

RIVER HEALTH REPORT CARD 2013 - 2014

A SNAP-SHOT OF RIVER HEALTH

In 2013-14 the River Health Monitoring Program entered its fifth year of monitoring in the Georges River catchment.

River Health monitors three important ecological indicators to provide an assessment of catchment health; water quality, vegetation and macroinvertebrates.

By combining results of ecological indicators a greater understanding of the Georges river system is gained. In particular, River Health is investigating the pressures and impacts of an increasingly urbanised catchment.

River Health encourages participation of community members in monitoring activities. Volunteers work

alongside ecologists collecting data integral to assessing the ecological condition of Georges River.

Since 2009, volunteers have contributed over 4,000 hours of field work to the program while gaining a valuable insight into dynamic nature of the Georges River system.



MACROINVERTEBRATES

Macroinvertebrates are small animals without a backbone, such as snails, worms, and dragonfly nymphs. They live in freshwater creeks and streams and are particularly sensitive to changes in water quality. River Health surveys macroinvertebrates in spring and autumn each year. Monitoring these animals provides an increased understanding of how aquatic ecosystems within the Georges River catchment respond to environmental pressures.



WATER QUALITY

Water quality is an important factor to maintaining a healthy ecosystem. River Health monitors water quality in streams, wetlands and estuaries of the Georges River throughout the year. Monitoring water quality is providing us with a better understanding of how urbanisation and changed land use practices are affecting the health of the river estuarine ecosystems.



VEGETATION

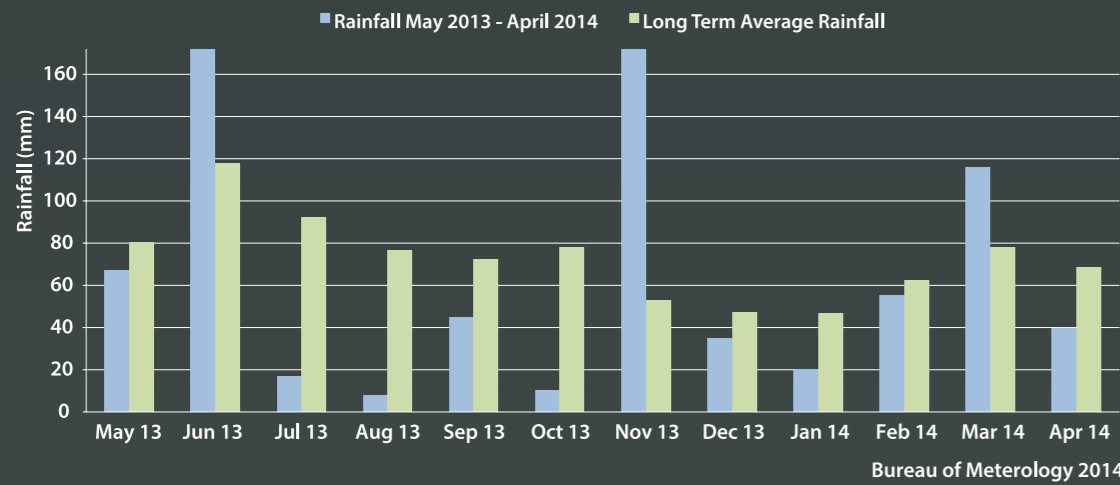
Healthy vegetation communities are important for maintaining a functioning ecosystem. Vegetation plays a major role in providing habitat, nutrient cycling, regulation of temperature and filtration of urban runoff. River Health assesses riparian (stream bank) and estuarine vegetation every three years. By monitoring these communities we are gaining a better understanding of their role in maintaining healthy ecosystems in the Georges River Catchment.

GEORGES RIVER

The Georges River catchment covers an area of approximately 960 km² and has a population of over 1 million people. It begins its journey 60km south west of Sydney near the town of Appin and flows north towards Liverpool, before turning east at Chipping Norton Lakes and enters the sea at Botany Bay.

The river has a number of important tributaries including Bunbury Curran Creek, Cabramatta Creek, Prospect Creek, Mill Creek and the Woronora River. Land use within the catchment includes industrial, agricultural and mining while approximately 45% remains in natural or near natural condition.

GEORGES RIVER CATCHMENT SEASONAL RAINFALL



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 GRADING ICONS

This diagram shows an example grading box. Use this example to interpret the results from the individual sub catchments.



