

A comprehensive monitoring program

The Ecosystem Health Monitoring Program (EHMP) delivers a regional assessment of ecosystem health for the waterways of South East Queensland (SEQ). With its "catchment to coast" philosophy, the program targets both freshwater and estuarine/marine environments in an area extending from Noosa in the north, south to the NSW border and west to Toowoomba. The EHMP uses rigorous science to identify waterway health incorporating a range of biological, physical and chemical indicators. The monitoring of appropriate indicators for the estuarine/marine component of the EHMP started in Moreton Bay in 1999, expanded north to the Sunshine Coast in 2001 and south to the Gold Coast in 2002, and now includes 250 monitoring sites. The EHMP expanded into the freshwater catchments in 2002, with a total of 120 freshwater sites now being monitored in the rivers and streams of SEQ.

A partnership approach

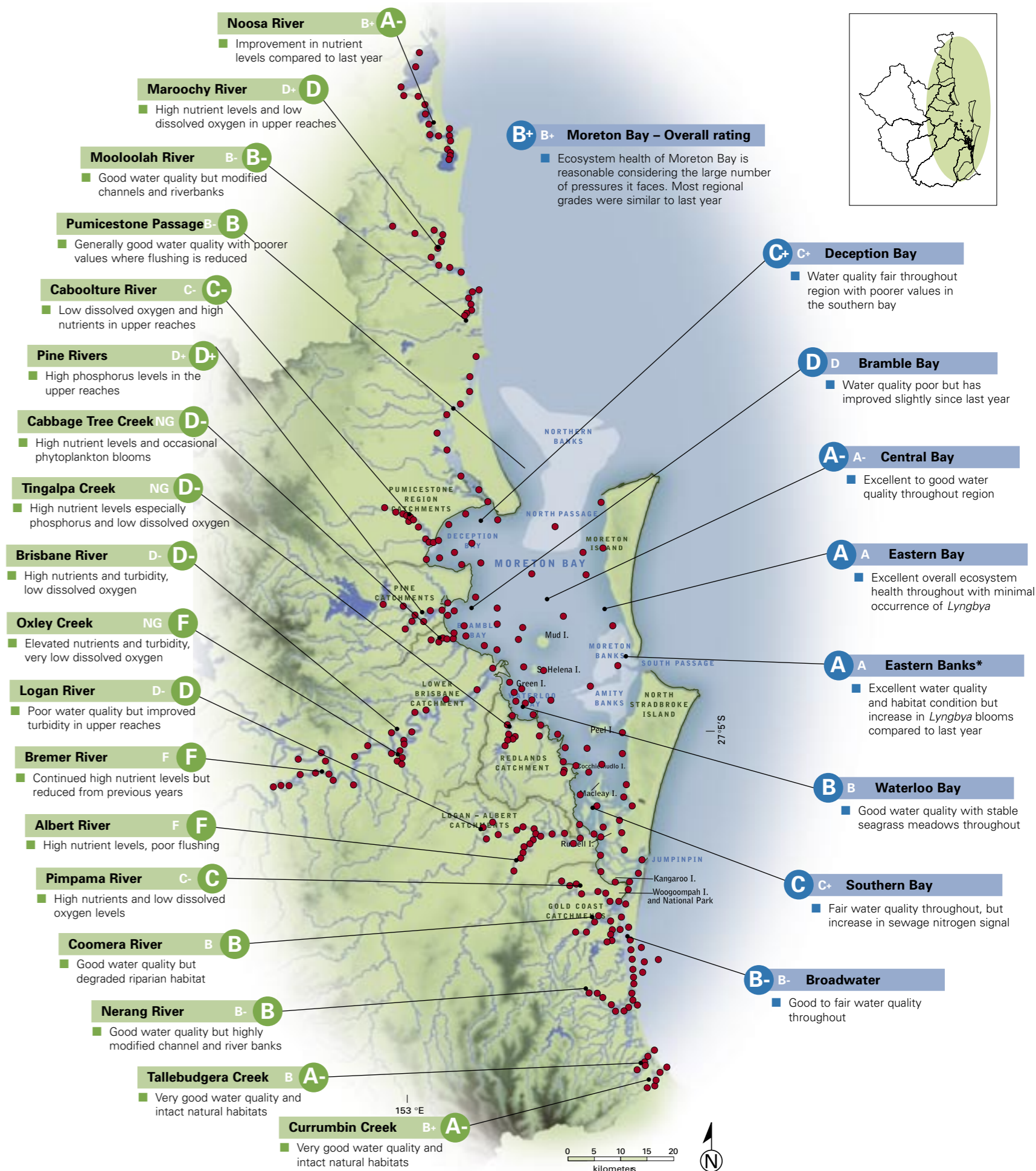
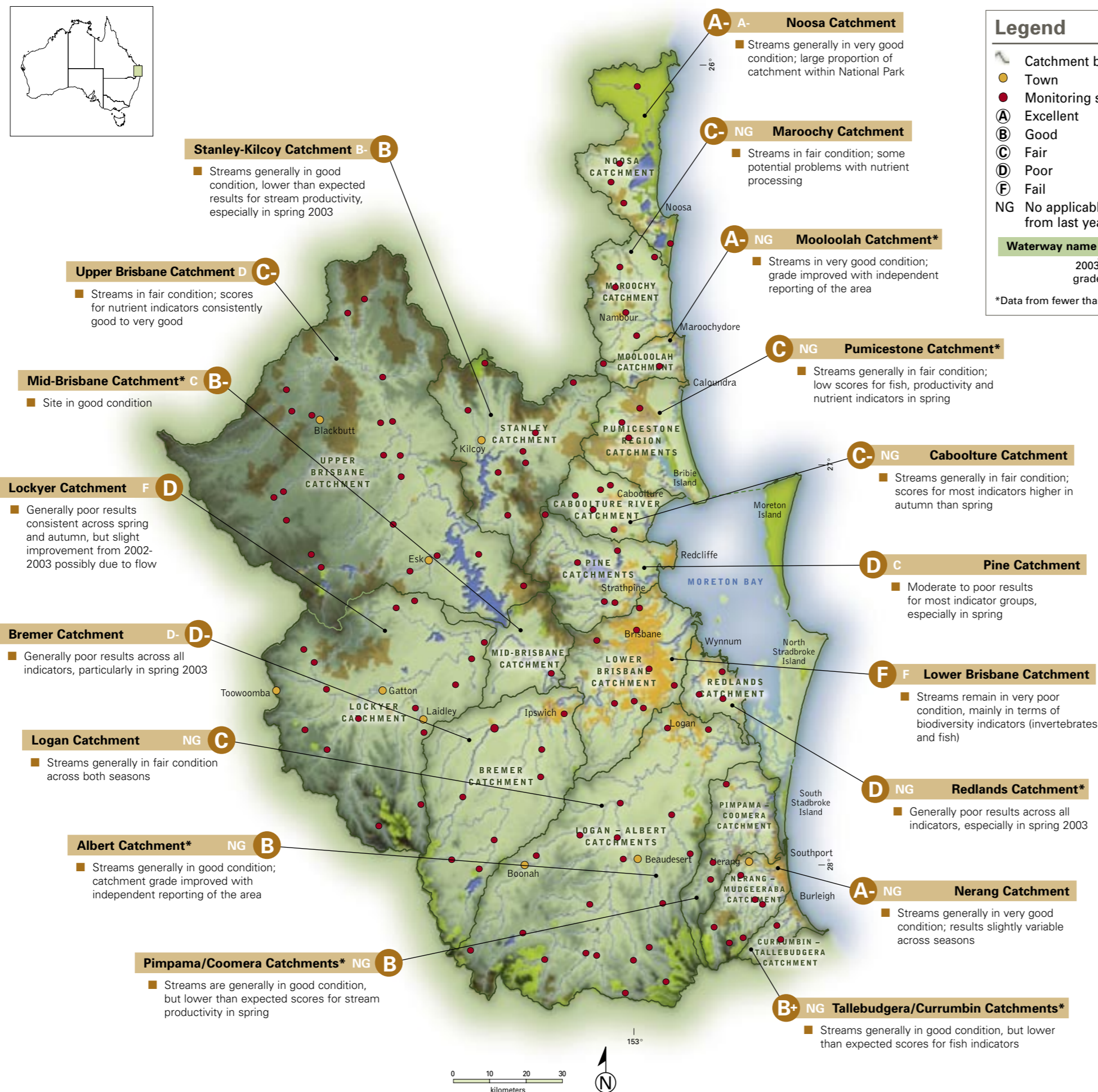
The program is managed by the Moreton Bay Waterways and Catchments Partnership on behalf of the various stakeholders and is implemented by a large team of experts from the Queensland Government (Natural Resources and Mines, Environmental Protection Agency, Queensland Health Scientific Services), universities (University of Queensland, Griffith University) and CSIRO.

