HEALTHY WATERWAYS

Report Card 2013

for the waterways and catchments of South East Queensland

Somerset Regional Council

Moreton Bay Regional Council

Redland City Council

City of Gold Coast

iStock – Noosa River

Tangalooma Island Resort

supporting the economic future of our region

Protecting waterways makes good economic sense

Our waterways are estimated to provide over $5 billion per year to South East Queensland's economy through industry, tourism, recreation and fishing.

The major issue affecting waterway health in South East Queensland is the increased amount of mud (or soil) entering our waterways during large rainfall events.

During the January 2011 and 2013 floods, over 20 million tonnes of mud were washed off the land and into our waterways. The retail value of this soil if purchased from a landscape supplier would be more than $1 billion.

Mud in our waterways reduces water clarity and contains pollutants which threaten the livelihood of the people and industries that rely on healthy waterways. Mud also smothers aquatic plants, such as seagrass, reducing the amount of food available for turtles, dugongs and fish.

Planting native vegetation along riverbanks provides flood protection and reduces the amount of mud that enters our waterways. To improve waterway health in South East Queensland, and to safeguard our economic growth, Healthy Waterways' members are working to establish vegetation along riverbanks and increase vegetation in the catchments. Improving waterway health in South East Queensland will also safeguard the future of our economy through:

- protecting valuable agricultural land and infrastructure
- ensuring the security of our drinking water supply
- supporting our significant tourism and recreation industries.

Ensuring the security of our drinking water supply

Protecting and planting native vegetation in catchments is one of the most cost effective ways to protect the security of our drinking water supply.

When large amounts of mud are washed off the catchments and into our dams it places an extra burden on the water treatment process, increasing the cost and time it takes to produce high quality drinking water.

During the 2013 flood, the region's largest water treatment plant at Mt Crosby was forced to shut down due to the significant amount of mud entering the plant from the Mid Brisbane River. This put residents at risk of losing their water supply.

In South East Queensland, we have some of the most advanced water treatment plants in the world. However, to reduce the cost of water treatment, we must restore our catchments by protecting and planting native vegetation. Since the 1990's, New York City's Department of Environmental Protection has been working with farmers to deliver safe water supply through catchment revegetation and improved farming practices. As a result there have been economic benefits for the agricultural industry and the city is now saving billions of dollars per year in reduced water treatment costs.

2011 Healthy Waterways Industry Award Entry

With the aim of protecting and enhancing drinking water quality, Seqwater has conducted tree plantings and bush regeneration across the catchments in South East Queensland.

Winner of the 2012 Healthy Waterways Rural Award

FarmFlow increased best-practice catchment restoration and revegetated 19 km of waterways to improve farm sustainability and water quality.

Protecting valuable agricultural land and infrastructure

In order to protect our farms, homes and other infrastructure, and reduce the destructive energy of flood waters, we must prepare our catchments for rainfall events by establishing healthy vegetation along riverbanks.

During large rainfall events, vegetation plays an important role in slowing the flow of water and holding the soil in place to prevent soil erosion and damage to infrastructure. The 2013 flood caused a large loss of valuable farming land and increased the amount of mud in our waterways. In South East Queensland, modelling studies have demonstrated that planting vegetation in the upper catchments can reduce the speed of flood water by up to 50%, therefore protecting farms and infrastructure downstream.

In Victoria, riverbank restoration in a small catchment reduced the economic impact of flood damage from $3 million (without riverbank vegetation) to $40,000 (with healthy riverbank vegetation).

By planting vegetation along riverbanks and keeping mud on the land, we are protecting fertile farming lands and keeping valuable top soil on the land to grow crops.

Supporting our significant tourism and recreation industries

Not only are waterways an integral part of our lifestyle and cultural identity, they are also a significant economic asset which underpin our tourism and recreation industries. Waterway related tourism boosts local business, generates jobs and attracts investment.

The nature-based tourism industry is critical to South East Queensland's economy as it generates approximately $2.9 billion per year. Our waterways are one of the main reasons for international and domestic visitors travelling to South East Queensland. For example, 61% of all inbound visitors to Australia identified nature-based activities as the key purpose of their visit.

