

SEAFOOD

NEW ZEALAND

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**SCIENCE ADDING VALUE
TO INDUSTRY AND
NELSON ECONOMY**

**SNAPIT - SNAPPING UP
SUCCESS ON SHIPS**

**THERE IS A LOT TO SAY
ABOUT THE PRICE OF FISH**



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EDITORIAL

Tim Pankhurst - Chief Executive - Seafood New Zealand



Tim Pankhurst

The growth of our modern fishing industry would not have been possible without the hard work and vision of its pioneers.

Sir Peter Talley, who was Knighted in this year's Queen's Birthday Honours for his services to fishing and philanthropy, is one of those pioneers, whose family have been involved in the Nelson region's seafood industry since opening a fish and chip shop in Motueka in 1936.

Sir Peter is a joint managing director of Talley's Group Limited, one of New Zealand's leading producers of primary food goods.

He has worked over his lifetime to promote the employment of New Zealanders in the fishing industry. This includes his strong advocacy to put New Zealanders on deepwater vessels, and to place Foreign Charter Vessels under the control of New Zealand labour laws.

And he has done much to contribute to his local community and the wider seafood industry.

He has held various leadership roles within the fishing industry including President of the New Zealand Fishing Industry Association and Chairman of the Seafood Industry Policy council.

He was the instigator and a founding Trustee of the Seafarers Trust. He continues to support a wide range of charities in New Zealand (many of them anonymously), including the Motueka Hospital Trust behind the Jack Inglis Friendship hospital which opened in 2009. He funded the development of a museum facility in Nelson to host the World of Wearable Art collection. Those who know him say these examples are just some of the many charities that have been the beneficiaries of his generosity.

Sir Peter is a sponsor of a number of organisations and events including the Motueka Charity Golf Classic, Outward Bound and the Nelson Car Club rally. He has provided financial support for fundraisers held by the Rotary Club of Motueka for 25 years.

He was appointed an Officer of the New Zealand Order of Merit in 2002 for services to the fishing industry, export and the community.

In this issue we pay tribute to another pioneer of our modern fishing industry, Philip Vela, who passed away in April.

Given the role the Talley family has played in the Nelson seafood industry, it's fitting that in this issue we feature the Nelson region and what can be achieved when industry, research bodies and government collaborate to deliver science that will increase the value of seafood resources, enhance sustainability and market access.

Nelson has a lot going for it with – it enjoys a sunny climate and compact regional geography, with three beautiful and very different parks, Abel Tasman, Nelson Lakes and Kahurangi.



Sir Peter Talley

The birthplace of the World of Wearable Arts, Wow™ it's renowned for its lively arts scene and for its local produce showcased in more than 100 cafes and 20 wineries and boutique breweries.

The seafood industry is at its heart, providing a wide range of direct and indirect employment opportunities and in more recent years has prompted the rapid expansion of a growing science seafood sector hub in the region.

According to the local development agency, it's a little known fact that the top of the south has more people per capita employed in research and development than anywhere else in New Zealand, and the resulting value added products and intellectual property, along with employment opportunities, are key to the region's economic development.

The spin offs for local businesses are highlighted in a story we share of about a local electrical contractor.

And we share a recipe from a local café renowned for its seafood, and profile a Talley's owned local fish market run that offers the best of the region's seafood bounty.

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Visitors from the Kaingaroa School, Chatham Islands, get a chance to see where their rock lobsters go.

CHATHAM ISLANDS CHILDREN FOLLOW THE FAMILY CATCH

By Ged Cann

Escaping the aftermath of Cyclone Pam, 10 children arrived from the Chatham Islands in late March, their first stop – a live lobster export plant.

Board of trustees chair Paula Page said for these children, most of whom were eighth generation Chatham Islanders, fishing is a way of life, but few know what happens to their father's catch after it leaves the boat.

"We want to see where our fish go,"

"There's step one, step two, step three – we want to follow the fish to China at some point," she said.

The trip was a first for the school and it had taken two years to raise the \$65,000 needed for the two-week trip.

"It cost us \$16,000 just to get off the island," Carter said.

But she said it was worth it to show the children the opportunities available to them within the fishing industry.

Port Nicholson Fisheries takes a quarter of all of the Chatham Islands' rock lobster exports.

On the cover:

Primary Industries Minister Nathan Guy is shown the ropes at the opening in April of the new hatchery and lab facility at the Cawthron Aquaculture Park by SPATnz Programme Manager Rodney Roberts.

SEAFOOD INDUSTRY CONFERENCE 2015 NEW ZEALAND -SUSTAINABLE SEAFOOD - ADDING VALUE

Seafood New Zealand has secured an impressive line-up of speakers who will explore how our industry can build its own unique value proposition.

The speakers will cover a wide range of topics from taking advantage of New Zealand's international reputation to build better returns, building traceability and trust, understanding consumer habits, the improving state of our fish stocks, and moving beyond "fish for food", to the recreational viewpoint in a shared fishery.

Keynote speaker, Ian Proudfoot Global Head of Agribusiness for KPMG, will challenge industry to look more to the

future if is to continue to have ongoing success in the global marketplace.

"All producers of food around the world must grapple with a range of global forces impacting food production – if they want to remain relevant to the consumers into the future.

"This applies as much, if not more, for the seafood sector given the pressure being exerted on its social licence to operate. "

KPMG produced a report late in 2014, "Exploring our Global Future" which looked at the key themes that will influence the future of food production, processing and consumption and asks what do food producers from New Zealand have to do to stay relevant to their customers in a world that is "undergoing unprecedented change and disruption".

Ian's presentation will cover the macro trends that are expected to shape the political, social, environmental and economic outcomes for the global community over the next 20 to 30 years and how these trends may impact the future of our seafood sectors.



