



**TIAKI**  
FISHED WITH CARE



Precision  
Seafood  
Harvesting

# Tiaki™ – the best fish caught the best way

Tiaki means to care and protect, it means  
guardianship in Te Reo Māori.





*"The fish is at the centre of what we do. If we do what's best for the fish it's actually best for everyone."*  
 Alistair Jerret | Plant & Food Research

Tiaki™ is revolutionary fish harvesting technology that replaces sections of traditional trawl nets with the non-mesh modular harvest system. The Tiaki™ system provides a significantly more sustainable way of fishing producing higher quality seafood. Tiaki™ is the brand for the gear and handling system.

The Tiaki™ design allows fish to swim freely within a trawl chamber for as long as necessary reducing stress, fatigue and damage. Small fish escape and unintended catch can be released. The process was observed with specially designed underwater cameras. The Tiaki™ system ultimately delivers fish in a much better condition and thus higher value. Importantly, the Tiaki™ designs offer a passive, low energy method of escapement from the trawl system compared to mesh-based designs. Although extremely difficult to quantify, the video evidence from multiple tows supports the proposition that fish going through the specially designed 'escapement holes' underwater are believed to have a better chance of survival than through traditional trawl mesh escapement.



*"They are part of creating a transformational legacy for the next generations of kiwi fishers. They don't want to go back to traditional fishing gear – they are excited about this as their future for fishing, and now want to get into it full time to see how they can make it even better."*  
 Greg Johansson | PSH Governance Group



*"We can get a higher value because the fish aren't damaged. For hoki, that means more product at the higher end of the quality cascade, such as skinless fillets or whole chilled hoki, and less volumes of the lower end products like B-grade fillet blocks, mince or fishmeal."*  
 Dave Woods | PSH Programme Manager



*"For the last 150 years, trawling hasn't changed and we are turning that on its head."*  
 Suzy Black | Plant & Food Research

Precision Seafood Harvesting is a \$43 million, 7-year Primary Growth Partnership between the Ministry of Primary Industries (New Zealand) and three fishing companies, Moana New Zealand, Sealord Group and Sanford Limited to develop new fishing technology in conjunction with Plant & Food Research (New Zealand).

Tiaki™ was developed in New Zealand by Precision Seafood Harvesting after several years of extensive research and collaboration between New Zealand's top fish physiologists, leading seafood companies and government. The results speak for themselves with Precision Seafood Harvesting receiving innovation awards. Industry uptake of the Tiaki™ system is strong and skippers, crews and buyers are delighted with the quality of fish the Tiaki™ system delivers. Precision Seafood Harvesting has been recognised as leading in innovative technology with the following awards and numerous other nominations:

The Tiaki™ system now has regulatory approval by the New Zealand Government for both inshore and deep-sea use. Having passed strict criteria for each of; size selectivity, species composition, benthic impact (measured as catch per unit effort) and impact on protected species, it is currently in commercial use in New Zealand under licence on seven deepwater and nine inshore vessels and will be commercially available worldwide from 2022.

- Winner of the Callaghan Innovation Māori Innovation Award, June 2016.
- Supreme Winner of the NZ Innovators Awards, Oct 2014
- Winner of the Innovation in Sustainability & Clean Tech Award, NZ Innovators Awards, October 2014
- Sustainable Innovation winner at KiwiNet Awards, June 2014

The Tiaki™ modular harvesting system has set a new benchmark in premium quality by delivering fresh wild-capture fish in pristine condition. The Tiaki™ system is putting high-value sustainable fish on the table for consumers while looking after fish stocks and protected species.

**Put simply – fished with care.**



*"This is a transformative technology that New Zealand is leading the world in."*  
 Steve Tarrant | CEO Moana New Zealand



