



COMMUNITY RIVER HEALTH MONITORING PROGRAM

REPORT CARD - SPRING 2010



CARING
FOR
OUR
COUNTRY

RIVER HEALTH REPORT CARD SPRING 2010

A SNAP-SHOT OF RIVER HEALTH

The Spring 2010 sampling campaign for the Community River Health Monitoring Program has been completed. This is the third sampling event out of four being conducted under current Australian Government funding.

During four weeks between October 16 and November 14 a total of 42 sites were monitored with the assistance of over 100 community volunteers.

During sampling, several important river health indices were monitored to provide

a 'snap-shot' of catchment health: water quality, vegetation and macroinvertebrates.

By combining the results of the river health indices and accumulating more data as the project moves along, we will gain a greater understanding of the Georges River system.

Findings from this program are being used to identify areas that are of conservation value and where on-ground works have been effective or where remediation works could be carried out in the future.

This study provides a snap-shot of River Health and results are indicative of the conditions present at the individual monitoring sites at the time monitoring was performed.



Fresh water



Estuarine

MACROINVERTEBRATES

Macroinvertebrates are small animals without a backbone, such as snails, worms, yabbies and crabs. Macroinvertebrate populations provide us with valuable information on the health and quality of the aquatic ecosystem. As they are particularly sensitive to changes in water quality, monitoring macroinvertebrates is providing us with a greater understanding of populations living within the Georges River catchment and of the quality of the aquatic habitat they live in.



WATER QUALITY

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 and estuarine ecosystems. Many organisms are sensitive to changes in water quality and populations may become stressed if changes to water quality occur. This can lead to reduced population numbers or local species extinction.



VEGETATION

Healthy riparian (stream bank) and estuarine vegetation are important for maintaining a functioning ecosystem. Vegetation plays a major role in providing habitat, nutrient recycling, regulation of temperature and filtration of stormwater runoff. By monitoring these vegetation communities we are gaining a better understanding of their condition and subsequent effectiveness in maintaining water quality within the Georges River catchment.

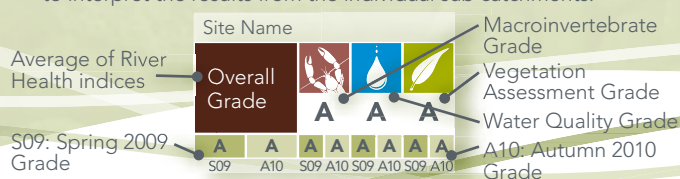
THE GRADING SYSTEM

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

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

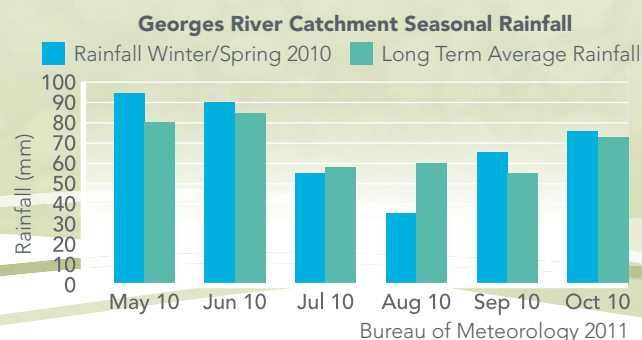
INTERPRETING GRADING ICONS

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



CATCHMENT AVERAGE RAINFALL

Since Autumn 2010, monthly rainfall totals across the Georges River catchment were mostly average to above average. Despite the impacts of stormwater and urban run-off, regular rainfall events throughout spring have provided continual flows, refreshing and revitalising many of the waterways throughout the catchment.



Acknowledgments: The Georges River Community River Health Monitoring Program was developed by C. Tippler and A. Hanlon and is modeled on the following existing programs: 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. IWC (2009). Cobaki and Terranora Ecosystem Health Monitoring Program. 2009 technical report. International Water Centre, Brisbane. 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.Tippler.

MID GEORGES RIVER REPORT CARD SPRING 2010

FRESHWATER SITES - 11

OVERALL SUMMARY

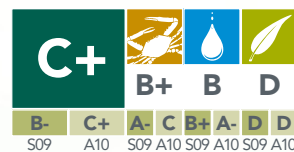


No change to the overall grade of freshwater areas in the mid catchment was observed during spring 2010 monitoring. Nutrient rich, turbid stormwater and urban and industrial run-off, often with high pH and conductivity levels, continues to affect

the ecological integrity of waterways in this part of the catchment. This is reflected by macroinvertebrate communities with low levels of diversity that are dominated by pollution tolerant species. The low macroinvertebrate grade is also likely to have been influenced by the significant alteration or loss of riparian vegetation that has taken place in this part of the catchment. Degraded water quality, riparian vegetation and depleted macroinvertebrate communities are typical of the effects urbanisation has on waterways. In contrast, Barden Creek remains in excellent condition due to minimal disturbance and intact riparian vegetation within its catchment resulting in excellent water quality and a rich macroinvertebrate community.

