

Georges Riverkeeper

GEORGES RIVER REPORT CARD 2023 - 2024

MONITORING THE HEALTH OF THE GEORGES RIVER



The Eastern long-necked turtle (Chelodina longicollis) is one of the iconic native animals more commonly found in the freshwater reaches of the Georges River and its creeks and tributaries.

The Georges River catchment spans approximately 960 km^2. The Georges River originates about 60 km southwest of the Sydney CBD near the town of Appin and flows north towards Liverpool, before turning east at Chipping Norton Lakes to the mouth of the river at Botany Bay. The river has a number of key tributaries like Bunbury Curran Creek, Cabramatta Creek, Prospect Creek, Mill Creek and Woronora River.

Georges Riverkeeper's monitoring program has compared the ecological condition of waterways across the Georges River catchment since 2009 and assessed changes over time. The waterways assessed are representative of those occurring across the nine major subcatchments contributing freshwater to Georges River, plus the 46 km of estuary in the main channel of the river which is influenced by the tides (from Liverpool Weir to Botany Bay). Freshwater ecological condition is determined by measuring three important ecological indicators – Riparian vegetation, Water quality and Macroinvertebrates, whilst only a subset of water quality parameters were used to assess estuarine sites. These indices provide a 'snapshot' of Georges River catchment health and are representative of conditions during sampling.

RIVER HEALTH GRADES

The overall ecological grade for the freshwater reaches was C+ in 2023-24 which is a slight drop from B- in 2021-22.

However, these results might not be a true reflection of the overall water quality, as unusual rainfall, such as what was experienced during the sampling period, has a significant impact on freshwater water quality since it brings sediments and pollutants from urban areas.

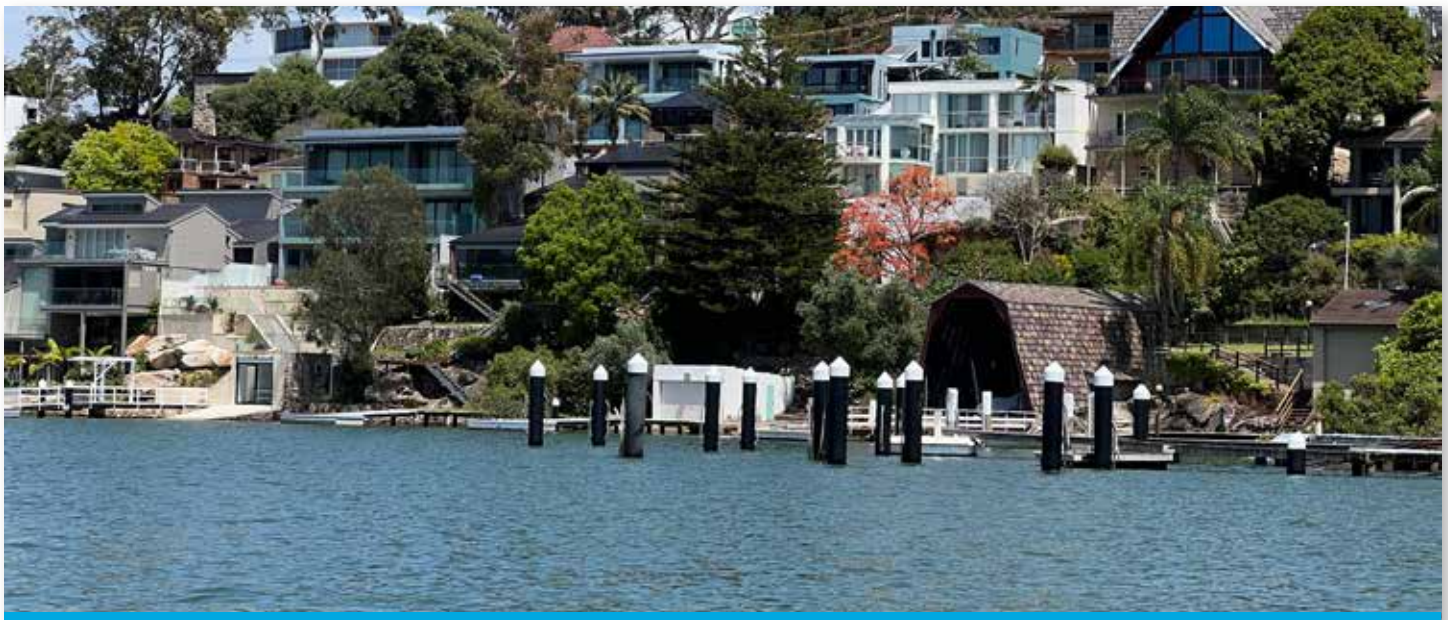
Surprisingly, the most pristine bushland subcatchments at the headwaters (i.e. Upper Freshwater, O'Hares Creek, Lower Freshwater, Mill Creek and Woronora River subcatchments) had overall grades reduced from previous years. This is because although the largely forested areas had good riparian and water quality grades, the macroinvertebrate grades showed an overall drop this year. This decline can be attributed to the wet season, which washed these organisms downstream.