Ian Proudfoot, KPMG

See the conference website www.seafoodconference.co.nz for more about the speakers, programme and registration details.

Early bird conference registrations are open so be in quick to secure your spot at the discounted price of \$304.35 + GST (\$350 incl GST) - if booked and paid by 17 July 2015.

SEAFOOD TOPS TEACHING COURSES

Teaching courses developed by the Ministry of Done (MoD) on behalf of Seafood New Zealand have profiled in the top 20 education resources in the world hosted by iTunes U, putting them above organisations such as Yale, Oxford and Stanford University.

iTunes U, a section of iTunes dedicated to educational audio and video files, is the world's biggest repository of education material.

When Apple approached MoD in 2014 and asked them to become New Zealander's first "Off Campus" provider they were understandably excited.

They chose to include eight Seafood New Zealand Teacher Guides. The resources are proving very popular,

with over 100 downloads per day - 32 per cent from New Zealand, 27 per cent from the USA and 17 per cent from Australia, with China also appearing to be a major subscriber.

MoD also produces educational resources about the seafood industry for schools. In the first term of this year they visited 105 schools, had 479 conversations with teachers and delivered 4500 seafood information kits to teachers.

AOTEAROA FISHERIES SIGN MOU WITH DUBAI GOVERNMENT

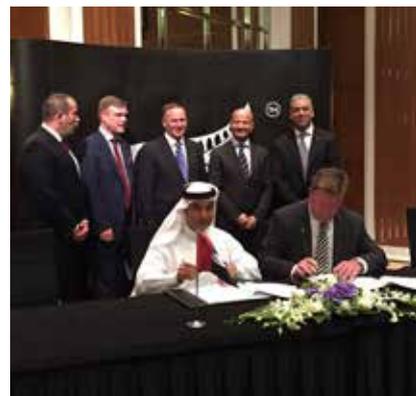
Aotearoa Fisheries Ltd and Palmerston North based Prepared Foods have signed a Memorandum of Understanding with the Awqaf and Minors Affairs Foundation of Dubai.

The memorandum is described as the first of its kind to be signed between

a non-Islamic company and the Dubai Government and took place in the presence of Prime Minister John Key and Minister of Economy Sultan Bin Saeed Al Mansouri.

The vision is to provide Halal safe protein meals to global disaster torn regions.

Prepared Foods is the largest processor of paua in New Zealand and produces shelf stable ready-to-eat meals.



PHILIP VELA

A man of passion, intelligence and vast general knowledge

Phil Vela had the last laugh at his funeral in Hamilton. His brother Sir Peter, in delivering a heartfelt eulogy, said Philip had a keen sense of humour and he could not help feeling he was exercising that in his request for a full requiem mass at the Cathedral of the Blessed Virgin Mary.

Even the priest was in on the joke.

Father Gerard Boyce said Philip was very keen you all sit there throughout the full mass.

“An hour in church will do you good I’m sure,” he added with a smile.

He admitted to being a little scared of Philip because he would pose him difficult questions on faith and quote challenging theology.

“There were so many sinners in there it’s a wonder the roof didn’t come crashing down,” one of the several hundred mourners laughed at the well-attended wake which featured lavish seafood and vintage French wines.

Philip had no liking for school and left as soon as he could, starting at Nelson Fisheries in 1960 with their father Filip, Sir Peter said.

But Philip was the most distinguished alumni of the university of life, with first class honours.

Despite his lack of education, something triggered a curiosity in him and he became an avid reader on virtually any subject.

The brothers were always close. Peter was best man at Philip and Lyn’s wedding 45 years ago and Philip returned the favour at Peter’s wedding two years later.

The pair worked together for 40 years in building one of the country’s largest privately owned fishing companies, Vela Fisheries, along with owning and driving the thoroughbred auction powerhouse New Zealand Bloodstock at Karaka.

Vela Fishing has grown into an innovative global trading company

that was the first to export New Zealand fillet products to the British market and the first to produce and export frozen hoki fillets to the US.

The brothers built fortunes that saw them feature on NBR’s Rich List with an estimated wealth of \$210 million in 2014.

They sold their fishing interests in 1986 to Goodman Fielder Wattie and bought them back again in 1991 for a good deal less.

Philip had been preparing for that day and said all he needed was the capital and the boats to catch the fish.

He enjoyed the good life, not least fine wine and food and good company, and at one time leased a shooting estate on the outskirts of Newmarket in England.

The owner’s wife was a stickler for maintaining class distinctions and directed that the gamekeeper must always address Philip as sir, must always wear a tie and should not be fraternised with.

In no time Philip had him on first name terms, sitting in front of the fire with a whisky in hand – and delighted in her ladyship knowing as much.

Six years later the gamekeeper advised her ladyship he was leaving.

“To work for the Velas, I suppose,” she said. “No, he replied, to marry your daughter.”

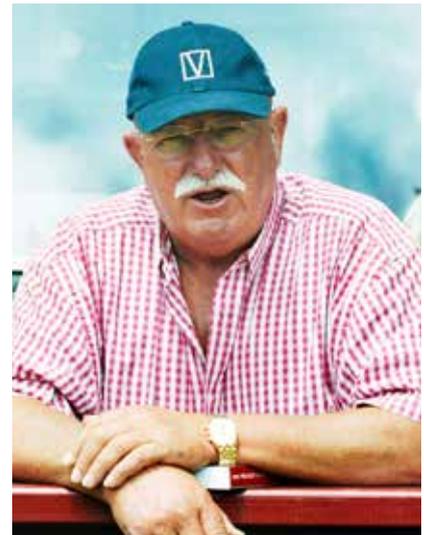
Philip’s joy was complete.

