

AUGUST 2022 NEWSLETTER

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IMPORTANT DATES

ECSC Meeting
30th September 2022

AQNZ Conference
4th & 5th October 2022

GM's Comment

After another record-breaking rainfall event, the top of the South is once again in clean-up mode. This time round it was the hill suburbs of Nelson City, SH6 and 63, along with many of the Sounds roads that bore the brunt. It has been a real challenge moving people, product and equipment around the region, with an eight-hour journey through the Lewis Pass often the only option.

Road access to important facilities such as the wharfs at Elaine Bay and Port Underwood remain a priority for the industry, as without these outposts productivity suffers. We will also have to wait and see whether the silt and freshwater loading has an impact on spat/crop survival. On a brighter note, the level of farm damage was minimal compared with the July 2021 event. I must admit, I've been inspired once again by the ability of the aquaculture industry to 'just get on with it'.

Despite the precipitation induced challenges, we still managed to hold the MFA AGM and Conference on the 26th of August. It was great to return to an in-person offering and catch up with everybody. Congratulations to our elected board members and all those who received awards (more detail in the Conference article). Thank you to those who attended, all our presenters and to Amber and Alex for pulling it all together. A couple of special mentions are also in order, firstly to the Nelson folk who boarded a small plane and experienced some 'exciting' flying conditions, we really appreciate the dedication. Secondly, well done to the Queen Charlotte Yacht Club for once again putting on great food and service; it's fantastic to see the volunteers in action, the young sailors getting out of their comfort zones to wait tables and support the Club.

On the policy front, we continue to wait for the MEP Variation 1/1A decision to be released. This is still expected to occur 'late-2022' and will undoubtedly result in a flurry of activity as we interrogate where the Panel landed and determine what needs to be appealed. We will keep you posted. Members can expect comms from MFA soon after the decision is released.

June saw the official end of the three-year MFA/SIL led King Shag Research Project. This was a significant research effort that catapulted the King Shag from being 'one of New Zealand's least understood seabirds' to 'one of the most studied shags in the Southern Hemisphere'. The research findings are really positive for marine farmers, and we look forward to being able to share the report with you mid-September.

The MFA/SFF Pelorus Mussel Restoration Project also concluded mid-year, but following its success, planning is already underway to extend the work.

The restoration efforts are a good fit for industry as they highlight the top-notch ecosystems provided by mussels, while also providing an opportunity for us to offer our knowledge and specially built equipment to projects aimed at improving the environment we operate in. I hope that future initiatives will also be well supported by members.

Let's all hope for an uneventful Spring - we might even appreciate the nor-wester this year as it sets about drying the place out.

All the best,

Ned

BUNDLING FLOATS

Best practice to avoid losing floats

- Use >24mm Rope
- Use tight bunches
- Tie first and last float securely to >24mm rope (This will ensure if the rope chafes off the backbone or warp, the bundle will stay together)



KEEP THEM ON BOARD

CONTROL YOUR WASTE

USEFUL IN THE RIGHT PLACE



NOT ON THE BEACHES

NOT ON THE BEACHES



CONTROL YOUR WASTE

ECSC Update

The ECSC (Environment and Compliance Sub Committee) looks at how the aquaculture industry interacts with the environment. It includes representatives from MFA, Sanford, Aroma, King Salmon, Kono, MFML, Maclab, Marlborough Oysters, Waimana Marine and United Fisheries

The ECSC meets every 2 months to discuss environmental and compliance matters across the top of the south. These include looking at the importance of beach cleaning and industry being seen to do its part in sustainability, a regular and comprehensive update given by environmental mentor Darren Clarke, planning workshops and industry collaborative clean up days, education and updates for Crew members, showcasing what we're doing in the environmental space to schools, correspondence relating to concerns or improvement ideas raised by the public, supporting new environmental initiatives, such as developing new systems for bolt-on floats, and a 'round the table' forum where everyone shares updates on what they have been up to.



Innovation at work. Paul Smith (Smith Engineering), Greg Smith, (Kono) and Mark Burnaby (Aroma) investigating Paul's retrofitable clamp prototype at the MFA's float innovation workshop.

One idea from ECSC was to hold a workshop looking at float and lashing systems. The workshop saw representatives from a variety of industry providers come together to discuss and brainstorm ideas for developing a more environmentally friendly system for attaching floats to longlines. This could save thousands of meters of lashing being used, which not only has great environmental impact, but is much easier on Crew and makes good financial sense. People came armed with ideas, prototypes and models, the aim being to design a clamp to fit existing floats and remove the need for lashing. It proved to be a very successful day.

Grant Boyd

Chair - MFA Environment and Compliance Sub Committee.

Congratulations!

We would like to say a huge congratulations to the following companies

Clearwater Mussels



Marine Farm Management



Talleys



Marine Farm Compliance Audit Programme

Declarations are Due
31st October 2022

If you have not sent in your declaration for the 4th quarter, please do so as soon as possible



