

River Detectives is a cross curricular citizen-science program connecting young people with their local waterway. Through water quality testing, macroinvertebrate sampling and habitat surveys students learn about the importance of catchment health. The website provides access to a wide variety of engaging resources inspiring teachers to embed River Detectives in school and community life.

Since 2016 the program has been available to school and youth groups in five catchment management authority regions across the state.

In the North East CMA region, Katie Pallot is a P-12 science teacher currently working as a specialist science teacher at St Patrick's Primary School in Wangaratta. She teaches the science program school wide and leads an extension program for students who have shown a particular aptitude, giving them a place to shine when they may have difficulty in other areas.

Katie and the school became involved in the River Detectives program at the start of 2019.

"St Patrick's has a sustainability team and student sustainability leaders however previously to 2019 the sustainability program was focused on changes the school community could make on school grounds to improve sustainability including increasing biodiversity and reducing waste."

With her science background, Katie could see the River Detectives program provided a great opportunity to look outward to the broader community and environment.

"River Detectives is run with students from Grades 1-6 involved in the extension program and offers them a chance to be involved in real life community action. The Wangaratta area is blessed with many waterways. Rivers and streams play an important role in community life and the life of families in their recreation time."

Katie comments that one of the best parts of the program is its versatility. The many components of the program mean that the three different groups she's worked with have been able to pull out different aspects and run with it;

"The Grade 1/2 extension students participated in the program first. They gathered data at three monitoring sites; One Mile Creek, King River and the Ovens River. Each week they visited one site to complete water quality tests and waterbug sampling with all three sites tested once in a three week period."

Students walk to the Ovens River site and I drive them to the King and Ovens River sites.

When the Grade 3/4 students participated in the program they were challenged to look at data more deeply, consider patterns, why they might be occurring and what they meant for the waterway.

At the beginning of this year, before COVID-19 struck, the Grade 4/5 students were involved. They were really loving the macroinvertebrate sampling so this had become a huge focus of their work."

Katie reflects on some of the highlights of their River Detectives experience;

"The Grade 1/2's were involved in a River Detectives webinar on native fish during 2019. They learnt about Mosquito Fish and became very interested and concerned about the impact of this introduced specie on native aquatic life. They completed research, developed a powerpoint presentation and delivered it passionately at a school assembly explaining the issue to the entire school and explaining

why Mosquito Fish are so bad. Everyone listened intently to these junior students advocating for their local waterways.

The Grade 3/4's, after analyzing water data produced fantastic written reports summarizing their results and the impact of their water quality findings. Their work really demonstrated the level of confidence students had in their learning and how much they'd enjoyed it.

The Grade 4/5's enthusiasm for macroinvertebrates saw them develop great plans to produce a 'Sleep Geeks' video on this year's theme of water however this had to be cancelled due to lockdown."

Seeing students share their knowledge and report back to school assemblies is one of the most significant changes Katie has observed of her students' participation in the program.

"This generates quite a lot of interest among the rest of the school. I often have students approach me around the school asking 'can I be a River Detective too ?'"

Katie comments on the impact the program has had on the school, her own teaching and the students;

"To involve students in community-based citizen science, schools often synthesise/manufacture situations to create learning opportunities. The River Detectives program shows that here we are as citizens in Wangaratta surrounded by rivers and it is our responsibility to find out about them and share what we know about looking after them. We have a chance to participate in real citizen science to understand how water quality affects things, how our agricultural industry relies on good quality water and how everything in our environment is linked."

Katie has experienced evidence of student learning outcomes first hand;

"Apart from the work students have produced we have a lot of parents that provide great feedback about the conversations that are happening at home. Students are talking excitedly at home about the macroinvertebrates they've found at the river or the level of pH that was tested, etc. One particular student struggled with engagement at school but loved being part of the extension program. His parents were amazed to hear him talking so passionately about the waterbugs he'd discovered in the evenings around the dinner table."

During COVID-19 the program has been postponed and although they haven't had an opportunity to use the activity matrices developed by the River Detectives Team they will certainly use them in future.

Looking ahead Katie says, *"We currently have a Landcare Grant to boost biodiversity in the school yard. We have had support from our local council and landcare group with the provision of plants. Our goal in the future is to get involved in some rehabilitation activities at our local waterways. With my secondary science teacher hat on I also look forward to getting stuck into using the real data sets we have collected from all three waterways and looking at them with the Grade 6 maths extension group."*

The River Detectives program is supported by the Victorian Government's \$222 million Water for Victoria investment to improve catchment and waterway health across the state.