

TUROSS RIVER ESTUARY

Estuary Ecosystem Health Report Card 2015-16

C

Ecosystem Health

Based on the indicators assessed, the health of the Tuross River is fair. Results indicate that the waters can be moderately turbid with algae levels varying between sites. Considerable decreases in the important habitat of seagrass occurred, while there was a large increase in mangroves.

This assessment is based on chlorophyll a and turbidity collected by Council between July 2015 to June 2016, and estuarine vegetation change between 2012 and 2017 mapped on behalf of Council. Compared to the 2010-11 assessment, overall estuary health has declined. Some water testing sites have changed location since the last assessment, however in general water clarity has declined. In contrast algal levels are lower than the previous assessment.

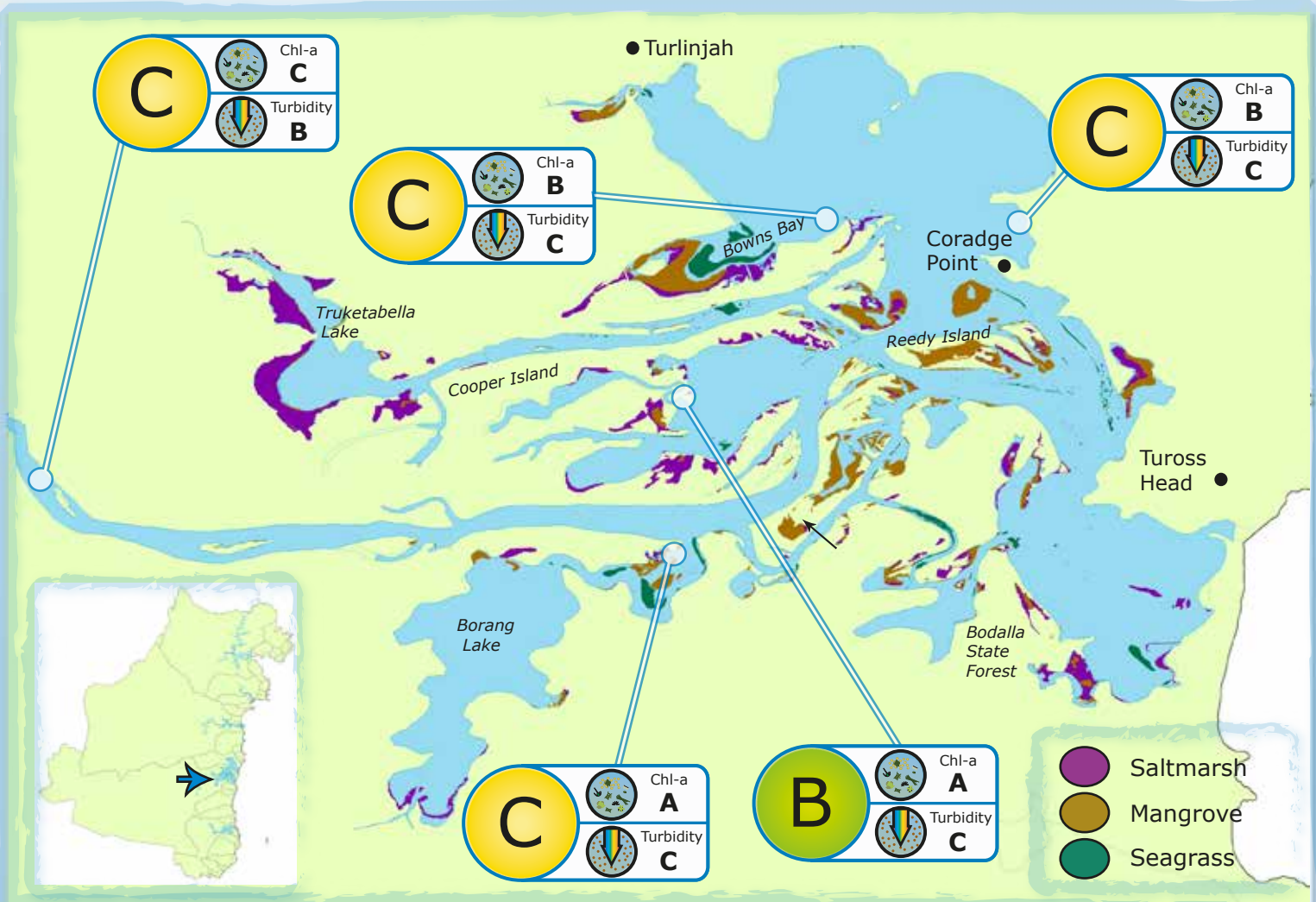
For more detailed information about Council's sampling program please refer to Council's website www.esc.nsw.gov.au/living-in/about/our-natural-environment/estuaries-of-eurobodalla/estuary-health-and-water-quality-monitoring

Estuary Information

Catchment area (km²): 1813.8
 Estuary area (km²): 15.5
 Estuary volume (ML): 18208.2
 Estuary type: Semi-mature barrier estuary
 Entrance: Intermittently open
 Major tributaries: Trunketabella Creek and Smarts Creek
 Average Yearly Rainfall: 934mm
 (Stn No:69067) July 2015-June 2016: 1238.2mm (total)
 Land Use (Area): Urban: 0.9% Forest: 86.3%
 (2005 data) Rural: 11.8% Other: 1.0%

Tuross River Estuarine Vegetation

 Saltmarsh B	 Mangroves (unscored)	 Seagrass E
--	--	---



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 the Tuross River overall received a good rating for chlorophyll a with 47% of total samples exceeding guideline values, but with these samples barely exceeding the guideline. Chlorophyll a levels varied between sites, with 75% of samples exceeding guideline values at Bowns Bay and the furthest upstream site. The site slightly north of Coradge Point exceeded guidelines over 50% of the time.



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 the Tuross River overall received a fair rating for turbidity with 75% of total samples exceeding guideline values, but with these samples barely exceeding the guideline. Turbidity varied across the estuary, with sites at Borang Lake entrance and to the east of Cooper Island exceeding guidelines 92% of the time, Bowns Bay 83%, Coradge Point 75%, but the upstream site in Tuross River only exceeding guidelines 33% of the time.

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 the Tuross River decreased by 82% between 2012 and 2017 and therefore received a grade of very poor. Recent decreases occurred across the lake, from north of Coradge Point to the entrance, as well as around Cooper Island and the entrance to Borang Lake. However, a new area of seagrass were mapped in Bowns Bay. A previous comparison between 2006 and 2012 also showed a significant decrease in seagrasses. Water clarity across the estuary has decreased and may be contributing to ongoing decline in seagrass.



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 71% between 2012 and 2017. The previous comparison between 2006 and 2012 showed a decrease by 35%. This assessment found evidence of mangroves regenerating in areas where dieback due to prolonged entrance closure had previously occurred, such as in the wetlands in the centre of Cambathin Island. Increases in mangrove also occurred in Bowns Bay, north of Reedy Island and to the north west of Tuross Head.



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 the Tuross River increased overall by 5% between 2012 and 2017 and therefore received a grade of good. A previous comparison between 2006 and 2012 showed a slight decrease. Increases in saltmarsh included expansion of existing areas around Bowns Bay, Trunketabella Lake and south of the entrance. Decreases in saltmarsh also occurred north of Reedy Island and near Turlinjah where mangroves have increased.