ESTUARY SITES - 4

OVERALL SUMMARY



No change to the overall grading of estuarine areas in the mid Georges River catchment was observed during spring 2010 monitoring. A slight yet non-significant increase in macroinvertebrate biodiversity was observed at a number of monitoring sites. In contrast, consistent rainfall throughout spring lead to elevated turbidity levels, and decreased Dissolved Oxygen levels caused by nutrient enriched, turbid stormwater and urban and industrial run-off entering the estuary.

Upper Orphan School Creek



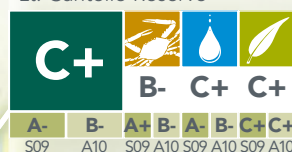
Upper Prospect Creek



Lower Prospect Creek



Lt. Cantello Reserve



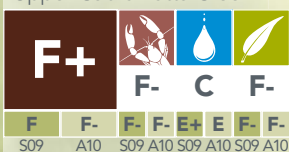
Lower Orphan School Creek



Hinchinbrook Creek



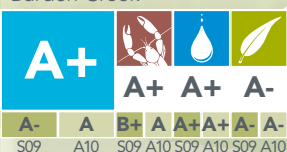
Upper Cabramatta Creek



Lower Cabramatta Creek



Barden Creek



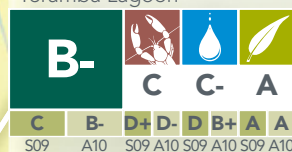
Mill Creek



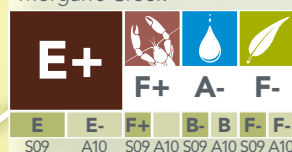
Mill Creek Estuary



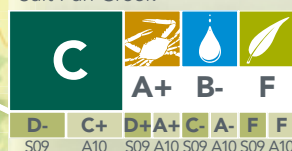
Yeramba Lagoon **



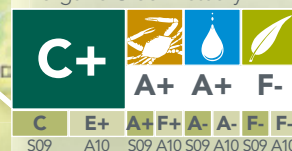
Morgan's Creek



Salt Pan Creek



Morgan's Creek Estuary



** Although functioning as a wetland for many years, Yeramba Lagoon has been assessed as a highly modified creek.

LOWER GEORGES RIVER REPORT CARD SPRING 2010

FRESHWATER SITES - 7

OVERALL SUMMARY

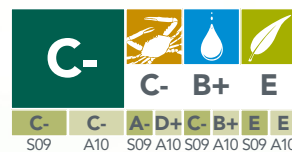


There was a slight yet non-significant change to the overall grading of freshwater areas in the lower catchment following spring monitoring, however the overall condition of 'fair' remained unchanged.