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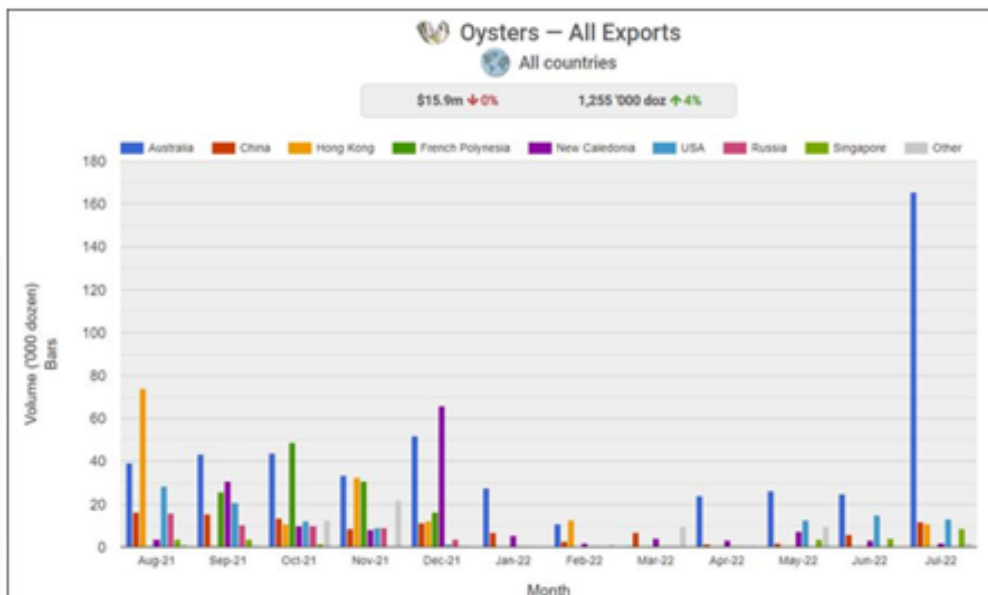
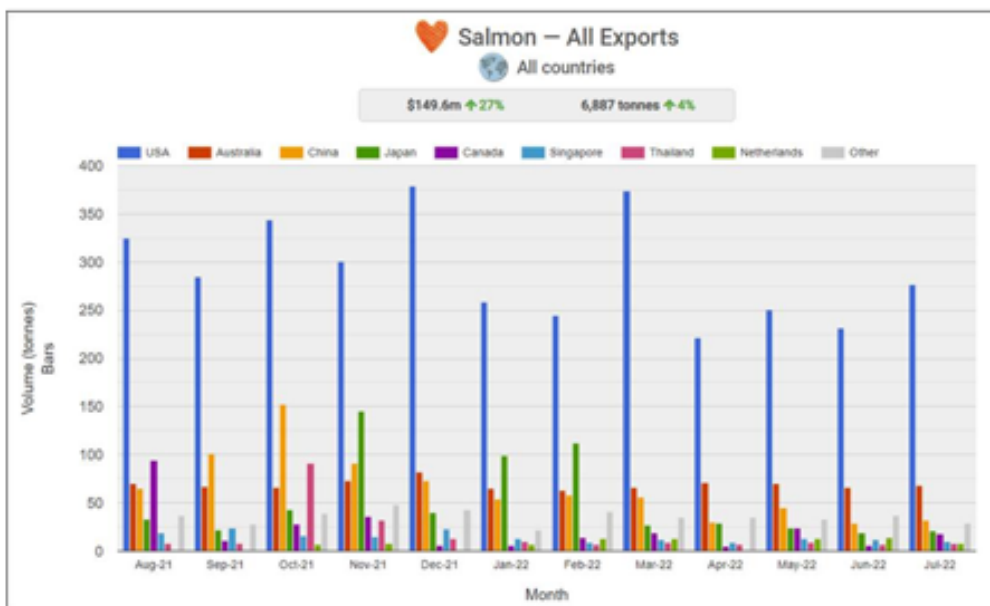
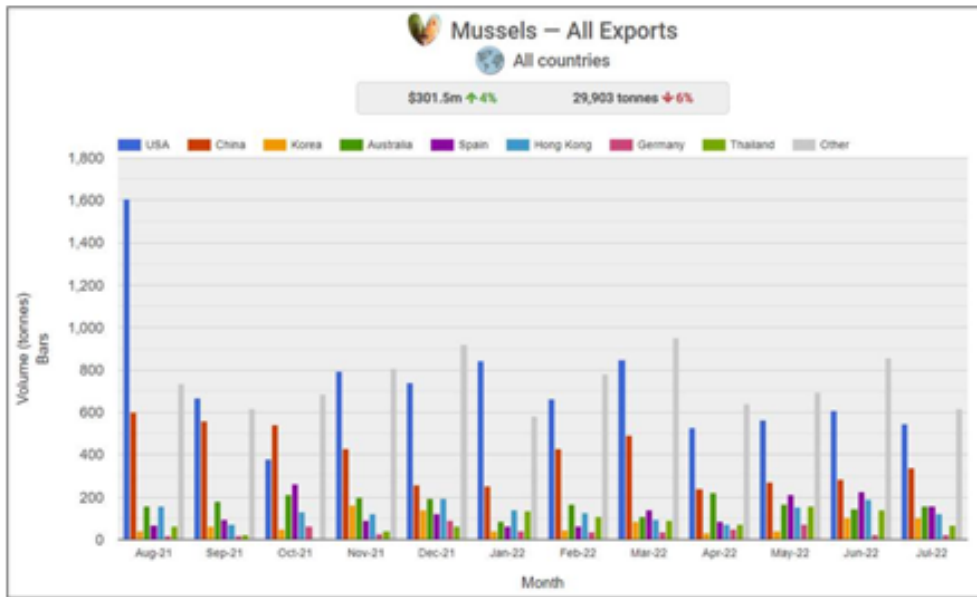
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AQNZ Export Data



Your chance to get Smart+Connected



We've had another couple of stellar theme meetings of the Smart+Connected Aquaculture group – and I'm inviting any MFA member to join the meetings.

In one hour a month via Zoom, you will be given a taste of some of the best science and innovation projects happening in the aquaculture space. It's a seafood entrée rather than a main course – five speakers present and take questions in 60 minutes. We follow up with links to their presentations and their contacts.

Some of it is really useful information – if not business leads - for marine farmers.

One of the speakers at our August meeting, Maren Wellenreuther, was compelling enough to get her own story in this newsletter. Maren leads Seafood Production at Plant and Food; she is looking for partners to take 20 years of research into snapper into semi-commercial production. Right now.

We also met Paul Dekker, the father of commercial whitebait production in NZ, who is establishing a full commercial-scale hatchery at the former Ocean Beach meatworks with iwi backers.



Also on the August Zoom was Blair Wolfgram, MD of the Bluff facility where he is using some of the space establishing a paua farm which will supply local and international markets from next year.

Leo Zamora, a marine biologist at Cawthron outlined his research on Geoduck and Sea Cucumber – the latter grows best he says under mussel farms.



And we saw photos and a presentation from NIWA's Alvin Setiwan about its huge recirculating unit for rearing kingfish, aiming from next year to prove the commercial-scale bio-economics of RAS kingfish rearing.

