Common concerns about Tuggerah Lakes

tuggerah lakes estuary

The most common concerns raised about the Tuggerah Lakes are water quality, sediments, seagrass and odour. While many of these issues are part of the lakes' natural processes, they are made worse by pollutants through human activities.

How the lakes naturally work

The Tuggerah Lakes estuary is a series of three interconnected coastal lagoons. The estuary receives most of its water from the freshwater rivers and creeks that flow down from the hills in the west. It also receives stormwater from across the catchment and a small amount of seawater entering via The Entrance channel. This mix of fresh and saltwater supports the growth of specialised plant communities such as aquatic seagrasses and shoreline saltmarshes which provide habitat for a range of land and aquatic animals. Sediments are carried down rivers and creeks to the lakes, often making the water brownish in colour, especially after high rainfall.

Sediments, seagrass and stormwater

Over the past few decades, the health of the Tuggerah Lakes estuary has declined. As plants have been removed from river banks, wetlands filled in and saltmarsh areas replaced by lawn, the lakes' natural filters have been reduced. This has enabled large volumes of sediments to enter the waterways resulting in high turbidity levels in the lakes. High turbidity impacts the growth of seagrass plants, which require clear water to photosynthesise (convert sunlight to food). In response, many seagrass beds in Tuggerah Lakes are unable to grow in the deeper water in the middle of the lakes and now grow in the shallower water close to shore.

As seagrass plants die or shed leaves, they are blown onto shore. The dead seagrass and floating 'macroalgae' is called wrack, and where saltmarsh plants are present, it will dry out, decompose and become part of the foreshore soils, creating a nutrient-rich habitat for invertebrates.

However, in areas where the shoreline has been modified with steeper banks, wrack sits in the water and rots. Add to this, large amounts of nutrients washing into our waterways and the result is an accelerated growth of seagrass and macroalgae in the lakes, further contributing to the build-up of wrack in the water and along shorelines.

Smells and solutions

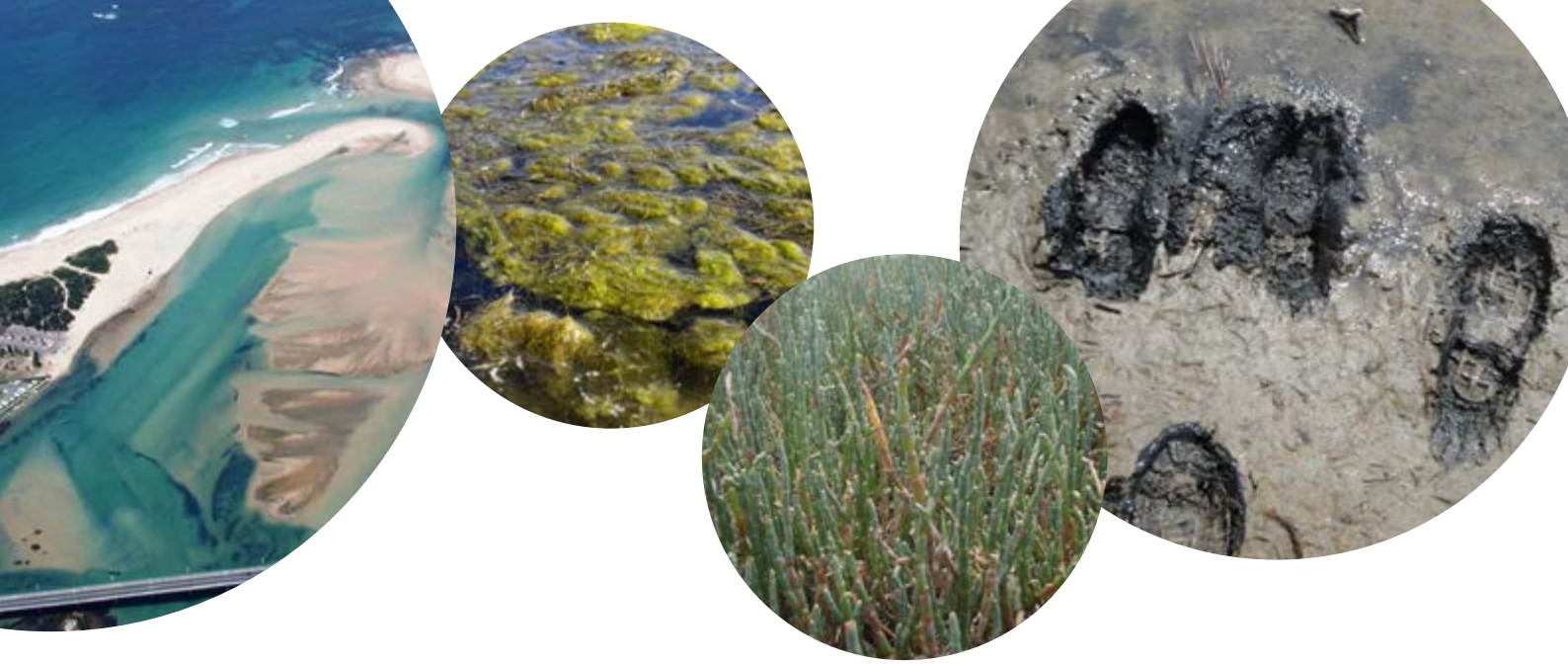
Seagrass is often blamed for the unpleasant smells in some foreshore areas around Tuggerah Lakes. However, the cause of the 'rotten-egg' smell is black ooze – a combination of plant matter from the land and macroalgae from the lakes, sediments and pollutants decomposing in an anaerobic (without oxygen) environment. Seagrass is only a small component of the mix. On its own, seagrass does not have a foul smell, and when out of the water drying, it has virtually no smell at all.