Integrated into an adaptive management framework

The EHMP reports on regional ecosystem health condition, which can be used to provide long-term feedback on the effectiveness of management actions undertaken to protect SEQ catchments, waterways and Moreton Bay, and to identify emerging issues that may require management intervention. It aims to ensure that the important values of SEQ waterways are being protected. To achieve this, the program is embedded into the Partnership's adaptive management framework that links monitoring to management objectives and regular review and evaluation of the effectiveness of our actions. The regional scale approach and establishment of ecosystem based objectives are necessary to achieve the development and implementation of consistent management strategies throughout SEQ.

The EHMP has received national and international recognition, and is considered one of the most comprehensive marine, estuarine and freshwater ecosystem health monitoring programs in Australia.

Detailed information on the indicators and methods employed in the EHMP can be found in the Ecosystem Health Monitoring Program 2002-2003 Annual Technical Report published by the MBWCP, or by visiting the Healthy Waterways website at www.healthywaterways.org.





Setting the scene

South East Queensland (SEQ) is a special place. It has spectacular natural features including the World Heritage listed areas of the Scenic Rim, wetlands of international significance and the sand islands of Moreton Bay. Its 2.5 million people enjoy a high standard of living within a diverse economy. Waterways, including Moreton Bay, are a central part of this. Their health is important – if water quality deteriorates, it is unlikely that SEQ residents will continue to enjoy their current prosperity and lifestyle. It is also unlikely that the natural beauty of the area will remain.

SEQ has one of the fastest growing populations in Australia. Over the next 22 years the population is expected to grow by between 40% and 60% to possibly 4 million people. This population increase is expected to result in the conversion of up to 85,500 hectares of bushland, agricultural land and other rural lands to housing and other urban purposes by 2026. A growing population brings increasing demands for water, greater recreational pressure on natural assets such as Moreton Bay and inland waterways, and greater demands for goods and services such as food and transport.

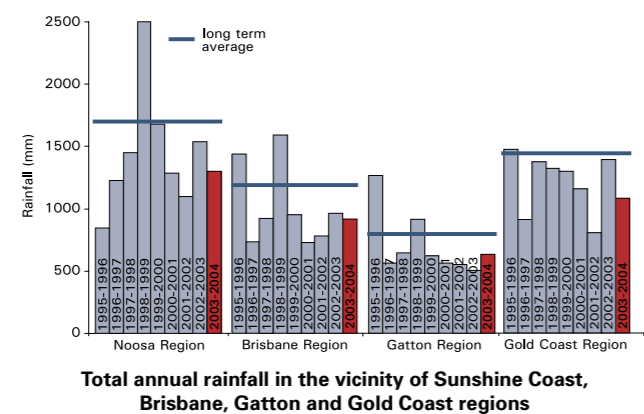
More than ever, good regional planning and coordinated effort are needed to make sure we do not ruin the natural resources that support our economy and lifestyles.



Climate and rainfall

SEQ has a subtropical climate with most of the rainfall normally occurring in summer and autumn. Rainfall patterns in SEQ can vary greatly both between and within catchments. In 2003-2004, rainfall across SEQ's coastal regions was generally less than in the previous reporting year, while the western region received slightly more rain than preceding years. Rainfall remained under the long-term average (50 year mean or greater) for the fifth consecutive year in the Noosa River, Brisbane River and Western region catchments, whereas rainfall in the Gold Coast region has been less than the long-term average for eight successive years.

The 2003-2004 reporting year was characterised by several moderate to high rainfall events associated with storms in mid and late summer which affected water quality in some systems throughout the SEQ region. In particular, the Mooloolah, Maroochy, Brisbane Rivers, Oxley Creek, the Broadwater and Deception Bay showed the effects of these events during early 2004.



