Richmond River Ecological Health Program

Report Card Spring 2024/ Autumn 2025

Written by Dr Brendan Cox

Richmond RIVERKEEPER

River Ecology Australia
ASSESSMENT, EDUCATION, RESTORATION

Border Ranges - Richmond Valley Landcare Network

Richmond River Ecological Health Program

Monitoring riparian condition, water quality and river health using macroinvertebrates (water bugs) the Richmond River Ecological Health Program provides provide publicly available ongoing riparian and ecological river health information for the Richmond River and its waterways and catchment.

This report includes the 4th and 5th rounds of sampling undertaken by the ongoing program and was conducted in spring 2024 and autumn 2025, 153 citizen scientists from 16 groups sampled 19 sites across the Richmond River Catchment. Unfortunately, many of our sites could not be sampled due to the heavy rain during the sampling period making it unsafe for sampling.

The Richmond River Ecological Health Program focuses on studying macroinvertebrates to assess river health, as different species have varying pollution sensitivity and habitat requirements. Monitoring these water bugs over time gauges the effectiveness of restoration efforts, with increased diversity indicating positive changes in water quality and habitat conditions. By integrating data on macroinvertebrates, water quality, and riparian condition, the program offers a comprehensive understanding of river health within the Richmond River Catchment. This approach helps identify causes of changes in macroinvertebrate populations, guiding future restoration actions and adaptive management. Empowering communities to act fosters a collective effort towards river improvement, with the Richmond Riverkeepers Association leading the community-driven program.

There are significant challenges impacting the health of the rivers of the catchment. Creating and preserving healthy habitats for water bugs is essential for restoring the health of the rivers in the Richmond River catchment, mitigating the impacts of past events and human actions, while promoting resilient and thriving freshwater ecosystems.

Keep the River Alive: A Call to Action for Richmond River

The rivers and streams of the Richmond River Catchment are a lifeline for its surrounding ecosystem. Yet, despite its undeniable beauty, these vital waterways are suffering. Human impacts have led to high sediment loads that choke the aquatic habitat, degrading many parts of it and threatening the intricate balance of its ecosystem.

The presence of sediment not only clouds the water; obstructing sunlight needed for aquatic plants to thrive but also smothers the habitats of bugs and other small organisms crucial to the river's health. These sediments can carry pollutants, pesticides and excess nutrient and disrupt the natural flow, compounding the river's struggles.

But amid this environmental distress, there remains hope. The remaining bug communities, resilient despite the odds, are a testament to nature's tenacity. Their presence signals that while our rivers are suffering, it is not beyond saving. This is where our call to action becomes critical: "Keep the River Alive."

Rehabilitation efforts need to focus on reducing sediment inflow and restoring the river's natural habitats. This involves both immediate actions, like better land management practices to prevent erosion, and long-term strategies, such as reforestation and wetland restoration. Healthy bug communities are indicators of a thriving ecosystem, and their recovery would signal a healthier, more resilient river system.

Our role is pivotal. Every effort, no matter how small, contributes to the river's revival. Supporting local conservation initiatives, advocating for sustainable agricultural practices, and reducing our own environmental footprint can help turn the tide. The beauty and biodiversity of the Richmond River can be preserved for future generations to enjoy, but it requires a collective commitment.

The Richmond River has given us so much, and now it is our turn to give back. Let us unite in this mission and ensure that our actions today will breathe life back into these waters. Together, we can and must "Keep the River Alive."

Richmond Riverkeeper Association

The Richmond Riverkeeper Association respects and celebrates the unique relationship of Indigenous peoples to the land and waterways of the Richmond River catchment. Joining with Riverkeepers across the globe we have a vision for the rivers of the Richmond River catchment to be healthy once more. Our mission is to fulfil community aspirations to improve the waters of the Richmond River catchment, so they are drinkable, swimmable, and fishable again. For us this means committed partnerships that focus on habitat restoration, enhancing riverbank stability, reduce the loss of our precious soils and reduce pollutant loads. Improvements like these create the conditions to bring back species like the iconic Eastern Freshwater Cod.

The Richmond Riverkeeper Association acknowledges that the lands and waterways of the Richmond Catchment and beyond, are the unceded territories of the peoples of the Bundjalung and Githabul Nations. We pay our respect to their Ancestors, who cared for Country since time began, and to all communities of the Bundjalung and Githabul Nations, and to all Traditional Custodians, who continue to speak and care for their Country and Water.

