# Seafood symposium highlight

**To nurture the marine coastal ecosystem, look to the land and climate. That was one of many messages in a compelling seafood symposium featuring science, economic and indigenous experts, as Tim Pankhurst reports.**

# s fish as the perfect protein

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That is not just the view of leading international seafood researcher Prof Ray Hilborn.

He was surprised to have the environmental credentials of seafood confirmed by Andy Sharpless, chief executive of Oceana, a US-based NGO.

Sharpless conceded that commercial fishing does not require herbicides or pesticides, or cause soil erosion and has a lesser environmental impact than other forms of food production like beef, chicken and pork.

Hilborn heartily agrees, adding that neither does fishing pollute the air or water, dry up rivers, drain the life from the soil, markedly reduce biodiversity, or significantly add to the global warming threatening our planet.

Hilborn, based at the School of Aquatic and Fishery Sciences at the University of Washington, was the keynote speaker in a one-day public symposium hosted by the Seafood NZ's Deepwater Council in Wellington on February 16.

Seafood NZ GM Deepwater Aaron Irving said the aim of the symposium was to celebrate seafood production, by highlighting the science that demonstrates that fishing produced food in a highly sustainable way, arguably more so than many other forms of food production.

"We are simply saying this is the science and it shows that fishing is a good thing," he said. "Rather than being disparaged, seafood production in New Zealand should be celebrated."

The presentations covering environmental, science, economic and Māori perspectives attracted 70 attendees from government agencies, industry, and media.

The desire for open dialogue saw invitations extended to various environmental groups, but only The Nature Conservancy chose to attend and contribute.

In his presentation, Irving spoke about the New Zealand Fisheries Act, noting that when it was put into effect in 1996 it was "state of the art". It continues to be considered innovative and ahead of other Acts around the world in terms of balancing utilisation and sustainability and delivering an ecosystem-approach to fisheries management (EAFM).

Irving discussed the challenges of implementing EAFM in New Zealand's deepwater fisheries, including reducing incidental interactions with marine life and the aquatic environment, and outlined the unwavering commitment of deepwater fisheries to sustainability.

"Currently we have 19 New Zealand fisheries that are certified sustainable under the comprehensive science-based Marine Stewardship Council (MSC) Fishery Standard, demonstrating that these fisheries are in the top five percent of the world's best-managed fisheries," he says.

"Only the very best managed fisheries can meet the MSC standard and maintain it for over 20 years, as is the case for our hoki fisheries."

In introducing Prof Hilborn, Toroa Strategy director Tom McClurg said he was renowned and respected for testing assumptions against data.

"This is the hallmark of a good scientist.

"Consequently, Ray has challenged more than his fair

share of assumptions and upset more than his fair share of people."

"All food production has environmental consequences," Hilborn said. "I often started a course of my environmental undergraduates by asking, what's the lowest environmental impact of food? Usually, the best answers were roadkill and picking wild berries.

"In the 1960s to 1980s advances in plant-based food production were produced from the technologies of the green revolution, with better genetics, more fertilisers and more irrigation producing high yields and more efficient harvesting.

Cawthron's Volker Kuntzsch - no future without fishing.

"The green revolution has run out of steam. No more advances are being made. Almost all of the growth in food production in the last 20 years has been due to bringing more land into production and almost all of this has come from tropical forests."

He said the biggest focus of the last 20 years in fisheries management is that fisheries can be and are being sustainably managed to produce food.

"We have made enormous progress on that. Most of the anti-fishing NGOs have given up that argument. They have shifted to, is the environmental impact acceptable?"

That led to "the big bugaboo that is, trawling".

He said a study claiming that trawling released more carbon than the entire global air travel was "preposterous".

A paper to be published in the Nature scientific journal headed by Prof Jan Hiddink from Bangor University in the UK estimated the impact had been overstated by 1000 times.

A review of 49 studies comparing organic carbon structures and seafloor sediment disturbed by commercial trawling in trawled and untrawled areas found no significant difference in 61 percent of the areas. In 29 percent of the areas there was less and in 10 percent of the areas there was more carbon in the sediments.

"There is no evidence that trawling results in lowering organic carbon in sediments overall," Hilborn said.

He highlighted the impact of land-based food production drawing on a study done in the Serengeti National Park in Kenya and Tanzania in east Africa that compared the biodiversity inside the park with the farmed areas bordering it.