Tourism and recreation activities are heavily reliant on the health of our waterways. Therefore, it makes good economic sense to protect waterway health in order to safeguard the future of our tourism industry.

Winner of the 2013 Healthy Waterways Responsible Tourism Award

Noosa Integrated Catchment Association (and their partners) developed an environmentally responsible tourism cruise to promote the area's natural assets and educate people about Noosa's high biodiversity.

Annual economic value of South East Queensland's waterways

Sector	Economic value per year
Primary Industries	$1.4 billion
Nature-based Tourism	$2.9 billion
Recreation	$0.6 billion
Recreational Fishing	$0.2 billion
Total	**$5.1 billion**

Source: Marsden Jacobs Associates 2011.

Freshwater Report Card 2013

Ecosystem Health Monitoring Program

The Ecosystem Health Monitoring Program (EHMP) is one of the most comprehensive freshwater, estuarine and marine monitoring programs in Australia. The EHMP delivers a regional assessment of the ambient ecosystem health for each of South East Queensland's (SEQ) 19 major catchments, 18 river estuaries and nine zones in Moreton Bay.

Healthy Waterways manages the program on behalf of our member organisations, and it is delivered by a large team of experts from the Queensland Government, CSIRO, Griffith University and the University of Queensland.

Report Card Grades – What do they mean?

For over 10 years, the EHMP has produced an annual Ecosystem Health Report Card which helps us understand whether the health of our waterways is improving or declining. Ecosystem health is assessed against water quality guidelines, resulting in a single grade for each freshwater, estuarine and marine system.

A total of 135 freshwater sites are monitored biannually, and 254 estuarine and marine sites are monitored monthly across SEQ and Moreton Bay.

The 2013 Report Card grades ('A' to 'F') are based on analysis of data collected from July 2012 to June 2013.

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 and some critical habitats are impacted.

D **Poor:** Conditions meet few 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.

Indicators used for assessing ecosystem health

Freshwater

Five ecological indicator groups are measured:

- physical chemical
- nutrient cycling
- ecosystem processes.
- aquatic macroinvertebrates
- fish

Estuarine and Marine

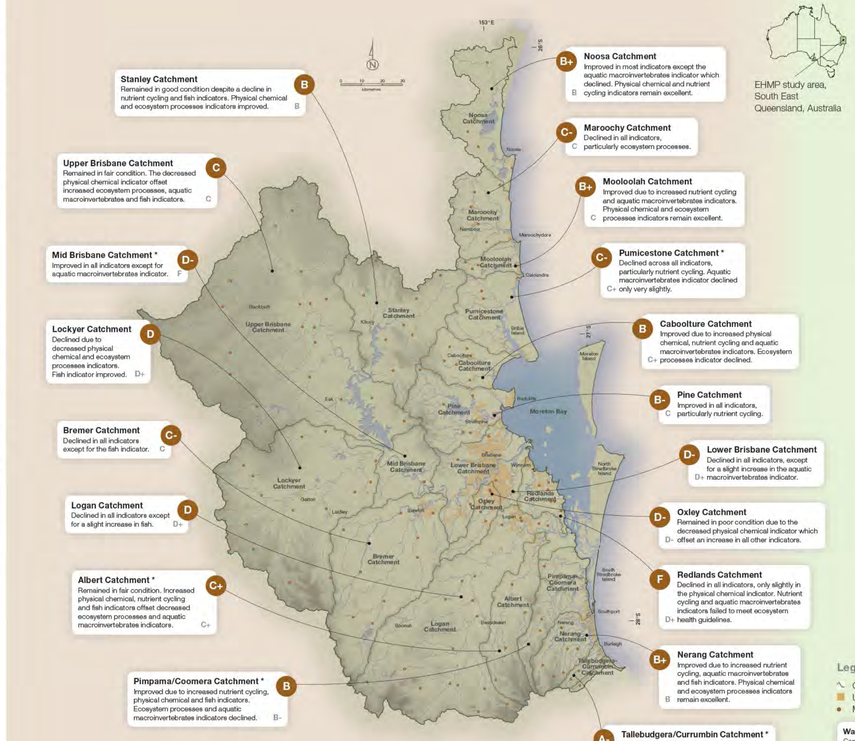
Ecological Health Index indicators measured are:

- algae (phytoplankton)
- *Lyngbya*
- secchi depth (water clarity)
- total phosphorus } (nutrients)
- total nitrogen
- sewage nitrogen signal
- turbidity
- dissolved oxygen.

