



alluvium

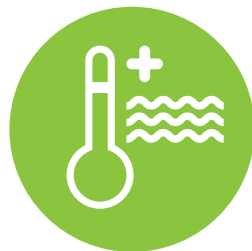
Toxic algal blooms in the Lower Vasse River

What causes toxic algal blooms?

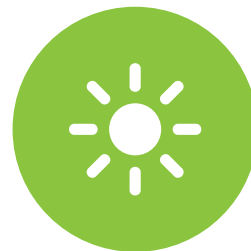
Blue-green algae are floating organisms that can photosynthesise, are often toxic, and cause unsightly blooms on the surface of lakes and rivers. They usually form blooms in summer and die or become dormant during winter.



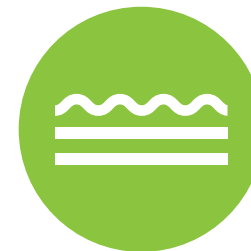
High nutrient levels, especially phosphorus, increase the growth rate



High water temperature increases the growth rate



Bright sunlight and an absence of shade increase the growth rate



Still water allows the cells to accumulate and form blooms



Dormant cells from the previous season make blooms form quickly

Winter

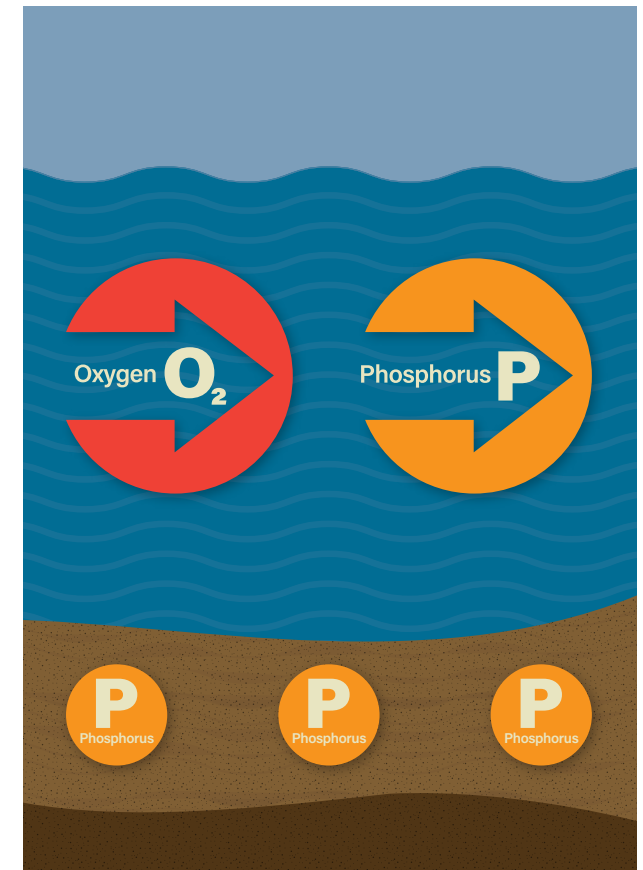
Water flowing in from the catchment delivers enough nutrients to potentially cause toxic algal blooms.

However:

- > Flowing water prevents toxic algae from accumulating
- > Low temperature and less light slow the growth of toxic algae



— Clear, flowing water in winter.



— Nutrients and dissolved oxygen flow in from the catchment.