Sir Peter also recalled the day in April 1993 when Romanee Conti won the Hong Kong Cup and Philip held the huge trophy one-handed above his head when most men would struggle to hold it in two.

That great horse’s foal Ethereal went on to win both the Caulfield and Melbourne cups.

The brothers had winners in France, England, Singapore and South Africa as well as Australasia and Japan and Hong Kong.

Vela accountant and director and newly appointed Seafood NZ director Geoff Burgess worked with Philip since 1998 and every day he was asked “what have you got to report?”



Philip Vela

In his tribute he said his boss was a man of passion, hugely intelligent with a vast general knowledge.

Philip enjoyed bestowing nicknames. He referred to any of Geoff’s male colleagues as his cousins and to any females as his girlfriends.

Despite his great wealth he was a humble man and if asked his occupation would say he was a fishmonger.

On Waitangi Day 2014 he was admitted to hospital and was not expected to live.

But he was determined to fight for his life, motivated to spend Christmas with his family and he managed an extra 14 months.

“He reckoned he had done 140 years of living in a 70-year-old body,” Geoff said.

For all his love of business and fishing and horses and hunting, it was Philip’s family that drove him.

He is survived by wife Lyn and, daughters Andrea and Anita and four grandchildren.

“It’s a travesty he was not able to enjoy the farm he developed at Te Kowhai and see his grandchildren grow,” Sir Peter said.

“He was a truly great man who feared nothing and had the heart of a lion.”

Tim Pankhurst



NELSON – A GROWING SEAFOOD SCIENCE SECTOR HUB

A new Greenshell™ Mussel hatchery and lab facility at the Cawthron Aquaculture Park opened in April – the latest development in a growing seafood science-related industry in the Nelson.

Debbie Hannan reports

The facility, just north of the city, is part of the SPATnz Primary Growth Partnership (PGP) programme, established to develop selectively bred, high value Greenshell™ mussels.

Government is investing a maximum of \$13million into the SPATnz programme, with the other half funded by industry partner, Sanford Ltd.

“This hatchery is the culmination of years of research and development by a team from Shellfish Production and Technology New Zealand Ltd (SPATnz) and the Cawthron Institute,” Primary Industries Minister Nathan Guy said at its opening.

“This is another success story for PGP and shows what an impact it is

already having, helping to boost the value of primary sector exports.

“It builds on our reputation for premium seafood and is delivering innovation that will improve mussel crops for decades to come,” he said.

Cawthron Institute Chief Executive Professor Charles Eason says the hatchery is a great milestone in more than 20 years’ research by Cawthron and industry into breeding Greenshell™ Mussels.

“Great work like this is a direct result of science and industry working together. It means mussels have the potential to become an increasingly higher-value product.”

The facility is part of a bigger story about the growth in a “Nelson seafood sector science hub”. Over the following pages we profile some of the collaborations occurring in Nelson between scientists, industry and government to add value to our \$1.5 billion seafood industry, and we look at the spin offs for the local economy:

Read more about the cutting-edge science that’s revolutionising our farmed shellfish industries in the New Zealand Aquaculture supplement in this issue of Seafood.

SCIENCE ADDING VALUE TO INDUSTRY AND NELSON ECONOMY

Cutting edge science, research and development is enriching Nelson's economy as well as New Zealand's seafood industry.

Sophie Preece reports

A vital part of Nelson's economy sits at the end of a quiet country road on the way out of town, beyond grazing cows and wandering pukeko, and just short of Tasman Bay.

Here at the Boulder Bank, between paddocks and ocean, sit high tech hatcheries, nurseries and labs, where scientists, researchers and technicians are working with myriad species, including oysters, geoduck, king salmon, scampi, Greenshell™ mussels and algae.

Nelson's Economic Development Agency chief executive Bill Findlater says Nelson and Marlborough are more dependent on the primary sector than any other part of the country, but the likes of the Cawthron Aquaculture Park and SPATnz give a new spin to the old game.

"Everyone keeps saying you have to go and find new business - well you don't, you just need to make sure the business you have can be smart or smarter."

The way to do that is through education, research and development, he says.

Nelson has three key New Zealand marine science and research organisations, including Cawthron, which is recognised internationally as a leading aquaculture, marine biosecurity, coastal and estuarine ecology and freshwater ecology institution; Plant and Food Research,

which is a Crown Research Institute and has a new fish facility at Port Nelson; and the National Institute of Water and Atmospheric Research (NIWA) which is focused on marine environmental research.

Meanwhile, tertiary education provider NMIT, has nationally recognised marine and aquaculture programmes and has strong links with Cawthron. NMIT has teaching facilities at the Aquaculture Park and several of its graduates have gone on to work at Cawthron.

Bill says it's a little known fact that the top of the south has more people per capita employed in research and development than anywhere else in New Zealand, and the resulting value added products and intellectual property, along with employment opportunities, are key to the region's economic development.

"I believe the top of the south will be a really strong region going forward. It's about providing better paying jobs, so that there is a reason for people to come here or stay here."

Regional Prosperity, the EDA's economic development strategy for 2014-2020, says while science and research institutes are key contributors to the economy, both as employers and science providers, they tend not to be recognised by the public as players in the regional economy.

The document emphasises that industry-based science and research

enables economic development and allows knowledge to transform into commercial value. Specific initiatives in the strategy include developing a business case for the Marine City 2025 initiative, which would promote the region as New Zealand's pre-eminent location for marine and seafood related research, education institutions and facilities.

Bill recently travelled to China with a group of Nelson leaders, including Mayor Rachel Reese, Cawthron Institute chief executive Charles Eason and the chief executives of the Nelson Council and NMIT.

