

Science Matters



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Science and industry partnership strengthened

Aquaculture in the top of the South Island has received a further boost following the signing of a formal agreement between Cawthron Institute and Wakatū Incorporation.

Wakatū-owned seafood company, Kono, has been based at the Cawthron Aquaculture Park since 2003, working with Cawthron at an operational level on shellfish research and development. The new agreement between both boards sets out terms around the leasing of land, shared resources, collaborations and infrastructure at the park.

“By working together at a strategic level we’re able to better pool our resources and knowledge so we can continue to support sustainable aquaculture growth,” Cawthron Institute Chairman Ian Kearney says.

Wakatū Incorporation Chairman Paul Morgan says the agreement cements its longstanding partnership with Cawthron.

“It’s a smarter way of doing things and will help in future planning and decision-making around new investments, research and developments,” he says.

“It’s good for us, for the industry and for our region to have this added security and certainty, and sends the message that we’re in this sector for the long haul.”

Wakatū Incorporation
Chairman Paul Morgan and
Cawthron Institute
Chairman Ian Kearney (right).



Latest research delivers encouraging signs for oyster industry



Scientist Achim Janke with Pacific oyster broodstock at Cawthron Aquaculture Park.

Three years ago a virus devastated New Zealand’s Pacific oyster industry; today a collaborative research programme to breed oysters resilient to that virus is off to a promising start.

Cawthron Institute scientists and industry partners have been working towards selectively breeding Pacific oysters resilient to the ostreid herpes (OsHV-1) virus since 2010, when it first hit New Zealand.

“Results of our latest trials have identified oyster families with a high survival rate when

exposed to the oyster virus, which decimated stocks in 2010,” Cawthron Chief Executive Professor Charles Eason says.

The research indicates that a combination of genetic improvement through breeding, and improved farm husbandry (such as growing oysters to a larger size and age before exposure to the virus) could make a big difference to oyster survivorship, and mean a return to viable production.

“We’re hoping these new breeding strategies will help us achieve genetic gains in a relatively short timeframe,” Cawthron Aquaculture Manager Dr Jacquie Reed says. “We are fully aware that timing is critical in times of crisis, and the industry needs fast results to survive.”

The results were delivered to farmers at the New Zealand Oyster Industry Association (NZOIA) AGM in July.

“There are still further trials to go, but these are very encouraging preliminary results for our long-term breeding programme,” says Professor Eason.

This research is part of an oyster industry modernisation project, coordinated by the NZOIA and Aquaculture New Zealand, and made possible with significant government investment through the Sustainable Farming Fund.

“These findings are most encouraging and suggest that selective breeding has great potential to address the current crisis.”



Safeguarding our seafood exports

Now in its 20th year, New Zealand's Seafood Safety Programme is a shining example of the benefits of having a dedicated team of experts focusing on identifying health threats to our seafood sector.

The government-funded research programme is led by Cawthron Institute in partnership with AgResearch, Plant & Food Research, and the Institute of Environmental Science and Research (ESR).

Tapping into the strengths and expertise of each organisation, the programme investigates and identifies micro-organism risks to New Zealand seafood and its associated industries.

"We provide research that safeguards and promotes the safe reputation of New Zealand seafood, ensures ongoing access to international markets and minimises costs to the New Zealand industry," Seafood Safety Programme Leader Dr Lesley Rhodes says.

"Our focus is on key pre- and post-harvest micro-organism risks, including viruses and bacteria, and harmful algae and the biotoxins they produce."

Scientists working on the programme lead the world in use of advanced analytical technology for fast and cost-effective detection and management of marine toxins. The team are constantly researching potential new threats to proactively protect exports, while also developing new tools for better detection and monitoring of risk species.

"We need to stay ahead of potential threats and be well prepared with the tools to respond to any new events," Dr Rhodes says.



Cawthron scientists are monitoring marine mammal populations in the Marlborough Sounds.

Research to protect marine mammals

A three-year research project into marine mammal populations in the Marlborough Sounds is providing new insights into the movement patterns and behaviour of dolphins, whales and fur seals that frequent the area.

Cook Strait and the Marlborough Sounds are the main gateway for marine mammals moving between the North and South Islands and on to the Pacific region.

