

# Hydrodynamic Energy Attenuation by Seaweed Aquaculture

## Summary

Offshore seaweed aquaculture presents opportunities to beneficially co-exist adjacent to other aquaculture (e.g., finfish) and offshore energy developments due to its capacity to attenuate hydrodynamic energy and mitigate hazardous conditions.

Canopies formed by seaweed can be effective at attenuating wave and current energy in the ocean due to the drag forces they exert on the water column. However, previous studies of seaweed-hydrodynamic interactions have been limited, leading to conflicting conclusions ranging from seaweed having negligible to substantial effects on waves and currents.

Research is needed to improve process understanding and to develop robust predictive models that are generalisable to different seaweeds. This project will advance quantitative understanding of wave and current attenuation by offshore cultivated seaweed through a comprehensive experimental program. It will deliver robust predictive models, practical tools, and guidelines to promote the growing ANZ offshore seaweed aquaculture industry.

This project will develop comprehensive understanding and predictive tools for how offshore cultivated seaweed species modify a range of hydrodynamic processes in offshore environments. Outputs will provide critical foundations for optimal design of multi-function projects, enhance operations (e.g., optimise harvest timing), and enable broader accounting of co-benefits of offshore seaweed aquaculture (e.g., potential as coastal protection).



## Project ID

2.23.002

## Research Program

RP2 Seafood & Marine Products

## Project Leader

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## Duration

42 months

## Partners

- » University of Western Australia
- » Auckland University of Technology
- » Southern Ocean Carbon Company
- » The New Zealand Institute for Plant and Food Research
- » University of Tasmania

## Third Parties

- » Fremantle Seaweed
- » Alfred Wegener Institute for Polar and Marine Research