

Report Card '07

for the waterways and catchments of South East Queensland



Since 1999, the Ecosystem Health Monitoring Program (EHMP) has produced the annual Ecosystem Health Report Card to report on the health of South East Queensland's (SEQ) waterways. Covering an area that extends from Noosa in the north, south to the NSW border and west to Toowoomba, the Report Card presents an easy-to-understand snapshot of the health of the region's freshwater and estuarine/marine environments, providing 'A' to 'F' ratings for 18 catchments, 18 estuaries and Moreton Bay. The EHMP, through the publication of the annual Report Card, plays an important role in raising awareness of the changes in the condition of the waterways and focussing management efforts to protect the Environmental Values identified by the community. Furthermore, it provides an insight into the effectiveness of investments in waterway and catchment management. The 2007 Report Card is the culmination of thorough scientific monitoring at 381 freshwater and estuarine/marine sites during the period of July 2006 to June 2007.

the Nerang and Tallebudgera/Currumbin catchments, both of which increased in grade. The Nerang catchment received an A-, the highest Report Card grade this year. This is the highest Freshwater Report Card grade since 2004.

The Lower Brisbane and Redlands catchments were once again awarded the lowest Report Card grade of an 'F'. This year the Upper Brisbane catchment also received an 'F', the lowest grade this area has received in the Freshwater EHMP.

Estuarine and Marine monitoring

2006-07 marks seven years that the estuarine and marine EHMP has monitored Moreton Bay and its estuaries and five years that it has monitored the Gold Coast and Sunshine Coast estuaries.

Overall, SEQ estuaries and Moreton Bay showed an improvement in ecosystem health, associated with low rainfall and runoff and reduced inputs of sediment and nutrients from rivers. Ecosystem health improved in the Bremer, Brisbane, Logan, Maroochy, and Noosa River estuaries. With the adoption of more stringent water quality guidelines, Report Card ratings for Coomera, Tallebudgera and Currumbin estuaries decreased. Some Gold Coast estuaries also received a decrease in grade as a result of the more quantitative riparian assessment providing a more accurate measure of condition.

The overall health of Moreton Bay in 2006-07 has remained similar to last year, with four of the nine reporting zones receiving a decrease and three receiving an increase in Report Card grades. Deception Bay received a lower grade this year due to an increase in phytoplankton abundance and elevated nutrients in the south east of the zone. Deception Bay is now the lowest rated zone in Moreton Bay. Eastern Banks and Eastern Bay retained their excellent ecosystem health.

This year the Report Card grades also reflect the changes associated with the adoption of the new Queensland Water Quality Guidelines (QWQGs) and a greater emphasis placed on the enhanced (more quantified) riparian assessment tool.

Freshwater monitoring

This 2007 Report Card describes the results of the fifth year of the full implementation of the freshwater EHMP, which monitors the ecological condition of the freshwater reaches of SEQ's waterways. As in previous years, this Report Card is based on data for eighteen different measures (indices) grouped within five ecological indicators: physical /chemical, nutrient cycling, ecosystem processes, aquatic macroinvertebrates, and fish. All of the data used were collected during spring 2006 (pre-wet season) and autumn 2007 (post-wet season), at each of 127 sites, using the same methods as previous years.



NATURAL RESOURCES AND WATER

While there was a steady decline in the overall Freshwater EHMP score for the SEQ waterways from 0.83 in 2002-03, to 0.81 in 2003-04, and 0.79 in 2005-06, the score this year (2006-07) remains the same as last year (2005-06).

Grades for five of the areas reported on in this Report Card remained the same as last year, while six increased and seven decreased. The greatest changes in grade were associated with



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EHMP Funding Contributors 2006-07



Setting the scene

Offering a high standard of living within a diverse economy and spectacular natural features including the World Heritage listed areas of the Scenic Rim, wetlands of international significance and the sand islands of Moreton Bay, SEQ is a great place to work, live and play. For these reasons, SEQ has one of the fastest growing populations in Australia, with the current population of 2.73 million expected to increase to 4 million people or more by 2026.

South East Queensland's catchments and many of its waterways have been significantly altered since European settlement, including dams and weirs regulating river flows, and the dredging of rivers and Moreton Bay. This has resulted in an overall decline in aquatic species, habitat diversity and water quality. Widespread land clearing has resulted in changed flows, increased erosion and significant increases in the loads of nutrients and sediment entering SEQ's waterways. A growing population brings increasing demands for potable 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. The pressure on our waterways and water resources is further exacerbated by the current period of drought in SEQ. Without careful management our precious waterways will suffer further degradation. Continued coordinated regional planning and management investments are required to make sure we do not ruin the natural resources that support our livelihoods and lifestyles.

