



2013 waterway & catchment report card

for Wallis, Smiths and Myall Lakes



Office of
Environment
& Heritage



Hunter - Central Rivers
CMA CATCHMENT MANAGEMENT AUTHORITY



Water quality improvement projects are made possible by the Great Lakes Environmental Special Rate

Wallis Lake

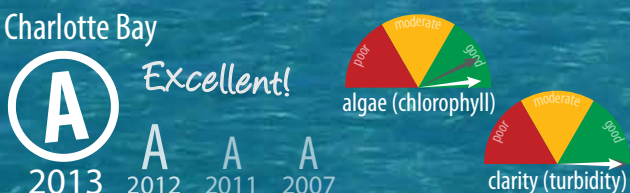
Water quality report card



The ecological health in Pipers Creek continues to be good, with results similar to 2011 and 2012. Waters in Pipers Creek remained clear. The nutrient loads from the urban catchment of Forster resulted in algal levels that were still higher than desired, but slightly less than last year.



Wallis Lake is of a high conservation value, with abundant seagrass and high biodiversity. Ecological health was good, but has remained below that recorded in 2011. Water clarity was excellent but there was mild growth of algae indicating on-going inputs of nutrients.



Charlotte Bay is of high conservation value, with abundant seagrass and high biodiversity. Ecological health remained excellent, algal growth is at very low levels, reversing the small increase in algal levels seen last year. Water clarity was excellent.



This year the waters of the Wallamba River Estuary improved and are very clear but algal growth is still higher than desired. The clear waters provide lots of light, which combined with nutrients from the catchment resulted in much higher algal levels than last year.

Management actions 2007-2013

Removal of aquatic weeds
16 hectares of Cabomba infested waterways treated



Sustainable farming practices
86 landholders participating in 4 Sustainable Farming/Sustainable Living Groups, 32 landholders in Land for Wildlife



Sustainable gardening practices
22 urban residents active in Sustainable Gardening



Protection and rehabilitation of key habitats
Acquiring and conserving 763ha of wetlands at Darawakh, Minimbah and Lower Wallamba/ North Tuncurry to protect water quality and biodiversity



Water sensitive urban design
Eight water quality gardens and two wetlands built to treat 37.5 hectares of land in the Pipers and Muddy Creek Catchments



Bush rehabilitation
43 volunteers active in bush regeneration at ten sites



Working with students
Incorporated water quality and catchment management issues into the Great Lakes College Geography curriculum for years 7-10



Rubbish removal
160 volunteers remove 11 tonnes of rubbish from Wallis Lake Foreshore



Bank stabilisation
Stabilising 5.1km of the Wallamba River with rock protection, planting 8,000 native plants and conserving 9.5km of streambank

