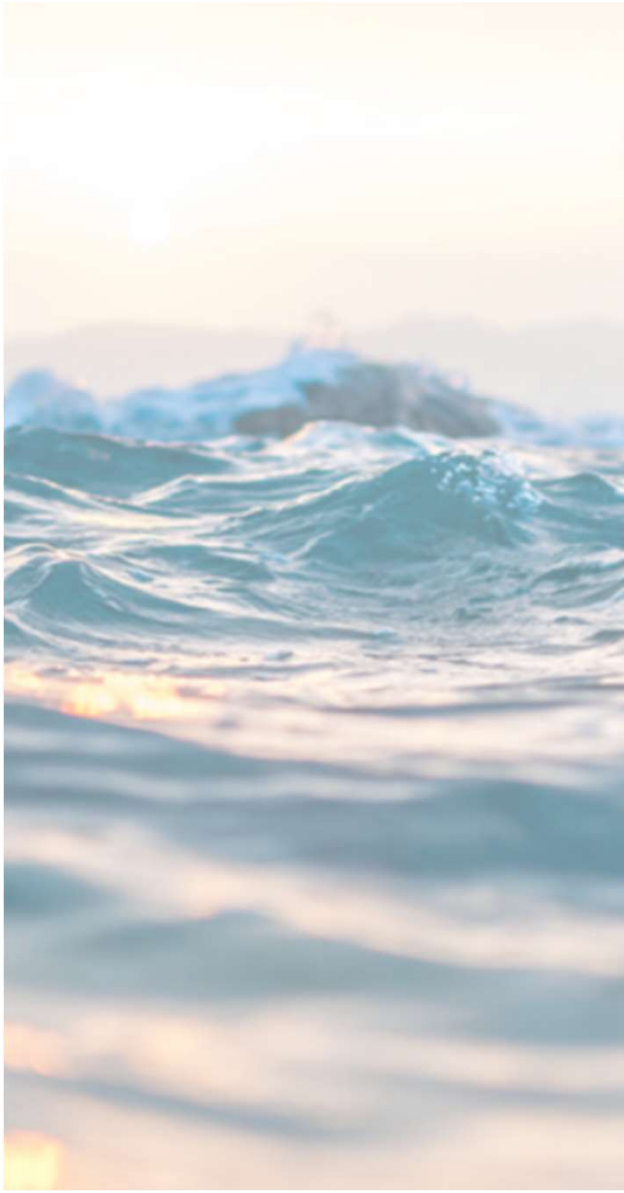
Enabling Autonomous Technologies for Aquaculture in Challenging Environments

Blue Economy CRC General Project 1.21.004

Project Lead: Guy Williams

Project Objectives:

- Apply existing autonomous platform/sensor technology to the environmental monitoring of three unique oyster farming sites on the East Coast of Tasmania facing differing challenges.
- *Design a sub-surface water sampling system for integration onto an Autonomous Surface Vessel.*
- Develop new methodologies for integrating multiple autonomous platforms with remote sensor networks.
- Assess new oyster farming and kelp production sites and systems and the data extracted from existing sites.
- Transfer knowledge to the Blue Economy CRC.
- Identify next steps and the pathway to offshore operations.



All the ideas …

Alistair Grinham (UQ)

Simon Albert (UQ)

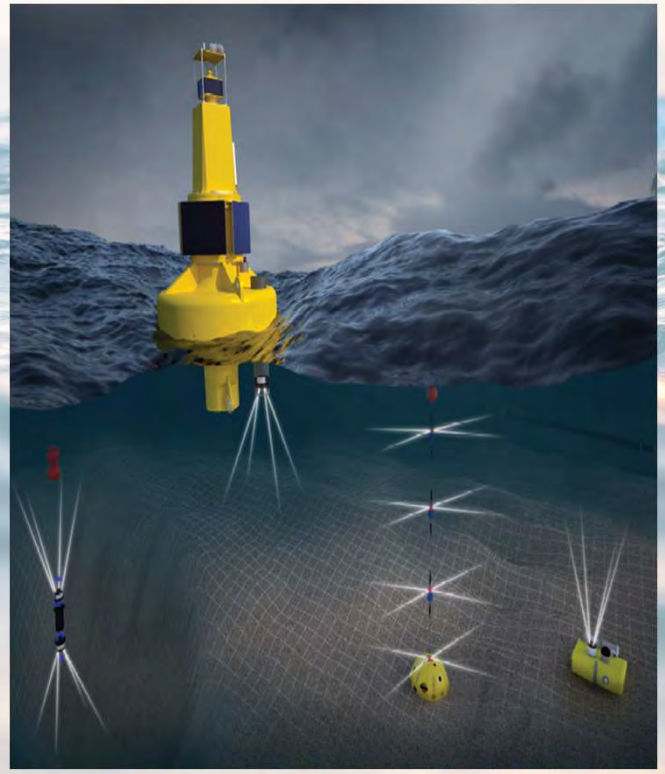
Damien Guihen (UTas)