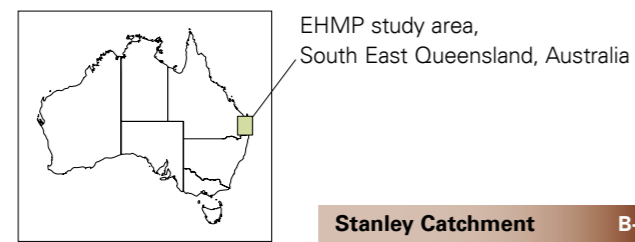
EHMP—taking the pulse of South East Queensland's waterways

The regional EHMP, is a comprehensive integrated aquatic monitoring program with a 'catchment to coast' philosophy. Since 2000, the EHMP has reported on the health of SEQ's waterways, using a broad range of biological, physical and chemical indicators. In 2006-07, 127 freshwater sites were monitored in spring and autumn, and 254 estuarine and marine sites were monitored on a monthly basis. The EHMP is underpinned by rigorous science and is based on a philosophy of continuous improvement. It is widely recognised as one of the most comprehensive aquatic monitoring programs in Australia. The EHMP is managed by the SEQ Healthy Waterways Partnership Office on behalf of the EHMP Partners. It is implemented by a large, multidisciplinary team of scientists from universities (University of Queensland and Griffith University), the Queensland Government (the Department of Natural Resources and Water, Environmental Protection Agency and Queensland Health Scientific Services), and CSIRO.

