



Supercharging Aquaculture – Unpacking Production Environments and Microbiomes



Contact Supervisor: Professor David Bourne
(<https://research.jcu.edu.au/portfolio/david.bourne/>)

Other Supervisors: Professor Dean Jerry and others see <https://www.jcu.edu.au/arcsta/teams>

PhD (International/Domestic). Applicants will need to apply for a [JCU competitive Research Scholarship](#) and should be familiar with the [Higher Degree by Research Requirements](#).

The ARC Research Hub for Supercharging Tropical Aquaculture through Genetic Solutions is seeking expressions of interests from highly motivated prospective students to fill a PhD Project through a competitive research application. The PhD project will be aligned with strategic aquaculture industry stakeholders and focused on key research priorities of the Research Hub to boost productivity of target culture species. The projects will deliver outcomes that include selection of genetic lines for fast growth, product quality and pathogen tolerance, improve hatchery breeding processes, improve biosecurity, and lower threat of disease plus delivering on-farm solutions to better understand how the farm environment interacts with the culture species to boost productivity outcomes.

The positions will be based either at James Cook University (JCU) in Townsville, Australia – a world-renowned research institution for tropical marine science or the University of Queensland in Brisbane, Australia – a research-intensive institution ranked in the top 50 Universities globally. While these projects are fully funded, student financial support is not available, thus the successful candidates are expected to apply for a competitive Postgraduate Research Scholarship funding offered through James Cook University. Potential candidates preferably should have at least one peer-reviewed scientific publication and demonstrate a high level of academic achievement. Candidates should also demonstrate an interest in aquaculture systems with knowledge and skills in areas such as microbiology, genetic or genomic approaches, animal nutrition, bioinformatics or artificial intelligence and machine learning applications to biological systems. The positions are open to both Australian and non-Australian citizens. Please send inquiries and expressions of interest (cover letter and CV) sta@jcu.edu.au by 20th August 2023.

Project summary

This project will deliver new knowledge on the interplay of bacterial microbiomes on the productivity and health of farmed species, how microbiomes link to hatchery and production environments, pathogens prevalence and management practices. It aims to penultimately develop on-farm decision support applications based on artificial intelligence and machine learning that integrate all relevant data streams.