Commercial-scale RAS research:



- Co-investment by NIWA and the Northland Regional Council
- Bioeconomic proof-of-product for land-based kingfish RAS.
- 600 tonnes p.a.
- Commissioning in Q4 2022.
- First harvest Q2 2023

Climate, Freshwater & Ocean Science



Our July meeting was on Seaweed – the next big thing? We heard from Clare Bradley, CEO AgriSea and inaugural Chair, Aotearoa NZ Seaweed Alliance which is holding its first conference in October in Nelson. She spoke about creating a successful seaweed business and a national organisation. Another seaweed producer, Hayley Fraser-Mackenzie, MD, Pacific Harvest, explained seaweed is an important, emerging food source with big opportunities for Aotearoa.

Going green with red seaweed was the title for CH4 Aotearoa General Manager, Nigel Little's presentation. He outlined its expanding top of

the South pilot projects with asparagopsis and how its harvesting and processing its first commercial production.

NIWA's Dr Roberta d'Achina spoke about a community project using science to restore Wellington's seaweed forests which is also seeing restaurants wanting to try seaweed varieties as a food source.

The final speaker will be known to many of you - Alex Pressman, from Waikaitu - advised how to add seaweed as a win/win income source to your existing marine farm.

A review of Smart+Connected Aquaculture, funded and brought together by MDC, is shaping up in September. As I see it the key issues are how to attract more marine farmers and iwi - and what value it brings to MFA.

If you have an interest in looking in on a meeting (every second Wednesday at 11am) just email the MDC-provided secretary Sarah Leighton – sarah.leighton@marlborough.govt.nz

Our next meeting on September 7 will be on the theme of commercialising innovation in aquaculture.

Brendon Burns

Chair - Smart+Connected Aquaculture group



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From butchers' boy to mussel boat skipper

Mark Whittall left Marlborough Boys College 35 years ago at age 17 and was working in the Havelock butchers' shop when he was offered some work on a Sanford mussel vessel.

Thirty-five years later, he's still working for the company and has been skipper of the San Nikau for nearly twenty years. It's a life he wouldn't trade.

Every day there's something different. Golden Bay mussel farms have now been added to his work across the Marlborough Sounds. Earlier he did a stint at Sanford farms at Port Levy in Banks Peninsula and off the Pegasus Bay coast.



Mark in early days aboard the Happy V

Graham Hood was the skipper on the Wai Iti who in 1987 offered the young butcher's boy some part-time work.

"I just loved it. It was all done on mussel rafts in those days. Mussel lines were just getting started."

Towing a barge, the Wai Iti would pull up alongside a raft and lift the single dropper lines from the perimeter of the raft. Sacks would be filled with 35kg of mussels before being stacked on the deck and taken to Havelock; from here, they went directly to restaurants and other outlets.

There were 7 or 8 people on the vessel, with declumping taking place on board as well as sorting, stacking, sewing and filling sacks.

Today there are only three or four staff working on board the San Nikau with Mark.

“I’ve seen a lot of changes over the years. One of the biggest has been to health and safety.”

When he started there was no hi-vis PPE, hard hats, warning signage or SOPs.

“We were just given a pair of gumboots and leggings.”



No hats or hi-vis in early days – Mark with Shandy Pope on Happy V

He’s seen and experienced a few nicks and minor injuries. “But I’m lucky enough to have never had or seen a major injury.”

Luck may have played its part, but Mark says that record also reflects the changed focus on health and safety which he welcomes.

“You are only as good as the risks presented by your worst worker.”

Another change he applauds is the focus on the environment.

For more than 20 years, beach clean-ups have been part of the routine on vessels he served on but this now extends into stopping anything going overboard, and even trialling compostable ties.

The beach clean-ups continue and a lot of it is not from marine farms. Plastics collected from whatever source are separated for recycling. “Everyone on board is well aware of what we need to do. I think the Sounds, in particular, is an awesome place and we want to keep it that way.

In August, Sanford presented Mark with a certificate marking his contribution to the company over 35 years. He has no plans for a change, enjoying the security of working for a major company which has never laid him off or stood him down.



Aboard the San Pelorus with barge Hercules in early 1990s

Apart from three months OE in 1997, he's been with Sanford throughout serving on the Wai Iti, Happy V, San Tai, Pelorus Trader and San Pelorus before the San Nikau.

His skipper on the San Pelorus was Bruce Sampson from whom Mark learned a lot.

“That’s where I found a passion for collecting spat and intermediate seeding.”

He was encouraged to get his skipper’s ticket and went on to skipper the San Pelorus for some years before in 2001 being asked to skipper the multi-purpose San Nikau when it was launched.



The San Nikau about to be launched

“That’s what I’ve really enjoyed and why I’ve stayed on.”

He’s trained a lot of people in his time who’ve gone on to be skippers and industry managers.

Mark also says he’s been lucky to have a string of managers who he has enjoyed working with including Chris Godsiff, Vaughan Ellis, Bruce Cardwell, Zane Charman and Dave Herbert.

“They’ve been a big part of my life.”

He acknowledges the 4 on/4 off routine is not for everyone but he and his wife Donna have remained happily married through it all, raising a combined family of six children.

“We’ve learned to manage it.”

His own twin daughters Hannah and Sophie are both at university while son Josh has joined the army. Mark hasn’t given up all hope of a next generation following him in the mussel industry.

“Anyone that wants to do it for a living – it’s a good job. I personally love working with a small team and being outdoors.”

It’s a good job, 35 years on – Mark Whittall



Conference another winner

Despite a record-breaking rainfall event closing several State Highways, the 2022 MFA conference held Friday 26th August still attracted nearly 100 attendees who enjoyed some great presentations and a memorable awards night.

The conference opened with the MSQP and MFA AGMs, where long-serving MFA Board member Bob Nicolle was recognised with life membership. To everyone's delight, Bob was in attendance to hear tributes from two other life members Jim Jessop and Rob Pooley, who both praised his constitutional knowledge and unwavering integrity. Bob said it had been a privilege to work in the industry and serve on the MFA Board.



Bob Nicolle accepts Life Membership at the MFA AGM

An update from the science community followed with panellists from NIWA, Cawthron, Auckland University, Plant and Food and AQNZ. They introduced attendees to some of the research being undertaken on topics such as feeding spat, climate change, seasonal forecasting and the development of FLUPSYs.

MFA's legal advisor Quentin Davies from Gascoigne Wicks then provided an update on the Marlborough Environment Plan. He explained that some progress was being made at mediation on the wider Plan chapters and expects the decision on Variation 1 to be released late 2022.