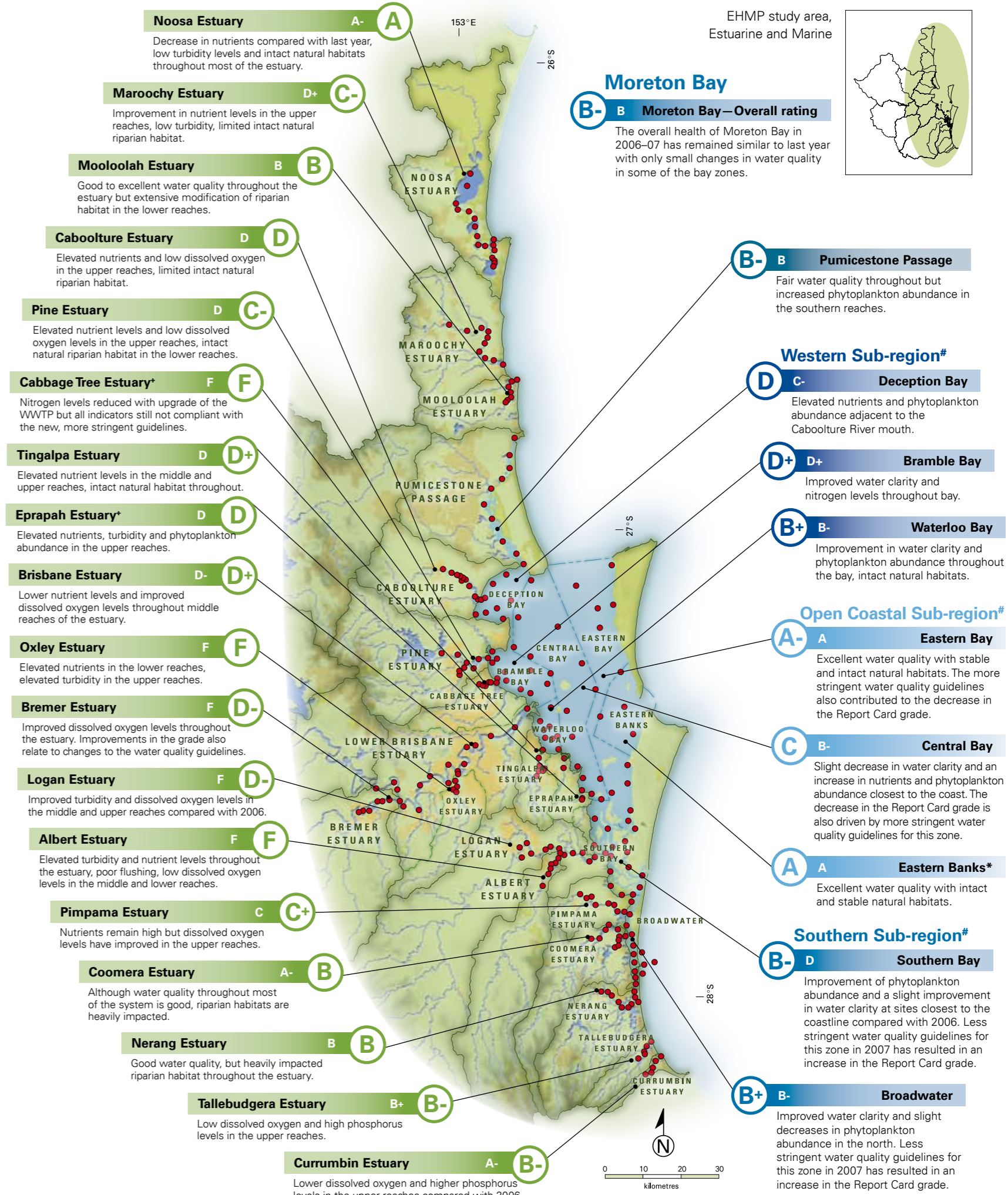
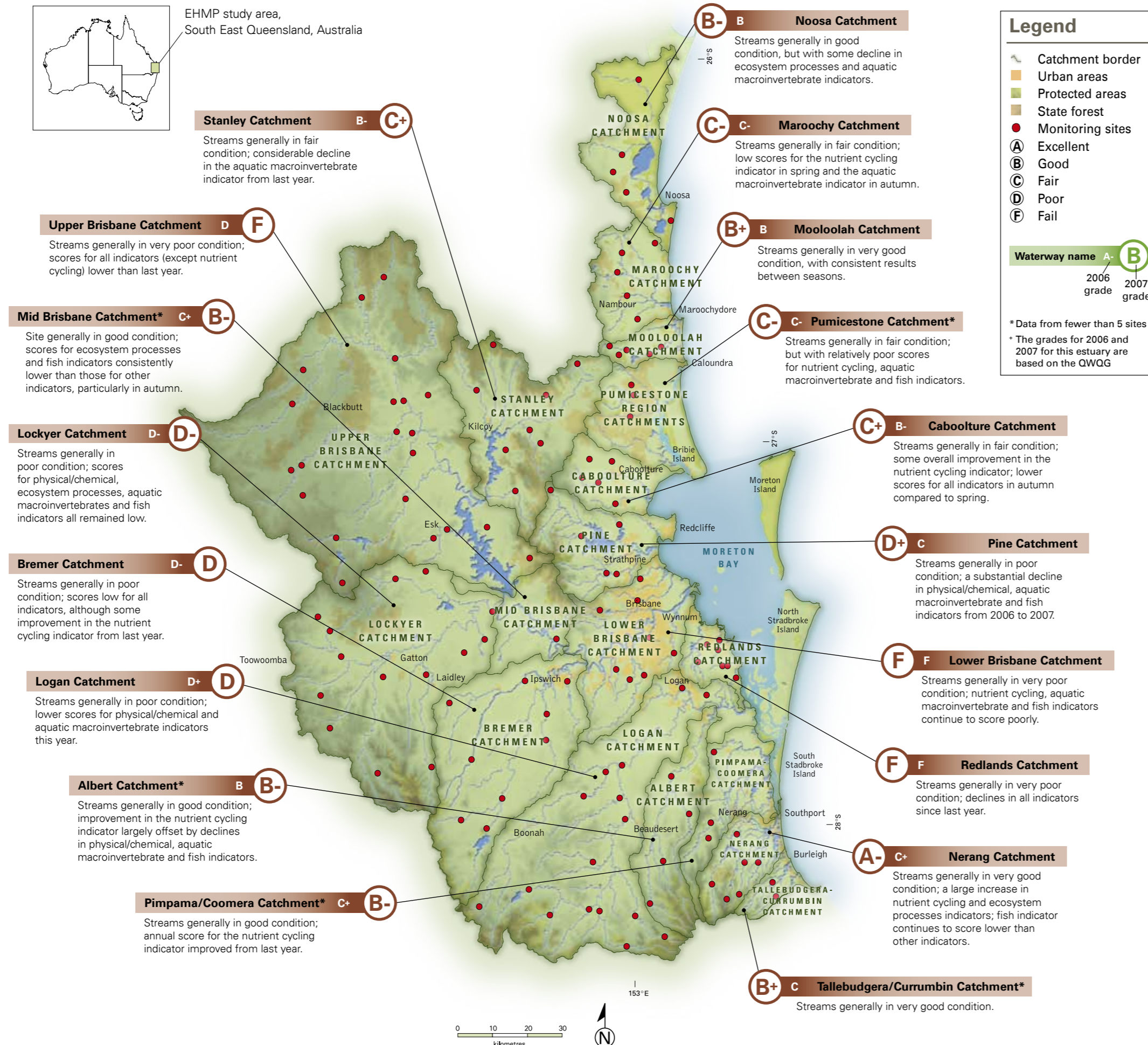
The EHMP assesses the ecosystem response to both natural pressures and human activities and is embedded within the Partnership's adaptive management framework, which links monitoring to management. This approach allows management bodies to readily evaluate and communicate the ecosystem and community benefits resulting from their investment in environmental protection, and provides both managers and researchers with the feedback required to better target investment in the management of SEQ's catchments, estuaries and Moreton Bay. The coordinated, regional-scale approach facilitates a holistic understanding of the factors threatening our waterways and in turn enables the development of consistent management strategies throughout SEQ. This is supported by region-wide sharing of lessons learnt about the effectiveness of particular management strategies.