GEORGES RIVER COUNCILS ARE IMPROVING RIVER HEALTH



HURSTVILLE CITY COUNCIL HURSTVILLE GOLF COURSE

Hurstville City Council has completed the construction of a large scale stormwater harvesting and reuse project to secure the future irrigation needs of the Hurstville Golf Course. The scheme will harvest over 50 ML of stormwater per year and save 21ML of potable water per annum. The improved water quality and enhanced biodiversity which has resulted from the project will provide significant environmental benefits for Lime Kiln Bay, within the Georges River in Sydney.

LIVERPOOL CITY COUNCIL

In 2013-14, Liverpool City Council has undertaken environmental restoration works in the Georges River catchment to the value of \$368,000 covering an approximate area of 76,000m². Council also supports 11 environment groups undertaking bush regeneration, one Streamwatch group and delivers environmental education to the community.

ROCKDALE CITY COUNCIL HAWTHORNE STREET NATURAL AREA

Hawthorne St Natural Area in Ramsgate is a 'show piece' of original flora and fauna of western Botany Bay. Many habitats are present here including Kurnell Dune Forest and Swamp Oak Floodplain Forest - both endangered ecological communities. It also provides habitat to threatened fauna and is key fish breeding habitat. Rockdale Council, along with Bushcare volunteers, corporate groups and Riverkeeper teams are undertaking bush regeneration on-site to rehabilitate bushland and re-establish creek bank vegetation.

FAIRFIELD CITY COUNCIL BARAGOOLA ST BANK STABILISATION PROJECT

A 46m length of severely eroded creek bank has been stabilised using sandstone rocks, coir logs, in-stream large woody debris and landscaping works. An upstream bund has been constructed to control a localised break out point, resulting in creek flows being held within banks. The woody debris centralises creek flows during minor storm events and provides fauna habitat. Landscaping with native vegetation also provides important habitat for local wildlife and improves diversity, water quality and aesthetics of the area.



KOGARAH CITY COUNCIL CARSS PARK ENVIRONMENTALLY FRIENDLY SEAWALL

Urban waterways are fragmented environments, resulting in the loss of natural habitats and a decline in biodiversity. The Carss Park seawall project aims to reconnect the foreshore by replicating natural intertidal habitats, including saltmarsh, rocky intertidal and mudflats, through constructing an environmentally friendly seawall. The Carss Park seawall will create diverse, intertidal habitats resulting in the migration of organisms through the Georges River and increasing the biodiversity of the Kogarah foreshore.



SUTHERLAND SHIRE COUNCIL IMPROVING CARINA CREEK

In 2013-14 Sutherland Shire Council invested \$60,000 on works along Carina Creek between Wiak Rd and Carina Bay. This included noxious weed control, bush regeneration and 1,500 seedlings planted. Members of Optus Rockcorps also gave their time to improve riparian vegetation at Carina Bay Reserve. Volunteers and council staff planted 50 x 200mm trees and undertook weed removal in the bushland below Riverview Rd.

WOLLONDILLY SHIRE COUNCIL 1ST APPIN SCOUT GROUP

1st Appin scout group were successful in receiving a grant from Keep Australia Beautiful to implement a program to reduce the problem of litter and waste around Kennedy Creek. They partnered with Wollondilly Shire Council to:

- Setup a public recycling and waste disposal station and signage in the car park
- Install signage identifying the location of the public toilets.
- Engage Appin primary school in council's 'Adopt an Environment' program with a focus on waste reduction, recycling and composting.



CAMPBELLTOWN CITY COUNCIL DRAIN STENCIL PROGRAM

A community inspired drain stenciling program with local primary schools promotes environmental stewardship through catchment education workshops. Participating schools then apply their learned knowledge to design drain stencils that aim to change community behaviors to reduce pollutants entering our stormwater and their impacts on our waterways and catchments. The designs are used to produce stencils for stormwater drain lids with messages that promote awareness of the connectivity of the stormwater systems within the natural environment.



BANKSTOWN CITY COUNCIL LAKE GILLAWARNA

In 2013-14 Bankstown City Council completed a water quality and natural area improvement project at Lake Gillawarna, Georges Hall. The project involved planting 29,000 locally native plants in and around the lake; restoration and rehabilitation of habitat features on the main island within the lake; control of invasive weeds and feral aquatic species such as European Carp; and creating two visitor interaction areas.



2013 - 2014

RIVER HEALTH GEORGES RIVER REPORT CARD



The GRCCC represents member councils in the Georges River catchment of NSW including Bankstown, Campbelltown, Fairfield, Hurstville, Kogarah, Liverpool, Rockdale, Sutherland and Wollondilly.