Similarly, the predominantly urbanised subcatchments (i.e. Bunbury Curran Creek, Cabramatta Creek, Prospect Creek and Lower Estuary subcatchments) showed a decline in water quality and riparian vegetation grades. This was probably caused by an increase in pollutants and nutrients being flushed from the urbanised area and entering the waterways during flooding and frequent rainfall events. The macroinvertebrate assemblage in the urban freshwater creeks subcatchments had low diversity and was mainly dominated by pollution-tolerant species like snails and worms.

The overall estuary grade improved to A- this year from B in 2021-22. The improvement can be attributed to lower



A small creek within the Cabramatta Creek subcatchment (overall grade D-, poor). Weedy riparian vegetation, litter and poor water quality are common.

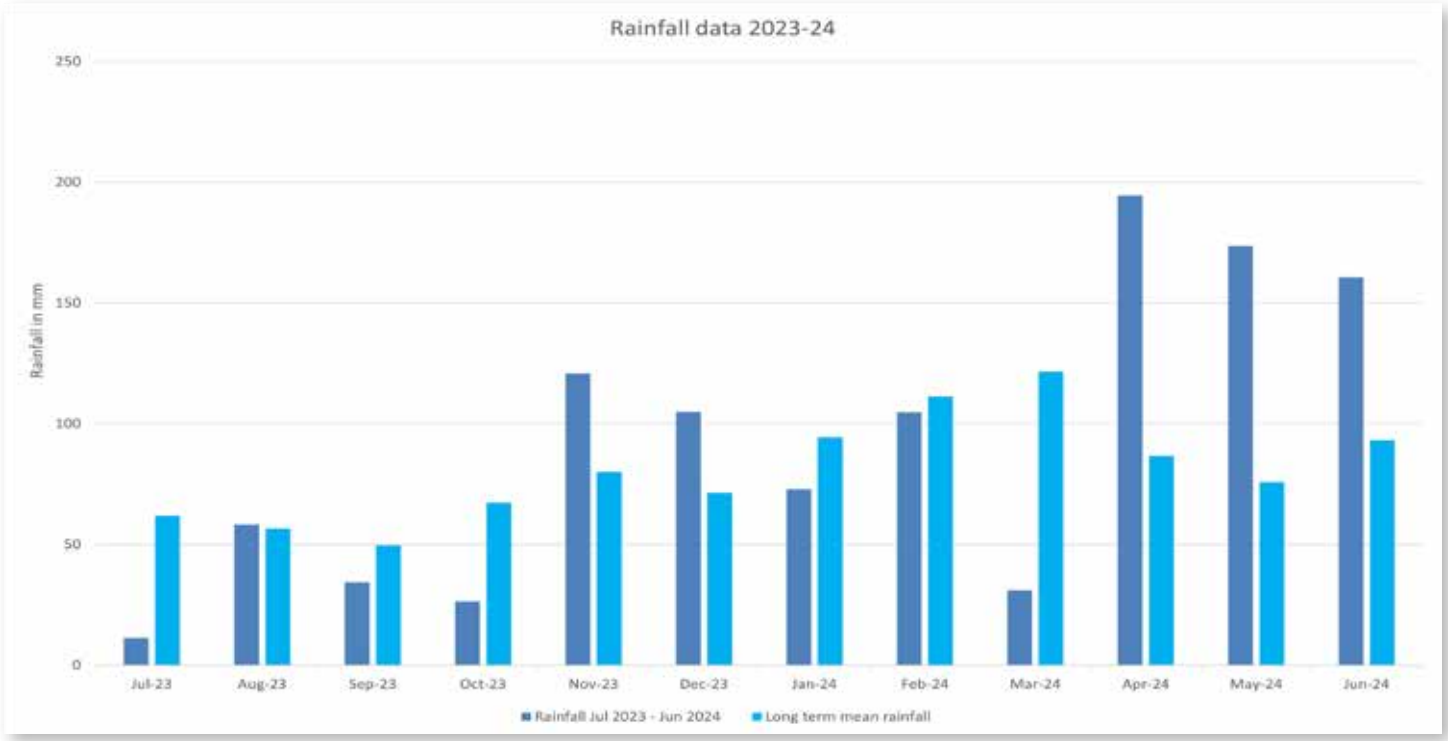


Kyle Bay, in the lower Georges River estuary received an A- (good) grade.

turbidity during sampling. This year's estuary sampling coincided with limited rainfall resulting in generally good grades. The lower sections of the estuary are regularly flushed by tidal movement, particularly within the main channel and have received excellent grades. Further up the river some bays experience less tidal flushing and are known as dead water areas. In the past these shallow, muddy bays which include sampling sites such as Gungah and Bonnet Bays have typically received a lower grade. In the upper sections, the estuary has reduced tidal flushing and is more impacted by pulses of stormwater from the urbanised catchment.

