

Cover letter

My ocean data journey started with IMOS.

It began in 2014 as a vacation student at CSIRO. I was an undergraduate student at the University of Western Australia, studying chemistry and mathematics, and keen to apply my skills to the ocean realm. I was introduced to the IMOS National Reference Station and underway carbon dioxide data collections to analyse spatial and temporal trends. This simple activity sparked an enormous passion for ocean data.

What has followed is eight years of study across coastal and oceanic zones. My specialty is in ocean data and I have vast experience in using ocean data across a range of scientific applications. Now, my career aspirations involve positioning myself within an organisation where I can bridge the gap between ocean data and end-users, ensuring ocean observation efforts are maximised.

IMOS/AODN is the perfect place to achieve this. In the role of Digital Services Officer I can further develop my passion for engaging with stakeholders and end-users to deliver data products and services. As a Project Officer at AusSeabed, a national seabed data program, I have developed the skills needed to succeed. I regularly engage with stakeholders to deliver products and services, and promote their uptake; servicing community product requests, liaising with internal teams to deliver products, actively driving the AusSeabed Steering Committee, communicating with collaborators and using various methods to communicate to wider community.

<!-- Currently, I am leading a project to connect a state government seabed mapping program to the AusSeabed Data Hub, to facilitate the continuous transfer of data via AWS services. For me, this is an exciting project that is deepening my knowledge of cloud-base services and the process of collaboratively defining stakeholder requirements. I have found that I have a strength in synthesising information from specialist knowledge sources to identify and solve multidisciplinary problems. -->

I am eager to continue to explore synergies in data tools and services between organisations at IMOS/AODN to enhance the existing marine data landscape. I was drawn to work at Geoscience Australia as I wanted to explore and learn about the digital capabilities of AusSeabed and Digital Earth Australia. I see extraordinary, untapped value in the technology developed at Geoscience Australia for ocean data and earth observation methods.

I enjoy working in the team at AusSeabed. My supervisors have described my work as “indispensable” and “highly reactive” during a recent review, as I landed quickly on my feet outside of academia. The AusSeabed team uses a JIRA Agile project management method to prioritise and plan work. I adapted to this work style and have even adopted it for my doctorate studies, which I will be completing in the next few months.

I will be a valued addition to the workplace bringing an inclusive, kind and accommodating personality. I value a inclusive and supporting a flexible working environment, actively supporting my colleagues as they require. I will bring this attitude with me to the IMOS/AODN team.

Personal Attributes

- Enthusiasm for all areas of ocean science
- Highly reactive and adaptable work ethic
- Optimistic and realistic "can-do" attitude
- Inclusive and collaborative nature
- Manages competing priorities
- Active communicator
- Shows strong initiative with unfamiliar tasks
- Creative problem solver

Skills and highlights

- Experience working in a multiinstitutional data synthesis program
- Ability to work in a team and collaborate
- Synthesis and visualisation of complex information
- Science communication
- Stakeholder and end-user engagement
- Understanding end-user requirements
- Delivering end-user products and resources
- Program and project reporting and management
- Data and document management
- Spatial statistics
- Uncertainty quantification
- Understanding the strengths and limitations of ocean data for applications
- Critical gap analysis
- Finding, sourcing and aggregating data
- Microsoft 365 suite and TEAMS
- Agile Project Management and JIRA software
- Adobe suite (Illustrator, Premier Pro, Acrobat ect.)
- Proficiency in R, Python and MATLAB
- Ability to use GitHub and GitLab
- Document generation with R Markdown
- Limited proficiency in HTML and LaTeX
- Strong written and verbal presentation skills

Key ocean data knowledge areas

- Ocean carbonate chemistry
- Phytoplankton and pigments
- Bio-optics
- Air-sea flux
- Physical oceanography
- Seafloor bathymetry and habitats
- Tropical and coastal ecosystems
- Antarctic krill
- Biogeochemical sensors including Argo
- Data synthesis and aggregation
- Satellite and remote sensing
- Ship-based sampling methods
- Analytical chemistry
- Ocean and ecosystem models
- Lagrangian particle tracking
- Multi-platform methods

Education and training

Doctor of Philosophy

University of Tasmania-Institute for Marine and Antarctic Studies

2018-Present

- Thesis: Multiplatform observations chlorophyll-a reveal deep diatom communities in the Southern Ocean

