



# WAGONGA INLET ESTUARY

## Estuary Ecosystem Health Report Card 2015-16

**B**

### Ecosystem Health

Based on the indicators assessed, the health of Wagonga Inlet is good. Algae levels were always low, with water clarity generally high. While mangroves and seagrasses increased, the important habitat of saltmarsh decreased.

This assessment is based on chlorophyll a and turbidity collected by Council between July 2015 to June 2016, and estuarine vegetation change between 2006 and 2017 for seagrasses and 2012 and 2017 for saltmarsh and mangrove, mapped on behalf of Council. Compared to a 2010-11 assessment, grades for saltmarsh and seagrasses have improved, while water clarity declined in the upper estuary.

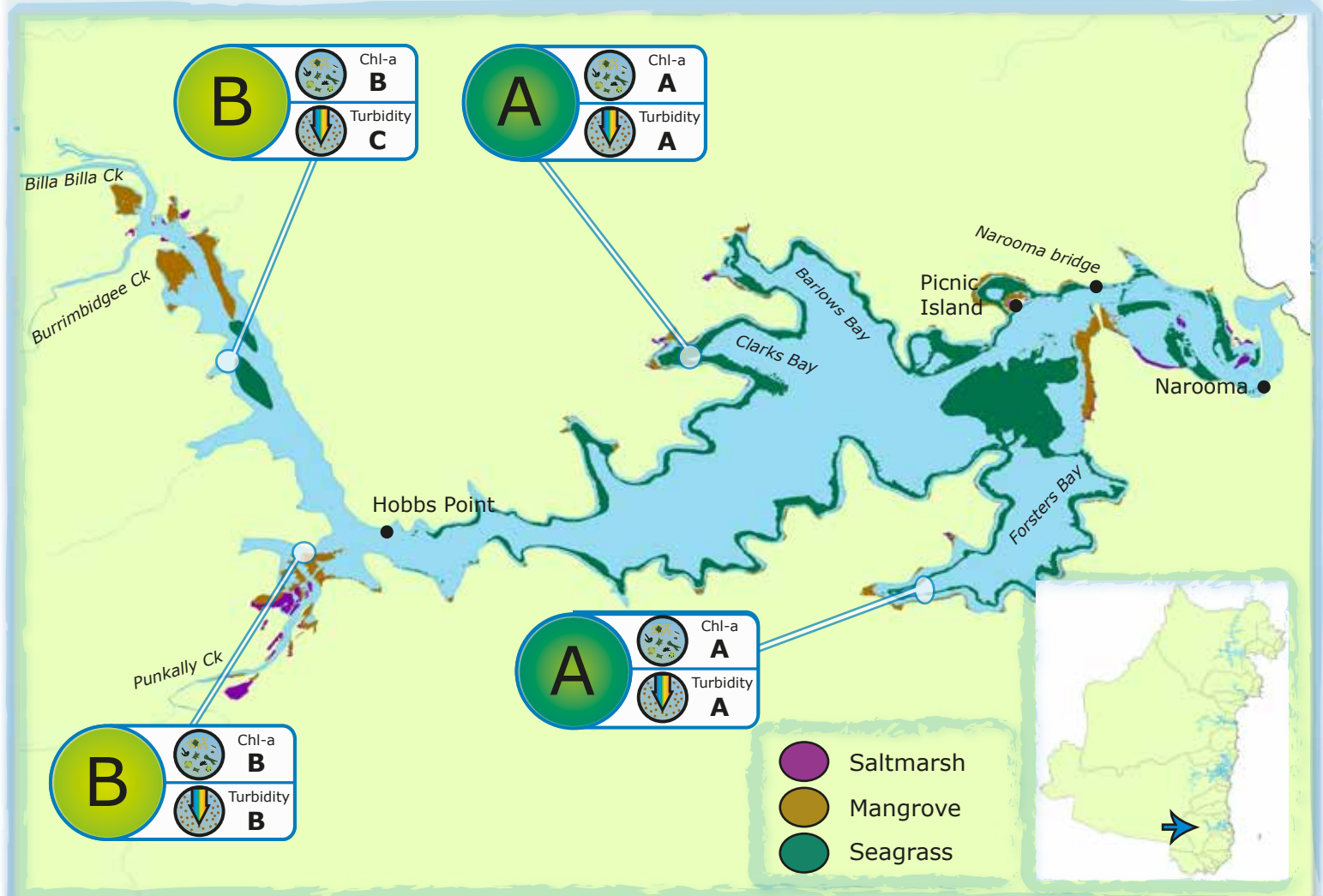
For more detailed information about Council's sampling program please refer to Council's website [www.esc.nsw.gov.au/living-in/about/our-natural-environment/estuaries-of-eurobodalla/estuary-health-and-water-quality-monitoring](http://www.esc.nsw.gov.au/living-in/about/our-natural-environment/estuaries-of-eurobodalla/estuary-health-and-water-quality-monitoring)

