



THE UPDATE

Captain's Blog



How fish can change the world

There was a surprising, if welcome revelation at the Aquaculture New Zealand conference in Marlborough yesterday – apparently policy makers should leave food production out of the global race to cut greenhouse gas emissions.

Dr Sudhvir Singh, a medical doctor trained in Auckland, is currently head of Policy at EAT, a global non-profit start-up company that aims to transform the world's food systems through science and disruption.

Singh told delegates that food is the biggest culprit in most of the world's challenges such as health, equity and environment but it is also the biggest victim, with climate change making all food production, including seafood vulnerable.

What we eat is the biggest single risk factor for disease in all countries with one in five deaths directly attributed to diet. In New Zealand, the health sector chews up 20 percent of government spending and is on an upward trajectory.

Singh's statistics are alarming; two billion people globally lack essential nutrients, 150 million children have stunted growth from poor nutrition, 50 million children are underweight. Then there are two billion people who are obese – across all continents.

He said food can be the solution to the health problems and climate change challenges - but only if the world's researchers and policy-makers work collaboratively.

EAT's challenge was to devise a healthy diet that would be sufficient to feed 10 billion people and still address climate change.

The good news is seafood is in the frame.

On a purely nutritional basis, EAT claims, not surprisingly, that the world needs a major increase in the consumption of wholegrains, non-starchy vegetables, nuts and legumes and seafood, with a decrease in red meat and dairy. The research shows a healthy adult should eat only one serving of red meat a week and 700 grams, or two to four servings of seafood.

And that, apparently would save one in five premature deaths per year globally. That is 11 million people.

On the climate change front, the scientists say there needs to be no net *increase* globally in the emissions from agriculture. That comes with a caveat that land use should not increase either, fresh water should be preserved, nitrogen phosphate should be reduced, and biodiversity loss needs to be halted.

Globally, 25 percent of emissions come from food and land use, but the research says with food security being essential to feed the world's population we should allow greenhouse gases from agriculture to be maintained and capped at current levels.

Singh said to feed 10 billion people and stay within healthy environmental limits, better production and waste reduction are needed but he claims just the switch in diet will help decrease greenhouse gas emissions.

According to EAT research, seafood is important, but consumption levels are too low in much of the world. With limited scope to increase wild catch the focus must be on aquaculture.

Fisheries Minister Stuart Nash's announcement at the conference that he intends to turn the New Zealand aquaculture sector into a three billion dollar industry may come faster than even he expected.

Tapping into the potential of karengo

A two-year research programme tapping into the potential of karengo, an edible seaweed, will soon be underway.

Led by Cawthron and funded by the High-Value Nutrition (HVN) National Science Challenge, the programme *He tipu moana he oranga tangata*, will investigate the properties of karengo to develop a high-value industry that appeals to major export markets. Te Rūnanga o Ngāi Tahu and Wakatū Inc are also collaborating on the research.

It is the first project to scientifically test the benefits of karengo.

Research leader Dr Tom Wheeler and his team at Cawthron will analyse the species, determining how its composition influences health, later using that information to develop sustainable production aquaculture systems and karengo-based products. Although distinct from the Japanese nori, Wheeler expects to find similar antioxidant effects.

Cawthron will apply their compositional testing to samples to determine the most health-promoting bioactives that could help in relieving inflammatory conditions such as metabolic syndrome, inflammatory bowel disease and chronic obstructive pulmonary disease.

The research is an exciting opportunity for New Zealand, especially given the traditional importance of karengo as kai and medicine for Māori, Wheeler said.

“There are hundreds of varieties of native seaweeds growing wild along New Zealand’s coast, but little is known about their composition or bioactive potential.

“This research will reveal the nutritional profile and potential health benefits of karengo, to help Māori enterprises identify the most promising karengo species for development into high-value extracts.”

HVN chief scientist Richard Mithen said the HVN National Science Challenge is excited to be supporting the programme.

