

# Our Waterway Health

2023/24



# Our Waterways

The Nepean River and Wianamatta South Creek are the two main waterways in the Camden Local Government Area (LGA). These iconic waterways and the creeks that feed into them support wildlife, recreation, green spaces, urban areas and even the local economy. Both waterways and their catchments drain to the Hawkesbury River, over 40 kilometres away. At 470 kilometres, the Hawkesbury-Nepean River is the longest coastal river in all of NSW.

Our waterways are under stress due to impacts from water pollution, introduced animals and plants, the clearing of riparian vegetation and increased flows associated with development.

The transformation of rural land into urban areas with hard surfaces (roofs, footpaths, driveways, and roads) means less rainwater is absorbed into the ground. During rain events, the increased volume of fast-moving urban runoff (stormwater) collects pollutants from these surfaces and carries them into stormwater drains and eventually our local waterways.

Stormwater is collected separately to sewage and is not usually treated before entering waterways. This is why it is so important to keep pollutants out of our stormwater drains.

Council is committed to improving the health of our waterways through a variety of projects. You can also take small actions to help keep them healthy. Council's Platypus Warrior demonstrates ways that we can all help be the solution to stormwater pollution on page 17.

Our waterways are an important part of the community and ecosystems of Camden, and together we can see them thrive.

This artwork by Melissa Barton celebrates the strength, unity, community, and teamwork shared between the Dharawal, Dharug and Gundungurra people to care for Country in and around Camden and along the Nepean River.



Camden Council acknowledges the Dharawal Peoples as the Traditional Custodians of our lands and waterways, and also recognises the Dharug and Gundungurra Nations. We pay our respects to Elders past, present and emerging and to all Aboriginal and Torres Strait Islander Peoples on these lands.



## Projects in the Flow

**Council is committed to protecting our natural environment by improving the health of our waterways. We are working towards this through a variety of on-ground projects, data collection, asset maintenance and management, and education. These projects are either ongoing, in their final stages or have been completed.**

### **Nepean River Bank Stabilisation at Fergusons Land**

The Nepean River was significantly impacted by flooding in 2022, resulting in the loss of native vegetation, bank erosion and a high nutrient load entering our waterways. One of the most impacted sites was Fergusons Land, Camden which lost more than 13,700 cubic metres of soil between December 2021 and July 2023.

Sydney Water, in partnership with Council, completed the restoration of a 200 metre section of the riverbank at Fergusons Land in November 2023. The works included:

- Ecological surveys;
- Removal of almost 6 tonnes of flood debris;
- Removal of approximately 10,000 square metres of woody weeds;
- Earthworks to obtain stable gradients;
- Installation of eight instream timber structures preventing bank toe erosion; and
- Planting of 27,000 native plants from the endangered ecological community of River-flat Eucalypt Forest including 25 critically endangered Camden white gums.

This best practice riparian restoration project was led by the NSW Government Soil Conservation Service and incorporated diverted timber and rock material provided by the Transport for NSW M12 project.

The amount of soil lost from Fergusons Land from December 2021 to July 2023 was equivalent to almost five and a half Olympic sized swimming pools!



## Nepean River Bass Habitat at Spring Farm

To support Camden residents' desire to fish on the Nepean River, Council installed fish habitat structures and erosion control measures on the riverbank near Burrell Road, Spring Farm. The on-ground works were completed in August 2023 and are expected to promote the increase in population and passage of native Australian Bass.

The works included earthworks to obtain stable gradients, bank stabilisation and erosion control, addition of large woody debris as fish habitat, removal of weeds, and planting with over 2,600 native plants from the endangered ecological community of River-flat Eucalypt Forest including 50 critically endangered Camden white gums. Timber and rock material for the project was sourced from the Transport for NSW M12 project.

This project was assisted by the NSW Department of Primary Industries (DPI) Recreational Fishing Trust's 'Habitat Action Grant Program', which is financed from funds generated through collection of the recreational fishing licence fee in NSW.

Snags, also known as large woody debris, are trees, branches and root masses that end up in rivers from floods, bank erosion, wind, or limb shedding. This natural process provides important habitat for aquatic life, especially native fish which rely on snags for refuge during fast river flows, shelter from predators, as landmarks for navigation, to define territories, as ambush sites and for hosting eggs during breeding.