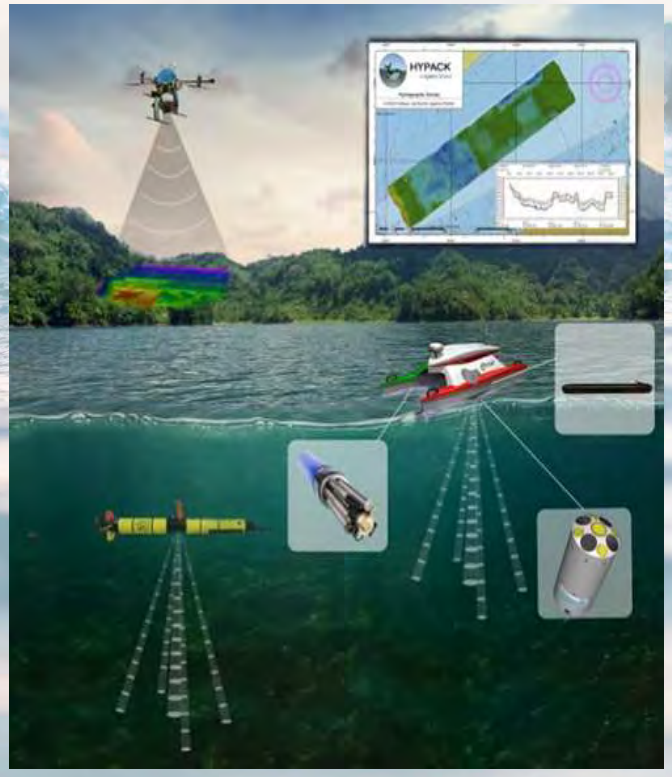
Frances Huddlestone (OT)

Guy Williams

Andy Fischer (UTas)

