



Highly Commended

Science Writing

Year 3 - 4

Layla Harry

**St John's Grammar School -
Junior**



Bloom Trouble: What Toxic Algae Tells Us About Water Health.

When do algae become dangerous?

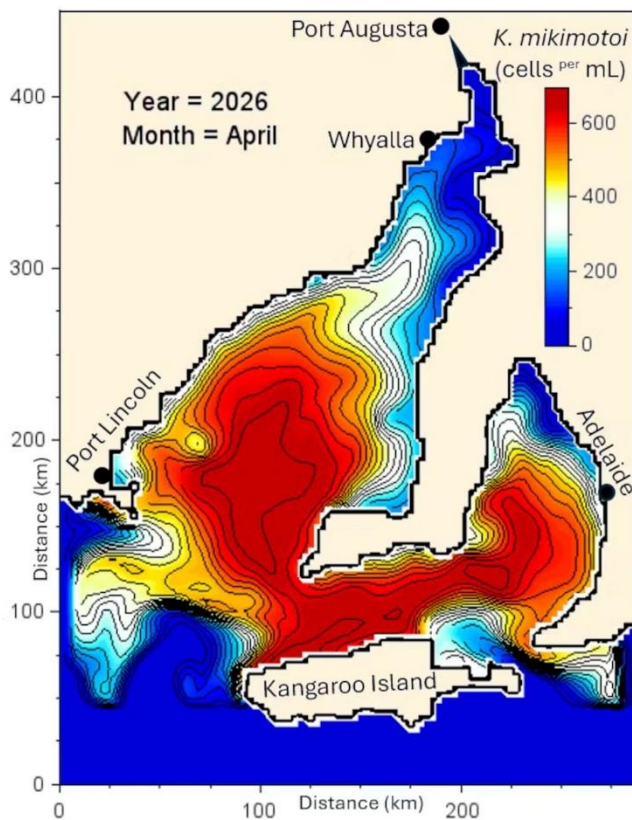
Harmful algal blooms are likely to grow in slow moving, warm water that contains an excessive amount of nutrients such as nitrogen and phosphorus.

The recent South Australian algal bloom occurred due to a long marine heatwave and because of nutrient-rich floodwaters reaching the ocean. The marine heatwave raised the ocean temperatures 2.5 degrees above normal from September 2024 resulting in conditions ideal for rapid algal growth.

Darling Basin had fertiliser runoff that came from some farms into the ocean at the mouth of the River Murray in 2022 - 2023 and again in 2023 - 2024.

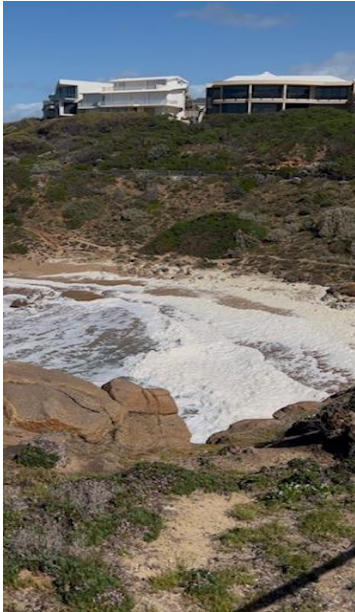
The South Australian algal bloom had a significant impact stretching across more than 500 kilometres of coastline and stretching across more than 4,400 km² and impacting to depths of 30 metres. It was first identified in mid-March 2025 near Waitpinga

and Parsons Beach on the Fleurieu Peninsula in South Australia.



Map of algal bloom area in April 2026 (theconversation.com)

Some algae species become harmful when they grow too quickly and produce toxins resulting in algal blooms. The algal blooms appear as thick coloured surface films or scum along the affected coast and the contaminated ocean is discoloured and foamy.



Algal bloom near Knights Beach, Port Elliot (personal photo)

They are an indication that ecosystems are out of balance and may pose a major health and environmental danger. Toxic algal blooms contaminate the sea water and kill all types of fish and marine animals and may cause irritation to humans and animals when they swim in the water.

When there are dead fish along the coastline at the beaches it is recommended that you do not swim in the water because it can cause skin and eye irritation and breathing issues and may cause gastrointestinal illness if ingested.

Algae (phytoplankton) growth is normal in coastal waters and not always harmful to humans and the marine environment but can become harmful when certain algae species such as *Karenia* are present. The *Karenia* species was present in the recent South Australian algal

bloom releasing harmful toxins into the water which are bad for living things including plants, marine life, and humans.

Algae use oxygen from the sea water for growth and respiration, and when they die the bacteria present in the decay process further reduces the oxygen levels in the water threatening marine life. The *Karenia* species also damages fish gills making it difficult for them to breathe.