Tony Sinclair, a former professor at the University of British Columbia in Canada, found grasses, herbs, trees, ungulates like wildebeest and zebra, carnivores including lions and leopards that preyed on them, insects, birds and raptors all largely disappeared in farmed areas.

The only species to prosper was rats and some insects that became pests in the absence of birds that fed on them.

"This is about the only study comparing an intact ecosystem to a farmed ecosystem," Hilborn said.

"In contrast, a fished ecosystem in terms of structure and function is largely the same as an unfished.

"Globally, most trawling takes place on mud and sand. The species that live there are pretty robust. They come back pretty rapidly.

"On most issues, the science is on the side of the seafood industry."

He blames the oil industry for diverting adverse attention to fishing.

In 1989 the oil supertanker Exxon Valdez ran aground in Alaska, spilling 257,000 barrels of crude oil into the ocean. It was an environmental disaster of monumental proportions that polluted 2100km of coastline.

"The oil industry needed another scapegoat," Hilborn said.

Commercial fishing became their ready target.

Asked why he thought fisheries got such a bad rap, he said disaster stories are much more appealing to the media.

"For environmental NGOs, it's how they raise money. Save this, save that, they are going to disappear."

He said the New York Times reported on its front page, and the BBC in its evening news, a claim that the world's commercial fish stocks would be exhausted by 2048.

Three years later when extensive studies rebutted the claim, this news only made page 18.

"You can publish crap but no one pays attention to the rebuttals."

Hilborn said the Pew Foundation, founded on oil wealth, stepped up its environmental funding, including a grant of $1 million a year to Daniel Pauly, the architect of the international Sea Around Us project that alleged widespread misreporting of catches.

In New Zealand's case, University of Auckland academics,

Symposium speakers (from left) Tom McClurg, Prof Ray Hilborn, Volker Kuntzsch, Dr Stewart Ledgard, and Aaron Irving in the question and answer session.

in support of the Sea Around Us project, made claims that historically the actual catch was some three times that reported. They provided no objective evidence to support their claims, purportedly based on anonymous interviews that could not be verified, and the data provided in their report do not support their conclusions, yet their press release made leading news items.

"People say I get money from the seafood industry," Hilborn said. "Yes, I do, but scientific papers are written by a whole bunch of people representing pretty well all aspects of the community."

He is critical of marine protected areas as management tools, saying all they do is shift fishing effort, and the call for the protection of 30 percent of the world's oceans by 2030.

"We don't want to protect 30 percent. We want to protect 100 percent. We want to protect it from real threats."

Dion Tuuta, Te Atiawa Trust Whakahaere (chief executive) and former Te Ohu Kaimoana head, provided a Māori perspective on an industry where iwi are increasingly influential.

He said the traditional Māori world view understood that human wellbeing is inseparable from the natural environment, whereas a Western narrative increasingly views humanity as separate from and a blight on the environment.

The Quota Management System (QMS) introduced in the mid-1980s instituted necessary controls around commercial fishing, he said.

Quoting fishing rights negotiator Sir Tipene O'Regan, Tuuta said the QMS did something rare in Aotearoa in that it blended a Treaty right with a conservation system for the outcome of sustainable use, "which is a very Māori approach to resource management".

"The QMS is now 37 years old and continues to represent kaitiakitanga (guardianship) in action at a national level. It's generally misunderstood and maligned by those who oppose commercial fishing, but it has been a tremendous success for New Zealand in moderating unregulated fishing.

"The fisheries Settlement in 1992 set off an explosion in Māori economic and political development."

While the 58 iwi organisations that shared in the Settlement allocation, which included 50 percent of Sealord and 20 percent of all quota, broadened their economic bases, their dependence on fishing and understanding and defence of it had diminished over time and needed to be rebuilt.

Tuuta said Māori were just as susceptible to fear-based messaging as any other sector.

"People, including politicians, make decisions based on their feelings and feelings are very easily manipulated.

"Urbanisation has all too often separated Māori from understanding where our food comes from.

"Zero impact will never be possible but it has to be the goal that we aspire to. I see our commercial harvesting evolving into cultural harvesting that takes just a certain amount of fish from the sea.

"The challenge is the industry needs to come together to tell better stories."

Dr Stewart Ledgard, a principal scientist at AgResearch, backed other speakers' claims that fishing has a smaller environmental impact in terms of greenhouse gas (GHG) emissions than other forms of food production.

He shared findings, with the full report due for early release.

"A study of the carbon footprint of New Zealand's deepwater trawl fisheries shows their GHG emissions are substantially lower than for beef, sheep, milk and pork production per 100 grams of protein produced," he said.