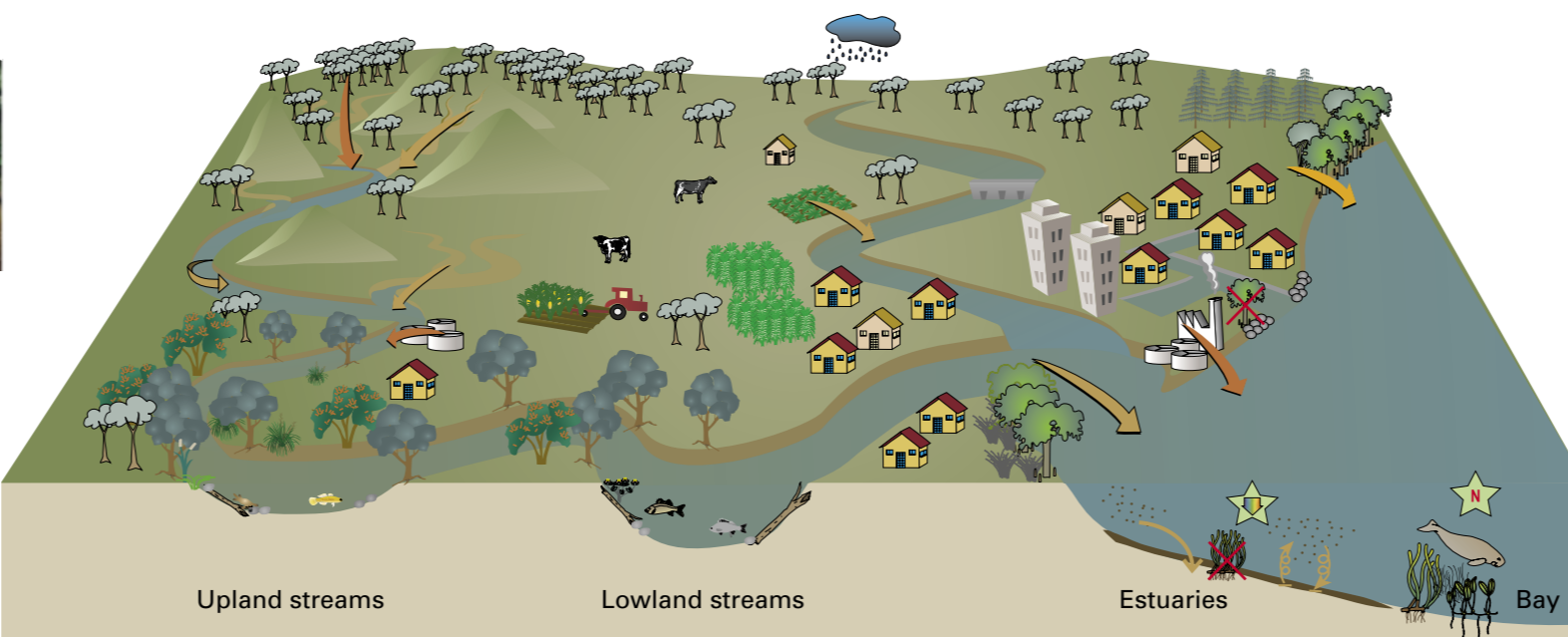
The 2004 Report Card consists of four sections:

- Part 1 – The Report Card grades
- Part 2 – An overview of management responses in SEQ during the reporting year
- Part 3 – Four sub-regional summaries; a. Northern, b. Southern, c. Western and d. Moreton Bay Catchments
- Part 4 – A summary of EHMP methods

A new format for the EHMP Report Card in 2004

The EHMP Report Card now provides more detailed subregional reporting on freshwater, estuarine and marine results and management responses during 2003-2004.

Protecting and Enhancing Ecosystem Health



- Many of South East Queensland's fresh waterways are dry for much of the year, rain falls in episodic events
- Majority of stream network is composed of small head water gullies and streams
- Loss of riparian and terrestrial vegetation, and changes to aquatic habitats, have impacts on ecosystem health.
- Valuable terrestrial and aquatic habitats require conservation.
- The pollutants of greatest concern are sediment and nutrients.
- Sediment is derived primarily from channel erosion.
- Eroded sediment is transported, deposited, and resuspended in the estuaries and Bay.
- Under conditions of sufficient light, nitrogen limits algal growth.
- Bioavailable iron from land sources has been linked to *Lyngbya* blooms in the Bay.

