

TOMAGA RIVER ESTUARY

Estuary Ecosystem Health Report Card 2016-17

B

Ecosystem Health

Based on the indicators assessed, the health of Tomaga River is good. Algae levels and water clarity were generally good. The important habitats of seagrass and mangroves showed increases in distribution, however saltmarsh showed a decrease.

This assessment is based on chlorophyll a and turbidity collected by Council between July 2016 to June 2017, and estuarine vegetation change between 2012 and 2017 mapped on behalf of Council. Compared to the 2010-11 assessment, overall estuary health shows a slight improvement. Water clarity and algal levels throughout the system have consistently returned good to very good results.

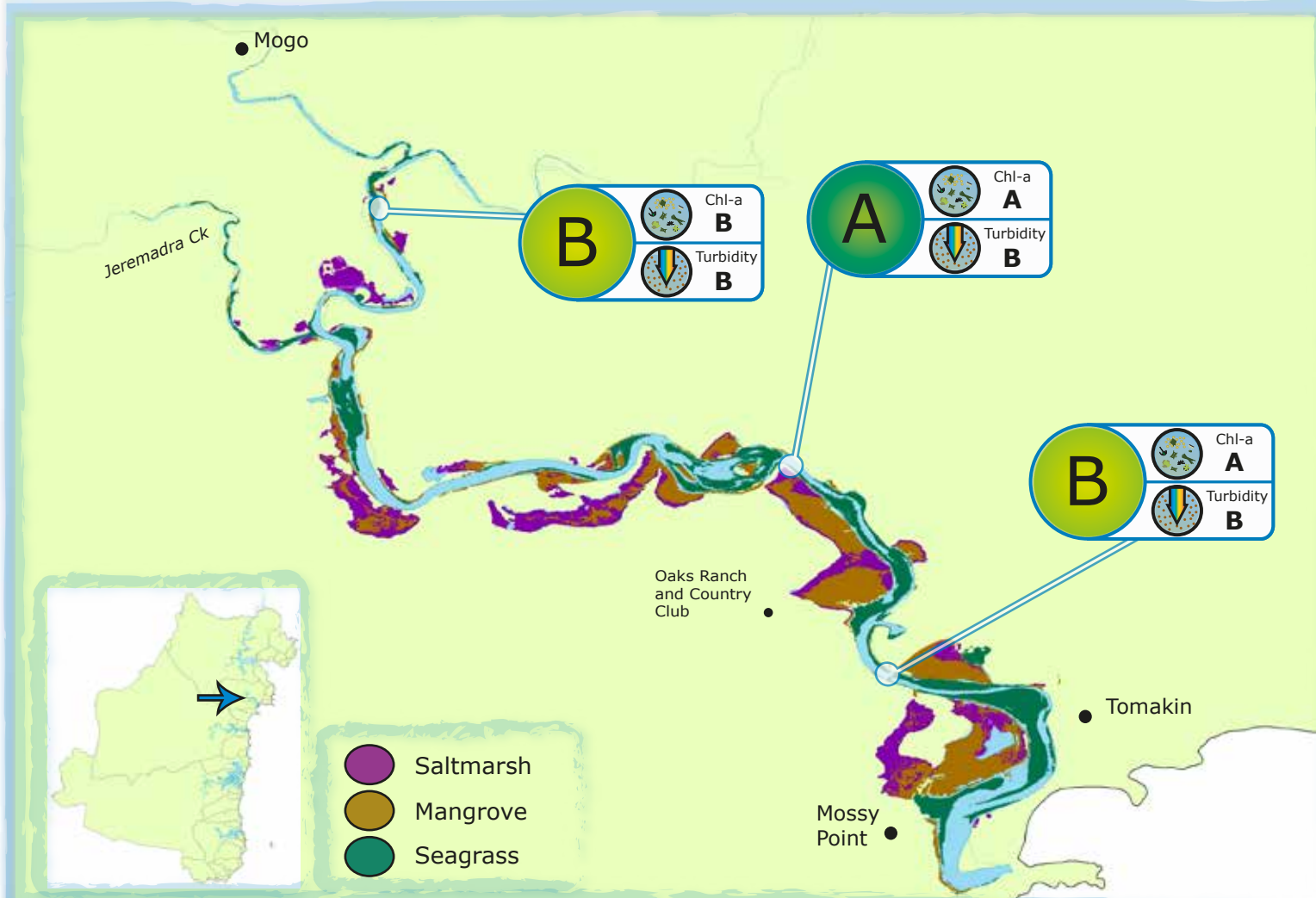
For more detailed information about Council's sampling program please refer to Council's website www.esc.nsw.gov.au/living-in/about/our-natural-environment/estuaries-of-eurobodalla/estuary-health-and-water-quality-monitoring.

Estuary Information

Catchment area (km ²):	91.9
Estuary area (km ²):	1.8
Estuary volume (ML):	1410.9
Estuary type:	Mature barrier estuary
Entrance:	Permanently open
Major tributaries:	Jeremadra Creek and Mogo Creek
Average Yearly Rainfall:	807mm
(Stn No:69148) July 2016-June 2017:	695mm (total)
Land Use (Area):	Urban: 12.4% Forest: 80.9%
(2005 data)	Rural: 4.5% Other: 2.2%

Tomaga River Estuarine Vegetation

 Saltmarsh C	 Mangroves (unscored)	 Seagrass 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 2016-17 the Tomaga River overall received a very good rating for chlorophyll a with 11% of total samples exceeding guideline values, with these samples barely exceeding the guideline. The sampling site in the upper reach of Tomaga River was the only one to exceed guidelines, with exceedances at 33%.



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 2016-17 the Tomaga River as a whole received a good rating for turbidity with 25% of total samples exceeding guideline values, with these samples barely exceeding the guideline. The sampling site furthest upstream had the highest percentage of exceedances at 33%.

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 Tomaga River increased by 9% between 2012 and 2017, resulting in a grade of good. Main increases were in the entrance channel and in the upper reaches of the Tomaga River. Increase in this habitat is a positive sign for the estuary and is potentially related to the improvement in water quality observed in recent years.



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 21% between 2012 and 2017, which continues the increasing trend identified between 2006 and 2012. This increase was largely due to areas of former saltmarsh now dominated by mangroves. Main increases were north of Mossy Point, and north and north-west of Oaks Ranch. While some of this increase is likely the result of removal of grazing pressure and is a positive outcome, some is at the expense of saltmarsh.



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 and use pressures and sea level rise.

Saltmarsh in the Tomaga River decreased overall by 14% between 2012 and 2017 and therefore received a grade of fair. This is in contrast to the 31% increase between 1986 and 2006 and 3% increase between 2006 and 2012. While there has been an overall decrease largely due to mangrove colonisation, there are areas including near Oaks Ranch where reduced vehicle and stock access has led to reestablishment of saltmarsh.