FIND US AT www.richmondriver.org.au

Photos By Brendan Cox

Richmond RIVERKEEPER

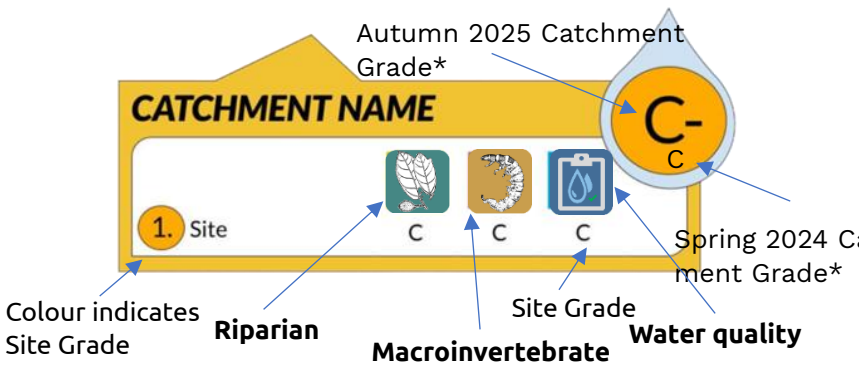
Giving the rivers of the Richmond catchment a voice.

Ecological Health Grades

Grading System

Grade	
A+ to B	Good
B- to C	Fair
C- to D	Poor
D- to E	Very Poor

Interpreting the Scorecard



Map Key

Land Use

- Cropping/Horticulture
- Developed Land
- Forest
- Pasture
- Administrative Boundaries
- Catchment Boundaries

Riparian Condition

Condition of riparian zone vegetation based on assessment of the structure of riparian vegetation, weeds, and habitat. This parameter considers stream-bed morphology, erosion, and vegetation composition.

Water Quality

The chemical and physical condition of water can influence what biotic life exists in aquatic systems. This parameter incorporates measurements of biological activity and reactivity that influence macroinvertebrate diversity and pollution resistance.

Macroinvertebrates

Direct observation and measurement of macroinvertebrates is an important indicator of overall ecological condition of streams and rivers. This parameter considers quantity and diversity of macroinvertebrate species.

UPPER RICHMOND RIVER — C

1	Lower Roseberry Creek 1	D/D	C/B	C/D
2	Upper Roseberry Creek 2	A/A	A/B	B/C
3	Lynche's Creek	A/A	B/B	C/B
4	Gradys Creek 1	-/D	-/B	-/C
5	Gradys Creek 2	-/B	-/B	-/C
6	Gradys Creek 3	- /C	-/D	-/B

WILSON'S RIVER — C-

1	Branch Creek	D/D	C/B	D/C
2	Tuntable Creek	D/D	B/A	C/B
3	Rocky Creek	A/-	B/-	C/-
4	Boomerang Creek	NA	NA	NA
5	Websters Creek 1	-/A	-/B	-/C
6	Websters Creek 2	NA	NA	NA
7	Tibirian Creek	A/A	C/B	D/C
8	Upper Wilsons	B/B	C/D	D/E
9	Coopers Creek	A/A	B/D	C/E
10	Skinners Creek	-/C	-/C	-/D
11	Leycester Creek	A/-	C/-	D/-
12	Terania Creek	-/B	-/B	-/C

NORTH CREEK — D-

1	Emigrant Creek 1	-/D	-/D	-/E
2	Emigrant Creek 2	-/D	-/D	-/E
3	Emigrant Creek 3	D/C	C/D	D/D
4	Emigrant Creek 4	D/C	C/C	D/D
5	Knockrow Drain 1	-/D	-/B	-/C
6	Knockrow Drain 2	-/D	-/D	-/E

IRON POT CREEK — D+

1	Iron Pot Creek* (Sampling from Spring 2025)	C	D	D
2	Shannon Brook*	C	E	D
3	Horse Station Creek	A/B	D/D	E/E

LOWER RICHMOND RIVER — D

1	Richmond River*	C	D	D
2	Marom Creek 1*	D	D	D
3	Marom Creek 2*	C	D	D
4	Tucki Tucki Creek	C/-	D/-	E/-

BUNGAWALBIN CREEK — C+

1	Richmond River*	B	D	D
2	Bungawalbin Creek*	C	D	D

The Richmond River catchment is in the Northern Rivers Region of NSW

OVERALL SCORE FOR THE RICHMOND RIVER CATCHMENT AUTUMN 2025 — C-

* For catchments without data from 2024, the most recent available data was used: *Darren Ryder, Armidale: Aquatic Ecology & Restoration Research Group, Nov. 2015 Armidale, NSW: Aquatic Ecology*