By preventing pollutants, sediments, nutrients and plant matter from entering stormwater, the occurrence of black ooze and rotten egg gas will be reduced and the health and water quality of Tuggerah Lakes will improve.

Saltmarsh recycling

Saltmarsh habitats along the foreshores consist of plants such as reeds, grasses, succulents and shrubs adapted to growing in brackish or salty, waterlogged soil. They act as a buffer between land and water, protecting shores from erosion and filtering out sediments and organic matter. Saltmarsh is needed for maintaining good water quality, capturing and recycling seagrass back into the system, and providing nutrients and shelter for many animals and birds. Where saltmarsh has been removed and shorelines modified by structures like ramps and seawalls, wrack is trapped in the water and ooze formation is much greater.

Image above: Saltmarsh Tuggerah Lake.



Algae

Algae are natural aquatic plants found in Tuggerah Lakes which provide food and nutrients to the system. Algae do not have roots and gain nutrients directly from the water. Large volumes of nutrients such as fertilisers, washing into the lakes stimulate excessive growth of algae which has a negative effect on seagrass and uses up surrounding oxygen.

When algae breaks down it contributes to the production of odorous black ooze. Reducing the flow of nutrients into Tuggerah Lakes will help control excessive growth of algae and help improve water quality.

did you know...

Rather than ocean exchange, wind is the main force moving water and surface material in the lakes. The prevailing winds determine where wrack accumulations occur and can stir up sediments in the shallow water, creating turbid conditions.

Images above, left to right: The Entrance Channel, Microalgae, Budgewoi Lake. Photo: L Haymesm Saltmarsh Tuggerah Lake, Footprint in black ooze, Lakehaven. Photo: R Swanson

Ocean exchange

Studies have shown that only around one percent of the total lakes volume is exchanged daily with the ocean through The Entrance channel which is naturally shallow and narrow. This small amount of seawater has little effect on water circulation. Scientific studies have shown that a larger or second opening to the ocean would only marginally increase circulation and would negatively impact the existing ecosystem. If the channel was increased in size, there would be dramatic changes in shoreline water levels, exposing large areas of mud flats during low tides and high water levels that would encroach on lakeside urban property during high tide flows.

How you can help

- Keep fertiliser use to a minimum or plant native vegetation that does not require fertiliser.
- Use a carwash or wash your car on the lawn.
- Launch boats from public boat ramps only.
- Always walk or ride on paths provided.
- Leave saltmarsh areas to grow, don't mow to the shoreline.
- Deposit garden waste and grass clippings in compost or your green waste bins.
- Join a local Landcare group.
- Use public boat ramps on rivers and lakes.
- Put litter and dog poo in the bin.

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