Characterizing a new strain of *Nodularia spumigena* responsible for a harmful algae bloom: using comparative genomics and physiology approaches

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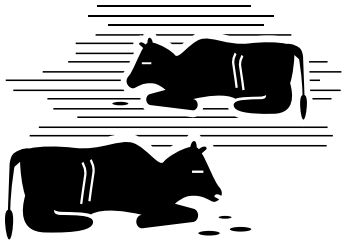
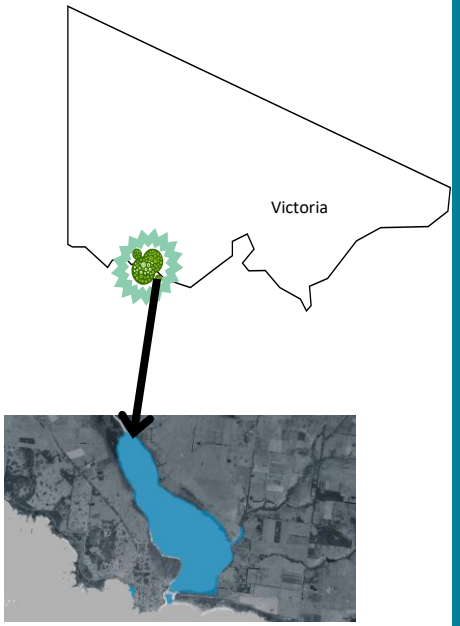
What is this project aiming?

This research will characterize a *Nodularia spumigena* strain isolated from recent harmful bloom event in the Peterborough coastal reserve, Victoria, Australia and will explore the genomic diversity, toxin variation and physiology of 10 existing whole genome sequenced *Nodularia* strains.



The bloom caused sickness on livestock.



Coastal Lagoon in Peterborough reserve, Victoria

New strain of Nodularia spumigena (NOD7). Scale bar= 10 µm

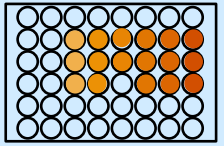
Methodology

Selection of the most variable strains based on geographic distribution.

Growth and preparation of the cells

MLA at 20°C, under a 12:12 h light: dark cycle of 15 µmol photons m-2 s-1

Measurements were recorded 3 days per week over a period of 12 days

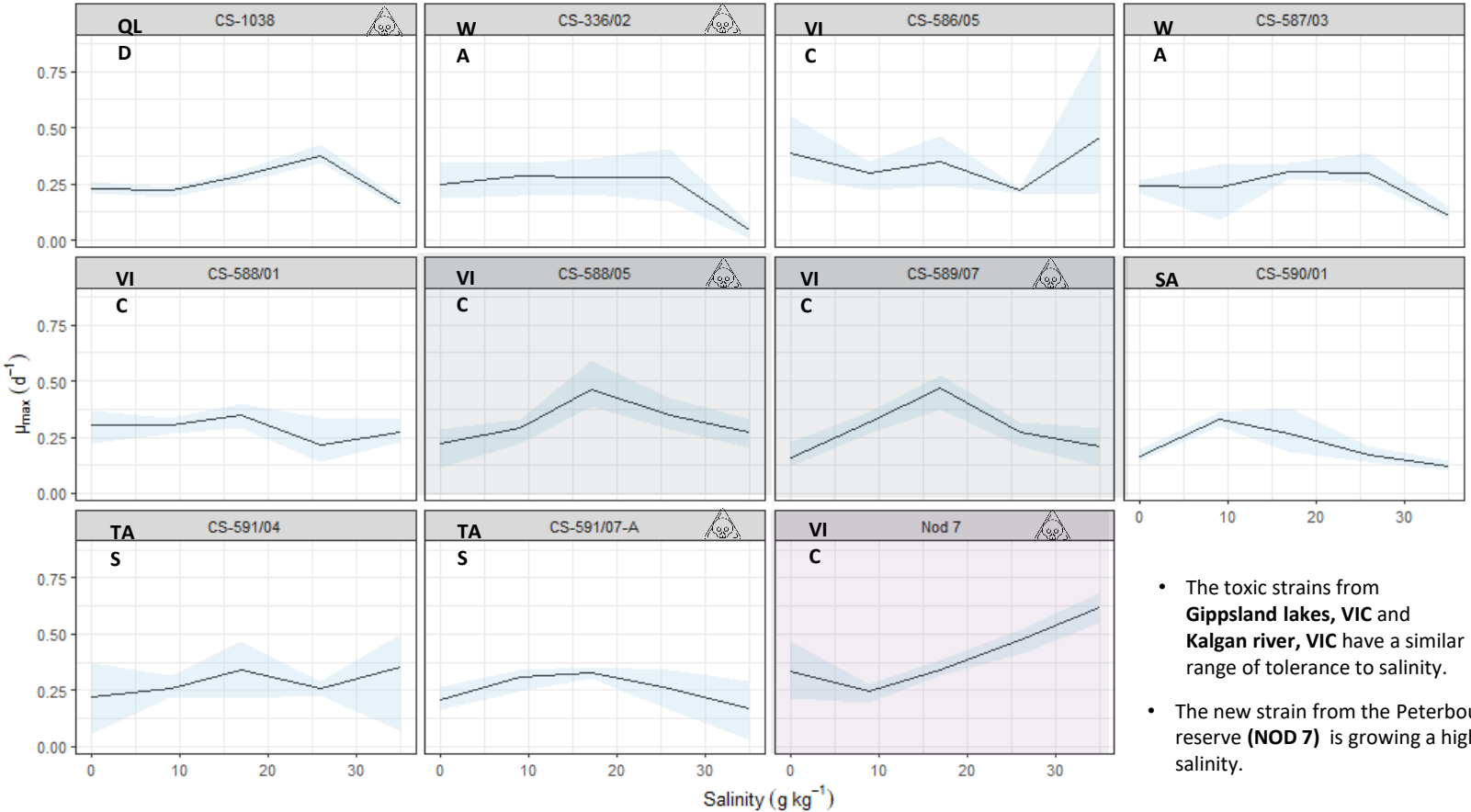


5 levels of Salinity:

- 35 g.Kg-1
- 26.2 g.Kg-1
- 17 g.Kg-1
- 8.75 g.Kg-1
- 0 g.Kg-1

Plate-reader to measure Fluorescence at 750 nm

Maximum growth rate (μ_{max} d^{-1}) as a function of Salinity (g Kg^{-1}) of 11 *Nodularia spumigena* strains.



- The toxic strains from **Gippsland lakes, VIC** and **Kalgan river, VIC** have a similar range of tolerance to salinity.
- The new strain from the Peterbough reserve **(NOD 7)** is growing a higher salinity.

Thank you

National Research Collections Australia
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