Biological Health Rating indicators measured are:

- seagrass
- coral
- nutrient processing
- sewage nitrogen signal
- riparian condition.

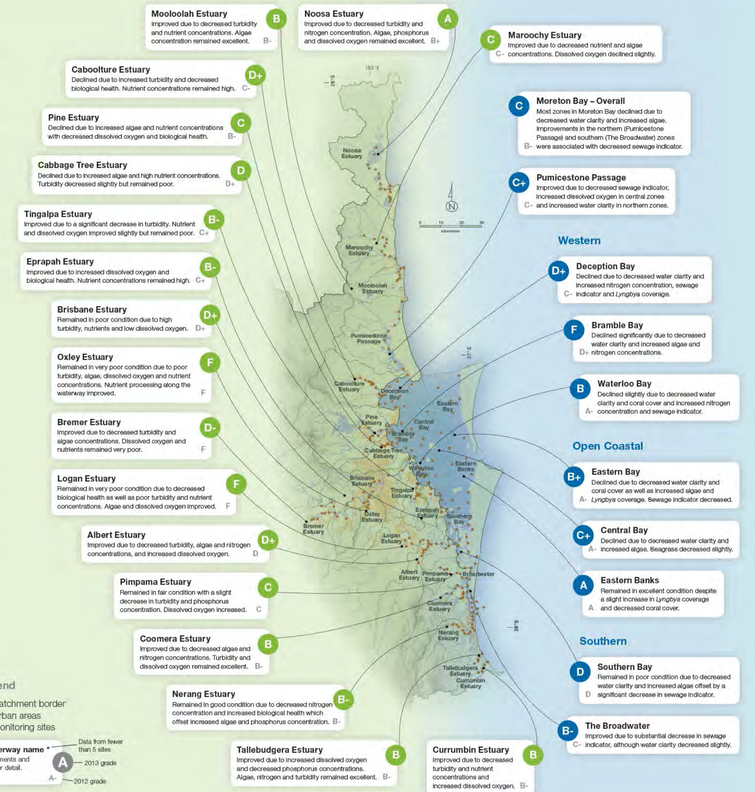
For more information, please refer to the 2013 Report Card Methods on our website www.healthywaterways.org.



Legend
- Catchment border
- Urban areas
- Monitoring sites

Waterway name * — Comments and further detail. — A (2013 grade) — A- (2012 grade) — Data from fewer than 5 sites

Estuarine and Marine Report Card 2013



Key Messages of the 2013 Report Card

The 2013 Report Card provides insight into the health of South East Queensland's waterways and Moreton Bay.

Overall, there was a small improvement in freshwater and estuarine grades and a small decline in marine grades. South East Queensland received average rainfall for most of the reporting period apart from the January 2013 flood. However, the mud and nutrients deposited into Moreton Bay during the 2011 and 2013 floods continues to reduce water clarity and stimulate the growth of algae.

Freshwater – slight improvement

Eight of the 19 catchments improved in grade. The largest grade change occurred in Mooloolah (C to B+), resulting from an improvement in nutrient cycling and aquatic macroinvertebrates indicators. Seven catchments declined in grade, with Redlands returning to an F due to decreased ecosystem processes and nutrient cycling indicators. Lower Brisbane (D+ to D-) and Oxley (D- to D-) both received grades above an F for the second year in a row. In most streams, fish indicators have continued to improve as a result of increased water flowing through streams and improved waterway connectivity.

Estuaries – slight improvement

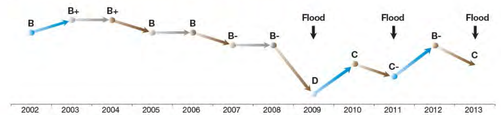
Noosa (B+ to A), Bremer (F to D-), Tingalpa (C+ to B-), Eprapah (C+ to B-) and Albert (D- to D+) all improved, receiving some of the highest grades on record for these estuaries. These improvements were mainly due to decreases in turbidity and algae. Caboolture (C- to D+), Pine (B- to C) and Cabbage Tree (D+ to D) were the only estuaries to decline in grade due to flood related increases in nutrients, algae and turbidity.