## Plant Trees to Help Fishies

The 'Plant trees to help fishies' event was held in August 2023 as an opportunity for the community to get involved in rehabilitating the Nepean riverbank at Spring Farm. Around 1,500 native plants local to the endangered ecological community River-flat Eucalypt Forest were installed by 55 volunteers. Three Camden SEED Network schools participated in the event by decorating cardboard tree guards with drawings of trees, fish and other aquatic species.



## World Rivers Day Pop-up 2023

World Rivers Day is a celebration of the world's waterways. In honour of this day, Council held a pop-up stall at John Peat Reserve, Camden, with information on river-related projects, Emergency Ready Week as well as ways we can work together to protect our waterways. The event also provided an opportunity for the community to share their thoughts about the Nepean River. The event was attended by around 60 people. The community told us that they loved walking along the Nepean Cycle Way (Bike Track), watching the wildlife and that the river provided a peaceful spot to relax.



## Nepean River Bank Stabilisation at Rotary Cowpasture Reserve

The flooding events of 2022 damaged sections of the Nepean riverbank along the Nepean Cycle Way (Bike Track). To prevent further erosion, Council undertook bank stabilisation works at four locations. The first phase of these works was completed at Rotary Cowpasture Reserve in December 2023 and the remaining sections between Belgenny and John Peat Reserves were completed in September 2024.

Works included bank stabilisation and erosion control, addition of large woody debris as fish habitat and bank toe protection, removal of weeds and planting with local native species from the endangered ecological community of River-flat Eucalypt Forest, including Camden white gum.

Funding for this project was assisted by NSW Government through its Environmental Trust and the joint Australian Government – NSW Government Disaster Recovery Funding Arrangements 2018.

River-flat Eucalypt Forest (RFEF) is recognised as an endangered ecological community which can be found across coastal floodplains and river flats in NSW and Victoria. There is now less than 30% of the original area remaining due to land clearing, changed fire regimes and the impacts of weeds and pest animals.



Rotary Cowpasture Reserve, July 2023 – Before



Rotary Cowpasture Reserve, July 2024 – After

## Stormwater Assets

Stormwater is the runoff from hard surfaces in urban environments that eventually enters our local waterways through a system of drains and pipes.

Camden Council maintains 838 kilometres of stormwater pipes across the LGA as well as 40,991 stormwater pits.

Council tries to limit some of the impact of stormwater on our local waterways through a variety of Water Sensitive Urban Design (WSUD) measures. Learn more about these here: [bit.ly/camden-wsud](https://bit.ly/camden-wsud)



Council maintains a growing number of Gross Pollutant Traps (GPTs) to capture litter, sediment and excess organic matter from entering our waterways. 480 tonnes of litter, sediment and debris was removed from Council's 350 GPTs in 2023-24. That's about the weight of 80 elephants.

## Erosion and Sediment Control

During 2023/24, Council undertook 903 inspections of the sediment and erosion control measures at 585 building sites within the Camden LGA. As a result, 350 formal warning letters were issued for site improvements to builders and developers.

Help be the solution to stormwater pollution and report poor erosion and sediment controls to Council.



*Silt socks or gravel bags should only be used as a supplementary control method to ensure excess sediment, that bypasses other more effective erosion and sediment controls, does not wash into a stormwater drain. However, they should not be installed in locations where live traffic is present as they can break and become a source of water pollution themselves.*

# Smeaton Grange Clean Up

Smeaton Grange is an important employment zone in the Camden LGA and covers a large area of the Narellan Creek catchment. However, due to a range of issues including littering, illegal dumping and the incorrect storage of materials; litter, oils, nutrients and sediment are being washed into the stormwater system and are contributing to poor water quality.

To address these key issues, Council staff undertook a Smeaton Grange Clean Up event in March 2024 to coincide with Clean Up Australia Day. The following outcomes were achieved from the day:



## Aquatic Weed Management

Council manages aquatic weeds and works with landholders and neighbouring councils to protect the Nepean River and local waterways.

