

## POSITION DESCRIPTION

UTS: HUMAN RESOURCES

**POSITION TITLE:** POST-DOCTORAL RESEARCH ASSOCIATE IN MARINE PHYTOPLANKTON (LEVEL A)

**UNIT/FACULTY:** FACULTY OF SCIENCE

## POSITION PURPOSE

### Postdoctoral position in marine phytoplankton

The Research Associate will provide specialised skills to drive and support the research associated with a recently funded Gordon and Betty Moore Foundation Grant, “**Defining the evolvable phenotype landscape for marine phytoplankton**”, focused on understanding the rules governing allowable phenotypes for marine phytoplankton and the environmental selection pressures that drive phytoplankton to a new phenotype. Specifically, the incumbent will utilize their expertise in microbial trait quantification and evolution to support laboratory based research to contribute to the goals of the project.

## DIMENSIONS

The Marine Microbial Initiative (MMI) project entitled “**Defining the evolvable phenotype landscape for marine phytoplankton**” funded over 2 years (mid 2018 to mid 2020) comprises a team of researchers based at the University of Technology Sydney (Australia), the University of Southern California (USA) and the University of Edinburgh (UK).

The key questions that this innovative research will address are:

- Can we determine rules governing allowable phenotypes for marine phytoplankton groups? (*objectives 1 & 2*)
- Are there fitness valleys between allowable phenotypes and, if so, what selection pressures would be needed to cross these valleys and move between phenotypes via evolution? (*objective 3*)
- Given the ‘evolvable phenotype landscape’, in which regions of the oceans do we expect evolution to play a critical role in determining future microbial communities? (*objective 4*)

The incumbent will develop a new high-throughput assay for screening and defining a multitrait phenotype for photosynthetic marine microbes (*objective 1*). The Quantitative Phenotype Assay (QPA) will integrate existing measurements (Baker et al. 2016, Schaum et al. 2016) into a high-throughput plate format that will allow the rapid and simultaneous quantification of a large number of traits in a large number of environments.

At UTS, the position is located within the Productive Coasts Group, which is part of the UTS strategic research strength in Climate Change Cluster in the Faculty of Science. The Climate Change Cluster (C3) comprises 7 academic research leaders each with a team of researchers and Professional Officers.

## RELATIONSHIPS

### Supervision

The incumbent will report directly to the head of the Productive Coasts Group at UTS and the lead CI, Prof Martina Doblin.

### Collaboration and Communication

The incumbent collaborates and communicates with:

- Other researchers involved in the MMI Moore Foundation project from the University of Southern California and the University of Edinburgh.
- Other researchers, PhD students and Honours students in the Productive Coasts Group at UTS and our partner universities
- Researchers within the C3, School of the Environment, the Science Faculty and others within UTS as appropriate
- Staff in the Faculty of Science, including technical and administrative staff, to contribute to the Faculty and C3's research and research training

## **MAJOR RESPONSIBILITIES**

As a Research Associate with at least a PhD, or equivalent, the incumbent will function as a pivotal research member to deliver this leading-edge research and will specifically:

- Provide technical leadership in the design, development and application of a Quantitative Phenotype Assay (QPA) for marine phytoplankton
- Perform laboratory-based microbial research, involving flow cytometry, high throughput imaging and analysis, well plate absorbance, fluorescence and other assays, as well as physiological measurements
- Couple molecular biological approaches (DNA/RNA extraction, genomics, transcriptomics) with quantitative phenotyping techniques to advance understanding of trait plasticity and genotype-phenotype links
- Maintain laboratory cultures of microbes for use in manipulative experiments
- Utilise novel quantitative and statistical tools, including open source software, to analyse and interpret data acquired throughout the project
- Publish research outcomes in high quality peer-reviewed scientific journals
- Assist in the sourcing and ordering (through the University centralized on-line purchasing system) of equipment and consumables
- Develop and assist with pilot studies, set-up, maintenance and monitoring of the research project. The incumbent applies their knowledge in the deployment of new technologies and tools required in the research environment
- Understand the requirements and regulations for working in PC1 and PC2 laboratories
- Understand the requirements and organise appropriate risk management procedures
- Undertake routine duties within the laboratory and on field trips to ensure safe and efficient operation
- Assist with routine data acquisition, quality control and assurance, and analysis and the interpretation of results for undergraduate, honours and postgraduate students. Assist with identifying training needs for new researchers