Advertising guru Mike Hutcheson was a highlight with his speech on creativity which began by explaining entrepreneur was a French word for



Aquaculture scientists Dave Taylor, (AQNZ) Brad Skelton, (UofA) Niall Broekhuizen (NIWA) & Patrick Cahill (Cawthron) with Mark Jarvis on zoom (Plant & Food)

those who profited from extracting bodies from homes during the bubonic plague. Mike's entertaining presentation focused on being innovative and he says that despite many technological advances, creativity and the ability to problem solve remain as the most important workplace skills.

Amber gave an update on the MFA environmental initiatives, including the updated Environment Programme and scoring system. She also advised that the industry was developing a sponsor-based beach cleaning initiative to support the existing industry commitments.

Lucy McLean from Hortus outlined of some of the labour shortage and perception challenges facing the horticulture/viticulture sector. She talked about the challenges and opportunities provided by the RSE scheme and the excellent work being done by Hortus to become a preferred employer.

Ted Culley, wearing his deputy chair of the AQNZ Board hat, gave an insightful market update. He says that covid, shipping constraints and inflationary pressures remain a significant challenge for growers. He thought work on labour shortages and increasing product value should be a top priority for the industry. He also talked about the need for both market and product diversification to buffer against global disruptions.

Ned wrapped up the conference with an update on the King Shag Research Project. Soon to be published findings show that marine farms are 'neutral' to King Shag and that 56% of all birds tracked foraged within farms.

More detail on the conference presentations will be provided in the next newsletter.

Brendon Burns

Conference Fun



Marine farmers recognised for their community roles

Two marine farmers who've spent countless hours helping school students in the Marlborough and top of South community were recognised in the annual Marine Farming Association awards last night.

Ted Culley and Grant Boyd, who've both had long careers in aquaculture with Sanford, have also been huge contributors to Marlborough's branch of the Graeme Dingle Foundation, raising tens of thousands of dollars for it.

Ted received the MFA Merit award and Grant was the first recipient of a new MFA award for service to the community.



Ted Cully receives the MFA Merit Award

Ted Culley was at the forefront of Sanford's expansion into aquaculture over many years, at one point managing production of greenshell mussels, oysters and salmon from operations based as far north as Te Hiku (Kaitaia) and as far south Big Glory Bay in Rakiura, Stewart Island.

Jonathan Large says Ted has been key to many significant industry developments including aquaculture being recognised in district plans, the development of automatic opening machines for halfshell mussels and mussel farming's first commercial scale hatchery.

Ted also did repeat sky dives for Graeme Dingle Foundation, raising more than \$30,000 in one year alone for its KiwiCan programme which helps thousands of Marlborough primary school students.

Grant Boyd has kayaked Cook Strait as well as skydived for the foundation. He's also been an industry mentor for five years on its Career Navigator programme and was instrumental in setting up Aquaculture Industry Days which take students in top of South out on the water to see marine farming up close.



Grant Boyd receives the MFA Community Award

His brainwave of partnering with the foundation on the Sanford stall at the Havelock Mussel Festival was soon joined by NZ King Salmon and collectively they've raised over \$36,000 in the past four years for the foundation.

Other winners were Emilee Benjamin, a scientist who took out the Research & Development award for her work leading the restoration of wild mussel beds in the Sounds; Simon Pooley is the 2022 Environmental Award winner for his dedication to improving the environment; Golden Bay-based Grant Darling was judged the industry's best Recent Entrant; and mussel farmer and skipper, Stoney Bourke was selected as Donaghys Outstanding Marine Farmer of the Year.

Announcing that award, MFA President Jonathan Large said Bourke was a driving force behind efforts to create a retrofittable clamp to remove plastic lashings from mussel float attachments. He also sits on an industry advisory panel working with Cawthron Institute on new float designs.

"Stoney also showed remarkable resilience last year during a major storm event in the Tasman Bay area. Drawing on his years of farming experience he swiftly recovered mussel lines which had become loose and secured them back in place in a very short period."

Jonathan Large said Stoney Bourke's quick actions meant the storm's impact went unnoticed to the public. "He then went on to work with Cawthron to model the storm and provide industry with important information that can reduce the risk for open water farming in the future."

Emilee Benjamin's work as the driving force behind the Pelorus Mussel Restoration Project for the last three years was recognised by the Research and Development Award, sponsored by Flip Farm. This goes to an individual or organisation who've demonstrated measurable excellence in

R&D across the understanding, growth, sustainability or profitability of the marine farming industry.

Beyond her research, Emilee has been an enthusiastic contributor to the MFA schools programme, at the Havelock Mussel Festival and wider extensive communications and information sharing about the mussel restoration project.

The Environmental Award, sponsored by MacLab, went to Simon Pooley for his on-going work to develop new eco-friendly consumables for his mussel farming business. Simon has also given countless hours of his own time and that of his crews and family, to beach cleaning. Unfortunately, Simon was unable to collect his award in person.

It's been a long haul for Grant Darling in Aquaculture Direct's Recent Entrant award. Grant had been farming mussels in South Africa before relocating his family to Marlborough. He's since become On Water Manager for Kono in Golden Bay, managing two large double-shifted vessels and associated shore-based activities.

Brendon Burns



Stoney Bourke receives the Donaghys Outstanding Marine Farmer Award



Emilee Benjamin receives the Flipfarm Award for Research & Development



Grant Darling receives the Aquaculture Direct Recent Entrant Award



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BUNDLING FLOATS

Best practice to avoid
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- Use >24mm Rope
- Use tight bunches
- Tie first and last float securely to >24mm rope (This will ensure if the rope chafes off the backbone or warp, the bundle will stay together)



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MFA inspires at Fantastic Futures

Following on from our recent work with young people in the labour and skills space, Alex represented MFA and the aquaculture industry at the Nelson Fantastic Futures event. This careers event is aimed at showcasing the opportunities available to young people from schools throughout Nelson/ Tasman.



Held at Founders Heritage Park on the 6th of July, 170 students from 9 schools attended. 27 businesses were represented at the event run by the Nelson Regional Development agency and the Ministry of Education.