This year has included the delivery of inspections on both public and private land to identify and control priority aquatic weeds including water hyacinth, Peruvian primrose and alligator weed with a focus on land that forms part of the Nepean River, Wianamatta South Creek and Narellan Creek corridors. These activities were given a high priority due to the potential for recent flood events to have increased the distribution of aquatic weeds into areas that were not previously impacted.

In addition, Council continued to control isolated infestations of frogbit and kidney-leaf mud plantain on private property. These activities were delivered with funding support from the NSW Government and Local Land Services under the NSW Weeds Action Program and the Early Needs Weed Management Program.



Peruvian primrose (*Ludwigia peruviana*) –  
Photo credit: Auld and Medd NSW DPI



Alligator weed (*Alternanthera philoxeroides*) –  
Photo credit: Bob Trounce NSW DPI

## Nepean River Trail, Camden

The Nepean River Trail officially opened on Sunday 16 June and links Camden Town Farm and Ferguson Land Cricket Facility through a set of walkways which feature five trails, including viewing platforms to the Nepean River and Camden's first official public art trail.

As part of the project, 8,000 square metres of woody weeds were removed and 23,000 native plants from the River-flat Eucalypt Forest community, including 60 critically endangered Camden white gums, were planted in partnership with Greening Australia under the Rewilding Sydney Program.



This work was possible through Council's successful application to the Public Spaces Legacy Program, which in May 2021, secured \$5.1 million in funding from the NSW Department of Planning and Environment to deliver a project which enhanced Camden's connection with the Nepean River.



## Hook, Line & Measure

Hook, Line & Measure is a citizen science project recently developed by Council that encourages the community to identify and record the species, size and distribution of fish caught and observed in the Nepean River and other local waterways in the Camden LGA.



Photo submitted through Hook, Line & Measure.

This project helps the community to identify areas for recreational fishing activities and assists Council in collecting baseline data to better understand our waterways and inform the delivery of future waterway projects.

The fish species recorded in the past year were Australian Bass and invasive carp, including European Carp and colourful koi.

To find out more visit [bit.ly/hooklinemeasurecamden](https://bit.ly/hooklinemeasurecamden)

Australian Bass can weigh up to four kilograms and grow up to 60 centimetres in length. They are very popular for recreational fishing.



## Camden SEED Network

The Camden Sustainability and Environmental Educators (SEED) Network is a local forum for educators passionate about sustainability and the environment. The network provides an opportunity to connect, share knowledge, resources, opportunities and inspire others.

The network meets, once each school term, and meetings this year included:

- A tour of a local primary school's vegetable, flower and native gardens;
- A presentation by Cleanaway who provide waste education school programs; and
- A presentation by Sydney Water on the free workshops they provide for a range of ages - early learning to secondary school.

Department of Education teachers who attend our Camden SEED Network meetings can register their participation through self-identified Professional Learning in their MyPL Portal.

To join the network, visit [bit.ly/camden-SEED-network](https://bit.ly/camden-SEED-network)

This year the network also invited early learning educators to join the forum.



## Projects in the Creeklane

**Council is actively working to improve our waterways and associated stormwater drainage systems. These projects are progressing well and when complete will deliver on-ground improvements, assist with data collection, asset maintenance and management, and engage and educate our community.**

### **Partnering for Waterway Restoration**

In July 2023, Camden Council partnered with Sydney Water and Downer BMD Joint Venture to remove woody weeds and restore approximately 8,000 square metres of native vegetation along the creeklane within Elizabeth Macarthur Reserve, Camden South. Over 100 community volunteers assisted with planting 3,000 native plants as part of National Tree Day celebrations held at the site.

Building on the success of this project, Council is again partnering with Sydney Water and Downer BMD Joint Venture to restore 8,000 square metres of critically endangered Cumberland Shale Plains Woodland along a creeklane within a reserve in Spring Farm.



This restoration project will restore connectivity between existing high-quality bushland located in Gundungurra Reserve to the north-east and the Spring Farm bush reserves to the south-west. The project will also provide much needed habitat for local wildlife including swamp wallabies, possums, lizards, and birds.

These works are expected to be completed within the 2024/25 financial year.

