



CASE STUDY OF IMPACT  
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# A more sustainable and productive aquaculture industry

To improve the sustainability and productivity of Australia's prawn industry CSIRO bred the 'perfect prawn' and developed a new plant-based prawn feed.

## The challenge

Around 50 per cent of prawns eaten in Australia are imported from countries such as China and Vietnam.

Most of these imports are farmed prawns that have been produced using feeds containing wild-harvest fishmeal, putting strain on global fish stocks.

CSIRO and Australian industry partners saw an opportunity to improve the sustainability and productivity of Australia's prawn farming industry and deliver improved, high-quality products to consumers.

## The response

We approached the challenge in two ways – breeding for a better prawn and developing a more sustainable prawn feed.

Together with the Australian prawn farming industry we used cutting edge technology to selectively breed black tiger prawns, resulting in increased growth rates and disease resistance.

We developed Novacq™, a bioactive aquafeed ingredient, produced via the bio-conversion of low-value plant waste from agriculture.

## The engagement

Initial success was in partnership with Gold Coast Marine Aquaculture, a Queensland prawn farm, with yields from the improved stocks of black tiger prawns more than double industry average.

The uptake of our new breeding technology has extended to several Australian companies, and is expected to increase with the projected expansion of the industry.

A new research partnership with a shrimp breeding company in Asia is focusing on breeding resistance to prawn diseases. The knowledge will help the Australian prawn farming industry manage diseases.

Engagement with Ridley Aquafeeds is enabling production of Novacq™ for Australian prawn farmers and international markets. Other licensees are enabling commercialisation of Novacq™ technology in major prawn farming countries including China and Vietnam.

## The impact

Together with our partners, we developed domesticated, selectively bred stocks of black tiger prawns with

improved growth rates, disease tolerance and market quality. Yields of our black tiger prawns are 39 per cent higher compared with farmed wild prawns.

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Few organisations have the multidisciplinary capability to cost effectively apply genetics, disease and nutrition capabilities to change an industry.

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Prawns fed with Novacq™ grow on average 20–30 per cent faster, are healthier and can be produced with no wild fish products in their diet, a world-first achievement in sustainability.

Productivity gains have made Australian black tiger prawns more competitive with imported shrimp.

An independent assessment estimates the benefit to industry at around \$73.5 million to date, potentially increasing to many more millions in the future<sup>1</sup>.

<sup>1</sup> ACIL Allen Consulting, 2014. *CSIRO's Impact and Value – An Independent Assessment*.

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## AT CSIRO WE SHAPE THE FUTURE

We do this by using science to solve real issues. Our research makes a difference to industry, people and the planet.  
**WE ASK, WE SEEK, WE SOLVE**

## FOR FURTHER INFORMATION

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