Through chatting with, and actively engaging the students, MFA highlighted the variety of employment opportunities available in the aquaculture industry. The students learned about our locally farmed species and were inspired to find out more through a game of aquaculture bingo. The students showed a particular interest in on water roles and science opportunities.

Alex Henry

Snapper ready to go semi-commercial

Snapper (*P. auratus*) show some real potential to be developed as an aquaculture species, says the scientist now leading a 20-year research programme for Plant & Food Research (PFR).

Assoc. Prof. Maren Wellenreuther heads a 30 strong team based in Nelson, with access to both land-based facilities and a holding pen in Beatrix Bay.



She told the August Smart+Connected Aquaculture meeting that while the research has also included other species such as trevally, snapper has now been developed to a point where it is ready to be commercially trialled.

PFR has been breeding snapper stocks since the early 2000s and is now after four generations, producing fish that gain weight 40-50% faster than wild snapper.

Maren says snapper have a number of advantages as a potential candidate for aquaculture.

The PFR research has shown they spawn and grow readily in captivity; they are hardy and resistant to disease and can be grown all around the North Island where we currently do not commercially farm finfish, and in the Marlborough Sounds where the water temperatures are starting to become too warm for salmon.



Additionally, they respond well to a fed diet and had low mortality when weaned off live food. Snapper are also closely related to already successful aquaculture species elsewhere, such as red sea bream in Japan, and the gilthead seabream in the Mediterranean, which are proven aquaculture species.

She said PFR would be excited to start a semi-commercial trial and had begun some discussions in this area.

The snapper were doing well in the Sounds pen and PFR is currently running a trial with the elite snapper stock in the pen over winter.

Ngai Tahu Seafood (NTS) is enabling PFR scientists to undertake research in the NTS-owned Beatrix Bay Sea Pen in Pelorus Sound.

Brendon Burns

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Sanford flies the seafood flag

Four things keep Sanford boss Peter Reidie awake at night – feed for his company's salmon farms, the cost of fuel and also of freight – and getting enough people to procure and process seafood.

Sanford's CEO along with its GM Innovation Andrew Stanley, provided the strongest presence for the seafood and aquaculture sector ever seen at July's Primary Industries Summit, held in Auckland.



Previously the Federated Farmers conference, it's now a showcase for issues across the entire range of food and fibre production.

Peter Reidie told the summit that 70% of the world's seafood was sold in restaurants, so when Covid closed them almost everywhere, this had a pronounced impact.

Fortunately, all of them had now re-opened and his company's challenge was getting product to them at a cost that could compete.

Sanford had become better organised on freight and making the business more efficient, but it remained a challenging environment. While the current focus on training more New Zealand workers was appropriate for tomorrow's demands, the seafood industry needed workers today. Transitional measures were needed to assist in the interim.

He quoted leadership expert Simon Sinek who says companies need a noble purpose and conscience to attract younger workers.



Peter Reidie said companies can always improve their operations and young workers can help them identify and deliver the necessary changes.

Sanford had been in business 150 years and being a sustainable operation was top of mind. It was easy to get into a 'bloody Government' mode when sustainable practices were required of a sector, but businesses needed to look at what was being demanded by consumers.

They, however had to understand that the costs imposed by being more sustainable needed to be compensated for. Measures that made the environment stronger had to go hand in hand with being able to fund them.

New Zealand had a habit of knocking over the tall poppies and the seafood industry had to keep telling the stories of its sustainability, said Peter Reidie. It required ten good news stories to compensate for one bad story.

Ministry of Primary Industry Director-General Ray Smith told the summit that seafood's growth in exports (9% in the year to June 2022) had helped lift food and fibre exports past \$50b for the first time ever (to \$52.2b)

New Zealand exported 92% of what we produced, with China taking a whopping 37% of that. Beside it, only the United States (at 10%) made double figures. Ray Smith picked seaweed along with medicinal cannabis as big future growth crops.

Andrew Stanley told the summit that growth in wild fish catch was limited so Sanford's main focus now was high quality products - Premium, Provenance and Price.

As a vertically integrated company, Sanford was able to get full utilisation from the 130 species it caught or reared.

Greenshell mussels were its largest operation where the phrase 'innovate or die' was a truism Wild spat was risky and random and presented the biggest risk and constraint to mussel farming. Sanford had invested in the SpatNZ facility in Nelson which was looking to produce a third of New Zealand's spat needs.

Its new bioactives facility was opening in August near Blenheim to allow expanded work on extractives from seafood including GSM oil, collagens and peptides from fish and seaweed extracts.

The site would allow concept to commercial scale production with a range of new products to improve human and animal health, said Andrew Stanley.

Brendon Burns



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MFA Newsletter Stories

If you have a story that you would like to see published in our newsletter, please forward it to info@marinefarming.co.nz for consideration.

Our newsletter comes out every two months – February, April, June, August, October, and December.

Primary ITO update

I attended a meeting in Wellington at the start of August with the Seafood Industry Partnership Group. This is an industry advisory group for Primary ITO (PITO).

This group is chaired by Cathy Webb from Seafood NZ.

The following is just a quick summary of the many notes that I took, if anyone wants any further information, or would like to get involved, please let me know – amber@marinefarming.co.nz.

So...

PITO will remain a subsidiary of Te Pukenga (the new national Polytech structure), until the merge is complete, the new organisational structure for Te Pukenga is still up in the air.

Funding - the new Unified Funding structure will be implemented 1 January 2023. 84% of this will be volume-based funding, 8% will go to supplemental learning and another 8% will be strategic funding (e.g. Innovation, quick to fail projects).

Unit Standards will change to Skills Standards; these intend to be more flexible and less prescriptive. The idea is to take a step back to look at the skill holistically & the learning outcomes rather than ticking a box.

There is a working group for this.

Supplementary Credit Programme's (SCP's) & Limited Credit Programme's (LCP's) will be converting into Micro credentials – there will be a working group created around this, micro credentials will be less flexible than the existing structure so there will need to be a lot of thought go into this process. This piece of work has a deadline of December 2023.

Catherine Ross is the new Partnerships & Engagement Manager for Muka Tangata (the Food & Fibre Workforce Development Council (WDC) under the new Polytech structure), she may be in touch with you.

Gateway – PITO run some of their programmes through Gateway in the high schools, this is going well, and they have been in contact with QCC regarding their Aquaculture programme.