## Narellan Creek Water Quality Improvement Project

The Narellan Creek catchment is the largest and most urbanised tributary of the Nepean River within the Camden LGA. Through a Deed of Agreement with Sydney Water, Council received \$200,000 to undertake works to improve the water quality and amenity of the Narellan Creek Water Quality Management System, which includes the Harrington Park Lake system, built in the late 1990s.



Consultants were engaged to identify key water quality issues and catchment threats, as well as management actions to improve water quality. Poor sediment and erosion control practices on development and industrial sites were assessed as being a very high risk to water quality outcomes leading to increased costs to Council for maintenance.

Management actions that have been implemented over the past year include:

- Sediment and erosion control training for 51 operational and regulatory staff;
- Targeted education and compliance of a high pollutant site;
- The Smeaton Grange Clean Up event (page 7); and
- Priority repairs and renewal works identified in the Gross Pollutant Trap audit for the Narellan Creek catchment.

Improving the water quality of the Narellan Creek catchment will be an ongoing project.





## Projects in the Pipeline

Some of Council’s projects are in their initial stages and are being developed into high quality projects. These projects will deliver water quality improvements and increased amenity to the Camden community.

### Camden Community Nursery

Council was successful in receiving \$4 million in grant funding under the Western Sydney Infrastructure Grants Program to deliver the Camden Community Nursery. This project will transform industrial land in Topham Road, Smeaton Grange into a community nursery facility that will propagate and grow local native plants for the local community and a range of restoration projects throughout the Camden LGA, including our waterways. The Nursery will be built as part of a shared facility on the site that will include the new Camden Animal Shelter.

Information about the project, including concept plans, is available on Council’s community engagement portal <https://yourvoice.camden.nsw.gov.au/cas>



## Nepean River Corridor Study

The Nepean River Corridor Study will examine the Nepean River and adjacent lands throughout the Camden LGA to identify opportunities to provide additional open space, a continuous network of pathways and recreational access to the Nepean River. The study also aims to identify works that seek to protect, restore, and enhance the condition of the river including native vegetation and tree canopy.

The study is expected to identify short, medium and long term actionable strategies that will identify ways Camden Council, in partnership with the NSW Government, can continue to protect the Nepean River, provide new open spaces and access to natural areas. The project will also seek to complete missing links in the Great River Walk, the Sydney Green Grid and improve connectivity to regionally significant landscapes to the north and south of the Camden LGA.

A consultant has been engaged to conduct the study with commencement of the project in mid-2024 and completion by mid-2025.