For detailed information on the indicators and methods employed in the EHMP please refer to the Ecosystem Health Monitoring Program's Annual Technical Report published by the South East Queensland Healthy Waterways Partnership, or visit the EHMP website at:

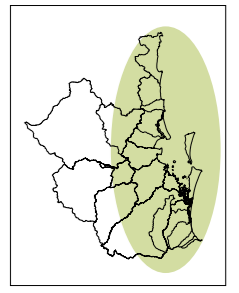
www.ehmp.org



EHMP study area, South East Queensland, Australia



EHMP study area, Estuarine and Marine



Moreton Bay
B- B Moreton Bay—Overall rating
The overall health of Moreton Bay in 2006-07 has remained similar to last year with only small changes in water quality in some of the bay zones.

B- B Pumicestone Passage
Fair water quality throughout but increased phytoplankton abundance in the southern reaches.

D C- Western Sub-region#
D C- Deception Bay
Elevated nutrients and phytoplankton abundance adjacent to the Caboolture River mouth.

D+ D+ Bramble Bay
Improved water clarity and nitrogen levels throughout bay.

B+ B Waterloo Bay
Improvement in water clarity and phytoplankton abundance throughout the bay, intact natural habitats.

A- A Open Coastal Sub-region#
A- A Eastern Bay
Excellent water quality with stable and intact natural habitats. The more stringent water quality guidelines also contributed to the decrease in the Report Card grade.

C B- Central Bay
Slight decrease in water clarity and an increase in nutrients and phytoplankton abundance closest to the coast. The decrease in the Report Card grade is also driven by more stringent water quality guidelines for this zone.

A A Eastern Banks*
Excellent water quality with intact and stable natural habitats.

B- D Southern Sub-region#
B- D Southern Bay
Improvement of phytoplankton abundance and a slight improvement in water clarity at sites closest to the coastline compared with 2006. Less stringent water quality guidelines for this zone in 2007 has resulted in an increase in the Report Card grade.

B+ B- Broadwater
Improved water clarity and slight decreases in phytoplankton abundance in the north. Less stringent water quality guidelines for this zone in 2007 has resulted in an increase in the Report Card grade.

*The nine zones of Moreton Bay are grouped into three sub-regions based on the Queensland Water Quality Guidelines. For further explanation, see overview.

Determining Report Card Grades

Grades—what do they mean?

Ecosystem Health Report Card Grades ('A' to 'F') are generated for 18 catchments and 18 estuaries in South East Queensland and Moreton Bay. Parameters for freshwater and estuarine/marine habitats are assessed against guidelines which results in the application of a single grade for each system.

- A** **Excellent.** Conditions meet all set ecosystem health values; all key processes are functional and all critical habitats are in near pristine condition.
- B** **Good.** Conditions meet all set ecosystem health values in most of the reporting region; most key processes are functional and most critical habitats are intact.
- C** **Fair.** Conditions meet some of the set ecosystem health values in most of the reporting region; some key processes are functional but some critical habitats are impacted.
- D** **Poor.** Conditions are unlikely to meet set ecosystem health values in most of the reporting region; many key processes are not functional and many critical habitats are impacted.
- F** **Fail.** Conditions do not meet set ecosystem health values; most key processes are not functional and most critical habitats are severely impacted.