China wants the added value products Nelson has and is developing, Bill says, using mussel extracts as an example. "There's a real opportunity going forward...that's the value of having research and development organisations working in the region."

In the next 20 to 40 years the most desired commodities in the world will be food, food based products and water, and the top of the south has it all, he says, "but we need to be smart with what we do with it".

As well as enriching Nelson's economy, research providers add valuable diversity to the city's social make up.

Cawthron employs close to 200 scientists, laboratory technicians, researchers and specialist staff from more than 20 different countries, linked nationally and



Cawthron Aquaculture Park. Image: Cawthron Institute

internationally to universities and other research organisations.

That makes it one of Nelson's largest employers, and each month more than \$1million in wages is filtered out into the region.

Beyond the dollars, the institute's staff make a real impression on Nelson's demographic, culture and vivacity, says Charles Eason.

"A lot are involved in art societies and sports and various trusts all over the city," he says. And many are young scientists settled with their families, "in a region where there is quite a high elderly demographic".

Charles says Cawthron is an exciting and dynamic institute to be leading, with a culture focussed on applied science, as intended by Thomas Cawthron when he established the institute in 1919, to benefit the top of the South.

The focus then was to provide science and research to help pioneering industries, such as tomato growers beset by plant disease, or in gaining an understanding of soil types different to those of settlers' home nations. These days the pioneering industries are the likes of aquaculture, which makes up a quarter of Cawthron's work.

Its Aquaculture Park works with industry on better production of

"Everyone keeps saying you have to go and find new business - well you don't, you just need to make sure the business you have can be smart or smarter."

oysters, scampi, geoduck and algae, and it recently worked with Sanford subsidiary SPATnz on the Greenshell™ mussel hatchery and nursery, also at the Boulder Bank.

When that facility opened in April, Primary Industries Minister Nathan Guy said it had the potential to generate nearly \$200 million per year to New Zealand's economy.

Industry research is also leading to high value commercial opportunities, such as Cawthron's global distribution agreement with the world's leading chemical supply company, Sigma-Aldrich, for marine toxins developed from algae, on the back of food safety research.

"It's sort of joining the dots," says Charles. The institute produces shellfish at the aquaculture park, and that production arm works "hand in hand" with research on seafood safety. That has in turn led to expertise in the analysis and understanding of

the natural toxins in the environment "such that we're producing those toxins quite deliberately to enable food safety laboratories around the world to use them as reference standards when they are doing measurements of their shellfish safety".

The toxins are now required by the world's seafood testing laboratories, following work by Cawthron's analytical chemists to improve international testing standards.

"We're going one step further to say: 'actually New Zealand scientists, alongside MPI and industry, can be rule makers here'," says Charles.

The marine toxins have excellent export earning potential, and a teaspoon could be worth up to NZ\$5million, "but, it's a very small, niche market and they're sold in minute (microgram or milligram) quantities".

The deal with Sigma-Aldrich saw Cawthron named in May as one of four finalists in the Commercial Deal category of the KiwiNet Research Commercialisation Awards.

KiwiNet general manager Dr Bram Smith said the agreement had already created commercial revenues to Cawthron “and demonstrates that the outcomes of publicly funded research can form the basis for outstanding commercial deals that generate significant economic returns to New Zealand”.

Cawthron is also working on a new research collaboration with Japanese scientists to better understand the link between food, obesity and diabetes, by looking at the natural properties of Greenshell™ mussels, paua, and several species of seaweed and algae.

Meanwhile, a joint project looking at the dietary needs of king salmon - involving New Zealand King Salmon, the Cawthron Institute, NMIT and Danish feed producer BioMar, with funding from Seafood Innovations Ltd and the Ministry of Business Innovation and Employment - is



Bill Findlater of the EDA and Cawthron chief executive Charles Eason. Image: Sophie Preece

a stand-out example of what can be achieved through collaboration between government, industry and research bodies. (Read more about this project in the latest issue of Aquaculture New Zealand).

The New Zealand Institute of Economic Research (NZIER) is

nearing completion of a report into the economic impact of Cawthron.

That’s bound to join a few more dots, from the scientists working between paddocks and ocean, at the end of a quiet country road, to the “pioneering” industries helping Nelson thrive.

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SEAFOOD SCIENCE BOOSTS LOCAL CONTRACTING BUSINESS

“The IQ in this building is significantly higher than it was when we were building it, I can tell you that,” laughs John Gallagher from within Nelson’s new mussel spat hatchery, where his builders have been replaced by scientists.

The Gibbons Construction project manager led the \$4million plus build of the SPATnz hatchery and nursery buildings, which were completed last October, after 12,000 man hours from his team and sub-contractors, not including big items of mechanical and electrical work.

“At the height there were 35 to 40 personnel on site, including sub-contractors and our own labour.”

That’s a big deal for a small town still suffering from the global downturn, he says. “A project of that size is one of the bigger projects that Nelson would see, as a smallish provincial town...The knock on effect was pretty significant to the local subbies and suppliers.”

The build had to be able to withstand “all the seawater being splashed around” so a quality design and build was imperative. That was helped by a “really good collaborative approach” between the clients, design team and contractors. “Everybody bought into it and were focussed on what SPATnz wanted to achieve.”

John says it was exciting to be involved in such a specialist facility and a world first. “I think it’s awesome for Nelson. It’s great what they are trying to achieve.”

He’s not the only one excited about the flow on effects of science and research on Nelson’s other industries.

Dale Cooley of Boulder Bank Electrical says the Cawthron Aquaculture Park and SPATnz provide 80 per cent of his work, and have kept his business buoyant throughout



John Gallagher. Image: Sophie Preece



Dale Coole. Image: Sophie Preece

the economic downturn.