# Waterway Health Grades

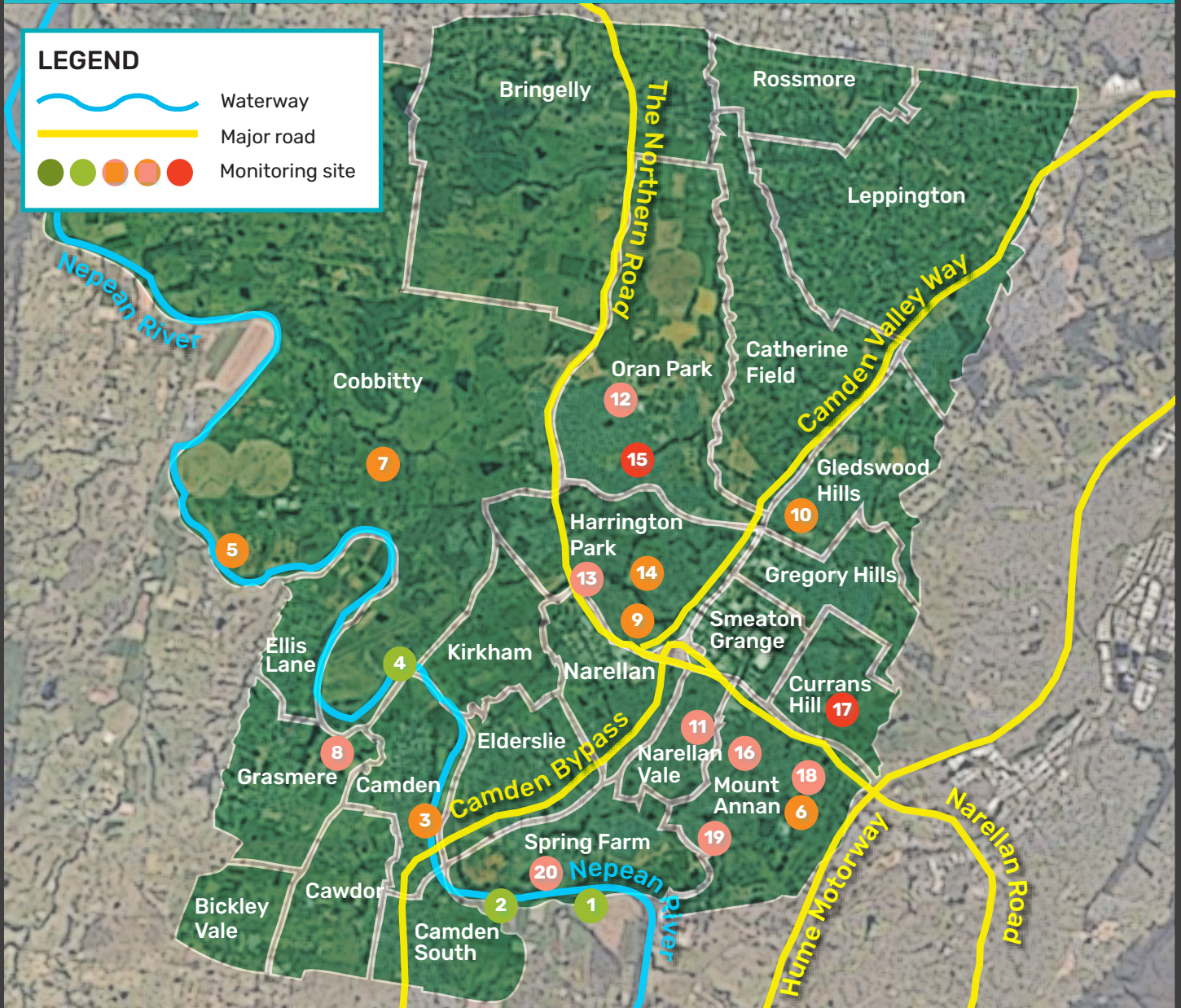
## What does an A (excellent) grade waterway look like?

A waterway in excellent condition is within water quality guidelines almost all the time, has a rich and dense native vegetated riparian corridor and hosts pollution sensitive water bugs. Often these waterways are not impacted by

stormwater, modified land use or urban development and are found in pristine environments, like national parks.

With the impacts of recent flooding and increasing urban development, it is important to protect our waterways by limiting our impact on stormwater quality.

Council generally advises against primary contact (e.g. swimming) with water from our waterways due to water quality variability from the surrounding urban environment.