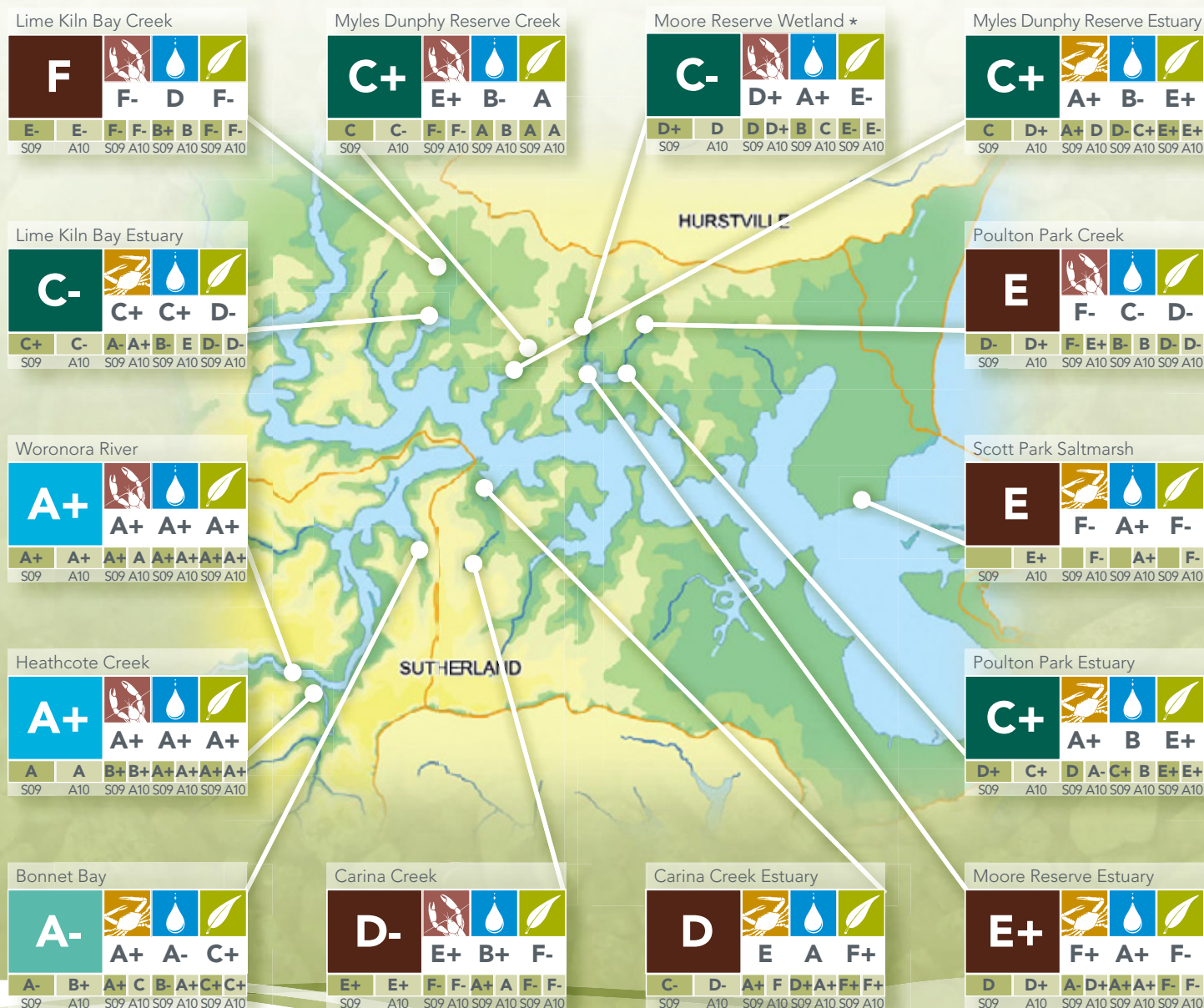
A large part of the lower catchment is highly urbanised which has resulted in local water courses receiving large volumes of nutrient enriched, turbid stormwater and urban and industrial runoff. Degradation in water quality, stream flow and habitat alteration caused by urbanisation is reflected by macroinvertebrate communities that are low in diversity and dominated by pollution tolerant species. Heathcote Creek and Woronora River remain in excellent condition due to minimal urbanisation within these sub catchments. The results of sampling in these waterways found high macroinvertebrate diversity, good water quality and intact native vegetation communities.

ESTUARY SITES - 7

OVERALL SUMMARY



No change to the overall grade of estuarine areas in the lower catchment was observed during spring 2010 monitoring. Slight variations in macroinvertebrate populations were observed, however these were insignificant to the overall grading. Water quality across most sites continues to be affected by stormwater and urban and industrial runoff evidenced by the elevated turbidity and reduced Dissolved Oxygen levels recorded at the time of monitoring. These results are typical of an urban estuary receiving nutrient and sediment enriched stormwater.