### Estuary Information

Catchment area (km<sup>2</sup>): 93.3  
 Estuary area (km<sup>2</sup>): 6.9  
 Estuary volume (ML): 39101.3  
 Estuary type: Youthful barrier estuary  
 Entrance: Permanently open  
 Major tributaries: Billa Billa, Punkally and Burrimbidgee Creeks  
 Average Yearly Rainfall: 919.5mm  
 (Stn No:69022) 2015 annual rainfall 939.6mm  
 Land Use (Area): Urban: 4.8% Forest: 90.9%  
 (2005 data) Rural: 3.8% Other: 0.5%

### Wagonga Inlet Estuarine Vegetation

 Saltmarsh <b>C</b>	 Mangroves (unscored)	 Seagrass <b>A</b>
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## Water Quality Indicators (Grades based on OEH Estuary Health Assessment Methodology)



**Chlorophyll a** indicates the amount of microscopic algae, called phytoplankton, growing in the water. Excessive input of nutrients from catchment runoff (urban stormwater, agricultural runoff, and sewage overflows) can increase chlorophyll a levels and lead to algal blooms and detrimental effects on estuarine plants and animals.

For 2015-16 Wagonga Inlet overall received a good rating for chlorophyll a with 13% of total samples exceeding the guideline value, with these samples barely exceeding the guideline. The site downstream from Burrimbidge Creek had the greatest percentage of exceedances, with 25%.



**Turbidity** is a measure of light scattered by suspended particles such as sediment, algae and dissolved material in the water which affect its colour or murkiness. Turbidity can increase from sediments transported in catchment runoff (particularly after heavy rainfall), shoreline erosion and increased microscopic algae. Increased turbidity can have negative impacts on seagrasses and fish.

For 2015-16 Wagonga Inlet overall received a good rating for turbidity with only 8% of total samples exceeding the guideline value, with these samples barely exceeding the guideline. Only the two sites furthest upstream recorded exceedances of the guideline value.

### Grades



Very Good



Good



Fair



Poor



Very Poor

## Estuarine Vegetation Indicators (Grades based on % gain or loss in extent)



**Seagrasses** are aquatic flowering plants that form meadows near shore. They are highly productive, provide nursery and foraging habitat (for fish, crustaceans and molluscs), bind sediments against erosion and help regulate nutrient cycling. They are very sensitive to changes in water clarity.

Seagrasses in Wagonga Inlet increased by 52% between 2006 and 2017 and therefore received a grade of very good. This increase has primarily occurred west of the Narooma township, downstream of the Narooma bridge. These are areas where seagrass losses had previously been reported and this recent recovery is a positive sign for the estuary. Other areas where increases were recorded were downstream of the Burrimbidge Creek confluence with the main channel.



**Mangroves** grow between mid and high tide levels. They are an important food source, provide habitat for a number of species such as crabs and juvenile fish, protect shorelines and cycle nutrients and carbon. While an increase in mangroves can be a positive outcome where they are recolonising in areas previously removed, increases in mangrove distribution can sometimes be at the expense of other important habitat types such as saltmarsh, which could be viewed as a negative outcome.

Mangroves increased by 23% between 2012 and 2017. This increase primarily occurred in Punkally Creek and near the confluences of Billa Billa Creek and Burrimbidge Creek within the main channel. This has been attributed to the increasing marine conditions that have resulted from the entrance training works, as well as other factors such as extensive oyster leases that would help create favourable protected areas for mangrove establishment.



**Saltmarsh** is a community of plants and animals that grows above the mangroves at the highest tidal levels. Saltmarsh is important in estuarine food webs, providing a site for invertebrate breeding and a feeding area for economically important fish and shorebirds. Saltmarsh decline is a worrying trend from a number of estuaries in NSW and has led to saltmarsh being listed as a threatened ecological community under the Biodiversity Conservation Act 2016. Declines in recent years have been linked to both increased sedimentation from catchment land use pressures and sea level rise.

Saltmarsh in Wagonga Inlet decreased by 28% between 2012 and 2017 and therefore received a grade of fair. This decrease has primarily occurred around the confluence of Punkally Creek, Billa Billa and Burrimbidge Creeks where mangroves are expanding. Council will continue to investigate options for managing saltmarsh.