“Karengo is part of the exceedingly rich native flora of Aotearoa New Zealand,” Mithen said. “Harvesting karengo in a sustainable manner will lead to the development of new foods to benefit the health of the people of New Zealand and offer innovative export opportunities for businesses.”



Dr Tom Wheeler from Cawthron is part of the team who will be researching the health benefits of karengo.

Photo, Cawthron.

***FV Janas* heads to Antarctica**

Nelson-based longliner, *FV Janas*, has set sail for Antarctica once more, making a return voyage to gain further insight into toothfish.

The Talley’s-owned vessel sailed to the Ross Sea last week to carry out a winter scientific research survey, marking its second trip since the 2016 survey.

NIWA principal fisheries scientist Dr Steve Parker, Italian National Research Council scientist Davide de Blasi and two MPI observers form part of this year's 23-strong crew, with captain Jeff Pitt leading the expedition.

The voyage is expected to last 40-50 days with scientists looking for toothfish eggs and larvae along the ice edge in the Ross Sea to learn more about their reproductive cycle. The geographic distribution of spawning fish and the buoyancy and distribution of Antarctic toothfish eggs and larvae will also be examined, and plankton samples will be collected with the deployment of a Continuous Plankton Recorder (CPR). Samples will be analysed on shore to assist in understanding the Southern Ocean ecosystem during winter.

Andy Smith of Talley's said early reports from the vessel indicated a good start to the expedition, with three toothfish eggs obtained on the first day with the help of a bongo net.

"The scientists are very excited," Smith said.

Ocean Bounty season three - Fiordland eels

This week on Ocean Bounty, host Graeme Sinclair meets with Meridian Energy, who fund the capture and release of migrating eels and the subsequent capture and relocation of returning elva. The crew will travel from lake Manapouri to lake Karapiro with stories about eel fishing, discuss export markets around the world and more. The greatest threat to eels is habitat degradation but there are glimmers of hope.

Tune in this Sunday, 5pm on TV Three.



New Zealand's aquaculture industry is eyeing a move towards open-ocean and land-based farms as it looks to become a three billion dollar industry by 2035, *Stuff* reports. Fisheries Minister Stuart Nash released the Government's Aquaculture Strategy at the New Zealand Aquaculture Conference in Blenheim on Wednesday, saying Government would work alongside the industry to deliver the "ambitious" goal. The strategy said Government planned to build on the existing \$600 million industry by maximising the value of existing farms through innovation, extending into land-based and open-ocean aquaculture. Government would support the development and adoption of new technologies and practices to reduce the industry's contribution to waste and emissions, Nash said. "This is a strong statement of Government support and partnership with industry towards an ambitious goal ... It is also an opportunity to strengthen Brand New Zealand by positioning ourselves as world-leaders and producers of sustainable, healthy, and highly valued seafood products. Aquaculture contributes significantly to regional development. It generated over \$600 million in revenue in 2018, and employed 3000 people, especially in the regions. There is real potential for aquaculture to enrich our economy and our global reputation with Government, iwi and industry coming together."

Strong prices for seafood in the year to June 2019 drove export revenue to rise 10.4 percent over the previous year to \$1.96 billion, according to the latest [Situation and Outlook for Primary Industries](#) report. China is one third of New Zealand's total seafood export market value, nearly half of which is rock lobster. Seafood export revenue is forecast to rise 5.5 percent in the year ending June 2020 to \$2.07 billion, with strong prices and aquaculture expansion more than offsetting the voluntary reduction in hoki wild capture. While mussels and rock lobster remain our most valuable export species with 16 percent each of total export revenue in 2019, other species such as squid, tuna, and salmon have shown annual price of eight percent growth per year for the last five years. Mussel production for 2020 is expected to return to normal following the reopening of mussel farms closed in 2018 due to an algal bloom, and show longer term growth with increased supply of farmed mussel spat. Global aquaculture production volume is expected to overtake wild capture in 2020 (OCEDFAO Agricultural Outlook).

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