Continual development of EHMP

2006–07 has seen improvements to the way the estuarine and marine component of the EHMP assesses the ecological health of our waterways. Two main changes have been made to the program this year, the adoption of the Queensland Water Quality Guidelines 2006 (QWQG) and the improvement to how we assess riparian vegetation in the estuaries (see box below).

The QWQG have replaced the South East Queensland Regional Water Quality Management Strategy (SEQRWQMS) Objectives (2001). They are used as a benchmark for the water quality data collected by the program and are based on reference sites.

Under the new QWQG, the EHMP team assesses each estuary against three water types, Enclosed Coastal (Lower Estuary), Middle Estuary and Upper Estuary, while each of the nine Moreton Bay reporting zones are assessed against individual sub-regional guidelines. As a result, each of the nine reporting zones within Moreton Bay have been separated into three groups based on similarities in guideline values.

- Western Sub-region: Deception Bay, Bramble Bay and Waterloo Bay
- Open Coastal Sub-region: Eastern Bay, Central Bay and Eastern Banks
- Southern Sub-region: Southern Bay and Broadwater

The adoption of the new QWQG has meant that each reporting region is assessed against more localised objectives. This has impacted on the grades given to some of the reporting regions.

Environmental Goals

Freshwater

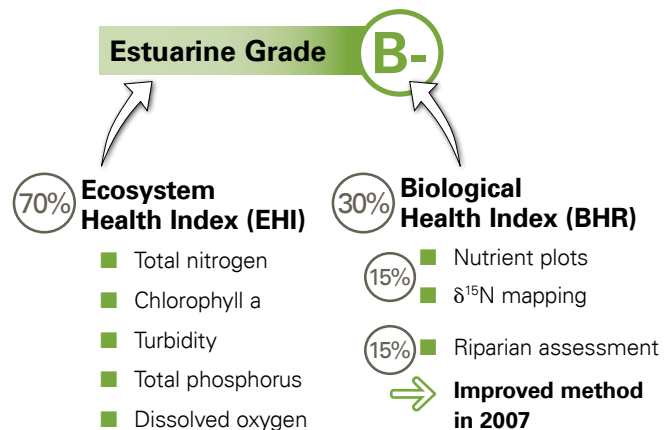
- Protect/restore riparian vegetation and habitat
- Protect fish and macroinvertebrates
- Minimise nuisance algal blooms and growth of aquatic weeds
- Minimise sediments and nutrients

Estuarine

- Protect/restore estuarine habitats; seagrass, mangroves, saltmarsh and riparian vegetation
- Protect fish and macroinvertebrates
- Minimise nuisance algal blooms and growth of aquatic weeds
- Minimise sediments and nutrients

Marine

- Protect/restore marine habitats; seagrass, mangroves and saltmarsh
- Protect fish and macroinvertebrates
- Minimise nuisance algal blooms
- Minimise sediments and nutrients



An improvement to the riparian assessment indicator

The riparian habitat assessment program was developed by the estuarine and marine EHMP team to provide an accurate and precise method to assess the extent of modification to riparian habitat in our estuaries. Riparian assessment has always been used to calculate the Report Card grade, however the improvement in monitoring techniques used in the assessment has made the method more quantitative. This has allowed us to increase its percentage contribution to the overall Report Card grade.



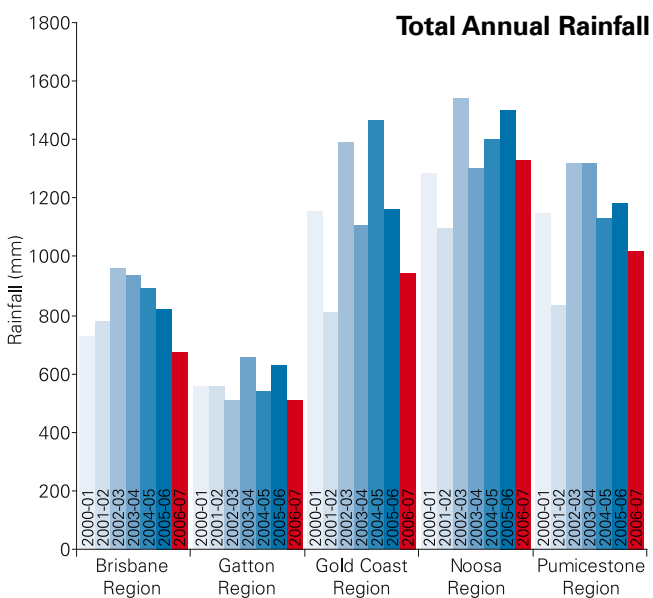
Climate and rainfall

Rainfall for subtropical South East Queensland (SEQ) is seasonal and is typically higher in spring and summer, with little or no rainfall in winter. Local catchment topography and global scale climatic effects such as El Niño largely influence rainfall variability in the region. In 2006–07, SEQ's climate was characterised by drought conditions for much of the region with occasional patchy rainfall events on the coastal fringe. Overall, there has been a significant reduction in rainfall totals across SEQ for 2006–07 compared to the long-term rainfall average.