Aquaculture Apprenticeships – these will be released Feb 2023; the apprenticeship will consist of the Level 3 certification plus the Level 4 certification.

Level 3 Certification options – Mussels, Oysters, or Salmon.

Level 4 Certification options – Mussels, Oysters, Salmon, or Aquaculture Diving.

These have been registered with NZQA and endorsed by the WDC.

PITO are currently creating all the collateral, learning guides, and resources. They may be in touch looking for images to use.

Aquaculture Assessors – with the new apprenticeships going live in 2023, PITO want to train in house assessors. For example, if your company trained up an in-house assessor, they will be able to assess your apprentices.

If PITO can't get enough in house assessors, there are roving assessors that PITO use, however, depending on the workload of the roving assessors, relying on this option could cause delays.

New staff member – PITO are looking to hire an advisor for the Nelson/ Marlborough region to help support their new programmes. Daniel will continue to cover up north and further south.

Aquaculture on IPG – If anyone is keen to be on the Seafood IPG so that we have more of a presence, let me know.

Primary ITO have a new website – check it out (www.primaryito.ac.nz).

Amber McNamara

AQUACULTURE DIRECT

Aquaculture Direct believes that New Zealand can benefit from the economic, cultural and environmental opportunities that sustainably managed aquaculture can deliver.

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Parchment worm in the top of the South

Over the last six months we have received enquiries from concerned members of the public about a population explosion of “parchment worm” in the Marlborough Sounds.

The parchment worm is a type of marine bristle worm that lives in a U-shape papery tube, and can grow on artificial structures like wharf piles, in rocky areas, and in soft-sediments habitats, to a depth of at least 69m. The first New Zealand records of parchment worm are from about 1966 in the Hauraki Gulf, with surveys in the early 2000's revealing prolific infestations with up to 20,000 individuals per square metre of seabed.

There appears to be more than one species in New Zealand, with the Marlborough Sounds population identified as *Chaetopterus chaetopterus-B*, and a species referred to as *Chaetopterus sp.* recorded from Nelson. It is unknown whether parchment worms are native to New Zealand, or have been introduced from overseas at some stage. The worms have certainly been around the Marlborough Sounds for quite a few years. The biology and impacts of parchment worms are not well understood, but their ability to reach very high densities suggests they have the potential for a range of ecological and economic effects. The Seafriends website (<http://www.seafriends.org.nz>) refers to observations since 1995 of abundant parchment worm tubes being beach-cast by storms in the Hauraki Gulf.



Images from the iNaturalist website

For many introduced species, it's common to see 'boom and bust' cycles, or time lags of decades between first arrival and the first population outbreak. What can be done about it? Unfortunately, nothing – or at least, very little. Even for small and discrete populations of marine pests, effective control can be difficult if not impossible. The “horse has bolted” – the parchment worm is abundant and distributed widely, and can live so deep that any form of effective management is impossible. That said, any

practical steps that are put in place to reduce the human-assisted spread of marine pests in general, may also help to reduce the further spread of parchment worms. Examples include keeping a clean vessel hull, making sure anchor wells and topside gear are free of visible fouling and sediment, and ensuring re-used structures (e.g. mooring anchors, marine farming gear) are cleaned before being move among location

Peter Lawless ToS Marine Biosecurity



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BUNDLING FLOATS

Best practice to avoid losing floats

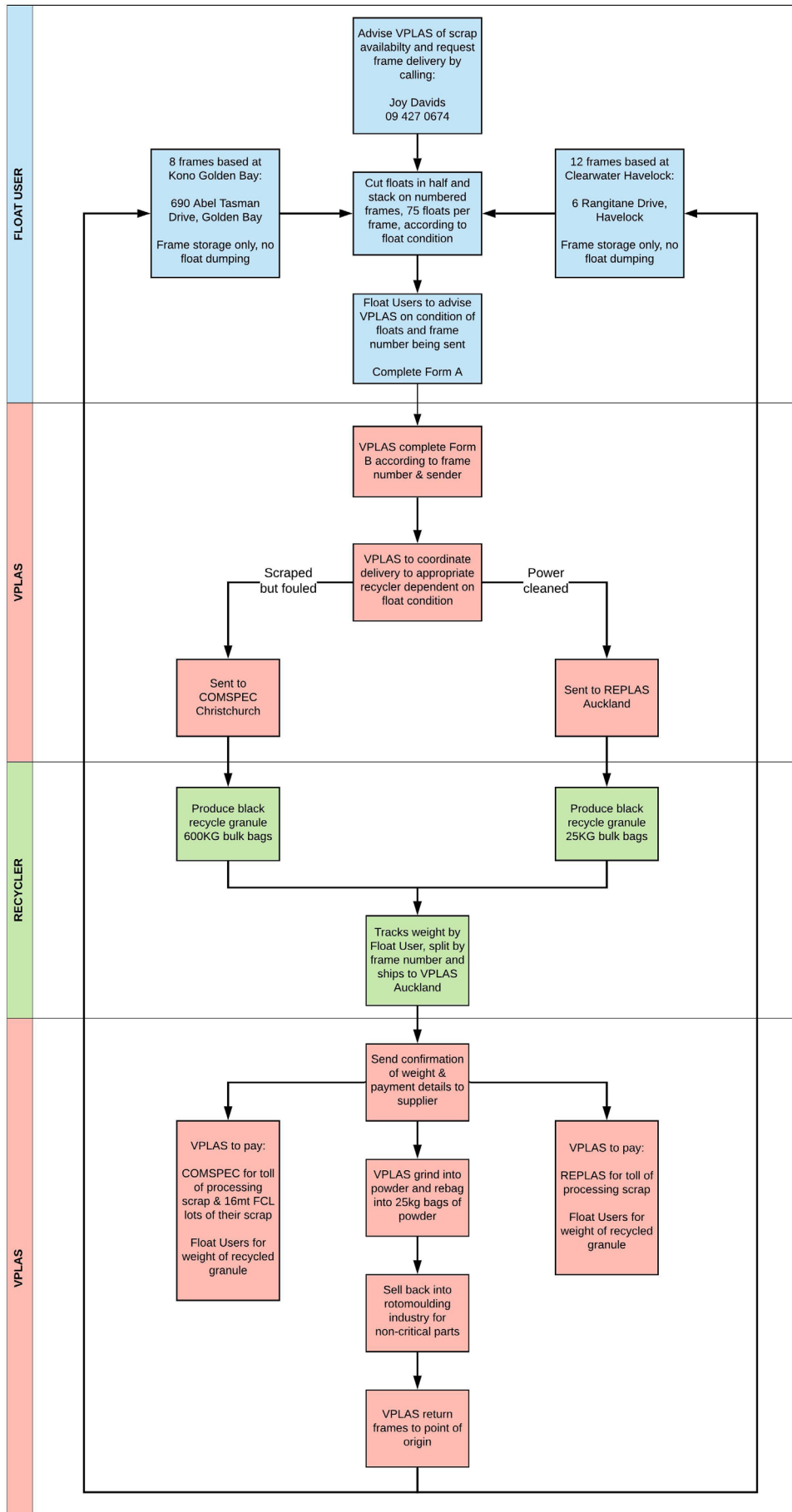
- Use >24mm Rope
- Use tight bunches
- Tie first and last float securely to >24mm rope (This will ensure if the rope chafes off the backbone or warp, the bundle will stay together)