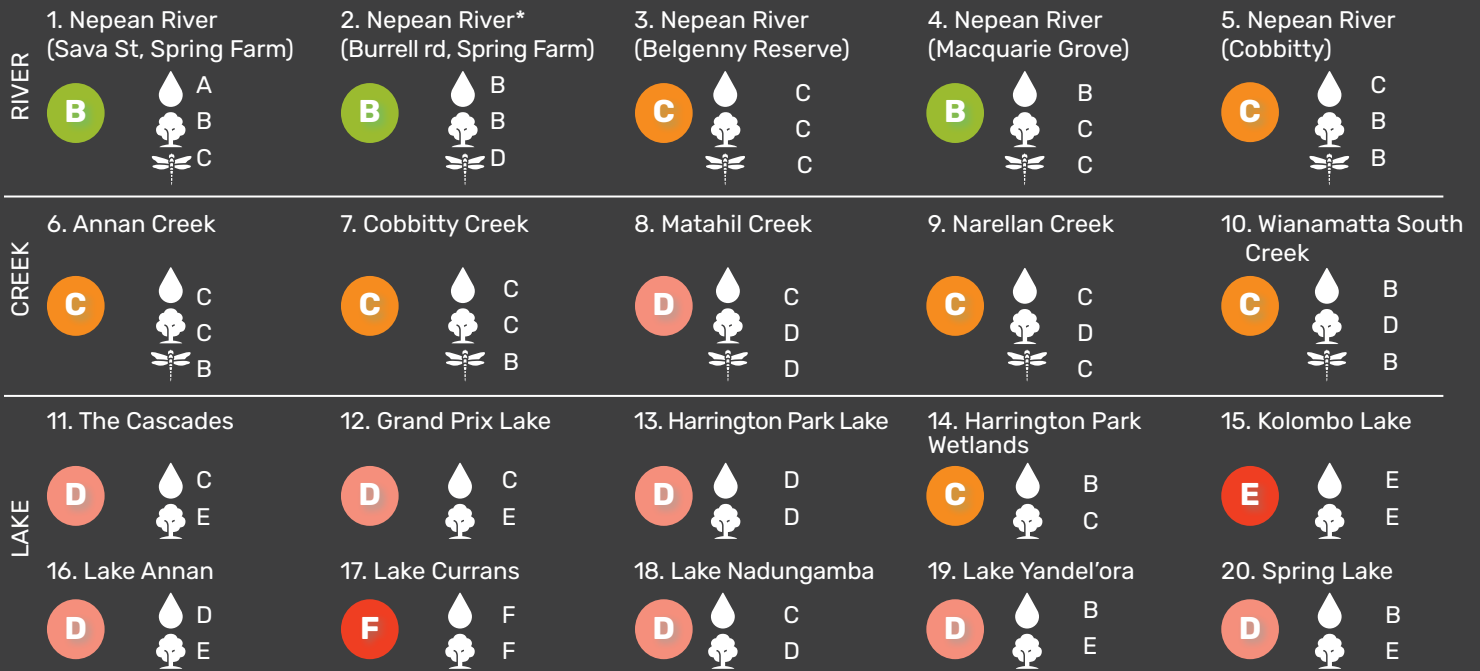
## Why have the grades changed from last year?

This year's waterway results show some changes in overall waterway health at certain sites compared to last year. Two of the Nepean River sites, Belgenny Reserve and Cobbitty, received an overall waterway health grade of C (fair), instead of B (good). Of the Creek sites, two improved in overall health (both Cobbitty Creek and Narellan Creek received a C (fair) instead of a D (poor)) and two declined in overall waterway health (Annan Creek received a C (fair), instead of a B (good) and Matahil Creek received a D (poor) instead of a C (fair)).

Water bugs (or aquatic macroinvertebrates) scores were particularly impacted, with no A (excellent) scores

recorded, compared with last year where approximately 40% of sites received an excellent water bug score. Water bugs are bioindicator animals and their presence or absence can be indicative of the health of an ecosystem, as they can be sensitive to turbidity, nutrient run-off, stormwater flows and other pollutants. Their decline at some sites is likely to have influenced changes to the overall waterway health grades.

Council's waterway health projects are supporting ongoing recovery of the Nepean River and tributaries following the flood events in recent years and will help to improve the health of waterways over time.



\*An additional Nepean River site in Spring Farm was added to Council's Water Quality Monitoring Program, due to the erosion control measures and fish habitat structures installed near Burrell Road, Spring Farm, enabling access to water for sampling.

### The waterway health grades are an average of these parameters:

#### Water quality

This grading is based on the physical, chemical and microbiological characteristics of the water in our waterways such as nutrients, pH, salinity, turbidity, dissolved oxygen and bacteria.

#### Riparian health

A healthy riparian area is important to waterway health as it provides shade and bank stability, as well as habitat for land and aquatic animals. The riparian health grading is a measure of the level of disturbance and the habitat potential of the riparian area.

#### Water bugs

Water bugs (or aquatic macroinvertebrates) are the small creatures that live in our waterways. The amount and type of water bugs can tell us how healthy a waterway is. This is only measured at the river and creek sites.

