# Position Details

## CSIRO Early Research Career (CERC) Postdoctoral Fellowship– CSOF4

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| The following information is for applicants | |
| Advertised Job Title | CSIRO Postdoctoral Fellowship in Marine Biogeochemical Data Assimilation |
| Job Reference | 80690 |
| Tenure | Specified Term of 3 years  Full-time |
| Salary Range | AU$89,926 to AU$98,504 pa + up to 15.4% superannuation |
| Location(s) | Hobart, TAS |
| Relocation Assistance | Will be provided to the successful candidate if required |
| Applications are open to | * Australian/New Zealand Citizens and Australian Permanent Residents * Australian temporary residents currently residing in Australia (visa sponsorship may be provided to eligible onshore candidates) |
| Position reports to the | Team Leader (Coastal Biogeochemical Modelling) |
| Client Focus – Internal | 20% |
| Client Focus – External | 80% |
| Number of Direct Reports | 0 |
| Enquire about this job | Contact Mark Baird via email at [mark.baird@csiro.au](mailto:mark.baird@csiro.au) |
| How to apply | Apply online at <https://jobs.csiro.au/>  Internal applicants please apply via **Jobs Central**  If you experience difficulties when applying, please email [careers.online@csiro.au](mailto:careers.online@csiro.au) or call 1300 984 220. |

### Acknowledgement of Country

CSIRO acknowledges the Traditional Owners of the land, sea and waters, of the area that we live and work on across Australia. We acknowledge their continuing connection to their culture and pay our respects to their Elders past and present. View our [vision towards reconciliation](https://www.csiro.au/en/about/Indigenous-engagement/Reconciliation-Action-Plan).

### Role Overview

**CSIRO Early Research Career (CERC) Postdoctoral Fellowships** provide opportunities to scientists and engineers who have completed their doctorate and have less than three years relevant postdoctoral work experience. These fellowships aim to develop the next generation of future leaders of the innovation system through:

* A differentiated career development program to deliver capability excellence and breadth across all facets of the national innovation system.
* Research training via strategic research and development projects with a clear focus that will deliver real impact through science and engineering excellence;
* An innovative culture supporting the development and demonstration of original thinking and expertise leading to peer-recognition; and
* Opportunities to develop skills and experience in collaborative research teams to effectively work within national and global multi/transdisciplinary and multi-stakeholder environments.

CERC Postdoctoral Fellows are appointed for three years or part time equivalent.

A suite of marine models developed at CSIRO are being used to study ocean currents, waves, marine chemistry, optical oceanography and ecological processes. These models have been applied to complex scientific challenges including studying the impacts of catchment modification on the Great Barrier Reef, coastal impacts of aquaculture, and Defence applications. The Fellow will join at team of 15 scientists and software engineers dedicated to publishing world-leading science as well as delivering information for policy development and decision-making.

The CSIRO modelling system contains both Ensemble Optimal Interpolation (EnOI) and Ensemble Kalman Filter (EnKF) algorithms (developed in collaboration with the Bureau of Meteorology) that can be used to undertake data assimilation of physical and biogeochemical observations into coupled hydrodynamic – biogeochemical models. The Fellow’s role will be to further develop the data assimilation system, including improving the model parameterisations and configuration, optimising the assimilation system, running the assimilation system on high performance computing systems and assessing the skill of the assimilation system.

The modelling system is being used by a multi-disciplinary team to interpret physical and biogeochemical processes in the ocean. In particular, the Fellow will use the data assimilation system to estimate the biogeochemical state of the Great Barrier Reef waters. It is expected that the Fellow will use the model outputs to improve our knowledge of ocean phenomena and to lead the publication of this work.

This opportunity is based within the Coast and Ocean Research Program of the CSIRO Oceans and Atmosphere Business Unit.

### Duties and Key Result Areas:

* + In collaboration with the CSIRO coastal modelling teams, lead the development of novel data assimilation approaches used in the CSIRO coupled hydrodynamic – biogeochemical model.
  + Design and analyse data assimilation experiments to better estimate the physical and biogeochemical state of marine waters, and in particular the Great Barrier Reef/Coral Sea.
  + Effectively use High-Performance Computing (HPC) facilities and technologies for ensemble simulations and analysis of the outputs.
  + Produce high quality scientific papers suitable for publication in high impact journals.
  + Prepare appropriate conference papers and present the results at conferences.
  + Contribute to the development of innovative concepts and ideas for further research.
  + Contribute to the effective functioning of the research team and help deliver CSIRO’s organisational objectives and plans.
  + Work collaboratively with colleagues within your team and with external partners.
  + Communicate effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation.
  + Proactively undertake development to grow effective researcher capabilities to support career goals.
  + Adhere to the spirit and practice of CSIRO’s Code of Conduct, Health, Safety and Environment procedures and policy, Diversity initiatives and Making Safety Personal goals.
* Other duties as directed.