Moreton Bay – slight decline

There was a slight overall decline in Moreton Bay (B- to C), mainly due to reduced water clarity and increased algae. Central Bay (A- to C+) showed the greatest decline. Most of Moreton Bay showed an improvement in the sewage indicator, and this led to grade changes in Broadwater (C- to B-) and Pumicestone Passage (C- to C+).

Last year, the health of seagrass beds and corals appeared to improve slightly. However, this year corals and seagrasses are showing signs of ongoing stress and decline. This decline is due to the large amounts of mud and nutrients from the catchments deposited into Moreton Bay during the 2011 and 2013 floods. Keeping mud on the land is the priority action required to prevent further decline and protect the health of our bay and waterways.

Figure 1 – **Trends in the ecosystem health of Moreton Bay**



Report Card online

Check out the Report Card grades on your iPhone and online now!

Search for '2013 Report Card' in the App Store or access results through our website **www.healthywaterways.org**

Become a member of Healthy Waterways and join a network of people and organisations that are working together to protect and improve waterway health. **Join today.**

Past investment in waterway health proves highly effective

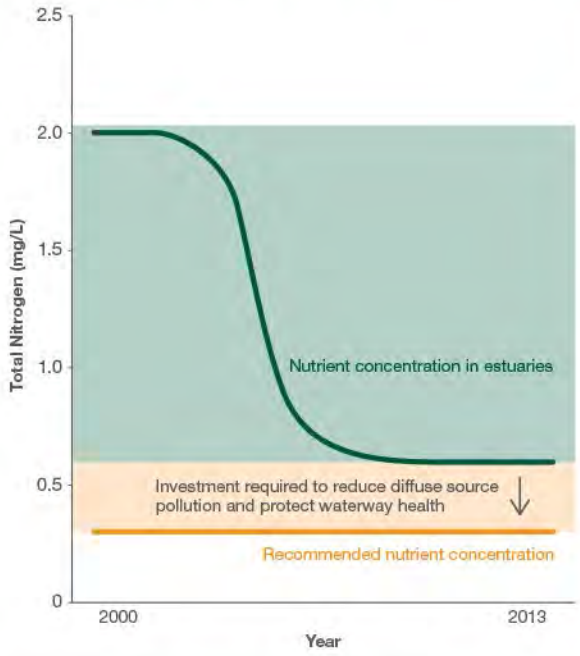
Since 2000, significant investment has been made to reduce point source pollution, with water utilities, state and local governments spending over $1 billion upgrading wastewater treatment plants. This investment has proven highly effective in achieving long term water quality improvements in South East Queensland's estuaries through lowering the nutrient loads and reducing the incidence of algal blooms.

Over the past 13 years, the Ecosystem Health Report Card has been instrumental in tracking the reduction of nutrient levels. Prior to state and local government investment in wastewater treatment plant upgrades, nutrient levels in our estuaries were seven times the recommended concentration. The nutrient levels in many estuaries are now twice the recommended concentration. This demonstrates that past investment in wastewater treatment plant upgrades has had a positive impact on our waterways.

While this is a significant achievement, additional action is required to reach the recommended concentration for nutrient levels in our estuaries and Moreton Bay.

In order to further reduce nutrient levels and protect South East Queensland's waterways, we must address diffuse source pollution by reducing the amount of mud and nutrients entering our waterways. To achieve this, and safeguard the region's economic growth, Healthy Waterways' members are working together to plant native vegetation along riverbanks, improve stormwater runoff, support best practice agriculture and restore floodplains.

Total Nitrogen reduction in South East Queensland's estuaries benefiting from investment in wastewater treatment plant upgrades



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HEALTHY WATERWAYS

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Front cover images: (Clockwise left to right) Somerset Regional Council: Seqwater ranger monitors Somerset Dam. Moreton Bay Regional Council: newly constructed wetland at Morayfield. City of Gold Coast: Country Paradise Parklands Wetland Planting. Tangalooma Island Resort: healthy waterways support our tourism industry. iStock – Noosa River: waterways an integral part of our lifestyle and cultural identity. Redland City Council: Waterways Extension Program partnering with landholders for waterway recovery.

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