

AI-Driven underwater tech set to boost NZ mussel industry by \$80Mn

30 May 2025 | News

The research aligns with the New Zealand Government's Aquaculture Strategy, which aims to build a \$3 billion industry by 2035, including a \$1 billion goal for the Greenshell mussel sector



The research aligns with the New Zealand Government's Aquaculture Strategy, which aims to build a \$3 billion industry by 2035, including a \$1 billion goal for the Greenshell mussel sector

World-leading research from the University of Canterbury (UC) | Te Whare Wānanga o Waitaha is set to revolutionise New Zealand's aquaculture sector, with potential benefits of up to NZ\$80 million annually for the mussel industry alone.

A team led by Professor Richard Green, from UC's Computer Science and Software Engineering department, has developed advanced artificial intelligence systems that enable autonomous underwater vehicles (AUVs) to navigate close to moving surfaces. These AUVs can capture high-quality images, collect samples, and reconstruct detailed 3D models of marine species, even in turbulent underwater environments.

This cutting-edge technology holds the promise of dramatically improving efficiencies in farming shellfish, ocean-caged salmon, and seaweed, while also enhancing biosecurity efforts, such as inspecting wharf pylons for invasive species more frequently and cost-effectively.

"We're leading the world in this," said Professor Green. "To grow our aquaculture sector, this type of innovation is essential. By increasing automation, we can scale up production sustainably and affordably, not only for New Zealand but potentially to improve food security worldwide."

The research aligns with the New Zealand Government's Aquaculture Strategy, which aims to build a \$3 billion industry by 2035, including a \$1 billion goal for the Greenshell mussel sector. Professor Green emphasised that innovation and technological advancement are critical to meeting these targets.

The AUV technology is the result of over a decade of research and development. It solves a longstanding industry challenge—collecting precise data and imagery of aquatic life in dynamic, fast-moving ocean currents. Now, with the ability to generate accurate 3D visuals and detect pests or diseases in real time, the system offers a transformative tool for monitoring and managing marine environments.

As the technology continues to develop, its global applications could be significant in advancing sustainable aquaculture and enhancing food production worldwide.