USEFUL IN THE RIGHT PLACE



NOT ON THE BEACHES



Amber's gone, but not gone...

Earlier in the year, we wrote an article about Amber leaving the Marine Farming Association.

Now, a lot of you will have since been in touch and been a little confused that Amber is still at the MFA.

We thought we should write a follow up article to let you all know what is happening...

Many of you will know how challenging it is to find staff, and finding a new Office Manager was no different, the pool of available applicants is very small.



We found ourselves in a unique position, with Amber being a contractor. We decided to contract Amber on a part time basis until April 2023 (the end of this financial year).

We will start recruiting again late this year, with the hope a new person can start and be trained by her in the new year.

When Amber isn't working for the MFA, she is consulting for her own business, Amber McNamara Consulting. Her focus is on business processes and the implementation of cloud-based software systems.

Amber mainly works mornings for the MFA.

Amber McNamara

First Mate – Meet Amba Blommaart

I'm excited to introduce myself as your FirstMate Navigator. My name is Amba Blommaart and I'm based in Nelson, where for the past 14 years I've worked in the fishing industry.

I started out as a Fisheries Observer on deepwater and inshore vessels, travelling all over the country, meeting some very interesting characters. It's really special to be able to see beautiful parts of the country that are generally only seen from the vantage of those at sea. The salt gets into your veins and I knew then that I wanted to stay in this industry. The people are real and the work is rewarding.



Today, I work with cameras on boats, focused on capturing specific data during fishing activities. One project monitors sea bird interactions on eight long line vessels fishing out of Northland. The second project gathers data on the exact length of any undersized Tarakihi caught from ten inshore trawl vessels fishing off the East Coast of the North and South Islands.

I get to do a fair amount of footage watching, but cameras are a great way to understand what is going on with fish stocks or protected species. It's been rewarding to also become a FirstMate Navigator. FirstMate is all about supporting the seafood sector workers and their families, and when there was an opportunity to get involved, I jumped at it. I know first-hand that we all need some extra support every now and then.

We are here to support you. Check out the FirstMate Facebook page or the Facebook "NZ Seafood Whanau and Friends" group to connect with the seafood community online and others like you.

First Mate also has a great website full of information sheets and tips and tricks. Visit www.firstmate.org.nz or reach out at 0800 ADRIFT (0800237438).



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Support comes in many different shapes and forms, so I urge you to reach out no matter what the challenge, issue or problem. There are a range of support services we can connect you with that could make all the difference.

If you want to say hi in person and grab yourself a free FirstMate hat, I look forward to seeing you at the conference in Picton on 26 August.



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FURTHER ENTERTAINMENT TO BE ANNOUNCED

Optimising flow rates for nursery culture of the Greenshell™ mussel

Background

The endemic Greenshell™ mussel (*Perna canaliculus*) is New Zealand's most valuable aquaculture species, with an estimated export revenue of NZ\$337 million in 2019. The industry remains reliant on the supply of wild-caught spat for seeding onto coastal farms, virtually all of which are sourced from Ninety Mile Beach. Once seeded onto farms, spat below 6 mm can detach themselves to settle elsewhere. This secondary settlement is a major contributor to spat loss, with one study estimating losses of up to 99% after only a few months.

One proposed solution to solve the issue of spat retention is the use of floating upwelling systems, called 'FLUPSYs.' These floating structures sit next to coastal mussel farms, used to raise mussel spat to a size where their secondary settlement abilities are lost, and they can no longer leave. This would lessen the industry's reliance upon the fluctuating supply of wild-caught spat. Additionally, it is thought that larger spat are more resistant to factors such as environmental stressors, further increasing retention.

Recent research indicates that FLUPSYs greatly reduce spat losses when compared to the traditional methods currently employed by the industry. Now that their efficacy has been established, we need to optimise FLUPSY conditions to maximise spat feed uptake and growth.

Experimental Design

We have been working on optimising flow rates in the FLUPSY system, as flow rates should impact the growth and feeding rates of mussel spat. We did this in captive laboratory conditions using spat in simulated

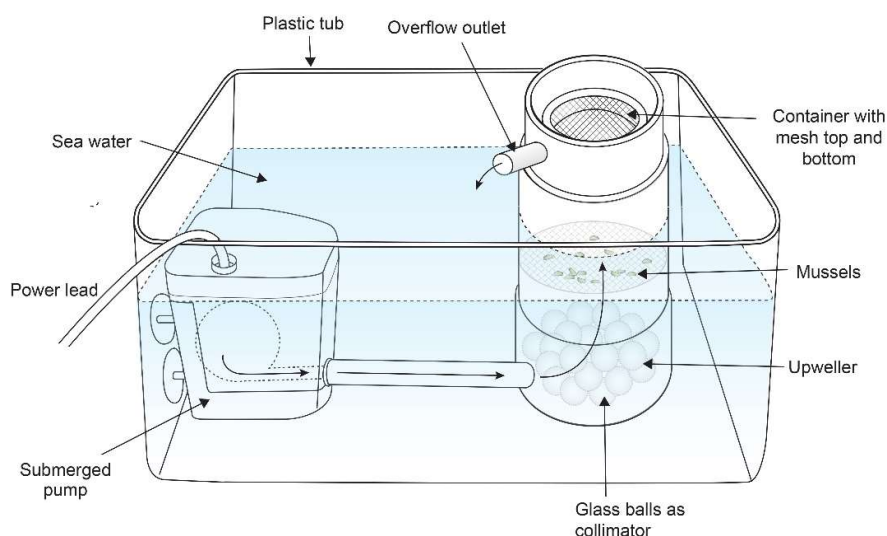


Figure 1. The experimental apparatus used to simulate floating upwelling systems (FLUPSYs). A pump takes in phytoplankton-rich water from the container and forces it to upwell through a mesh that mussel spat sit upon. This passes through a banjo filter and enters the container to be recycled once again.