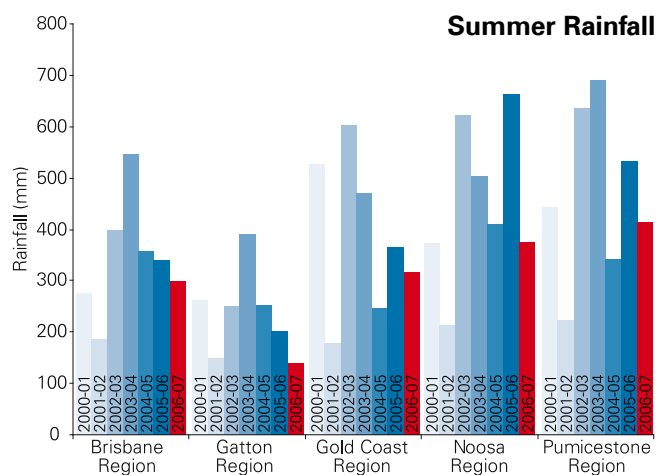
In 2006–07, total rainfall across the SEQ region dropped almost 20% from last year's total and remained well under the long-term average for the seventh consecutive year. Despite lower total annual rainfall, both the Sunshine and Gold Coasts received approximately 10% more rainy days than the previous year. In contrast, Brisbane experienced a drop in the number of rainy days from the previous year, highlighting the dry conditions experienced in the Moreton Bay catchment.

Seasonal rainfall patterns varied across the region with a general lack of rain in spring and summer. The lack of summer rainfall was largely the driver for lower annual totals across the region this year. Winter rainfall in 2006–07, however, generally increased across the region with Noosa and Pumicestone receiving the highest winter rainfall totals since the inception of EHMP in 2000.

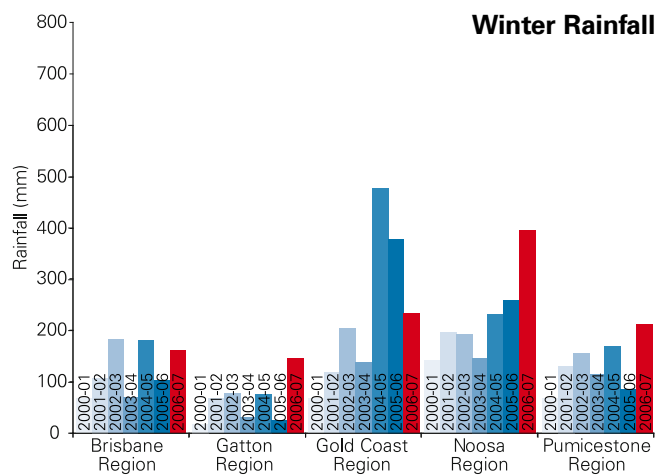
The lack of rainfall this year resulted in periods of little or no freshwater stream flow in many catchment areas. Additionally, less freshwater runoff has caused a general increase in salinity in the estuarine reaches of the rivers as tidal ranges penetrate deeper into the estuaries over time.



Total annual rainfall (mm) in the Brisbane, Gatton, Gold Coast, Noosa and Pumicestone Regions from 2000 to 2007.



Total summer rainfall (mm) in the Brisbane, Gatton, Gold Coast, Noosa and Pumicestone Regions from 2000 to 2007.



Total winter rainfall (mm) in the Brisbane, Gatton, Gold Coast, Noosa and Pumicestone Regions from 2000 to 2007.

The 2007 EHMP Report Card Format

- Part 1 Report Card grades
- Part 2 Overview of management initiatives during the 2006–07 reporting year
- Part 3 Four sub-regional summaries:
 - a. Northern Catchments
 - b. Southern Catchments
 - c. Western Catchments
 - d. Moreton Bay Catchments
- Part 4 Summary of EHMP methods