State of the Catchment

The repeated C- grade from the fourth and fifth RREHP samplings (spring 2024 and autumn 2025), reiterates the challenges identified in the first three assessment (autumn and spring 2023, and autumn 2024), reflecting persistent issues in the catchment's ecological river health. Lower catchment sites continue to show reduced water quality and low macroinvertebrate diversity, while upper catchment areas with relatively better water quality exhibit low diversity, indicating widespread compromised aquatic habitat. Ongoing impacts from the flood event in February 2022, leading to landslides and a legacy sediment load, poses ongoing risks to aquatic health and exacerbates the ecological challenges faced by the Richmond River catchment.

Factors such as the removal of riparian vegetation, urban development, and agricultural activities contribute to the low ecological health grades in the mid and lower catchment, highlighting the complex interplay of human activities and environmental degradation in the catchment. For example, Tucki Tucki Creek in Goonellabah went from poor to very poor, likely associated with the rainfall and urban runoff entering the creek. To address these challenges and improve the overall health of our rivers, comprehensive measures including riparian restoration, improved land management practices, and proactive strategies to mitigate the effects of extreme events are vital. By focusing on collaborative solutions, community engagement, and long-term ecological restoration efforts, it is possible to gradually enhance the resilience and well-being of the Richmond River catchment for the benefit of both the environment and the local communities. The sites at Coopers Creek and Lynches Creek went from fair to good and Websters Creek at Stoney Chute went from poor to fair, this improvement from spring 2023 is due to more sensitive macroinvertebrate taxa collected at these sites than in the past.

Across the catchment our citizen scientists continued to see poor bank condition (e.g., bank slumping, exposed tree roots and undercutting), and poor bed condition (active erosion and smothering of the bed substrate by high loads of fine sediment). This is reflected in the lower-than-expected macroinvertebrate grades, especially in the Upper Richmond and Wilsons catchments, which indicates that the upper catchments are suffering from impacted aquatic habitat. Reduced riparian vegetation increases the risk of sediment entering our water ways. High levels of sedimentation can smother aquatic habitats and reduce the availability of food resources for macroinvertebrates. This can lead to a decline in the number and type of macroinvertebrates in areas impacted by sedimentation.

Impacts heavy rain during sampling

The number (abundance) and richness of macroinvertebrates collected in these rounds of sampling were lower than similar samples in autumn 2023. There were several sites that were too unsafe to sample due to high water. This reduction is likely linked to the rainfall and high flows recorded during sampling. During periods of heavy rainfall and high-water flows, macroinvertebrates can be dislodged and displaced from their habitats. The rainfall in the days before and during conducting a biological assessment can temporarily disrupt the natural balance in stream ecosystems and may affect the accuracy and interpretation of data collected on macroinvertebrates and river health. Heavy rainfall can result in increased water flow in streams, which can disturb habitats and dislodge macroinvertebrates from their preferred locations. It also leads to sediment being washed into streams, potentially burying or smothering macroinvertebrates.

Interested in Contributing?

Join the Richmond Riverkeeper Association: www.richmondriver.org.au.
For more information contact: info@riverecology.com.au

Acknowledgement and thanks

The project would not be possible without the invaluable contribution of our citizen scientists. These dedicated individuals have gone above and beyond to collect river health data from waterways in the catchment. Through their efforts, we have been able to gain a comprehensive understanding of the state of our rivers. Their passion for environmental stewardship and commitment to scientific research have made a significant impact on our understanding of river health. Their data collection efforts have not only provided us with a snapshot of the current conditions but have also allowed us to track changes and identify trends over time. The achievements of our citizen scientists are a testament to their dedication and exemplifies the vital role that communities play in contributing to scientific knowledge. Their contributions are truly commendable, and we extend our sincere gratitude for their ongoing efforts in enriching our understanding of the Richmond River catchment's streams, rivers, and riparian ecosystem.

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