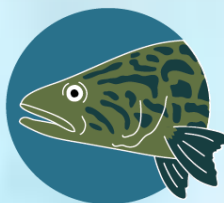




Richmond River Ecological Health Program

Report Card Spring 2025

Written by Dr Brendan Cox



Richmond
RIVERKEEPER

 **River Ecology
Australia**
ASSESSMENT, EDUCATION, RESTORATION



Program Overview

The Richmond River Ecological Health Program is run by the Richmond Riverkeeper Association, a community-driven organisation working to restore the rivers of the Richmond catchment, so they are drinkable, swimmable, and fishable again. The Association respects and celebrates the deep and enduring relationship that the Bundjalung and Githabul peoples hold with the lands and waterways of the catchment. We acknowledge these as unceded territories, honour their Ancestors who have cared for Country since time began, and pay respect to all Traditional Custodians who continue to speak for and care for their Country and Water.

Joining with Riverkeepers across the globe, we share a vision for the rivers of the Richmond catchment to be healthy once more. Our mission is to fulfil community aspirations for cleaner, healthier waterways through committed partnerships focused on habitat restoration, stabilising riverbanks, reducing soil loss, and lowering pollutant loads — the improvements needed to support the return of species such as the iconic Eastern Freshwater Cod.

To turn this mission into practical action, the Richmond Riverkeeper Association leads a catchment-wide monitoring program that tracks the ecological condition of our waterways over time. The program is supported by River Ecology Australia through in-kind scientific and technical contributions. Monitoring riparian condition, ecological water quality, and river health using macroinvertebrates (water bugs), the Richmond River Ecological Health Program provides publicly available, ongoing ecological information for the Richmond River and its waterways. This eco-health report card is provided for the community and for the river. Every data point collected by our volunteers helps build a shared understanding of what the river needs and where action will make the greatest difference.

This report presents the 6th round of sampling, completed in spring 2025, with 153 citizen scientists from 16 groups sampling 27 sites across the catchment. Their work forms the backbone of this long-term, community-led program.

Macroinvertebrates are central to the program because different species respond differently to pollution, sedimentation, and habitat change. Tracking these water bugs over time helps reveal how the river is responding to pressures and whether conditions are stable, declining, or beginning to recover. Their diversity provides a sensitive measure of ecological health and the condition of freshwater habitats.

It is important to recognise the scope and limitations of the program. All RREHP sites are in freshwater, wadable streams, above the tidal limit where volunteers can safely collect data using standardised methods. Because there are no monitoring sites on the lower floodplain or in estuarine environments, this report card does not capture ecological change in the river channels downstream of the tidal limit. These lower-catchment areas are heavily affected by legacy sediment and historical floodplain modification but require different sampling methods and safety considerations. Expanding monitoring into these environments in future would give the community a more complete understanding of the Richmond River's ecological condition.

Significant challenges continue to affect river health across the catchment. Protecting and restoring habitat for water bugs is essential for rebuilding the system, reducing the impacts of past events and human pressures, and supporting resilient freshwater ecosystems. The Richmond River is struggling, but it is not beyond saving; with coordinated restoration and community involvement, recovery is achievable.



Meet the water bugs: Telephlebiidae (dragonfly Nymph)

Dragonfly nymphs from the family Telephlebiidae, known as southern darners are one of the most impressive water bugs we find in our streams. These long, sleek predators live hidden amongst rocks, roots, and leaf litter in everything from tiny alpine trickles to rainforest creeks. They spend most of their lives underwater as nymphs, often for two to three years, growing slowly and hunting other aquatic insects with their lightning-fast extendable jaws. Because they need clean, well-oxygenated water and stable, complex habitat, their presence is a strong sign of a healthy river. With a high sensitivity score (SIGNAL 9), these dragonfly nymphs help us track how our waterways are recovering from sediment, pollution and habitat loss and when we find them, it tells us the river is supporting the conditions life needs to thrive.

Learn more, get involved, and join the movement: www.richmondriver.org.au

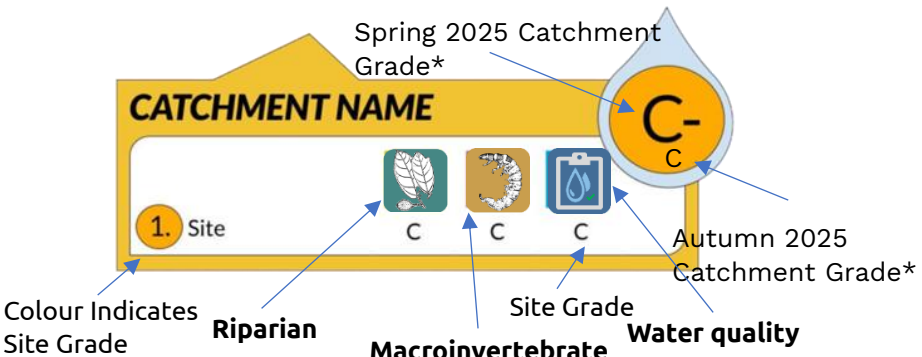
Photos By Brendan Cox and Adele Wessell

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	

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.