## **Safety & Wellbeing Responsibilities**

The incumbent must:

- Take reasonable care of, and cooperate with actions taken to protect the health and safety of both themselves and others

- Ensure that they are familiar with the requirements of working in a PC1 and PC2 approved facility and follow the regulations associated with working within such a facility
- Complete necessary risk assessments and obtain appropriate approvals (e.g. biosafety) for all research work performed in both laboratory and field settings
- Report all accidents, incidents and hazards to their supervisor as soon as is practicable

### ENVIRONMENT AND POSITION CHALLENGES

The incumbent will undertake several international trips to the US/UK during the project to participate in group meetings. They will need to show flexibility in working under varied work conditions.


The incumbent will interact with other researchers of various levels, from undergraduate students to senior research fellows, so must be skilled in both providing direction and training when working with junior researchers, and following instructions and providing appropriate levels of support when working with more senior researchers.

The project funding this position has yearly milestones for the achievement of research deliverables, and along with the other team members, the incumbent will be responsible for ensuring that these are met.

### AUTHORITY TO ACT

The Research Associate will act within the parameters laid down in University policy and by the Faculty Board and in accordance with the strategic direction of C3.

### APPROVALS

	<b>Incumbent</b> (If currently occupied)	<b>Supervisor</b>	<b>Manager</b> (Minimum level Dean/ Director)
Name:		Professor Martina Doblin	Professor Peter Ralph
Title:		Professor	Executive Director of C3
Signature:			
Date:		27 March 2018	

## KEY SELECTION CRITERIA

**POSITION:** Research Associate

**FACULTY/UNIT:** Faculty of Science C3

### Skills and Attributes

- Extensive conceptual and hands-on knowledge of culturing microbes and molecular biology techniques, with particular experience in quantitative trait approaches
- Substantial experience in conducting experiments with phytoplankton and other microbes
- Problem solving ability to resolve issues related to expedite research
- Quantitative skills and excellent capacity for analysing, interpreting and integrating complex data-sets
- Ability to communicate research findings and publish in high-impact journals
- Excellent time management, including working on multiple activities simultaneously, and ability to meet deadlines
- High level interpersonal skills to negotiate with and between researchers and students

### Knowledge

- Extensive conceptual and hands-on knowledge of microbiological and molecular techniques to quantify molecular, morphological, physiological, biogeochemical, and behavioural traits
- Substantial hands-on experience in microbiological approaches (culturing and manipulation of photosynthetic microbes)
- Skills and knowledge in microbial trait measurements and analysis techniques
- Ability to use and interpret sophisticated quantitative and statistical approaches for analysing and interpreting data
- Knowledge of PC2 laboratory regulations and requirements

### Qualifications

A PhD in microbial or phytoplankton ecology, molecular biology, microbial oceanography or equivalent

### Experience required

- Demonstrated skills in microbiological and analytical techniques (e.g., culturing and manipulation of microorganisms, characterisation of cell / population properties, measurement of biogeochemical rates)
- Demonstrated experience and success in conducting experimental research
- Demonstrated experience in publishing research as a first-author

## Leadership Capabilities

Pipeline					
Category	Leading Strategically	Collaborating and Engaging	Leading Teams	Presence and Awareness	Leading Performance
Capabilities	Role Models Organisational Agility	Encourages Collaboration	Manages Diversity	Influences others	Demonstrates Technical Expertise
				Demonstrates Resilience	Informs Others