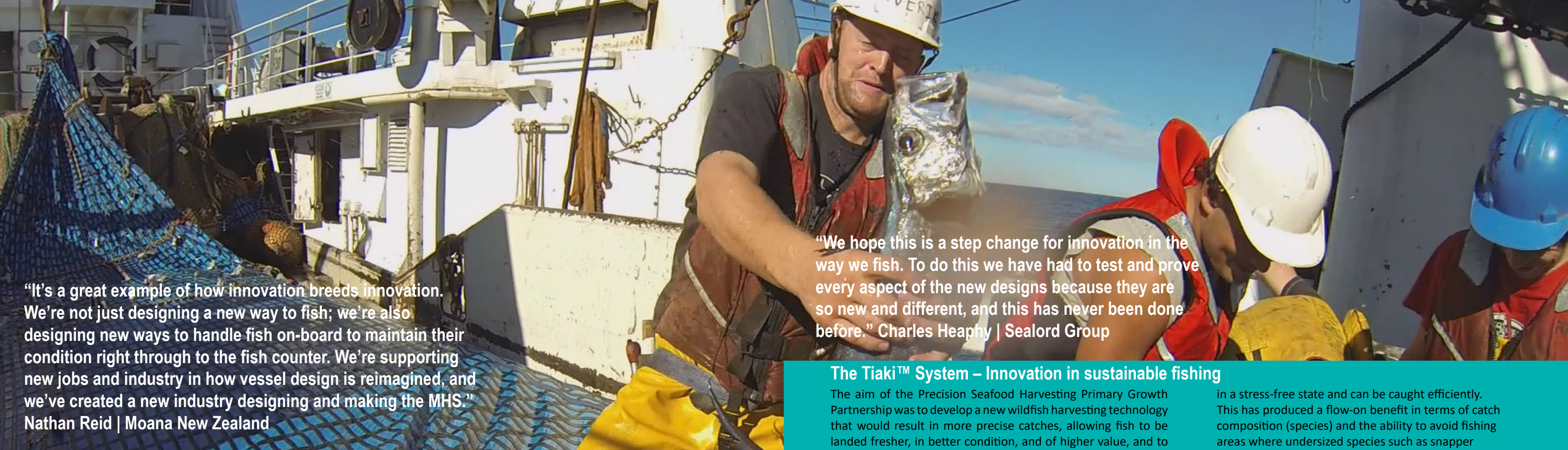
*"People are demanding to know where their seafood comes from and they are demanding that we care for the stocks of fisheries that we fish. We have risen to that challenge and used technology to do so."*  
 Garry Wilson | PSH Chairman

**Seven years of Tiaki™ development:**

- 13000 tows/over 38000 metric tonnes of fish.
- Cascade gain value-add estimated at NZ\$110 per GWT
- Improved Hoki firmness and colour
- Trevally shifts from low value to sashimi value
- Commitment from industry – rapid commercial uptake – 9 inshore and 7 deepwater New Zealand fishing vessels using Tiaki™ technology commercially in less than two years since regulatory approval.







“It’s a great example of how innovation breeds innovation. We’re not just designing a new way to fish; we’re also designing new ways to handle fish on-board to maintain their condition right through to the fish counter. We’re supporting new jobs and industry in how vessel design is reimagined, and we’ve created a new industry designing and making the MHS.”  
Nathan Reid | Moana New Zealand

“We hope this is a step change for innovation in the way we fish. To do this we have had to test and prove every aspect of the new designs because they are so new and different, and this has never been done before.” Charles Heaphy | Sealord Group

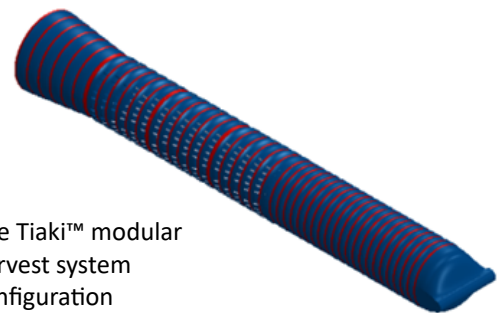
### The Tiaki™ System – How does it work?

Key to the Tiaki™ system is the non-mesh modular configuration of the trawl bag. This modular system replaces the traditional trawling codend and is made up of three different module types:

- Cone module – forward section that collects the water to inflate the chamber. This module connects to the traditional trawl net.
- Escapement module – mid-section modules that promote fish escapement.
- Lift-bag module – terminal module that collects the catch in a low-velocity waterflow environment.

This design allows fish to swim freely once inside the modules by adjusting the internal waterflow velocity to suit the physiological capabilities of the fish being harvested. It means fish condition is maintained during the capture process, significantly reducing stress, fatigue and physical damage. This also enables the catch to be held under the deepwater processing trawlers until their factory is ready to process another load. That then improves the product cascade and increases the value of the catch.

Strategically positioned and sized escapement ports along



The Tiaki™ modular harvest system configuration



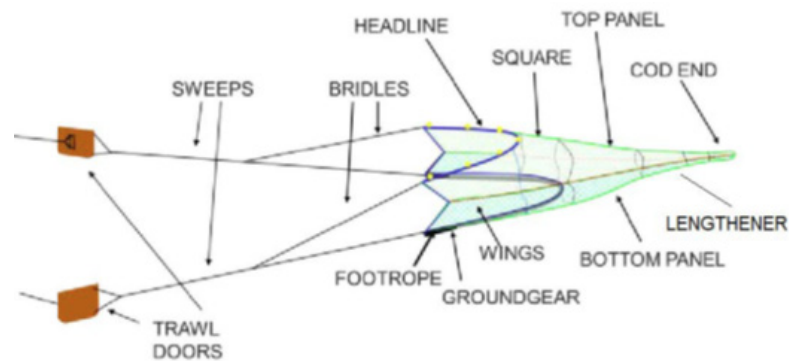
### Inshore and deepwater options

The size and configuration of modules is customised to suit inshore or deepwater fishing. The Tiaki™ system is designed to be retrofitted to an existing trawler fleet.