It’s also allowed him to work on projects like light racks for growing algae instead of simply lighting rooms, he says.

Dale says several businesses benefit directly from the park’s growth and maintenance, from air conditioning specialists to plumbers. “It’s all rolled on and become a significant part of Nelson’s economic development.”

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THE NEW GENERATION AQUACULTURE WORKFORCE

Ellie Kerrisk represents the new breed of aquaculture workers - New Zealand-educated and with industry-specific training.

The 20-year-old from Golden Bay now works as a Hatchery Technician for Shellfish Production and Technology Ltd New Zealand (SPAT_{NZ}), which recently built a pilot scale mussel hatchery at the Cawthron Aquaculture Park at The Glen, near Nelson. SPAT_{NZ} is developing methods to consistently produce mussel spat at large scale and aims to breed good performing mussels that can be grown and harvested year round.

Ellie loves her new job and says her friends and family are impressed that she walked out of a diploma and straight into an amazing full time job that she can grow in. She got the job after completing a Diploma in Aquaculture (Fish Farming & Fishery Management) through Nelson Marlborough Institute of Technology (NMIT).

With around 70 percent of the New Zealand aquaculture industry based in the Top of the South, aquaculture has become a specialty area for NMIT which has campuses in Nelson and Blenheim. In the past 40 years, aquaculture in New Zealand has grown from small beginnings to become a significant primary industry generating over \$400 million in revenue, employing over 3,000 Kiwis and with ambitious targets for growth.

To help meet these targets, NMIT has developed a full suite of aquaculture training to support the industry –from secondary school pathways through to postgraduate level. It has been offering a two-year diploma since 2011 and in 2015, added new degree and postgraduate qualifications to the mix. Nelson’s Cawthron Institute has been a key partner in the development of the new programmes.



Ellie Kerrisk at work for SPAT_{NZ} at the Cawthron Aquaculture Park near Nelson.

NMIT Aquaculture Programme Coordinator Dr Mark Burdass says the new qualifications are part of supporting the aquaculture industry to reach the next level.

“The Bachelor of Aquaculture and Marine Conservation is

the first vocationally focussed aquaculture degree of its kind in the country. The reality is that career opportunities in aquaculture are global as well as local,” he says.

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The NIWA research vessel RV Kaharoa. Image: NIWA

NIWA'S WIDE-RANGING NELSON PROGRAMME

The National Institute of Water and Atmospheric Research (NIWA) is another major player in the seafood science sector in Nelson.

It conducts a wide range of seafood-related research in Nelson, some dating back to the early 1990s.

This research draws on staff from throughout NIWA and often involves collaboration with other science providers in the region. Examples of NIWA's seafood-related research include:

West Coast South Island trawl surveys.

This series of trawl surveys began in 1992 to measure the abundance of important inshore commercial fish species, including red cod, red gurnard, giant stargazer, tarakihi, and other quota species. The most recent survey between March and April this year was the 12th in the series, with previous surveys conducted at 1-3 year intervals.

Blue cod survey in the Marlborough Sounds

These surveys use pots and baited underwater video to record the numbers and sizes of blue cod, and are important for stock assessment. There have been six surveys since 1995 providing a time series assessment of abundance, size, and distribution.

Aquaculture environmental effects and consent applications

NIWA routinely conducts assessments of environmental effects studies for existing and new marine farms (mussels and finfish) throughout the Marlborough Sounds and Golden Bay.



Using a variety of specialist equipment that includes high-resolution sonar, remote-operated vehicles, inshore vessels, divers, grabs, and underwater photography, a team of ecologists has surveyed several hundred marine farm sites since 1994.

Ecological monitoring of mussel and finfish aquaculture

Annual biomass surveys for scallops in Tasman/Golden Bay and the Marlborough Sounds are undertaken by NIWA to inform the quota and areas to be fished during the up-coming seasons.

A relatively new research project underway involves the development of a biophysical model for the Marlborough Sounds and an ecosystem model for Tasman Bay.

Both models use the NIWA supercomputer to generate scenarios to show the potential carrying capacity for farmed and natural seafood under environmental change, and the possible effects aquaculture may have on the environment.

PLANT & FOOD RESEARCH, NELSON - ADDING VALUE WITH INDUSTRY

Plant & Food Research's seafood research work in Nelson began more than 40 years ago and has grown considerably over recent decades.



Alistair Jerrett, Science Group Leader, Seafood Production Group.
Image: Plant & Food Research

The company now operates from several facilities around Nelson, including the historic Wakefield Quay site, the Bioprocessing Pilot Plant in Stoke and the new Maitai Seafood Research Facility at Port Nelson, which opened just over a year ago.

The new \$2.8 million Maitai facility was purpose-built to accommodate the company's growing Seafood Technologies Portfolio to support the delivery of world-class research and development for New Zealand's seafood industry.

The site's main focus is on aquatic production systems, fish physiology, behaviour and breeding, and finfish harvesting technologies.

When Plant & Food Research was formed in December 2008, following the merger of HortResearch and Crop & Food Research, seafood research and the role of the Nelson-based facilities were recognised as having significant growth potential.

The formation of the new Seafood Technologies research portfolio in 2012 brought together the growing collection of seafood-related research programmes, most of which are based at Plant & Food Research in Nelson.

The portfolio now involves around 50 researchers and is made up of two science groups; the Seafood Production Group, led by Alistair Jerrett and the Seafood Processing & Marine

Products Group led by Dr Susan Marshall. Their research focuses on delivering high quality seafood using sustainable fish production and processing systems, as well as research into marine-based functional food ingredients and industrial products.