1. Managing point source pollution

- Upgrade sewage treatment plants
- Upgrade industry discharges
- Increase wastewater reuse

2. Managing diffuse source pollution

- Restore and maintain riparian buffers
- Implement best management land use practices
- Reduce stormwater pollution

3. Conserving terrestrial and aquatic habitats

- Retain intact waterways
- Retain existing vegetation
- Conserve rehabilitated areas

- As a result of sewage treatment plant upgrades, diffuse sources are now a greater proportion of total nutrient loads.
- Integrated approaches are required to manage both urban and rural diffuse loads.
- Increasing populations will require further improvements to point source discharges.
- Protection and enhancement of ecosystem health require whole-of-water cycle management.



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The Ecosystem Health Report Card for the waterways of South East Queensland (SEQ) has been presented each year since 1999, when 'A to F' grades were first provided for Moreton Bay and its estuaries. With the expansion of the Ecosystem Health Monitoring Program (EHMP) into the freshwater catchments in 2002, the Report Card has grown to become one of the most important tools used to evaluate and communicate improvements, or declines, in ecosystem health of the waterways in SEQ. The 2004 Report Card provides grades for 18 catchments, 18 estuaries and Moreton Bay for the period of July 2003 to June 2004. Report Card grade calculation involved the analysis of data from more than 370 freshwater, estuarine and marine sites.

The health of our waterways is a result of many activities and influences – natural and human, past and present. While a Report Card grade of A is a highly desirable outcome, economic and urban development is also important to the region, and such activities may prevent some catchments from achieving an A rating. However, where possible, we should seek opportunities to improve the health of our degraded waterways and ensure that future development does not cause further declines.

Freshwater Monitoring

This is the second year of the full-scale Freshwater EHMP, drawing on data from spring 2003 (pre-wet) and autumn 2004 (post-wet) sampling of five indicator groups at 120 sites across SEQ. Previously, reporting was restricted to the 12 sub-regions of the South East Queensland Regional Water Quality Management Strategy. Given strong stakeholder interest in more catchment-specific reporting, this year's Report Card is based on 18 sub-regions, with greater detail provided for several previously combined catchment regions: Maroochy-Mooloolah, Caboolture-Pumicestone, Logan-Albert-Redlands, and the Gold Coast catchments. It is worth noting that some of the Report Card grades are based on a small number of sites, which reduces our confidence that the grades reflect the overall status of the catchment streams. Additional monitoring sites are needed in the future to address this issue.

Some changes in Report Card grades this year are clearly associated with the change to more detailed reporting. For example, independent reporting of the Mooloolah catchment has resulted in a significant increase in Report Card grade (to an A-), but this has been accompanied by a decrease in the grade for the Maroochy catchment (to a C-). These differences aside, there has been a general improvement in catchment grades by one or two levels across the region. In many cases, this was a result of improvement in stream health during the autumn sampling, associated with recent rainfall and stream flows.

Estuarine and Marine Monitoring

This is the second full year that the Estuarine and Marine EHMP has monitored waterways throughout SEQ from the Noosa estuary south to the NSW border. Report Card grades have been derived using a combination of compliance to water quality objectives, biological ratings and expert opinion. For the first time this year, separate grades have been included for Cabbage Tree, Oxley and Tingalpa creeks.

Ecosystem health in Moreton Bay has remained consistent, with most zones retaining the same grade as last year. Bramble Bay continues to have the poorest ecosystem health rating in Moreton Bay while the Eastern Bay retains excellent ecosystem health.

This year, extremely high nutrient concentrations and sediment loads in the Albert, Bremer and Oxley estuaries have resulted in their ecosystem health falling. However, both the Bremer and Albert estuaries have shown slight improvements in some indicators (e.g. dissolved oxygen) over the past year.

The ecosystem health of the Sunshine Coast estuaries remains similar to last year, with poor health in the Maroochy estuary and good to excellent health in the Noosa Estuary. Of the Gold Coast estuaries, the Coomera, Nerang, Currumbin and Tallebudgera all have good to excellent ecosystem health with improvements in water quality.

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