The University of Tasmania is building a vision of a place-based University with a mission to enhance the intellectual, economic, social and culture future of Tasmania, and from Tasmania, contribute to the world in areas of distinctive advantage. The University recognises that achieving this vision is dependent on the people we employ as well as creating a people-centred University that is values-based, relational, diverse, and development-focused.

IMAS is an internationally-recognised centre of excellence for marine and Antarctic research and education. Our vision is to develop environmental understanding and facilitate sustainable development for the benefit of industry, governments and communities in Tasmania, Australia and the world. IMAS has three core areas of research focus, in fisheries and aquaculture, ecology and biodiversity, and oceans and cryosphere; and collaborates across the major themes of climate change, ocean-Earth systems, and oceans and Antarctic governance.

This position will be part of the interdisciplinary team investigating and ARC-funding project “Geoengineering the Southern Ocean? A Transdisciplinary assessment”. The role will focus on the holistic evaluation of what drives the efficiency of the ocean’s biological pump. This will include desktop studies, laboratory and field-based research along with mathematical modelling simulations.

The oceans biological pump is a key conduit for the transfer of biogenic carbon into the ocean’s interior and for the replenishment of nutrients via remineralisation in the deep ocean. In the geological past, changes in the efficiency of the pump have been invoked as a candidate mechanism to account for about 1/3 of the observed 80 ppmv reduction in atmospheric carbon dioxide concentrations. Consequently, geoengineering of the biological pumps has been proposed as a potential mitigation strategy to alleviate increasing anthropogenic CO₂ emissions.

Phytoplankton play key roles in the biological pump via inputs (photosynthetic carbon fixation), building blocks for heterogeneous particles (algal carbon and other elements), and as a vector for rapid C export (aggregation). This post-doctoral research fellowship will explore how different phytoplankton types lead to a diverse assemblage of marine biogenic particles, and in particular explore the biogeochemical characteristics of different particle types using a wide range of assays and metrics. This better understanding of the make-up and properties of individual particles will help us better model the processes that set the efficiency of the oceans’ biological pump.

We are an inclusive workplace committed to ‘working from the strength that diversity brings’ reflected in our Statement of Values. We are dedicated to attracting, retaining and developing our people and are committed to inclusive principles and celebrate the range of diversity assets which gender identity, ethnicity, sexual orientation, disability, age and life course bring. Applications are encouraged from all sectors of the community.
### POSITION RELATIONSHIPS

<table>
<thead>
<tr>
<th>Supervisor</th>
<th>Prof Phillip Boyd</th>
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<tbody>
<tr>
<td>Direct reports</td>
<td>Nil</td>
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</table>
| Other            | • Senior Management of IMAS  
|                  | • Other staff and students of IMAS  
|                  | • Any other relevant stakeholders in IMAS |

### KEY ACCOUNTABILITIES AND OUTCOMES

<p>| | |</p>
<table>
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<tr>
<td>1</td>
<td>60% The appointee will explore how different phytoplankton types lead to a diverse assemblage of marine biogenic particles, and in particular explore the biogeochemical characteristics of different particle types using a wide range of assays and metrics. This information will provide the building blocks to better understand the wide range of particle dynamics within the biological pump.</td>
</tr>
<tr>
<td>2</td>
<td>(20%) The appointee will be responsible for constructing a conceptual model that links the physical, chemical and biological properties of particles. They will be required to use the main findings from the conceptual model to build a rudimentary mathematical model on modes of particle flux attenuation for different particle types. This will require liaison with other members of the ARC Laureate research project.</td>
</tr>
</tbody>
</table>
| 3 | (20%) Contribute to the ARC Laureate objectives as outlined in the Gant chart for the communication of the research outputs by:  
|   | • participation in workshops and conferences; and  
|   | • publishing in leading international journals |
| 4 | Undertake other duties as assigned by the supervisor. |

### DECISION MAKING AUTHORITY/LEVEL OF RESPONSIBILITY

Under the broad direction of the supervisor and within the context of the University’s policies and performance expectations, the appointee has a substantial degree of autonomy.

The appointee is expected to undertake research addressing the objectives of the ARC Laureate project by working cooperatively as a team member. Academic Level A will conduct research under limited supervision either independently or as a team member. An Academic Level B will be required to carry out independent and/or team research and may supervise postgraduate research students.

### POSITION CRITERIA

**Essential Requirements**

1. A PhD and prior post-doctoral experience or equivalent in a relevant field such as e.g., oceanography, marine biology.
2. Expertise in sensing biological processes and analysing associated chemical signatures.
3. Competence in the use of microsensors and associated data products— as applied to the field of (sub)polar microbial ecology.
4. Proven ability to conduct assays using microfluidics, and microbial ecophysiology.
5. Proven ability to conduct research using proteomics, bioinformatics, along with the isolation and culturing of ice-associated microbes
6. Antarctic microalgae taxonomy
7. Expertise and experience in the use of intracellular assays to quantify stress in (sub)polar marine microbes.
8. Well-developed written and oral communication skills.

Desirable Attributes

9. Phytoplankton physiology that is pertinent to biological pump studies, in particular bio-mineral production rates (and their environmental control), particle aggregation and sinking rates (including lab and field-based approaches to producing particles with a broad range of biogeochemical characteristics).
10. Laboratory culture and seagoing incubation experience
11. Proven ability to work in interdisciplinary teams.
12. Ability to implement conceptual model design and to translate it into mathematical modelling
13. Familiarity with particle settling column apparatus, Flow-Cam, video and optical skills including image analysis.

WORKPLACE HEALTH AND SAFETY

- All staff assist the University to create and maintain an environment where people are safe, healthy and well by using and improving the systems and equipment we have for work.
- All staff actively manage risks associated with their work and report hazards, near-misses and incidents to their Supervisor to enable teams to positively learn and improve our systems and equipment.
- Supervising staff support and equip their teams to work safely by providing information, training and supervision. They respond quickly to issues and create an environment where teams are encouraged to positively intervene and empowered to make improvements.

UTAS VALUES AND BEHAVIOURS

We subscribe to the fundamental values of honesty, integrity, responsibility, trust and trustworthiness, respect and self-respect, and fairness and justice. We bring these values to life by our individual and collective commitment to:
* Creating and serving shared purpose
* Nurturing a vital and sustainable community
* Focusing on opportunity
* Working from the strength diversity brings
* Collaborating in ways that help us be the best we can

Our University Behaviour Policy sets out these values, standards and expectations for appropriate behaviour that apply to all employees and characterise the collegial and community nature of our University.