RAINFALL

There has been abundant rainfall in Sydney during 2023-2024 resulting in a wetter period. The graph compiled with information from the Bureau of Meteorology clearly shows an increase in rainfall this year, compared to the average rainfall from 1887 to present. The east coast of Australia had its third wettest summer for an El-Nino year as the beginning of summer saw heavy downpours, even resulting in floods in some areas, while 2024 winter rainfall was one of the wettest winters in years.



HOW TO READ THE MAPS

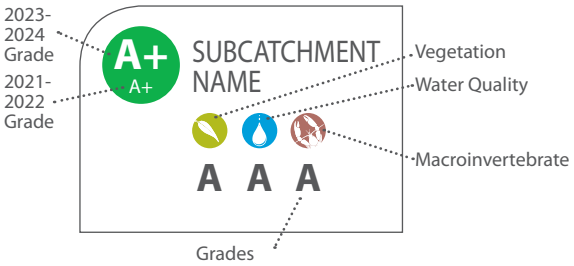
GRADING SYSTEM

River Health indicators are assessed against environmental guidelines allowing the award of a grade between A+ and F-.

GRADE	CONDITION
A+	EXCELLENT
A - B+	GOOD
B - C-	FAIR
D+ - F-	POOR

INTERPRETING MAP ICONS

This diagram shows an example grading box.



RIPARIAN VEGETATION

Riparian vegetation are plants living along the edge of waterways. Vegetation maintains waterways by stabilising the banks of rivers and creeks with roots, which binds the soil together and creates a living ecosystem of its own. Roots, leaves and branches falling into waterways from riparian vegetation, create habitats and food for aquatic animals. Riparian vegetation provides shade and filters pollutants from urban stormwater runoff that would otherwise enter the waterway.