The algal bloom resulted in the oxygen levels in the sea water to drop to levels below what fish and other marine species need to breathe, creating “dead zones,” and resulted in the death of many thousands of marine animals.

When the fish and other marine animals including cockles, stingrays, seahorses, and sharks die they wash up on the beach.



Pipis on Goolwa beach (ABC.net.au)



Stingray washed up on a local beach (greatsouthernreef.com)

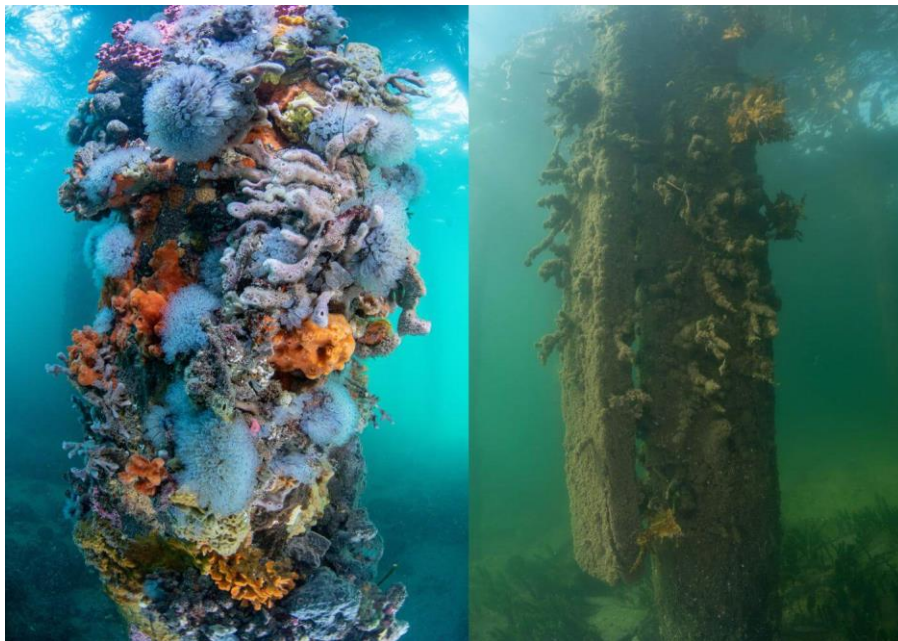
Whilst some blooms are harmless, others are extremely harmful and damage the marine ecosystems as well as sea animals. Testing the water is how the presence of harmful toxins is detected.

The South Australian algal bloom had a significant impact on the marine environment resulting in widespread loss of the ecosystems that once provided natural water filtering and resilience against threats, both natural and human.

Algal blooms can also block sunlight, making it difficult for plants under the surface of the water to grow.

Marine heatwaves that contribute to the algal blooms also affect marine plant species such as seagrass and kelp as they are vulnerable to warming temperatures.

Ecosystems like kelp forests, coral reefs and seagrass meadows are disappearing and the animals that live and depend on those ecosystems are also going with them.



Before and after: Edithburgh jetty, South Australia
(marineconservation.org.au)

Scientific research is being done on land and in sea. As of October 2025, the South Australian and Federal Government have announced a whopping \$102.5 million dollar summer plan to try to stop the algae bloom.

The plan includes money to be spent on large-scale shellfish reef restoration since over the past century

many of the reefs that have filtered and cleaned the oceans, have disappeared. Shellfish reef restoration will benefit the marine environment with cleaner water and healthier ecosystems.

The plan also includes seagrass restoration and targeted breeding programs for threatened marine species.

The harmful algal bloom in South Australia has been a significant environmental event affecting marine ecosystems. Government intervention has been necessary, including monitoring and fishing restrictions, to reduce its impacts and support the recovery of the marine environment and to allow the marine species to recover.

References:

Algal bloom update

(<https://www.algalbloom.sa.gov.au>), SA Government

South Australia's algal bloom crisis – a crisis we can't ignore

(www.marineconservation.org.au/south-australias-algal-bloom-crisis-a-warning-we-cant-ignore/),

Australian Marine Conservation Society

South Australia's algal bloom – all your questions answered

(<https://www.environment.sa.gov.au/goodliving>), SA Environment Department

Harmful algal blooms (HABs) and marine heat Waves

(<https://www.epa.sa.gov.au>), SA EPA

Ocean stories: Beating the bloom

(<https://www.natureaustralia.org.au/what-we-do/our-priorities/oceans/ocean-stories/beating-the-bloom>)

The Nature Conservancy Australia

(719 words excluding references and captions)