Abstract

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Title

Can comparative genomics of cyanobacteria give insights into local risks?

Description

Common cyanoHAB species occur globally but adaptations to local environments make each strain unique. Can understanding the local adaptations of strains assist in risk assessment of local blooms?

Comparative genomics can give insights into unique adaptations. Using examples of *Raphidiopsis raciborskii* and Murray-Darling River bloom species, we explore the application of comparative genomics to understand local adaptations. Comparative genomics can identify strain specific genes that confer unique physiology such as nitrogen fixation and toxin production but linking more subtle genome variations to physiology is more complicated.

To increase our understanding of unique features of Australian strains of cyanoHAB species, we are developing a reference collection of cyanobacteria cultures. Our goal is to collect, culture and characterise, including full genome sequences, a reference collection of Australian cyanobacteria for researchers, water authorities and managers in Australia and around the world. Establishing well characterised reference strains is the first step in understanding the diversity and unique adaptations of Australian cyanobacteria.