Pristine riparian vegetation along Stokes Creek (overall riparian vegetation grade A+, excellent)

WATER QUALITY

All aquatic plants and animals have specific water quality requirements to exist in a healthy condition. All flora and fauna have a limit of tolerance to varying water quality conditions; hence they will not survive or be in healthy condition in water quality ranging outside their level of tolerance. Georges Riverkeeper's River Health & Research Program monitors water quality in the main channel, tributaries and estuary of the Georges River catchment. Determining which water quality indicators are depleted and elevated at different locations provides valuable information about the effects of various pollution types and impacts of land uses within the Georges River catchment. Different parameters like Dissolved Oxygen, Turbidity, pH, Total Nitrogen, Total Phosphorus and Electrical Conductivity are used to assess the water quality for freshwater, while parameters like Turbidity and Chlorophyll a were used to monitor water quality in the estuary.

Measuring turbidity in the estuary with a Secchi disk. Location – Oatley Bay Poulton Park



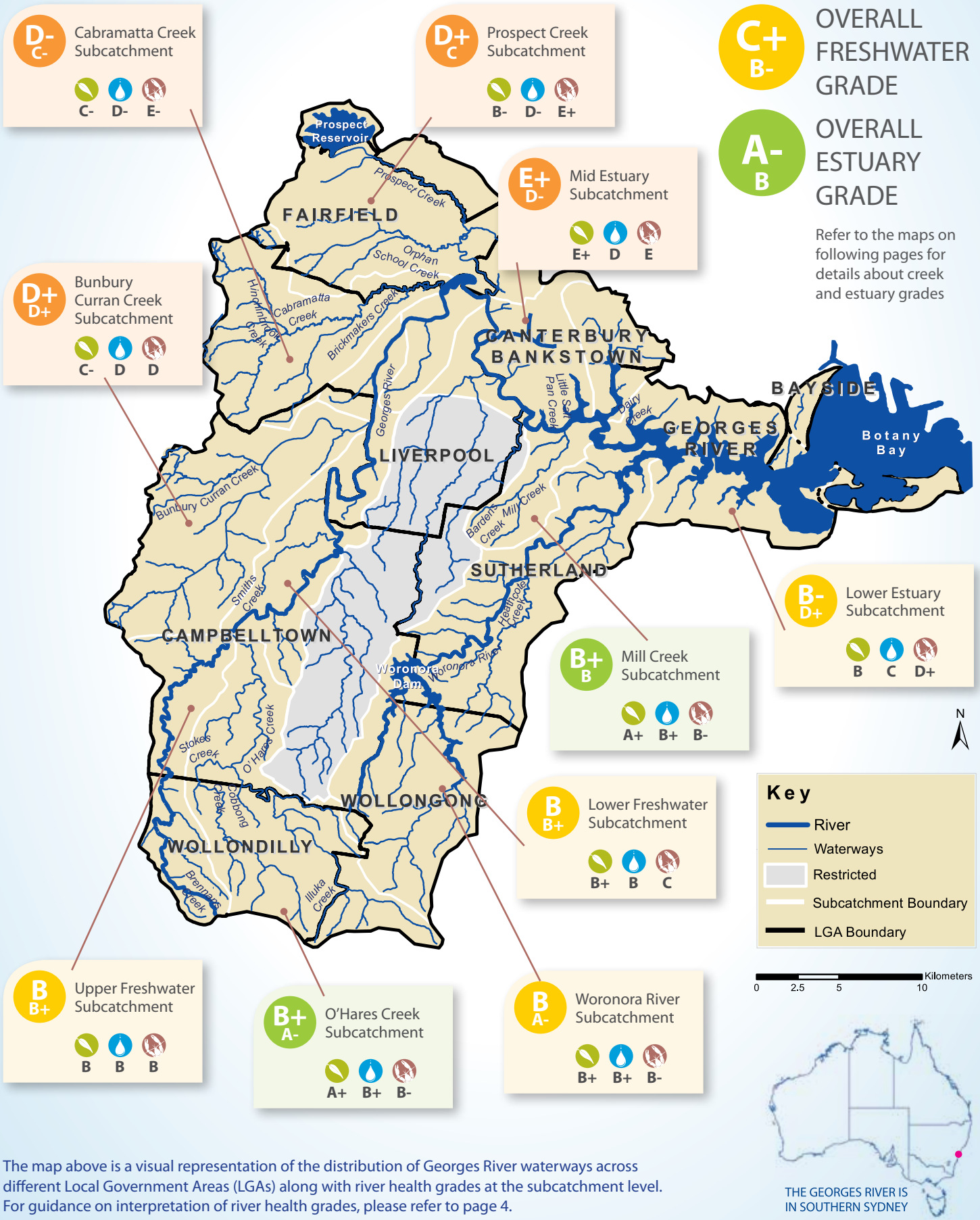
MACROINVERTEBRATES

Aquatic macroinvertebrates are small animals without backbones such as worms, snails and insects. Organisms that live in freshwater streams vary in their sensitivity to changes in water quality and habitat. Georges Riverkeeper's River Health & Research Program surveys aquatic macroinvertebrates in the seasons of spring and autumn. Identifying and monitoring which macroinvertebrates can and cannot live at certain locations provides valuable information about the freshwater ecosystems across the Georges River catchment.



Damselfly (Zygoptera) considered tolerant of polluted waterways. Credit: Michelle McFarlane

SNAPSHOT OF RIVER HEALTH IN THE GEORGES RIVER CATCHMENT



THE GEORGES RIVER IS IN SOUTHERN SYDNEY

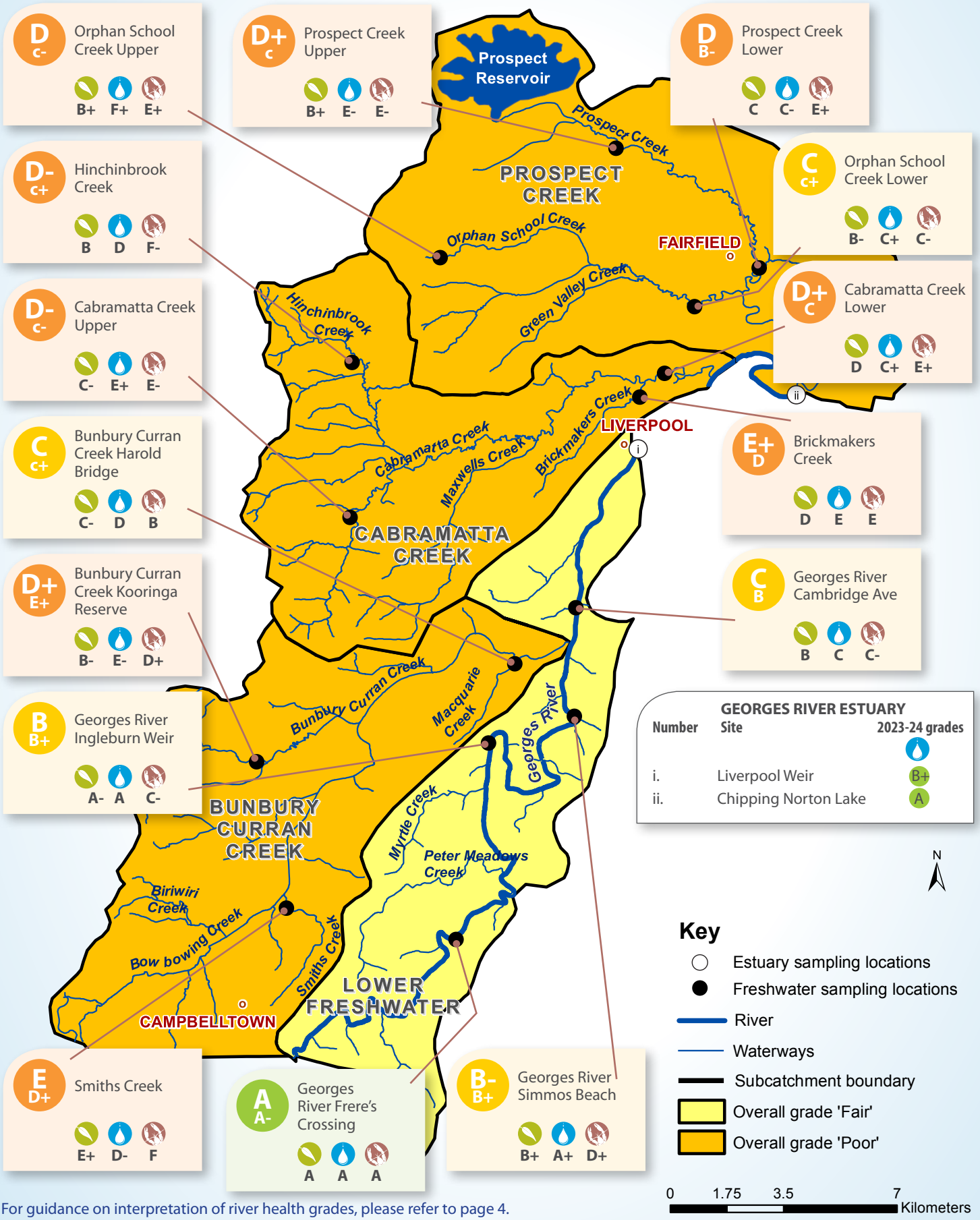
The map above is a visual representation of the distribution of Georges River waterways across different Local Government Areas (LGAs) along with river health grades at the subcatchment level. For guidance on interpretation of river health grades, please refer to page 4.