The River Health Monitoring Program is being undertaken in association with Georges River Environmental Education Centre and the Cooks River Alliance. River Health is funded by the member councils of the GRCCC.

Acknowledgments: The River Health Monitoring Program was developed by C. Tippler, A. Hanlon and P. Birtles and is modeled on the following existing programs: 1. EHMP (2008). Ecosystem Health Monitoring Program 2006-07 Annual Technical Report. South East Queensland Healthy Waterways Partnership, Brisbane. Centre for Environmental Management, Central Queensland University. 2. IWC (2009). Cobaki and Terranora Ecosystem Health Monitoring Program. 2009 technical report. International Water Centre, Brisbane. 3. Story A.W, Anderson L.E, Lynas J & Melville F (2007). Port Curtis Ecosystem Health Report Card. Port Curtis Integrated Monitoring Project (PCIMP). Cover Photography by C. Ebejer. © 2013 - 2014 River Health Georges River Report Card.

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B- OVERALL SCORE
B GEORGES RIVER

OVERALL RIVER HEALTH

Results from 2013-14 River Health monitoring show the overall grade for the Georges River catchment marginally decreased when compared to the previous year, a result which is likely attributed to severe weather events negatively impacting water quality. However, this result does not indicate significant change and the overall ecological condition of the catchment remained 'Fair'.

After a wet start to the 2013 winter, annual rainfall across the catchment was below average. Warm and dry weather in spring 2013 and autumn 2014 was punctuated by periods of intense rainfall causing flash flooding in many of the urban creeks

throughout the catchment. As a result, many of these creeks recorded degraded water quality caused by an influx of stormwater.

Urban stormwater combined with degraded and fragmented riparian vegetation corridors negatively affect macroinvertebrate communities. Urban streams throughout the catchment revealed macroinvertebrate communities dominated by pollution tolerant species with little or no pollution sensitive species present.

This contrasts with waterways in the non-urban areas of the catchment where diverse

macroinvertebrate communities rich in pollution sensitive species were recorded. These waterways are not affected by stormwater, and therefore maintain 'Good' to 'Excellent' ecological condition displaying greater resilience to the variable rainfall experienced in 2013-14.

Estuary conditions in the Georges River were 'Fair'. Intense rainfall events of 2013-14 followed by long periods of sunshine resulted in occasional algal blooms. In addition, litter consisting mainly of plastics, was visible throughout the year in the estuarine reaches of the Georges River.

FRESHWATER SITES

- A-** Georges River at Cambridge Avenue
- B-** Bunbury Curran Creek
- A** Georges River at Simmo's Beach
- A+** Georges River at Ingleburn Weir
- A** O'Hares Creek at the Woolwash
- A+** Georges River at the Woolwash
- A+** Stokes Creek
- A+** Cobbong Creek
- B-** Georges River at Kennedy Grove
- B** Georges River Downstream Brennans Creek
- B-** Brennans Creek
- A+** Upper Georges River
- A+** Illuka Creek
- A+** Maddens Creek

FRESHWATER SITES

- E+** Upper Prospect Creek
- D-** Upper Orphan School Creek
- D-** Lower Prospect Creek
- C+** Hinchinbrook Creek
- D-** Lower Orphan School Creek
- F+** Upper Cabramatta Creek
- E+** Brickmakers Creek
- C** Lower Cabramatta Creek
- D+** Little Salt Pan Creek
- A+** Mill Creek
- A+** Barden Creek

ESTUARINE SITES

- B+** Liverpool Weir
- B** Chipping Norton Lake
- A-** Salt Pan Creek Estuary
- B+** Little Salt Pan Creek Estuary
- A** Mill Creek Estuary
- E+** Kelso Creek
- B** Lt. Cantello Reserve

FRESHWATER SITES

- B-** Moore Reserve Wetland
- E** Dairy Creek
- B** Myles Dunphy Reserve
- D-** Poulton Park Creek
- D** Carina Creek
- A+** Woronora River
- A+** Heathcote Creek

ESTUARINE SITES

- B** Lime Kiln Bay
- C+** Gungah Bay
- D-** Moore Reserve Estuary
- D** Carina Bay
- B+** Bonnet Bay
- B-** Poulton Park Estuary
- D+** Tonbridge Creek
- C-** Scott Park
- A** Botany Bay

UPPER GEORGES RIVER | 14 FRESHWATER SITES

MID GEORGES RIVER | 11 FRESHWATER SITES 7 ESTUARINE SITES

LOWER GEORGES RIVER | 7 FRESHWATER SITES 9 ESTUARINE SITES

