



UNSW
SYDNEY

Nuisance and Harmful Algae Science-Practice Partnership

Development of Risk Management Strategies for Algal Growth and Accumulation within Drinking Water Treatment Plants

School of Chemical Engineering
School of Civil and Environmental Engineering
UNSW Sydney

Algal blooms in catchments and water reservoirs can produce nuisance and harmful metabolites that are carefully monitored and treated to maintain a high-quality water supply. However, algal growth and accumulation has also been observed *within* drinking water treatment plants (DWTPs). Some of these algae evidently penetrate from water reservoirs into the DWTP, and it is likely that DWTPs act as incubators for further algal growth. It is hypothesised that the DWTP ecosystem selects for, and incubates, particularly resilient algal species. This project will use state-of-the-art technologies to detect, quantify and characterise algal blooms in DWTPs, including genetic tools to investigate algal community composition and trace organic analysis to measure undesirable algal metabolites. To penetrate the DWTP, algae need to survive various physical and chemical water pre-treatment processes, which may include pre-oxidation, chemical coagulation-flocculation and rapid mixing. This project will therefore also investigate the impact of treatment processes on the composition of these resilient algal communities.

The **Nuisance and Harmful Algae Science-Practice Partnership (NHASP)** with Melbourne Water (<http://www.algae.unsw.edu.au/>) is a multi-party initiative that seeks to more effectively manage algal blooms by introducing smart surveillance and evidence-based, cost-effective policy and asset design for the benefit of the Melbourne region and Australia.

The successful candidate(s) will join the NHASP program. The candidate should have a background in either civil, chemical or environmental engineering (or similar), a demonstrated aptitude for undertaking laboratory/field work, have excellent communication skills and will be expected to interact regularly with industry partners. The student needs to be successful in securing their own primary scholarship via a **Research Training Program (RTP)** or equivalent (<https://research.unsw.edu.au/graduate-research-scholarships>). A secondary top-up scholarship (\$5000) may be available for exceptional applicants.

Further information on the project and scholarship may be obtained from **Assoc. Prof. Rita Henderson** (email: r.henderson@unsw.edu.au). Applications should be submitted via email (including a cover letter, academic transcript and CV) to A/Prof Henderson at UNSW Sydney.