UPPER GEORGES RIVER SUBCATCHMENTS MAP



For guidance on interpretation of river health grades, please refer to page 4.

MID GEORGES RIVER SUBCATCHMENTS MAP



For guidance on interpretation of river health grades, please refer to page 4.

LOWER GEORGES RIVER SUBCATCHMENTS MAP



GEORGES RIVER ESTUARY

Number	Site	2023-24 grades
iii	Lt Cantello Reserve	B
iv	Mill Creek	A+
v	Little Salt Pan Creek	A
vi	Salt Pan Creek	B+
vii	Lime Kiln Bay	B+
viii	Gungah Bay	B+
ix	Bonnet Bay	B
x	Carina Bay	B
xi	Oatley Bay Moore Reserve	B+
xii	Oatley Bay Poulton Park	B-
xiii	Kyle Bay	A-
xiv	Kogarah Bay	A
xv	Scott Park Saltmarsh	A+
xvi	Tonbridge Creek	A
xvii	Botany Bay	A+

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WHAT CAN YOU DO TO PROTECT THE GEORGES RIVER?

Visit and enjoy the river.

Get involved in local groups such as Bushcare.

Place litter in bins as rain carries litter pollution to the river.

Plant native plants, install a rainwater tank or build a raingarden at your house.

Use Council Chemical CleanUps to dispose of unwanted paints, chemicals and solvents.

When washing your car or boat, do it on your lawn so that detergents and wastewater don't end up in our waterways.

Register and participate in the NSW Container Deposit Scheme and recycle eligible cans and bottles. Reduce your use of plastic generally, but particularly near waterways.

Report an incident or problem that could affect the health of the river or people using the river.



Native tree planting at Tonbridge Creek, Ramsgate.



Pick up litter and dispose of it thoughtfully.



Kayaking on Georges River at Macquarie Fields.

Georges Riverkeeper

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Bayside Council
Serving Our Community

CAMPBELLTOWN

CANTERBURY BANKSTOWN

FairfieldCity
Celebrating diversity

GEORGES RIVER COUNCIL

LIVERPOOL CITY COUNCIL

Wollondilly Shire Council

SUTHERLAND SHIRE COUNCIL

PARTNERS

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NATIONAL PARKS & WILDLIFE SERVICE NSW

NSW GOVERNMENT Justice
Corrective Services

Georges Riverkeeper acknowledges the Traditional Owners and Custodians of the Georges River, the Kamegal, Bedigal, Cabrogal, Cannemegal, Gweagal and Norongerral people of the Eora, Dharug and Dharawal nations and we pay our respects to their Elders past, present and future.

For a PDF of this report, as well as previous River Health Report Cards, visit www.georgesriver.org.au

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Cover photo – Sampling being conducted at Maddens Creek (overall grade A-, good).