"It certainly looks very good for the seafood sector"

Ledgard's lifecycle analysis of GHG emission contributors included fuel usage, by far the biggest factor, packaging, plastics, refrigeration, vessel construction and anti-fouling across 21 deepsea trawlers, and found that compared to other deepwater fishing vessels globally, New Zealand deepwater trawl vessels have some of the lowest greenhouse gas emissions.

Globally, food production contributes up to 30 percent of human sources of GHG emissions.

The considerable economic and social contribution of seafood to New Zealand's economy was detailed by Hugh Dixon, data manager for Business and Economic Research Ltd (BERL).

The annual value to New Zealand's economy, based on five years of commercial catch data between 2017-22,

is estimated to have been $5.2 billion from the seafood industry and related services.

This includes $2.2 billion annually towards gross domestic product and $1.8 billion in annual exports (now nudging $2 billion).

Major export destinations were China, Australia, the US and Japan. The deepwater sector delivered 44 percent of the catch value. Hoki, squid and ling were the top three. In the inshore, snapper was the major contributor followed by jack mackerel and tarakihi.

This significant economic activity is generated from a tiny fraction of the world's total catch.

The global fisheries catch in 2019 was 92.5 million tonnes, according to the United Nations Food and Agriculture Organisation. The Oceania total was 1.7 million tonnes and the New Zealand contribution to that was 0.4 million tonnes.

The sector employed 16,530 fulltime equivalent workers, with 10,060 employed directly in seafood production. The largest areas of employment were Auckland (21 percent), Canterbury (15 percent), and Nelson (10 percent).

Cawthron chief executive Volker Kuntzsch backed Hilborn's case that it was not commercial fishing that represented the greatest threat to the oceans in his presentation titled 'No Future Without Fishing'.

"Sea surface temperature changes, ocean acidification, sea level rise are the big impacts that are there now," he said. "We are suffering from massive deviations in ocean temperatures."

Flooding, including inundation of Cawthron's aquaculture park at Glenduan in Nelson last August, earthquakes that caused dramatic coastal uplift such as that at Kaikoura, sedimentation that causes big plumes of silt and contaminants in Tasman Bay and forces closure of mussel farms, and coastal hardening where harbours, roads and other infrastructure destroyed the ecology were all significant factors.

Forestry slash could be catastrophic for organisms on the sea floor, with logs and rocks grinding them like a mortar and pestle, opening the way for invasive species.

"Recreational fishing has an impact that is underestimated. Between 2017 and 2018 there were an estimated two million fishing trips. On a good day in Auckland, some 7000 to 8000 boats are fishing, spearfishing, or diving in the Hauraki Gulf.

"But recreational fishing is like the gun laws of the United States. It is our birthright."

He showed an image of a marine wind farm, the turbines rising out of the sea.

"Isn't that a fantastic invention to replace fossil fuel burning on land?

"Why would we not feel the same way towards a trawler that harvests very sustainable protein and has much less impact on the environment?"

He said trawling impacted about 2 percent of the


Dion Tuuta, Te Atiawa Trust Whakahaere (chief executive).

EEZ versus 45 percent of cultivation on land where the biodiversity loss is so much greater.

"When you drive to Blenheim you see vineyards. You don't see the change that has happened there the total loss of the native ecosystems, replaced by grapevines. You always need to look at the complete picture."

A picture of an Iowa cornfield stretching across the plains to the horizon does not convey the loss of as much as 98 percent of its former biodiversity.

Marine wind farms have hidden impacts too, with the energy running in cables back to shore creating electromagnetic fields that deter juvenile fish swarms.

He said the seafood industry needed to be more transparent and should not be afraid to highlight some things that were done wrongly, instead of hoping problems will go away.

"Yes, we have an impact. We have as much impact possibly as turbines in offshore energy wind production."

In a comment aimed at Fisheries New Zealand, Kuntzsch said the marine management system needed to be agile and holistic where water temperatures impacted species distribution.

He also urged more investment in science and innovation.

"There is a long way to go before we can reduce the impact of a trawler on the bottom, to be more specific about the species we catch, how we can utilise waste. In Iceland, 100 percent of the fish has to be utilised for value-added purposes.

"It needs government funding to bring that shift about."

The presentations generated some media coverage, notably concerning Hilborn and Kuntzsch, and predictable outrage from those fundamentally opposed to commercial fishing, regardless of the science.

The ancient wisdom that there are none so blind as those that will not see continues to play out in modern times.