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.

WILSON'S RIVER

1 Mid Leicester Creek	D	E	D
2 Websters Creek	A	B	C
3 Upper Leicester Creek	A	D	C
4 Skinners Creek	C	D	E
5 Tibirian Creek	A	D	E
6 Upper Coopers Creek	A	C	D
7 Upper Wilsons Creek	A	C	D

NORTH CREEK

1 Emigrant Creek 1	E	D	D
2 Emigrant Creek 2	E	D	D
3 Emigrant Creek 3	D	D	C
4 Knockrow Drain 1	E	D	D
5 Knockrow Drain 2	E	D	D

IRON POT CREEK

1 Shannon Brook	C	D	E
2 Lower Eden Creek	D	B	D
3 Iron Pot Creek	D	B	D
4 Mid Iron Pot Creek	A	C	C
5 Mid Eden Creek	C	C	D
6 Upper Eden Creek	C	C	D

LOWER RICHMOND RIVER

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

D
C-

OVERALL SCORE FOR THE RICHMOND RIVER CATCHMENT SPRING 2025

* For sites without data from 2025, the most recent available data was used





State of the Catchment

The overall ecological health of the Richmond River Catchment has declined slightly this year, with the catchment grade dropping from C- to D but remaining at Poor. This reflects both real environmental pressures and the addition of 10 new monitoring sites in the Iron Pot Creek and Upper Richmond River catchments. These new sites, most graded Poor (D), provide a more complete picture of the catchment and show that several areas are in worse condition than previously understood.

Across the catchment, a clear pattern continues with lower catchment sites showing poor water quality and low macroinvertebrate diversity, while upper catchment sites, despite showing generally better ecological water quality, still record low diversity, a sign of habitat degradation rather than pollution. In this report, “water quality” refers to ecological water quality (pH, dissolved oxygen, temperature, and turbidity) the basic conditions that support aquatic life. It does not assess pollution, drinking water safety, nutrients, or metals; assessing those would require additional resources and a different monitoring program.

The legacy of the February 2022 floods remains a major driver of habitat decline. Around 1,600 landslides delivered nearly one million cubic metres of coarse sediment into the system, and a recent study by Rous County Council and Griffith University confirms that 84% of sediment reaching the estuary comes from the middle and upper catchment. This coarse material continues to bury habitat and reshape streambeds years after the event. Human pressures including riparian clearing, urban runoff, and agricultural activities further contribute to poor grades, particularly in the North Creek and Iron Pot Creek catchments. There are, however, encouraging signs: Websters Creek, Upper Roseberry Creek Upper, Mid Grady's Creek and Upper Leycester Creek achieved Good (B) grades, showing that recovery is possible where riparian vegetation is intact and sediment loads are lower.

Overall, the 2025 results reinforce a clear message: riparian condition is the strongest driver of river health. Sites with healthy, well-vegetated banks consistently score better, while those with eroded banks and smothered streambeds score poorly. Restoring riparian vegetation in the middle and upper catchment remains the most effective action to reduce sediment at the source and rebuild the habitats that water bugs and the entire river system depend on. The river is struggling, but it is not beyond saving; with coordinated restoration and community involvement, the Richmond River can recover.

These results also reflect only the parts of the catchment that can be safely monitored by our citizen scientists. All Richmond River Ecological Health Program sites are in freshwater, wadable streams, above the tidal influence where volunteers can collect macroinvertebrates, water quality data, and riparian assessments using standardised methods. The program does not currently monitor tidal reaches, estuarine zones, deeper non-wadable channels, or floodplain wetlands, which experience different ecological pressures such as saline influence, floodgate impacts, altered hydrology, and large-scale sediment deposition.

Because there are no monitoring sites on the floodplain, the report card does not capture ecological change in the river channels downstream of the tidal limit. These areas are heavily affected by legacy sediment and historical floodplain modification but require different sampling methods and safety considerations. While the current program provides a strong picture of freshwater upland and mid-catchment stream health, expanding monitoring into floodplain and estuarine environments in future would help build a more complete understanding of the Richmond River's ecological condition.

Interested in Contributing?

Join the Richmond Riverkeeper Association: www.richmondriver.org.au

For more information contact: ecohealth@richmondriver.org.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.