"We're hoping this research will unravel some of the mysteries around these populations so we can start building a picture about their movement patterns and gain insights into why this area is so important to them," says project leader and Cawthron marine mammal ecologist, Deanna Clement.

"Identifying specific trends or behaviours will help us understand these populations so we can better protect them."



As part of their research, the scientists are investigating the perception that marine mammals leave the area when boat traffic increases in summer. While their research has confirmed there are fewer species in the Sounds around this time, it is unclear if it is related to boat interference or natural movements.

Longer term, it is hoped the research findings will be used by industry and government agencies to help minimise the effects of human interaction on these populations.

Cawthron also plans to develop a website where fishermen, boating enthusiasts and others can log their sightings of marine mammal activity in the Marlborough Sounds and Tasman and Golden Bays, as well as upload relevant photographs.

In the meantime, Dr Clement is asking people to email her with any marine mammal sightings in these areas.

To find out more email: deanna.clement@cawthron.org.nz



New head of aquaculture

Commercialisation of research and sustainable aquaculture development are a strong focus for Cawthron Institute's new Aquaculture Group Manager Dr Jacquie Reed.

Dr Reed joined Cawthron from Northland Inc, where she was Aquaculture and Business

Development Manager, and before that a group manager at NIWA for nine years.

Originally from London, she began her science career at the United Kingdom's Centre for Environment, Fisheries and Aquaculture Science where she was a research programme leader of coastal and freshwater environments, focusing on shellfish and fish health research.

"This is an exciting time for aquaculture and it's a privilege to be in this new role," Dr Reed says.

Charlie's corner



Collaboration breeds success

Strong links between primary industries and production-focused science are vital for our export sectors to stand out from the rest of the world.

An example of this in action is our partnership with the aquaculture sector. Together with industry we have created a national centre of expertise in shellfish aquaculture – right here in Nelson, and strongly underpinned by scientific research.

Cawthron Aquaculture Park is now home to New Zealand's largest mussel and oyster hatchery operations – owned by Shellfish Production and Technology New Zealand (SPATnz) and Aotearoa Fisheries Ltd respectively, as well as seafood company, Kono. Looking to the future, we're attracting new partners to the park as this hub of activity and expertise develops.

With these significant businesses literally at our doorstep (and even sharing our tearoom!) cross-pollination between science and industry is unavoidable, and encouraged.

It's through seamless partnerships like these that we ensure that even our detailed, fundamental research has utility – or, in commercial terms – "line of sight to market".

Professor Charles Eason

CHIEF EXECUTIVE CAWTHRON INSTITUTE



Supporting economic development in the Pacific

Larson Kitao from the Papua New Guinea National Fisheries Authority, training at Cawthron with Andy Selwood (left).

Cawthron Institute's analytical services team are contributing to Pacific Island economic development by sharing their expertise with a range of island nations.

Many Pacific Island laboratories are keen to acquire international accreditation or analytical testing expertise to protect their primary industries. The laboratories are also under pressure from export markets to diversify and introduce a greater range of tests. This includes tests related to food safety, as countries put stricter regulations in place to meet food safety standards.

Cawthron scientists and technical staff have been working in the Pacific for the past decade, helping develop analytical and testing capability in laboratories throughout the region including in Fiji, Tonga, the Solomon Islands, Papua New Guinea, and

most recently, Samoa. Cawthron also hosts technicians from throughout the Pacific at its laboratories in Nelson.

"Our work supports these nations to gain accreditation in their own countries so they have the necessary tools to export direct to international markets without the need for a middleman," Cawthron Analytical Services Manager Nico van Loon says.

Cawthron's work in the Pacific is funded by a range of agencies including AusAID, the European Union and the World Health Organization.

Partnerships in science

Cawthron Institute offers a broad spectrum of services to help protect the environment and support sustainable development of New Zealand's primary industries.

Our scientists work with regional councils, government departments, major industries and other research organisations throughout New Zealand and around the world.

Contact us today!

Science Matters is a quarterly magazine by Cawthron Institute, New Zealand's largest independent science organisation. To subscribe by email, contact info@cawthron.org.nz

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