<b>A</b>	Excellent	A waterway in excellent condition has water quality parameters within guidelines almost all of the time. The riparian area is rich and dense in native vegetation and pollution sensitive water bugs are present.
<b>B</b>	Good	A waterway in good condition has water quality parameters within guidelines most of the time. The riparian area has native vegetation with scattered weed growth and some pollution sensitive water bugs are absent.
<b>C</b>	Fair	A waterway in fair condition has water quality parameters within guidelines some of the time. The riparian area lacks native vegetation and likely has weeds and turfed areas. The water bugs present are pollution tolerant.
<b>D</b>	Poor	A waterway in poor condition has water quality parameters within guidelines half of the time. The riparian area lacks native vegetation, likely has weeds and turfed areas and is close to urban areas. The water bugs lack diversity and are pollution tolerant.
<b>E, F</b>	Degraded	A waterway in a degraded condition has water quality parameters outside guidelines most of the time. The riparian area is heavily degraded with weed species, turf and urban areas and the limited water bugs are pollution tolerant.

# Be the Solution to Stormwater Pollution

## What is a catchment?

A catchment is an area where water is collected by the natural landscape. Imagine cupping your hands together under the rain and trying to collect the water. What would happen? Water would flow down your fingers and palms and gather in the centre. This is also what happens in a natural landscape. (Source: WaterNSW).

## What happens to rainwater in natural and urban catchments?

In natural catchments, rainwater is slowed by vegetation, encouraging water to filter down into the soil and replenish groundwater. As the water moves through the soil, microbes in the soil and plant roots help to filter excess nutrients. Slower moving water also has less potential to pick up sediment, reducing the chance of soil erosion.

In urban catchments, there are less permeable surfaces and more hard surfaces, such as driveways, roads, and roofs. This means rainwater can't soak into the ground and moves quickly through the landscape picking up speed, sediment, debris, and litter, sometimes causing soil erosion. The water then enters pits and pipes of the stormwater system and eventually our waterways.



Only one third of people know that stormwater doesn't get treated before it flows into our waterways\*. That's why it's important to keep pollutants out of stormwater.

Join Council's Platypus Warrior, to take small actions in our everyday lives and help be the solution to stormwater pollution.

Visit [bit.ly/camden-stormwater-pollution](https://bit.ly/camden-stormwater-pollution) to take the stormwater pledge.

\*CRC for Water Sensitive Cities





### Plant a native garden

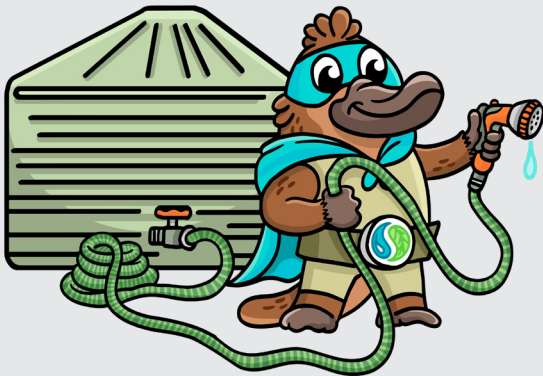
Planting deep rooted, native vegetation and reducing the area of hard surfaces around your home will help slow water moving across the landscape. This gives rainwater time to seep into the soil and groundwater, and less potential for fast moving rainwater to carry pollutants down the stormwater drain.



### Rake up grass clippings and leaves and place in your green bin

This helps to reduce the nutrient load from organic matter in our waterways.

Organic matter is important for providing nutrients for the growth of aquatic plants and microorganisms. However, when there is an excess of organic matter in waterways the natural nutrient cycle becomes overloaded and can lead to excessive and unsightly plant growth and harmful algal blooms.



### Install and use a rainwater tank

Capturing and using the water flowing from your roof, helps to reduce the excess volume of water entering stormwater systems and waterways, and is a great way to save potable water and reduce your water bill.



### Dispose of fishing lines and hooks.




In the Camden LGA, we have an active fishing community. Ensure you are fishing responsibly by keeping your fishing area clean. Wildlife, such as platypus, can get tangled and die when caught in fishing line. Hooks can also cause serious injury to wildlife and children.

Help Council monitor the fish species in our waterways by being part of our citizen science project, Hook, Line & Measure. Submit your catch at [bit.ly/hooklinemeasurecamden](https://bit.ly/hooklinemeasurecamden)



On cover: Nepean River Trail, Camden Town Farm, Camden.



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