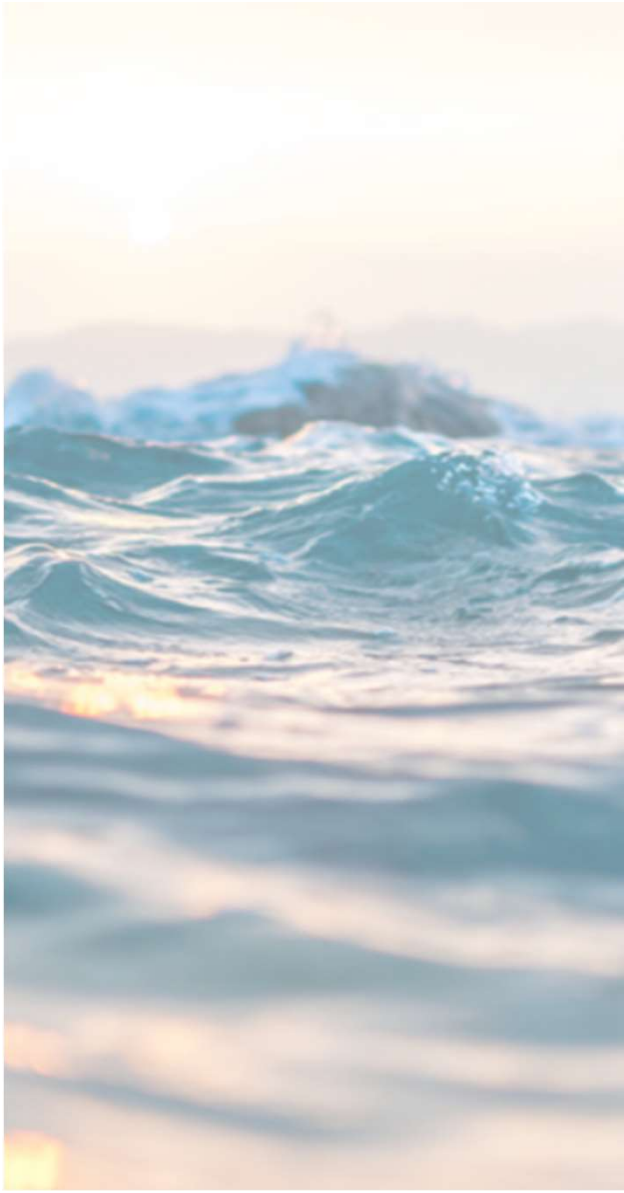
… and some of the gear





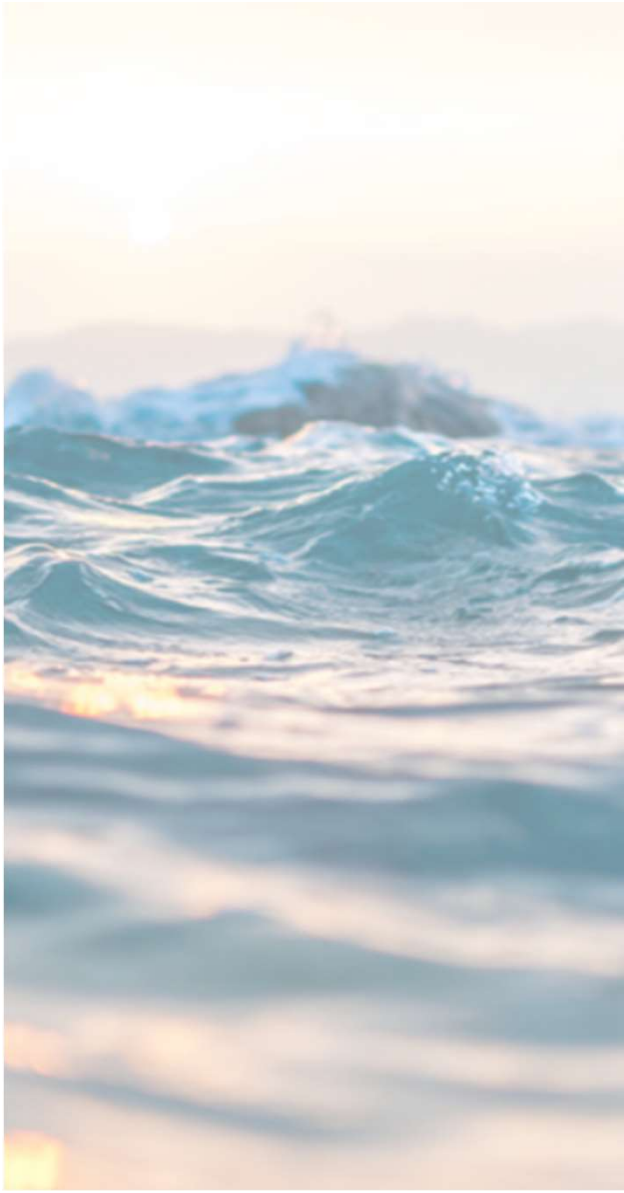
Immediate workplan (and challenges) for 2022

- Pivoting closer to specific oyster industry requirements, adjusting budgets and milestones
- Environmental surveys utilizing existing platforms (Nov 2022)
- Determining best locations for starting in-situ monitoring asap
- Kickstarting PhD and Post-doctoral work
- Getting the ‘Collaboratory committee’ up and running
- Starting to plan the next General Project



Relevance and Impact

- Local oyster farmers seeking better understanding (productivity) at existing sites
- Peak industry bodies examining regulations around food safety and harvest closures and the assessment of new sites
- Kelp/carbon sequestration industry needs broad environmental assessment and monitoring
- Salmon/Offshore Energy for new Autonomous Maritime System (AMS) technologies
- Defense for integrated AMS