* This site has been specifically designed to capture and treat stormwater

THE GEORGES RIVER CATCHMENT

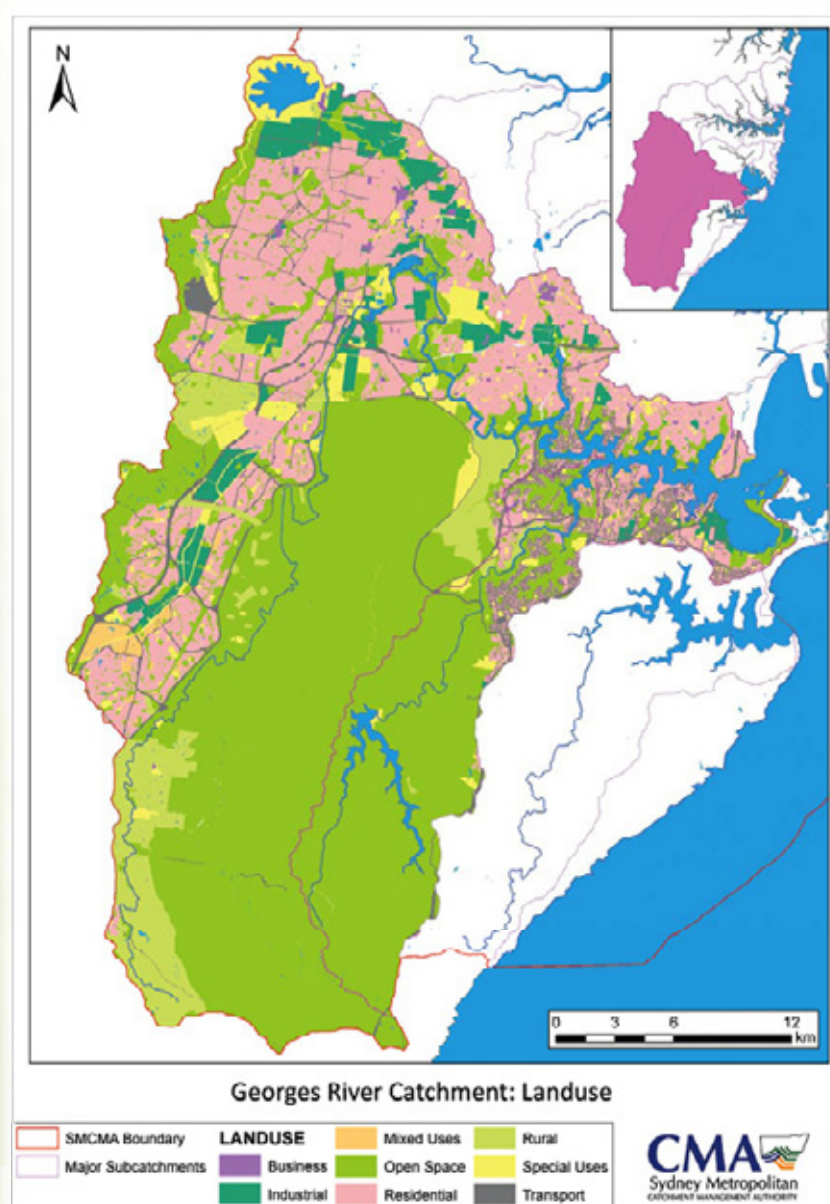
With a total area of 960 km² and lying between the altitudes of 440m to sea level, the Georges River catchment is located adjacent to and including the south western corner of the Sydney metropolitan area, NSW, Australia. Fourteen local government areas are located within the Georges River catchment. These council areas include: Blacktown, Holroyd, Canterbury, Camden, Wollongong, Wollondilly, Campbelltown, Liverpool, Fairfield, Bankstown, Sutherland, Kogarah, Rockdale, Sutherland and Hurstville Councils. The last nine councils are GRCCC member councils. The catchment is divided into two broad soil groups. The western area of

the catchment has predominantly fertile soil derived from Wianamatta Shale while deeply incised Hawkesbury Sandstone valleys dominate the northern, southern and eastern catchment areas. Land use within the catchment is mixed. Usage includes industrial, agricultural, mining, a large area of defence force land and protected areas such as drinking water catchments and conservation areas. The catchment area supports nearly 1.2 million people while approximately 45% of the catchment remains in natural or near natural condition.

A COMMUNITY THAT CARES

The Community River Health Program encourages the participation of community members to become involved in monitoring activities. Volunteers work alongside scientists, receiving training in ecosystem monitoring methods and collect valuable data that is used to assess the

condition of the Georges River catchment. Since spring 2009, over 300 volunteers have participated in monitoring, and gained a valuable insight into the dynamic nature of the Georges River system.



The GRCCC represents Local Government in the Georges River Catchment of NSW. Member Councils include Rockdale City, Sutherland Shire, Kogarah City, Hurstville City, Bankstown City, Liverpool City, Fairfield City, Campbelltown City and Wollondilly Shire Councils. The Community River Health Monitoring

Program is being undertaken in association with the Georges River Environmental Education Centre, Sydney Water Corporation, Sydney Metropolitan Catchment Management Authority and the NSW Department of Environment, Climate Change and Water. It is funded by the Australian Government's Caring for Our Country Program.