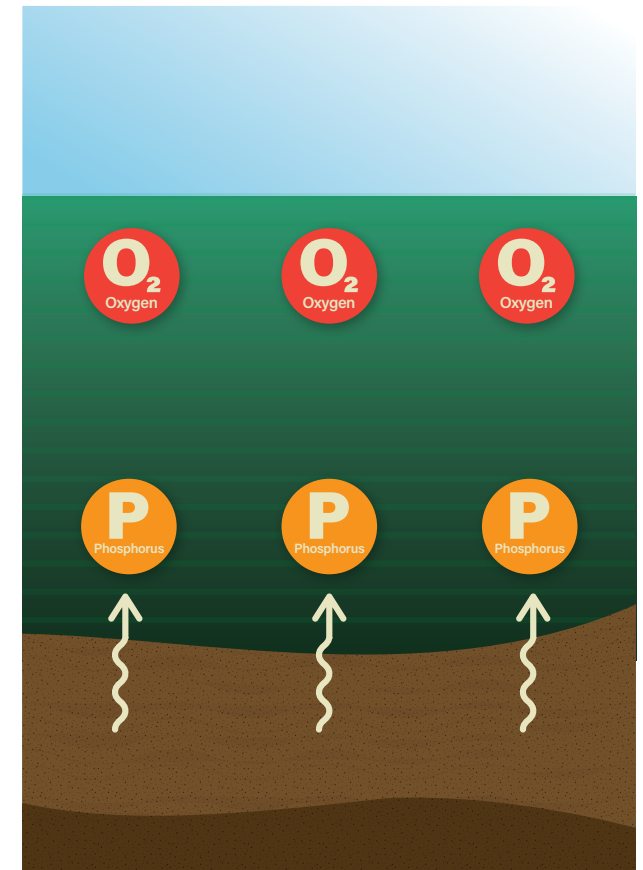
Summer

In summer, flow from the catchment stops, creating the right conditions for toxic algae to bloom.

- > High levels of temperature, light and nutrients increase the growth rate of toxic algae. Still water allows the cells to accumulate and form blooms
- > Blooms prevent light from reaching the riverbed. This suppresses aquatic plants that would absorb nutrients and release oxygen into the sediment
- > Deoxygenated sediments release more nutrients into the water, fuelling further algal growth
- > Dead algal cells settle, adding to the nutrient load in sediments.



— Still water turned turbid by toxic algae.



— The cycle of turbidity and nutrient release.

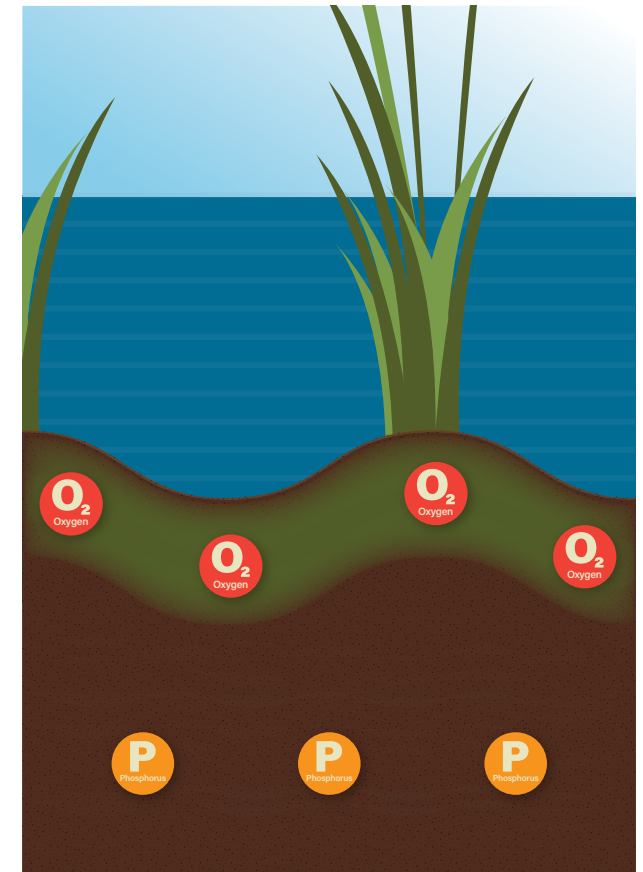
The Living Streams Project

The Living Streams design will recreate a wetland mosaic that replaces the algae with plants.

- Dense wetland plants can completely shade the water, killing algal cells
- Wetland plants absorb nutrients from the sediment and water
- Artificial recirculation prevents algal cells from accumulating and forming blooms
- Clear water allows light through to the riverbed, promoting the growth of aquatic plants that absorb nutrients and release oxygen into the sediment.



— A mosaic of trees, reeds, grass and water in the Vasse Delta Wetlands.



— Plants and water circulation break the cycle of algal blooms and nutrient release.