## **Required Competencies:**

* **Teamwork and Collaboration:** Cooperates with others to achieve organisational objectives and may share team resources in order to do this. Collaborates with other teams as well as industry colleagues.
* **Influence and Communication:** Uses knowledge of other party's priorities and adapts presentations or discussions to appeal to the interests and level of the audience. Anticipates and prepares for others reactions.
* **Resource Management/Leadership:** Allocates activities, directs tasks and manages resources to meet objectives. Provides coaching and on the job training, recognises and supports staff achievements and fosters open communication in the team.
* **Judgement and Problem Solving:** Investigates underlying issues of complex and ill-defined problems and develops appropriate response by adapting/creating and testing alternative solutions.
* **Independence:** Recognise and makes immediate changes to improve performance (faster, better, lower cost, more efficiently, better quality, improved client satisfaction).
* **Adaptability:**Copes with ambiguity or situations that lack clarity. Adapts readily to changing circumstances and new responsibilities (which may include activities outside own preferences) in the interests of achieving team objectives. Recognises the need for and undertakes personal development as a result of changes.

## **Selection Criteria**

#### Essential

*Under CSIRO policy only those who meet all essential criteria can be appointed.*

1. A doctorate in a relevant discipline area, such as numerical modelling in physical and/or biogeochemical oceanography or marine data assimilation.

Please note: To be eligible for this role you must have **less than 3 years** (full-time equivalent) of postdoctoral research experience.

1. Experience in the development and/or interpretation of numerical models of the ocean and the analysis of large and complex model data sets.
2. Experience in working in a Linux/UNIX computing environment and a high level of programming skills in languages such as Python, C, FORTRAN or MATLAB.
3. Demonstrated high level written and oral communication skills with the ability to represent the research team effectively, including the presentation of research outcomes at national and international conferences and to policy and decision makers.
4. Demonstrated ability to write peer-reviewed scientific papers, detailed technical reports and/or competitive grant applications.
5. A record of science innovation and creativity, including the ability & willingness to incorporate novel ideas and approaches into scientific investigations.

## **Desirable:**

1. Experience using supercomputers and clusters.
2. Experience using BASH scripting in a HPC environment.
3. Experience in using AI/ML methods.
4. Knowledge of remote-sensing techniques, data processing and optical oceanography.

To be appointed as a CERC Postdoctoral Fellow within CSIRO, candidates are required to have **submitted** their PhD at the time of commencement, as a minimum requirement, if PhD conferment has not been obtained. If a candidate has submitted, but their PhD has not yet been formally attained, the starting salary will be CSOF4-1 ($87,068). Upon CSIRO receiving written confirmation that the PhD has been awarded (within a six month period from commencement date), the salary will be increased to the negotiated level and the difference will be back-paid to the Officer’s start date.

Special Requirements

Appointment to this role may be subject to conditions including provision of a national police check as well as other security/medical/character clearance requirements.

* The successful candidate will be asked to obtain and provide evidence of a National Police Check or equivalent. Please note that people with criminal records are not automatically deemed ineligible. Each application will be considered on its merits.
* The successful candidate may be required to undertake a pre-employment medical examination prior to commencement.
* If the successful candidate is not an Australian Citizen or Permanent Resident, they may be required to undergo additional security clearances, which may include medical examinations and an international standardised test of English language proficiency (i.e. IELTS test).- https://ielts.com.au/

**Our value proposition**

We want CERC Postdoc Fellows to join our world class science, engineering and digital teams to solve big, complex problems that make a real difference to the future of Australia and the world.

You'll get to work with some of the most talented minds in their fields, not just in Australia, but in the world. At CSIRO, we spark off each other, learn from each other, trust each other and collaborate closely to achieve more than we could individually.

CSIRO Early Research Career (CERC) Postdoctoral Fellow Experience Employee Value Proposition (EVP). Find out more [here](https://www.csiro.au/en/careers/postdoctoral-fellowships)!

## **About CSIRO:**

We solve the greatest challenges through innovative science and technology. To find out more visit us [online](http://www.csiro.au/)!

CSIRO is a values-based organisation.  In your application and at interview you will need to demonstrate behaviours aligned to our values of:

* 1. People First
  2. Further Together
  3. Making it Real
  4. Trusted

Find out more about CSIRO [Oceans and Atmosphere](https://www.csiro.au/en/Research/OandA)