Interdisciplinary Marine Science Summer School

Center for Marine Socioecology

2020

IOCCP BONUS-Integral Biogeochemical Sensors Training Course

International Ocean Carbon Coordination Project

2019

Master of Marine Science

King Abdullah University of Science and Technology-Red Sea Research Center

2016-2017

- Thesis: Exploring the ecosystem engineering ability of Red Sea shallow benthic habitats using stocks and fluxes in carbon biogeochemistry

Bachelor of Science

The University of Western Australia-Chemistry and, Mathematics and Statistics

2013-2016

Marine Science Summer School

King Abdullah University of Science and Technology-Red Sea Research Center

2015

Employment

AusSeabed Project Officer - National Earth and Marine Observations Branch

Geoscience Australia

2021-Present

Canberra, AU

Software Developer - Southern Ocean Observing System

University of Tasmania

2021

Hobart, AU

Krill Biologist - Short-term contract

Australian Antarctic Division

2020-2021

Hobart, AU

Student Ambassador - Institute for Marine and Antarctic Studies

University of Tasmania

2019

Hobart, AU

Tutorial Facilitator (for two semesters) - Institute for Marine and Antarctic Studies

University of Tasmania

2018-2019

Hobart, AU

Research Assistant - Center for Social Impact

University of Western Australia

2014-2016

Crawley, AU

Laboratory Demonstrator - School of Chemistry and Biochemistry

University of Western Australia

2016

Crawley, AU

Research Assistant - Marketing

University of Western Australia

2016

Crawley, AU

Tutor - School of Mathematics and Statistics

University of Western Australia

2015-2016

Crawley, AU

Vacation Scholar/Industrial Trainee - Biogeochemical Research Lab

Commonwealth Scientific and Industrial Research Organisation

2014-2016

Perth, AU

Publications

37 citations | 4 h-index | 1 i10-index

See my [Google Scholar profile here](#) for a full publication and citation report

Baldry K, Strutton PG, Hill NA, Boyd PW (2020). *Subsurface Chlorophyll-a Maxima in the Southern Ocean*. *Frontiers in Marine Science*, 7.

Baldry K, Saderne V, McCorkle DC, Churchill JH, Agusti S, Duarte CM (2020). *Anomalies in the carbonate system of Red Sea coastal habitats*. *Biogeosciences*, 17(2).

Anton A, Almahasheer H, Delgado A, Garcias-Bonet N, Carrillo-de-Albornoz P, Marbà N, Hendriks IE, Krause-Jensen D, Saderne V, **Baldry K**, Duarte CM (2020). *Stunted Mangrove Trees in the Oligotrophic Central Red Sea Relate to Nitrogen Limitation*. *Frontiers in Marine Science*, 7.

Anton A, **Baldry K**, Coker DJ, Duarte CM (2020). *Drivers of the Low Metabolic Rates of Seagrass Meadows in the Red Sea*. *Frontiers in Marine Science*, 7.

Saderne V, **Baldry K**, Anton A, Agusti S, Duarte CM (2019). *Characterization of the CO₂ System in a Coral Reef, a Seagrass Meadow, and a Mangrove Forest in the Central Red Sea*. *Journal of Geophysical Research: Oceans*, 124(11), 7513-7528.

Bach LT, Tamsitt V, **Baldry K**, McGee J, Laurenceau-Cornec EC, Strzepek R, Xie Y, Boyd PW (submitted). *Holistic re-evaluation of Southern Ocean Iron fertilisation for atmospheric CO₂ removal*. *Global Biogeochemical Cycles*.

Baldry K, Hardman-Mountford N, Greenwood J (2017). *Estimating total alkalinity for coastal ocean acidification monitoring at regional to continental scales in Australian coastal waters*. *Biogeosciences Discussions*.

For submission, in fulfillment of doctorate

Baldry K, Johnson R, Strutton PS, Boyd PW (*in prep*). *BIO-MATE: A biological ocean data reformatting effort*.

Baldry K, Strutton PG, Hill NA, Boyd PW (*in prep*). *Non-photochemical quenching of chlorophyll fluorescence in the Southern Ocean*.