The Seafood Production Group is involved in three major areas of research – finfish harvesting technologies, postharvest handling and storage technologies and finfish production systems.

All three research areas are focused on understanding the fundamental needs of the target species to enable the seafood industry to gain maximum value from every fish harvested, handled or produced.

The development of the revolutionary fish capture technology, Precision Seafood Harvesting (PSH) is an example of this.

The technology was developed to support the biology of the fish during capture, to allow them to be landed on deck in pristine condition, rather than focusing on the most efficient way to catch the greatest amount of fish.

Fishing companies, Aotearoa Fisheries, Sanford and Sealord are investing \$26 million into the project under a Primary Growth Partnership with the Ministry for Primary Industries, which is matching the industry investment. Scientists at Plant & Food Research

are partnering with the fishing companies to develop and trial the technology on commercial vessels.

"We work in partnership with seafood and marine-based companies to deliver science that will increase the value of seafood resources, and enhance sustainability and market access" says Danette Olsen, General Manager Science, Seafood Technologies.

"Consumers of high-value seafood products demand the highest standards in quality from sustainably harvested seafood. Our research looks to meet the key demands of today and break new ground in the quest for higher quality sustainable seafood".

The Seafood Processing and Marine Products Group is involved in two major areas of research – food safety and preservation and seafood processing and marine products.

The first involves the development of new and improved processing and preservation technologies to enhance the quality, safety and storage characteristics of seafood products -technologies that are now improving market access and export returns by creating seafood that is 'fresher' and has extended shelf life.

The second examines marine extracts from animals and plants, a rich resource for the extraction of high-value biochemical compounds.



Plant & Food's Maitai research facility (foreground). Image: Plant & Food Research

“Our research is investigating the extraction, characteristics and modification of molecules from shellfish, marine plants and the non-fillet portions of fish” says Science Group Leader, Dr Susan Marshall.

“We're using our knowledge of these diverse compounds and how they behave at a molecular level to develop the processing technologies required to develop new industrially viable high-value marine products, with an emphasis on those unique to New Zealand.”

The research is looking at how the industry can generate value from all of the fish that are landed, not just the edible components.

This involves creating new products which involve primary producers, secondary producers and novel product exporters, who bring a together significantly different capabilities.

Examples include working with companies such as SeaDragon, Aroma New Zealand and Revolution Fibres to produce high value products from the parts of the catch not destined for the table.



Mussel testing at Plant & Food Research, Nelson. Image: Plant & Food Research



Danette Olsen and Alistair Jerrett at the Plant & Food Research Maitai facility. Image: Plant & Food Research

SNAPPING UP SUCCESS ON SHIPS

Ged Cann reports

“It all started with me and my brother in the garage.” That is how CEO Chris Rodley described the origins of SnapIT, whose new technology could revolutionise boat monitoring systems and provide a cost-effective alternative to on-board observers in several fisheries.

Back then he couldn't have guessed how far the company would come.

The Nelson-based company develops cameras that capture a 360 degree hemispherical recording, but the real wonder lies in the ability to later pan and zoom in on individual moments of that recording.

SnapIT's first foray into the seafood sector began with the snapper longline fleet's concerns over accidental black petrel capture. The fleet needed a method of tracking incidents, but on-board observers are often impractical on small vessels where trips are weather dependent.

A meeting was called in Auckland in 2011 to find a camera that could monitor the dynamic environment on deck while withstanding the rigors of filming at sea.

Then Sanford managing director Eric Barratt invited SnapIT along after seeing their cameras used in construction projects on Auckland's waterfront. The company was chosen over several competitors, including well-established Canadian company Archipelago Marine Research.

Originally developed for use on land, a prototype on-board camera was developed with funding from Trident Systems and Seafood Innovations Ltd, a research partnership between industry, government and Plant and Food Research.

SnapIT worked alongside Trident to adapt the cameras, which involved waterproofing, better power management, 1TB storage capacity, adding GPS, cellular and satellite communication and enabling wi-fi connectivity so data could be uploaded to servers without the need to transport hard drives. The original mechanical hard drive also had to be replaced with a solid-state equivalent.

Rodley said the cameras quickly had to develop very thick skins.

“It's a very different environment to the side of a hotel in terms of robustness. We made assumptions and they had to be changed many times. We went from an aluminium enclosure, to plastic, to sea-grade aluminium, to 316 stainless steel.”

Changes also saw the original 25 watt camera reduced to 1.7 watt.

Despite the mechanical modifications, Rodley said it was the software side of things that presented the biggest and most exciting challenge.

“We never sell a camera and walk away... We're a software company that sells cameras, not a camera company that sells software.”

He said dealing with the wealth of data the cameras produce presents one of the biggest challenges.

“When you have video footage going 24 hours a day from a number of boats you end up with large amounts of data - we're talking terabytes, even petabytes of data.”

In order to save observers time trawling through hours of footage, Rodley said his team is developing video analytics to identify clips of interest. These might draw on GPS coordinates,

time of day, how the vessel physically moved in the video, when a port call was made, or any number of other elements that indicated relevant footage.

“It's kind of interesting for a group of geeks to be presented with these problems - I mean we are involved in solving issues to do with the sustainability of the world's fishing grounds, a real world problem.” Rodley said.

The team had quickly grown from three to nine, and Rodley said they were looking for more people.

Initial testing of the new and improved cameras began in Timaru in November 2012 on three ships, looking for incidents of Hector's dolphin capture in set net fisheries.

The technology performed well, and a second project was undertaken in 2014 aboard six snapper trawlers.

Bolstered by fresh funding from Callaghan Innovation, the camera unit has been shrunk from 40cm in length to just 5cm.

Trident chief executive David Middleton said this was a massive advantage when finding appropriate positions for the camera on small fishing vessels.