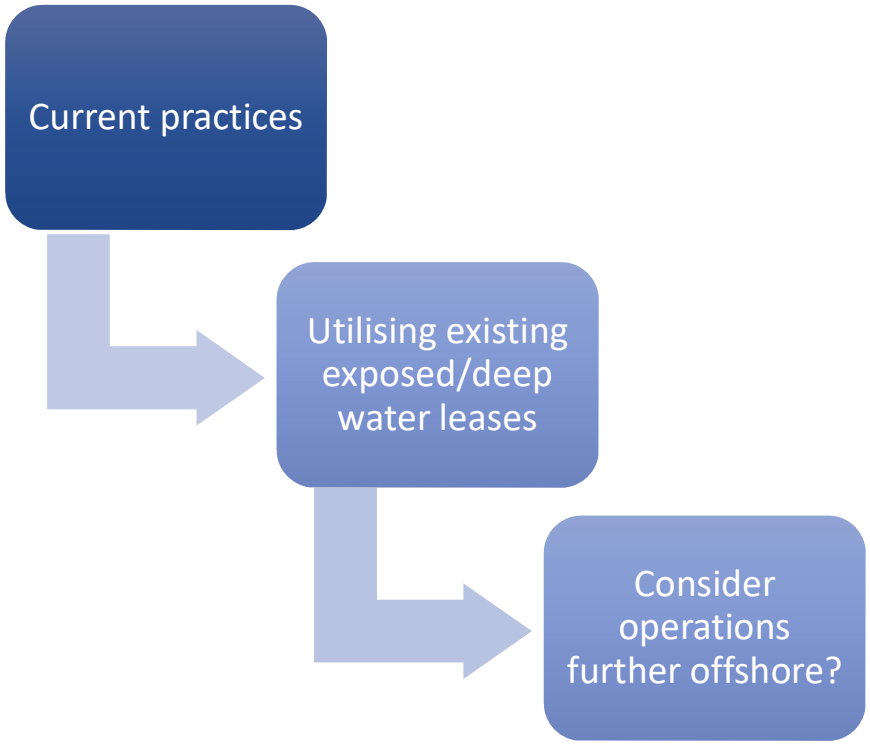


Deep water/Exposed oyster Aquaculture Scoping Study
Project introduction

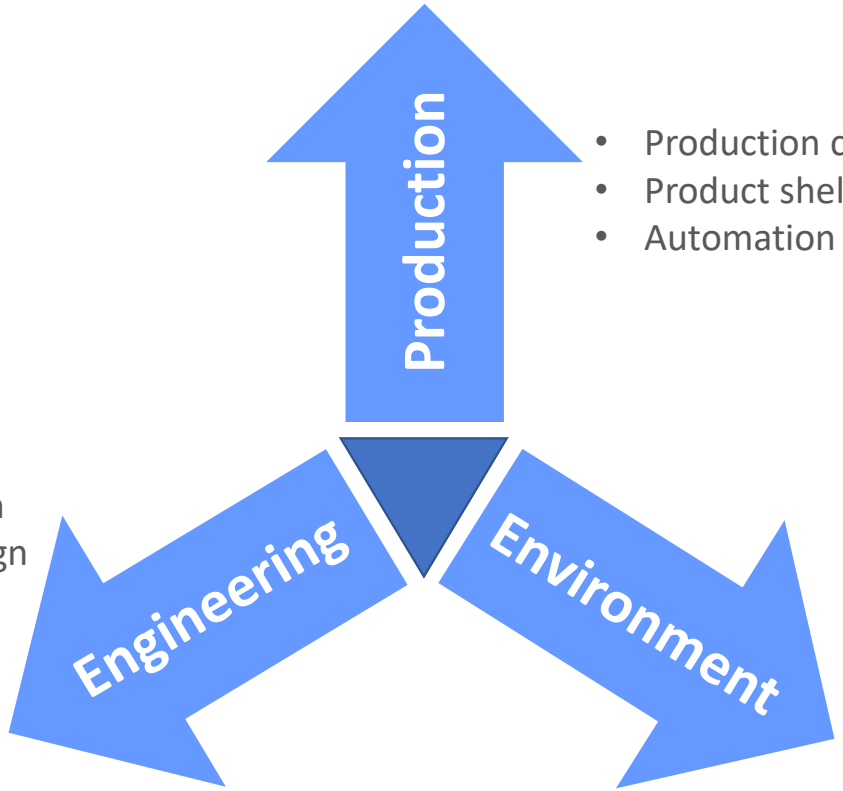
Project Lead: Frances Huddlestone

Oyster Aquaculture scoping study

6 month project to identify knowledge gaps



Oyster Aquaculture scoping study – 3 Themes



- Production cycles
- Product shelf life
- Automation

- Farm design
- Basket design
- Materials
- End of life
- Moorings
- Floatation

- Monitoring
- Food source
- Impact to working days

Cost/Benefit vs current practice