

Advanced monitoring to maximise fish welfare in offshore aquaculture

Summary

Farmed fish are exposed to biosecurity risks that compromise their welfare and increase production costs. Risks include pathogens and proliferations of microalgae and jellyfish. Farms will become less accessible as the industry expands into offshore and higher energy environments. New remote monitoring tools are needed, therefore, to support decision making for mitigating biosecurity risks and monitoring fish offshore. This project unites all three Tasmanian salmon companies with researchers from Griffith University and the University of Tasmania to develop computer vision approaches for monitoring jellyfish threats and the body condition of fish in remote and offshore environments.

Why the Project is Necessary

Farmed fish face numerous environmental threats. These include various pathogens, toxins released from proliferations of microalgae, stinging jellyfish that cause skin lesions and gill necrosis and non-stinging jellyfish (including “comb” jellies and salps) that, when abundant, can occlude nets and deplete oxygen within pens, causing metabolic distress to fish. Jellyfish may kill fish or slow their growth, which compromises their welfare and increases production costs for industry. Globally, jellyfish cost the global finfish aquaculture industry \$10s-\$100s of million annually. In Tasmania in 2018 jellyfish increased production costs by 18% (Huon Aquaculture annual report).

Current approaches used to monitor fish and jellyfish rely on staff accessing farms. Approaches include ad-hoc observations of jellyfish and diver inspection of fish within pens and manual sampling of anaesthetised fish by health technicians. Expansion of aquaculture into offshore and higher-energy environments presents challenges for monitoring because the remote locations and rough conditions will frequently limit access to farms. New technologies that can be deployed and operated remotely are needed, therefore, to replace routine monitoring done by people.



Project ID

4.21.001

Research Program

RP4 Environment and Ecosystems
(EE) Program

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Duration

42 months

Participants

- » Griffith University
- » Huon Aquaculture Company Pty Ltd
- » Petuna Aquaculture Pty Ltd
- » Tassal Group Limited
- » University of Tasmania