The smaller unit is to be trialled where the concept originally began - monitoring black petrel capture in the snapper longline fleet in a project funded by Southern Seabird Solutions.

Middleton said future applications of the cameras could be many and varied, ranging from data gathering for fisheries management, through to safety or general compliance observations by vessel owners.



L-R QuadrantHQ Industrial Designer Aran Pudney, SnapIT CEO Chris Rodley, SnapIT Sales and Partnership Manager Jared Liebezeit, Trident Systems Programmes Manager Oliver Wilson, and New Zealand Trade and Enterprise General Manager David Downs at the NZ HiTech Awards.

We're a software company that sells cameras, not a camera company that sells software."

Middleton said there was even interest from overseas parties including trials in the surface longline fisheries of Fiji.

SnapIT won the Most Innovative Agritech Product Award at the NZ HiTech Awards 2015, also coming highly commended in the Hi-Tech Hardware Product category, and won the People's Choice Award in the New Zealand Innovators Awards 2014 and was a finalist in the Agricultural category.



L-R: SnapIT General Manager Andrew Rodley, Trident Systems FishEye Project Manager Darren Guard SnapIT Chief Executive Officer Chris Rodley.



RECIPE

THE NELSON BOAT SHED CAFÉ'S FRESH CEVICHE

Located at the Port, in the heart of Nelson's seafood industry, the Boat Shed Café is in the right place to showcase the region's riches.

Ceviche is very popular dish in Latin America. Originally from Peru, it has its origins from the Japanese migration to that country.

Boat Shed Café chef Takeshi Nagahama shares this easy to prepare ceviche recipe:

Ingredients

600g fresh snapper fillets
1 large red onion, thinly sliced
2 fresh red chillies, finely diced
300ml fish or vegetable stock
Juice of 3 limes
Juice of 2 lemons
300g orange kumara, cut into 1cm dice
10 cherry tomatoes, cut in half



Garnish

1 lemon, thinly sliced
Fresh coriander
flaky sea salt
fresh cracked pepper.

Method

Cook the kumara until al dente.
Cool and set aside.

While the kumara is cooking, cut the snapper into thin slices (about 3mm thick). Marinate in the lemon and lime juice for at least 1 hour.

Drain the liquid from the fish and set aside.

Add the fish or vegetable stock and coriander to the fish liquid. Taste to make sure there is a nice balance of acidity and flavour. Season with salt and pepper. Set aside.

Presentation

Place the kumara, fish, cherry tomatoes and thinly sliced lemon into a shallow soup bowl. Top with sliced onion and diced chilli. Add the stock mixture (enough to just cover the bottom of the plate) then sprinkle with the coriander. Season with flakey sea salt and freshly ground black pepper.

Chef's Tip:

Cut red onion into very thin slices. Put them under running water for 5 minutes to make them crispy and eliminate the strong onion flavour. Drain and dry.



If the Boat Shed Café whets your appetite for fresh seafood, it's just a short stroll from there to Guyton's, where you'll find everything from crayfish and salmon to seasonal whitebait and scallops. Nelsonians have been buying fresh fish from the edge of the sea since the late 1960s, when Arthur Guyton began operating on the Nelson waterfront.

In 2002 Guyton's moved - but only by metres - to its current spot on Wakefield Quay, where it is now owned by Talley's. The vast majority of the fresh seafood you'll find there has been landed in Tasman Bay.

Images: Sophie Preece



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FV Brid Voyager heading out over the Greymouth bar. Image: Stu Morrison.

GETTING BAIT PAST THE BIRDS

Nelson-based tuna fisherman Stu Morrison, from Altair Fishing Ltd, has given the thumbs up to a new underwater bait setter and is hoping to install the device on one of the vessels he owns in partnership with Diane Ching.

It's likely to be installed on the FV Brid Voyager in October/November, ready for the 2016 season.

Stu visited Mooloolaba, Queensland in March and saw the device in action on a local boat, FV Markarna, that has been involved in sea trials there.

Tasmanian researcher Graham Robertson teamed up with Amerro Engineering to develop the bait setter from an earlier prototype thought up by kiwi fisherman Dave Kellian. Dave is over the moon the device will be tested by Stu. "Stu is passionate about fishing and he has very capable skippers and crew" says Dave.

Stu says he was very impressed with the bait setter. He was blown away by the perseverance Graham and Amerro have shown. "It looks like their efforts have paid off. I'm convinced it's going to keep birds off my hooks" says Stu.

Amerro and Graham are making a few improvements – an electronics upgrade, a new lighter bait capsule and a mechanical trip for the capsule release door before the device is shipped to New Zealand. The Ministry for Primary Industries and Antarctic tourism company Quark Expeditions (Canada) are contributing funds to the upgrade, while Solander Fisheries and Kaikoura ecotourism company

"Stu is passionate about fishing and he has very capable skippers and crew"

Encounter Foundation will help cover shipping and installation.

Check out Stu's video clip of the bait setter on the news page of www.southernseabirds.org

Southern Seabird Solutions Trust is an alliance including representatives from Seafood New Zealand, the Ministry for Primary Industries, the Department of Conservation, WWF-NZ and Te Ohu Kaimoana.



Seagulls in flight: Kirk Hargreaves featured in *The Press*

SEABIRDS SOAR AT CANON MEDIA AWARDS

This outstanding image of seagulls in flight taken by Kirk Hargreaves of *The Press*, Christchurch, took out the Seafood New Zealand Environmental Photography Award at the Canon Media Awards in late May.

The overall awards, the biggest in Australasia, drew 1600 entries with the finalists chosen by 39 independent judges from four countries in a tightly managed, huge logistical exercise.