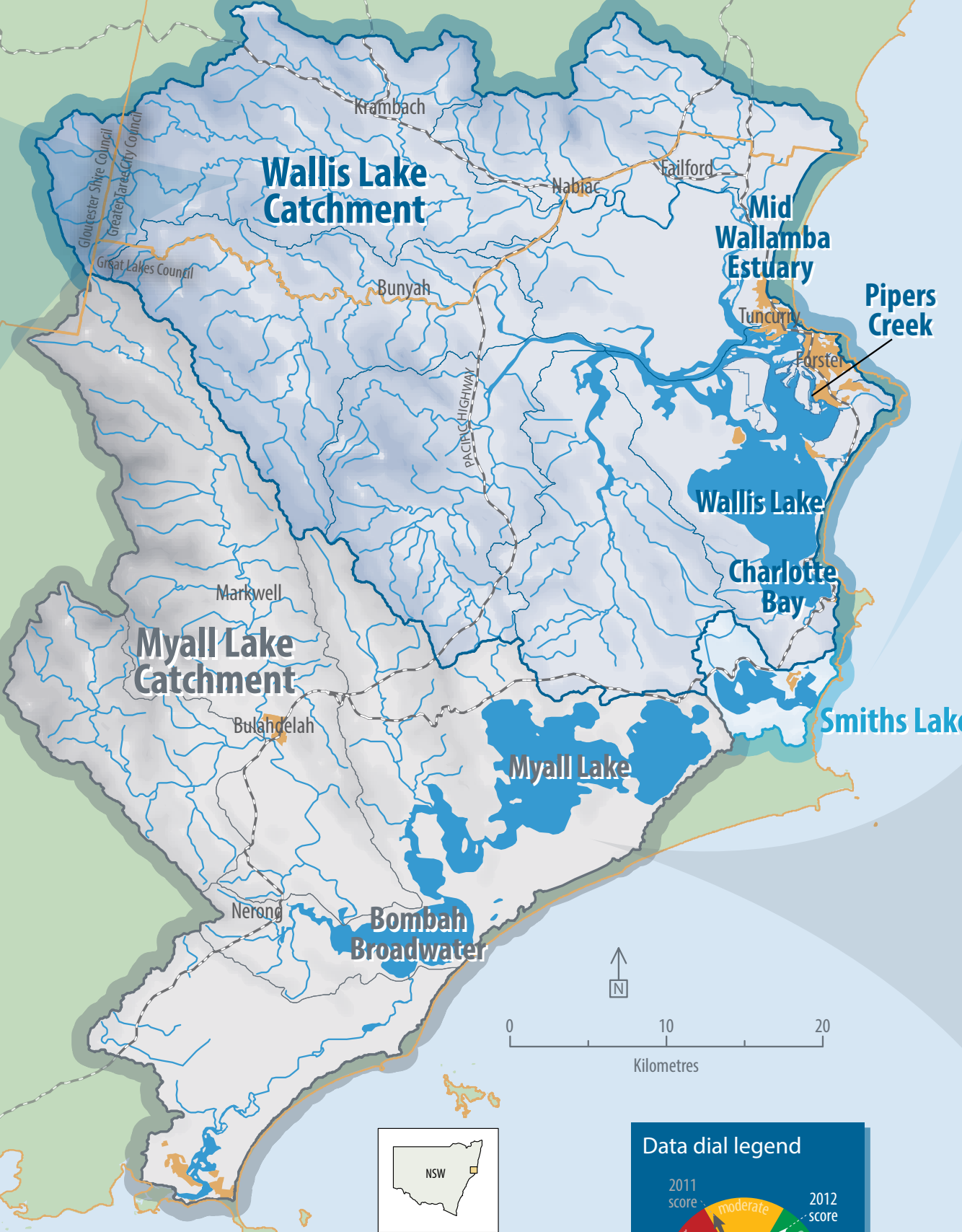


Key stats

- Erosion control on 37.9ha of land
- 903ha of wetlands protected and enhanced
- 32.8km of stream bank protected plus
- 351ha of native vegetation protected and enhanced
- 10ha of infested water treated for aquatic weeds
- 240m of roadside stabilised to reduce erosion

Projects funded by the Hunter Central Rivers Catchment Management Authority

Catchments of Wallis, Smiths and Myall Lakes



Smiths Lake

Water quality report card



Smiths Lake continues to be in excellent ecological health with very clear waters to allow growth of seagrass. There was slightly more algal growth than desired in some parts of the lake but this did not affect the overall score.

Management actions 2007-2013

Bush rehabilitation
3 volunteers active in bush regeneration at one site contributing 300 hours



Roadside stabilisation
2090m of roadside stabilised reducing the amount of sediment reaching the lake



Myall Lakes

Water quality report card



Myall Lake has high conservation values, it is an internationally listed protected wetland and is part of Myall Lakes National Park. Overall, the health has remained good. Water clarity in the Myall Lake was excellent but there continues to be some undesirable growth of algae.

Management actions 2007-2013

Removal of aquatic weeds
Aquatic weeds monitored along 46 kms of streambank and 4 hectares of waterways treated



Erosion control
74km roads and trails closed, rehabilitated and maintained to reduce erosion and sedimentation in Myall Lakes National Park



Sustainable farming practices
31 landholders participating in 2 Sustainable Farming Groups



Protection and rehabilitation of key habitats
Acquiring 371ha of wetlands in the Bulahdelah area, creating a major wildlife corridor at Durness protecting 90 hectares of land and revegetating 70 hectares to protect water quality and biodiversity

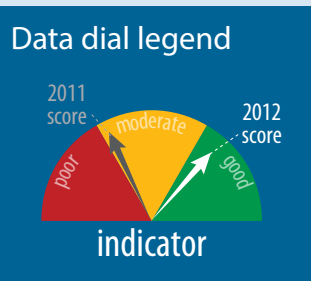
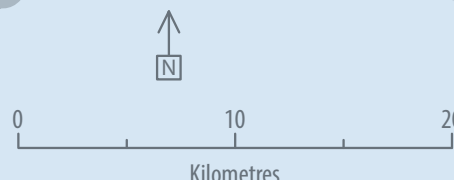




The Bombah Broadwater is part of the Myall Lakes National Park. Overall ecological health has improved markedly from last year. This is mainly due to a large improvement in water clarity in the Bombah Broadwater. However large amounts of algae over summer, whilst less than last year, still remain a concern.

- Key stats**
- Erosion control on 23.7ha of land
 - 396ha of wetlands protected and enhanced
 - 10km of stream bank protected
 - 403ha of native vegetation protected and enhanced
 - 138ha of infested water treated for aquatic weeds

Projects funded by the Hunter Central Rivers Catchment Management Authority



Report Card Overview

Further details on the information contained in this report card are available in the 2013 Water Quality Report www.greatlakes.nsw.gov.au/Environment/Plans_and_Strategies

Introduction

This is the third Report Card for the waterways and catchments of Wallis, Smiths and Myall Lakes. The water quality data presented here was collected during the summer of 2012/13.

Each waterway has received a grade based on the data which tells us the condition of the waterways this year. As more and more data is collected, we should be able to establish whether the waterways are changing. We will also be able to evaluate the impacts of extreme events (such as floods) and identify areas in need of protection and rehabilitation.

Methods

This Report Card is intended to read like a report card a student might receive at school. It assesses the condition or health of the waterways compared with what we would like it to be. A healthy waterway can be characterised by clear water and low levels of algae. It would provide habitat for a wide range of plants and animals.

