

Their results were similar to the Waterwatch group's findings, with data ranging in salinity between 3000 and 4000 EC's – too salty for most vegetables and fruit trees.

Another member, Martin Stone, recently added a new perspective to his part of the monitoring – drone photos. He took one of the river end in April 2022, providing a fantastic aerial view of the state of its entry into Lake Hindmarsh.

"I was surprised to see that the mouth is quite big. It had reached the Lake, but not in very far – nor very deep – and not to our monitoring site at Picnic Point," he said.

Jeanie Clark reported that although the Jeparit Waterwatch group is small, and would love more volunteers of any age to join, its members are committed to continuing their monthly monitoring for as long as they all can.



Jeparit Waterwatch Group photo May 2022 (L-R) Sue Afford, Jeanie Clark, Frank Pitt, Martin Stone



Jeparit Waterwatch member Martin Stone took this photo by drone of the Wimmera River's end at its mouth into Lake Hindmarsh on 13 April 2022
Credit: Martin Stone



Waterwatch Victoria

www.vic.waterwatch.org.au

EstuaryWatch

www.estuarywatch.org.au

River Detectives

www.riverdetectives.net.au

National Waterbug Blitz!

www.waterbugblitz.org.au

Contact

Jake van Dam

Statewide Citizen Science Facilitator

jake.vandam@ccma.vic.gov.au

or vicwaterwatchestuarywatch@ccma.vic.gov.au

0427 410 864



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