Sponsoring an award at the event provides an ideal vehicle for the seafood industry to build links with the media and demonstrate in a very visual way its commitment to environmental



Wild weather in Wellington: Kevin Stent featured in *The Dominion Post*

protection, says Seafood New Zealand Chief Executive Tim Pankhurst.

The black tie awards dinner in Auckland on May 22 gave Seafood New Zealand attendees the opportunity to mix with the country's top editors, journalists, photographers, specialist writers, web teams, designers, columnists and cartoonists from newspapers, magazines and digital media.

Also pictured are the two finalists, a bellbird netted by DoC on Little Barrier Island, taken by Greg Bowker in the *New Zealand Herald* and Kevin Stent's (*Dominion Post*) wild weather in Wellington.



Bellbird netted by DoC on Little Barrier Island: Greg Bowker featured in *The New Zealand Herald*

NELSON COMPANY LANDS FLEET RENEWAL

When Aotearoa Fisheries Ltd decided to undertake a \$30 million fleet renewal it was to Nelson-based company Aimex that they turned.

Ged Cann reports

Speaking on the new fleet at the 2015 Maori Fisheries Conference, Aotearoa Fisheries Chief Executive Carl Carrington said they had looked at Australia, Korea, Taiwan and China to find the best quality and design, as well as the most economic option. He was pleased to bring the boats back to New Zealand.

“Having them back in New Zealand is about retaining the boat building capability in New Zealand, because we’re in this for the long haul – this isn’t about one boat. We want a whole new fleet.”

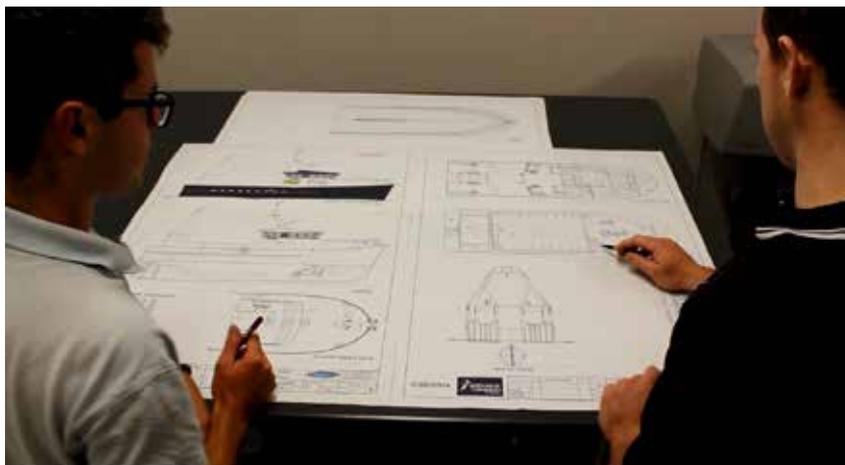
He also pointed to the jobs that would be created.

“The first job will add eight skilled workers to the AIMEX work force, the second and third boats – they will have to add another 20 – [this is] in addition to their existing employment of 50 workers.”

The order will, according to Carrington, be the first of its size since the 1970s, with the average age of the fleet currently sitting at over 40 years.

Aimex CEO Steve Sullivan said he was pleased, but not surprised, to get the contract.

“We have priced the contract fairly and have good relationships with our clients and customers. We’re really pleased that Aotearoa Fisheries is supporting the smaller regions within New Zealand and have kept the work on our own shores.”



Designers go over the final plans for Aotearoa Fisheries Ltd’s new fleet



L-R Mussel Aimex Chief Executive Officer Steve Sullivan, Aotearoa Fisheries Chief Executive Carl Carrington and Roger Rawlinson of RMD.

He said as well as additional staff, new equipment would also be needed.

“We have had to acquire some additional equipment, so early on the benefits to the wider business network are clear. New equipment includes mobile cranes, gantry cranes and other general equipment.”

“This project will bring growth to our local economy and have outreaching effects to a lot of smaller supply companies throughout NZ.”

He said the weather, location, and proximity to support businesses was also advantageous.

Also speaking at the Maori Fisheries Conference, Westfleet Limited Chief Executive Craig Boote said the new boats had been specifically designed to enhance the Precision Seafood Harvesting programme, a revolutionary trawling technology which uses a flexible PVC net to allow undersize

fish to escape and bycatch to be thrown back alive and unharmed.

Boote said the new design would also incorporate proven bird mitigation ideas and have benefits including greater fuel efficient, less maintenance, and reduced susceptible to changeable weather conditions.

He said the seafood industry was very lucky to have talented boat builders on their doorstep.

“Their finish is second to none, which will take these vessels finish to something never seen before in working boat conditions.”

“This will be the best 24 metre trawler in the world.”

He said the first trawler is due for completion in mid-2016 and other vessels in the seine and longline sector will follow.



Image: Plant & Food Research

KARATI RELEASE RECOGNISES DECADES OF CONTRIBUTION TO FISHERIES

Around 10,000 Karati (Snapper fingerlings) were released on April 2 at Nelson's Haven Inlet in recognition of the late Te Rangi o Kiwa John Morgan of Ngati Rarua and his many decades of contribution to fisheries in Te Tau Ihu.

The ceremony, jointly hosted by Te Tau Ihu Fisheries Forum, Plant & Food Research and the Ministry for Primary

Industries (MPI), began with a welcome to the Morgan Whanau, members of the Te Tau Ihu Fisheries Forum, Iwi and other manuwhiri to Plant & Food Research's Port Nelson-based site. Following heartfelt speeches by members of Ngati Rarua, the fishing industry and MPI, the Karati from Plant & Food Research's seafood research programme were blessed and released by the Morgan Whanau.