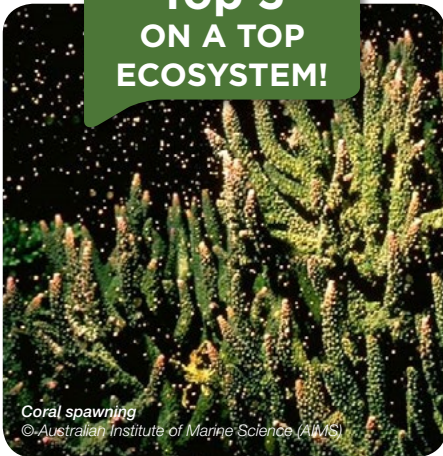


# Natural processes

## Fact Sheet



### Top 5 ON A TOP ECOSYSTEM!



Coral spawning  
© Australian Institute of Marine Science (AIMS)

**1** Algal blooms were first recorded by Captain Cook during his voyage along the Queensland coastline back in the 1770s.

**2** Corals are colonial organisms made up of many individual animals called polyps that work together as a team.

**3** Seagrasses are the only flowering plants that can live in sea water.

**4** In Queensland, all seagrasses are protected from removal under the *Queensland Fisheries Act 1994*

**5** Gladstone Harbour is naturally turbid, with a daily tidal range between 0.4 - 4.69m.



Seasonal algal bloom in Gladstone Harbour  
© Rob Black, APN

## Learn about the natural processes of the Gladstone region's habitats

### Algal blooms

Marine algal blooms are a common natural phenomenon along the Queensland coast between August and September, when changes occur in the nutrients present in the water column.

You can spot an algal bloom by the coloured patches – red, green, yellow, or brown – they make on the surface of the water. These patches have a milky or slick appearance, but don't worry – it isn't an oil spill!

These algal blooms are a natural part of aquatic ecosystems and have been happening for a long time. Most provide a valuable food source for a variety of freshwater and marine species. But human activity can have a nasty impact.

Fertilisers, pesticides and other chemicals that are allowed to wash into waterways and the ocean can overload the ecosystem with nutrients and create more frequent algal blooms.

More blooms might sound like a good thing – more food for the animals of the ocean! – but there is a downside. As algae die, bacteria feed on them, and in the process suck up the water's available oxygen. If blooms are too large or happen too often, oxygen levels can become so low that the area cannot support marine life, and sea creatures must swim to other waters or die.

Some algae also produce toxins that can be harmful to humans, domestic animals, and livestock that drink or come in contact with the water, as well as to organisms living in water. These algae can be found in freshwater as well as brackish and marine waters so it's best to play it safe and never touch an algal bloom.

### Coral spawning

Corals are made up of hundreds or even hundreds of thousands of individual animals called polyps that work together as a "colonial organism" – a community, just like Gladstone. There are two main ways that corals make new corals: "budding", where a young coral grows out from an adult polyp, and "spawning".

Spawning involves the release of tiny egg and sperm bundles in to the water by each polyp within a coral community. If things go right, these eggs and sperm join to create a microscopic coral larva called a planula, which will float in the water until it settles on a hard surface where it can bud and start a new coral colony.

Coral spawning on the Great Barrier Reef – parts of which are just 50 kilometres from Gladstone – only happens once a year, at night, and usually in late spring or early summer around the time of a full moon.

Corals are clever, and take measures to prevent making hybrid species. Different coral polyps release their eggs and sperm on different days, and this means this amazing natural event can last between a few days to a week.

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### Seagrass

Seagrasses are named because of their long grassy leaves but are not really grasses, rather a type of flowering plant that has evolved to live in sea water.

They range in size from no bigger than your fingernail to plants with leaves as long as seven metres. Like the plants in your garden at home, seagrasses draw nutrients from their roots and leaves – they love sunlight and need lots of it to grow!



Dugong feeding on seagrass  
© LauraD / shutterstock.com

Seagrasses are true flowering plants. Male flowers release pollen into the water which moves with the waves and currents until it drifts past and fertilises a female flower. The female fertilised flower develops into a seed which can float for kilometres before it settles onto the soft seafloor and grows into a new plant.

This means seagrass meadows can grow and spread to new areas, but only if:

- the bottom is muddy or sandy
- the water is the right depth
- they can get enough sunlight.

Seagrass seeds do not form slicks or patches like coral spawning or algal blooms do, but it is possible to spot the flowers and seeds during the peak growth period which runs from July to December.



### Find out more

Seagrass Watch  
[www.seagrasswatch.org](http://www.seagrasswatch.org)

Queensland Government  
[www.ehp.qld.gov.au](http://www.ehp.qld.gov.au)

TropWATER  
[research.jcu.edu.au/tropwater](http://research.jcu.edu.au/tropwater)

OzCoasts (Geoscience Australia)  
[www.ozcoasts.gov.au/index.jsp](http://www.ozcoasts.gov.au/index.jsp)

### Turbidity

Turbidity is a term used to describe how clear the water is. Turbidity is caused by various bits of matter floating in the water column – and the more of these particles there are the murkier, or more turbid, the water is.

In Gladstone Harbour, tides and tidal ranges have a big influence on turbidity. A strong tidal current can lift up (or resuspend) fine sediment (dirt, rocks and sand) from the ocean floor giving the water a dirty appearance.

Rainfall can also have an impact on turbidity. When water droplets hit the ground they follow the gradient (or slope) of the earth along the path of least resistance – which usually leads to the closest drain or waterway.

As it follows this gradient, the water

### What you can do to help

- Follow the rules when out on the harbour to minimise your impact on the environment.
- Look but don't touch!
- Be careful disposing of your rubbish on the coast and on the water.
- Be wise – be careful when washing your car or fertilising your garden as chemicals can go into drains and end up in the ocean.

washes along leaves, rubbish, and sediment which enter rivers, creeks, or eventually the sea, and muddies its destination waterway, making it turbid.

Turbid water can affect the environment in a number of ways as:

- it reduces the amount of light that can reach the bottom of the waterway, which affects plant growth, which also affects the amount of oxygen produced by marine plants.
- it increases the water temperature, which reduces the amount of oxygen available in the water (warmer water holds less oxygen than cooler water).
- sediment in the water can affect the ability of aquatic species to breathe properly – sediment can clog the gills of fish and result in health effects.

Some turbidity in water is natural, but litter and rubbish, coastal development, and soil erosion can make the problem much worse. There are some simple ways you can help fight the causes of turbidity:

- Always put your rubbish in the bin
- Plant a tree! Tree roots help hold the soil together.
- Be careful of where you drive - follow the rules for four-wheel-driving to minimise damage to the environment.



Gladstone Harbour illustrating natural turbidity, 6 November 2014  
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