

# Speaker's Science Forum - Science for Sustainable Fisheries



The first event in our Speaker's Science Forum series for 2022 was held on 11 Haratua May at Parliament. The central focus of the forum was how science can improve the sustainability of fisheries in Aotearoa.

Associate Professor Maren Wellenreuther discussed the potential of DNA technology to help us understand more about past and present fish stocks, while Dr Chris Cornelisen provided a broad overview of sustainability challenges facing fisheries in Aotearoa. Both speakers emphasised the importance of new technologies to support ecosystem-focused fisheries management and the overall health of our moana.

 [View powerpoint slides from the event.](#) [PDF 7.11 MB]

## How can fisheries management benefit from genomics? Key insights from New Zealand species

**Associate Professor Maren Wellenreuther, Science Group Leader at Plant & Food Research and Lecturer at The University of Auckland**

Seafood production is a major economic sector for Aotearoa New Zealand, and part of its culture: as an island nation with our sea area being more than 15 times that of our land, managing our marine environment is vital. Ensuring access to seafood under changing climate and environmental pressures requires the seafood industry to adapt at pace.

The sustainable harvesting of stocks is managed by our Quota Management System, which is seen by many as world-leading. However, sustainable management is complicated by the fact that we have large biological knowledge gaps about the majority of stocks. Globally, stocks are declining and a rapidly changing climate, combined with multiple anthropogenic stressors, adds further pressure. In her talk, Dr Wellenreuther outlined the power of DNA technologies to manage New Zealand fisheries stocks. Genomic solutions offer unprecedented ability to delineate baseline stock parameters rapidly and cost-effectively, because DNA holds an extraordinary trove of information about each individual's ancestry, its provenance, sex, age, resilience and adaptive potential. We have learned from the COVID-19 pandemic that such DNA information can be rapidly and cost-effectively generated to fill important knowledge gaps, and the time is ripe to transfer these innovative DNA technologies to fisheries management. Wellenreuther highlights how such a much-needed extension will allow for improved science-based decisions, supporting seafood sustainability for future generations.

## Science and technology for sustainable fisheries and a healthy ocean

**Dr Chris Cornelisen, Chief Science Capability Officer, Cawthron Institute**

### SPEAKER'S SCIENCE FORUM 2022

- ◀ Speaker's Science Forum - Science for Sustainable Fisheries
- ▶ Speaker's Science Forum - Trust, misinformation and social in(ex)clusion
- ▶ 10 Here-turi-kōkā August: Alternative forms of governance for Te Taiao





In his talk, Chris covered two of the seven themes from the PMCSA's report on the **future of commercial fishing in Aotearoa New Zealand**. These included the needs for New Zealand to implement an ecosystem approach to fisheries management and maximise research and innovation.

Aotearoa New Zealand lays claim to globally significant ocean estate in terms of biodiversity and the many ecosystem services and values it supports for our people and the world. As ocean stewards, we need to develop and use the best knowledge and tools for managing fisheries in a manner that ensures a healthy ocean for future generations. Fishing goes deeper than simply producing food – it is woven throughout our cultural and socio-economic fabric. This makes regulating fishing challenging, and it becomes even more complex when we consider that fishing is only one of many activities affecting the ocean.

The Quota Management System has been effective; however, our knowledge and science indicate an urgent need to implement ecosystem-based approaches to managing our marine resources to ensure the health of our ocean and fisheries improves and remains. The government has made progress towards ecosystem-based fisheries management. Together with Māori partners and stakeholders, the **Sustainable Seas NSC** is developing knowledge, tools, and resources to support marine ecosystem-based management that in turn will underpin a prosperous blue economy.

Sustainable Seas knowledge and tools being developed and trialed in regions such as Hawkes Bay, Hauraki Gulf and Marlborough Sounds will help guide fisheries management within the context of multiple stressors, and in turn inform management plans that encourage recovery of marine ecosystems while growing our blue economy.

In addition to implementing ecosystem-based approaches to fisheries management, we need to accelerate technological innovation around how we fish. World-leading innovations are emerging from New Zealand. Examples include Precision Seafood Harvesting, on-board cameras, sensors on boats as 'ships of opportunity', and imaging sensors using AI for more selective fishing with bottom gear.

Demonstrated success through research drawing on mātauranga Māori approaches to innovation, combined with strong partnerships between industry and scientists, reveals New Zealand's huge potential to become the world leader in sustainable seafood production. The ocean is our future and holds the solutions for many of our most urgent challenges; with purposeful investment and collaboration, New Zealand can realise a double win - world leaders in both ocean stewardship and technological innovation for enabling a blue economy.

Royal Society Te Apārangi

11 Turnbull St  
Thorndon, Wellington 6011  
Aotearoa - New Zealand

Contact us

+64 4 472 7421

Directions

Support us

Join as Member or Friend

Hire meeting facilities

Work with us

SIGN UP TO NEWSLETTERS

EXPLORE | DISCOVER | SHARE

Follow us