This report card is rated for ecological health rather than other human health issues such as drinking water quality, safety for swimming, bacteria, viruses or our ability to harvest shellfish or fish.

To calculate the Report Card grade, scientists have assessed the condition of particular parts of the waterways using indicators. Just as your body temperature is used as an indicator that something may be wrong with your own health, indicators are used to show if something is out of balance or unhealthy in the system.

Rainfall results

The amount of rainfall that occurs around the period of sampling for the report card (September – March) influences the report card results. If there is more rain, there is more runoff in the catchment resulting in greater quantities of sediment and nutrients entering our waterways. 2012/13 rainfall was significantly less than recorded in 2011/12.



Note – Data presented includes total rainfall September to March from Forster Bureau of Meteorology rainfall station

Two indicators have been used to assess the condition of the waterways. Chlorophyll a is the amount of microscopic algae in the water and high levels indicate high inputs of nutrients. Turbidity, or water clarity, is a measure of the amount of sediment or dirt suspended in the water. Sensors are used by scientists to collect the information.

Measurements were taken six times over the 2012-2013 summer at seven sites across the region. The condition of each site is established by comparing the indicator levels to a benchmark level measured from an undisturbed, healthy site of a similar type.

The information collected is converted into a grade. Grades have been set after looking at scores from over 130 sites across the state. The grade indicates where a site ranks in comparison to the other sites.

| Grade | Result | Description |
|-------|-----------|--|
| A | Excellent | The highest 20% of scores in the state |
| B | Good | Next 20% of high scores in the state |
| C | Fair | Middle 40% of scores in the state |
| D | Poor | Lower 15% of scores in the state |
| F | Fail | Lowest 5% of scores in the state |

This report card presents the ecological health for 2013 and (where available) also shows data from 2011 and 2012 for comparison. The sliding scale bar from poor to good shows how indicator levels have changed from the 2011/12 reporting period to 2012/13.

Seagrass - the cornerstone of waterway health

Water plants like seagrass are critical for waterway health. Seagrass provide essential habitat for fish and invertebrates, food for sea turtles and support bird life in rivers and estuaries. Algal blooms and excess sediments reduce the amount of light reaching the bottom, leading to the death of seagrass which require plenty of light to grow. This process turns our waterways from healthy thriving systems into places with low biodiversity and ecological values and therefore, low social value. Excess nutrients that runoff our land are the main culprits when it comes to algal blooms.

A well managed catchment has a lot of vegetation cover which slows runoff and uses up nutrients. It has landholders who farm their pasture so that the soil is healthy and there is a lot of ground cover to filter runoff from their land. It has an urban community who reduce fertiliser use and create water quality gardens to filter stormwater from streets and houses. A well managed catchment has extensive natural wetlands protected and restored so that they will continue to filter nutrients and sediments naturally. The result is better water clarity and less algae, and therefore, improvements in our Report Card grades.

Healthy cattle and healthy waterways

Local farmers Felicity Carter and Julie Brady have been working with Great Lakes Council and Karuah Great Lakes Landcare to demonstrate how farming in the Wallis Lake Catchment can produce healthy cattle whilst protecting the health of our waterways. Felicity and Julie are two of over 100 landholders involved in Council's Sustainable Farming Program. These landholders work towards improving soil health and ground cover to achieve both production benefits and improvements in water quality. Improving soil health and ground cover increases the land's ability to absorb water and filter runoff.

Felicity and Julie have a view of Wallis Lake that most people would dream of. Near the village of Coomba Park at Rose Point, they have 400 acres of land perched on top of a hill overlooking the mouth of the Coolongolook River and Wallis Island. With lush green grass in the foreground they have healthy cattle drinking out of troughs strategically placed across the paddocks.

Over the past few years Julie and Felicity have put in place a number of strategies to improve their farm:

- troughs in their paddocks so that cattle no longer drink from dams
- fencing so that the animals can be rotated around the farm every one to two days
- compost tea applied to pastures improving the condition of the soil
- redirecting the overflow from the dam to prevent erosion
- working with the contours of the land to keep water on their property and
- fencing cattle out of 3.5km of Wallis Lake foreshore.

Production benefits are seen in healthy cattle, a result of healthy pastures



Researchers from the Office of Environment and Heritage have studied the impact of excluding stock from the saltmarsh along the lake foreshore. The study found that, even in the first 12 months, plants in the areas that were not grazed were taller, had more mass and covered more of the ground. Protecting these wetland areas increases the ability of the saltmarsh to intercept nutrients and sediments in runoff. Fencing the saltmarsh along the foreshore keeps nutrients on the paddocks where they are needed.

Julie and Felicity say that their cattle are healthier as a result of this approach. The diversity of plant species in the paddocks has improved from two or three up to 11, making the pasture much more nutritious. Providing troughs for drinking not only keeps the cattle out of the waterways but reduces their susceptibility to diseases such as liver fluke.

Sustainable grazing on Julie and Felicity's farm maintains high grass cover for clean waterways