Baldry K, Tamsitt V, Johnson R, Strutton PG, Hill NA, Boyd PW (*in prep*). *Multi-platform observations reveal environmental drivers in subsurface phytoplankton across the Southern Ocean*.

Baldry K, Eriksen R, Tamsitt V, Strutton PG, Hill NA, Boyd PW (*in prep*). *The successional ecology of large-centric diatoms: Joining the dots with BGC-Argo floats*.

Datasets

Baldry K, Saderne V, McCorkle DC, Churchill JH, Agustí S, Duarte CM (2019). *Surface Carbonate Chemistry of the Red Sea (offshore and coastal)*. PANGAEA.

Saderne V, **Baldry K**, Anton A, Agustí S, Duarte CM (2019). *Characterization of the CO₂ system in a coral reef, a seagrass meadow and a mangrove forest in the central Red Sea*. PANGAEA.

Baldry K and Johnson R. (*submitted*). *BIOMATE data compilation (v1.0)*. IMAS Data Repository.

Selected software

BIO-MATE

- R package to reformat ship-based data sets

mapSOOSWG

- R package to support map making for SOOS reporting

SIR within seacarb

- R functions to calculate substrate inhibitor ratios

Adaption of FluxEngine

- Python package to ingest biogeochemical Argo data and calculate air-sea fluxes

Selected communication material

Science writing

AusSeabed Annual Highlights Report 2020/21

- Lead the production of the report including graphics and textual content

ECO Polar Special Issue: Observing hidden phytoplankton in the Autonomous Era

- Science article, an output of my 2019 SCAR Fellowship

Visual story for 2020/21 AusSeabed Achievements

Highlight article on RV Falkor voyages

Posters

GMRT-AusSeabed poster for the Forum for Operational Oceanography

Training material

Biogeochemical Argo Data Cheat Sheets

- Summarises important information and resources for new users of biogeochemical Argo data.
- Visited over 1760 times and over 400 downloads.

Biogeochemical Argo User training Workshop

- Workshop and tutorial delivered to biogeochemical Argo data users.

QAX Training Material

- User training videos for a quality assurance tool for multibeam echosounder (bathymetry) data.
- Designed in collaboration with experts and developers.

Website, promotional and social media

QAX Webpage

- Developed as a primary landing page for end-users of the new tool.

GMRT-AusSeabed Webpage

- Developed as a point of reference for interested end-users and stakeholders.

GMRT-AusSeabed Promotional video

- Developed for circulation in social media streams, newsletters and presentations to promote the project.

Awards, Funding and Grants

2019 SCAR Fellowship

Scientific Committee on Antarctic Research

2019

Antarctic Gateway Postgraduate Award

University of Tasmania

2018

IMAS Student Conference and Research Travel Scheme

University of Tasmania

2019

CoSE Conference and Research Travel Scheme

University of Tasmania

2019

Presentations, workshops and conferences

SCAR Online Conference

End-user workshop

2020

Ocean Sciences Meeting

e-Lightning presentation and two posters

2020

Antarctic Gateway Program wrap-up meeting

Research talk

2020

Department of Education on behalf of IMOS

Capability presentation

2019

Working with Water

High-school workshop

2019

Taroona Seaside Festival

Interactive display

2019

Australian Marine Science Association Conference

Research talk and lightning poster presentation

2019

Antarctic Gateway Partnership Annual General Meeting

Research talk

2019

Red Sea Research Centre Open Science Conference

Research talk

2017

The Ocean in a High CO₂ World conference

Research talk

2016

Presentation support and design

GEBCO Map the Gaps Symposium

AusSeabed Program presentation

2021

Geoscience Australia Seminar

AusSeabed Program presentation

2021

Australian Marine Sciences Association

AusSeabed Program presentation

2021

Working group participation

Southern Ocean Observing System

Observing System Design working group leadership

2020-Present

Ocean Best Practice System workshop IV

Ocean Uncertainty Quantification working group

2020

References

Kim Picard

Professional referee - AusSeabed Program Director

kim.picard@ga.gov.au

02 6249 9548

Philip Boyd

Professional referee - PhD supervisor

philip.boyd@utas.edu.au

03 6226 8554

Rob Johnson

Professional and personal referee - Data Scientist at Bureau of Meteorology

robert.johnson@bom.gov.au

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