Inshore species are brought on board alive – the lift-bag arrives on deck closed and containing water and alive catch. Fish are free from exhaustion and in pristine condition. Any juveniles or unintended catch remaining in the net can be returned to the sea with a much higher survivability rate.

Because deepwater species remain alive while in the modules at depth, fish can be held for processing if required. Fish arrive at the surface in a significantly better condition than traditional mesh trawling; increasing the quality and adding significant value to the catch.

The Tiaki™ system is in commercial use in New Zealand for inshore species: Snapper, Tarakihi, Trevally, Red Gurnard and John Dory; and Deepwater species, Hoki, Hake and Ling. Tiaki™ is a versatile system that can be adapted to other species.



Tiaki Harvesting System.

### The Tiaki™ System – Innovation in sustainable fishing

The aim of the Precision Seafood Harvesting Primary Growth Partnership was to develop a new wildfish harvesting technology that would result in more precise catches, allowing fish to be landed fresher, in better condition, and of higher value, and to improve the survivability of unintended catch. Thus maintaining sustainable fish stocks where as many juveniles as possible survive to generate the fisheries of the future and ensure our livelihoods. Through the development of the Tiaki™ system there is now an established pathway for continuing innovation in trawl technology that didn’t exist prior.

Developing PSH required determination and commitment. Meaningful resources and industry expertise were backed with research excellence and an iterative research approach to develop this revolutionary new system of trawling. The resulting Tiaki™ modular harvesting system has two key features that ensure a premium quality, high-value product as well as a productive, sustainable commercial fishing stock:

1. A mechanism to allow small fish to escape unharmed.
2. A low-velocity waterflow environment allowing fish to swim freely and arrive on deck in excellent condition.

The 7-year partnership ended in September 2019 having achieved more than it set out to:

- A positive change in mindset and culture grew as all the partners worked collaboratively for a more sustainable and high value catch. Kaitiakitanga, our core value of stewardship, was at the centre of this as the work progressed and the Tiaki™ technology started to take shape.
- Inshore vessels can fish further from port and in deeper waters since fish in the Tiaki™ module chambers remain

in a stress-free state and can be caught efficiently. This has produced a flow-on benefit in terms of catch composition (species) and the ability to avoid fishing areas where undersized species such as snapper are prevalent. It has also reduced the interplay with recreational fishers.

- The technology has enabled fishing strategy changes including longer tows without compromising fish quality.
- There are probable gains in fuel consumption efficiency which are being quantified and may result in a lower carbon footprint per kilo caught.
- Anecdotally we believe we are seeing improved fish stocks already.
- The Tiaki™ system opens opportunities for changes in vessel design and layout such as fish pounds and ergonomic fish handling systems.
- Diverse wider economic opportunities such as strategic partnerships, gear manufacturing and supply, tracking systems and chain-of-custody technology opportunities also exist.
- Precision Seafood Harvesting intends to build on the passive environment of the Tiaki™ system and develop a release-at-depth strategy known as Datalink. One of its aims will be the ability to expand and improve the environmental performance by detecting and releasing any protected and endangered species such as marine mammals and seabirds safely.

In today’s world where fish stocks are limited, sustainability and extracting maximum value are key. People demand to know where their food comes from, and that it is caught humanly and sustainably. New technology like Tiaki™ is worth investing in.

The Tiaki™ story demonstrates how innovation, collaboration, perseverance and culture change can break the mould of an entrenched commercial fishing harvest method.

Tiaki™ is transformative technology that is proven to reduce defects and increase product quality, landed values, product cascade outcomes and yields. There remains the potential to further develop novel, value-added seafood products and categories for new, higher value markets.

“Tiaki™ isn’t just creating a new way to fish, it’s creating whole new industry opportunities around this innovation like manufacturing and supporting the new fishing gear and new vessel designs.”  
Volker Kuntzsch | CEO Sanford







**TIĀKI**  
FISHED WITH CARE



Precision  
Seafood  
Harvesting

# Tiaki™ – the best fish caught the best way

Tiaki means to care and protect, it means  
guardianship in Te Reo Māori.

For more information contact:

Dave Woods | Manager

Cell: +64-27-742 7046

Email: [Dave@precisionseafoodharvesting.co.nz](mailto:Dave@precisionseafoodharvesting.co.nz)

Website: [www.tiaki.com](http://www.tiaki.com)