FLUPSYs (Figure 1). We fed mussel spat of different size classes a known concentration of phytoplankton at a range of flow rates, then measured how phytoplankton decreased as the spat fed. If more phytoplankton is consumed in the same period for a given flow rate, it shows us that the flow rate is improving their feed uptake.

Early Results

So far, we have experimented on small and medium spat (mean sizes of 0.89 ± 0.005 mm and 1.86 ± 0.03 mm, respectively). Our main findings show that the small and medium flow ($0.66 - 1.6$ $\text{cm} \cdot \text{s}^{-1}$) had the best feeding outcomes for both size classes, with the most phytoplankton consumed in a 2- hour period (Figure 2). This corresponds well with studies on the similar blue mussel (*Mytilus edulis*), which found that high flow rates inhibit feeding.

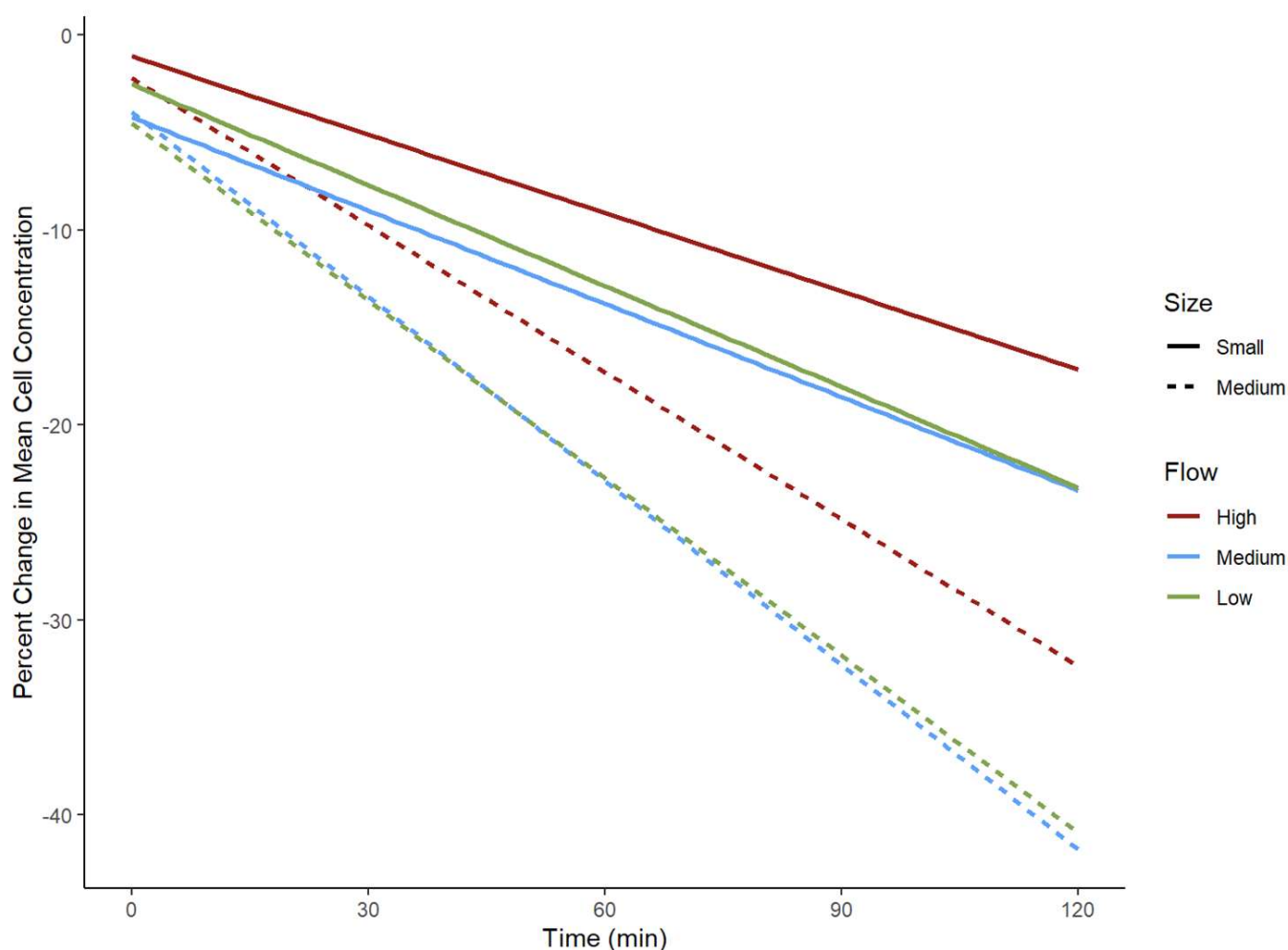


Figure 2. Simple linear regressions showing percentage change in mean phytoplankton cell concentration over time for each combination of Greenshell™ mussel spat size and flow rate. Small spat were < 1 mm in length, and medium spat were 1 – 2.5mm in length. Flow rates were 0.66 cm s^{-1} (low), 1.6 cm s^{-1} (medium), and 3.1 cm s^{-1} (high).

Next to come is the completion of our experiments with a large spat size class. We can then look at applying these results to real-world FLUPSYs, bringing this novel hatchery method one step closer to widespread use in the Greenshell™ mussel industry.

If you have any questions or comments on this project, please feel free to reach out to Abbey via email at abro806@aucklanduni.ac.nz.

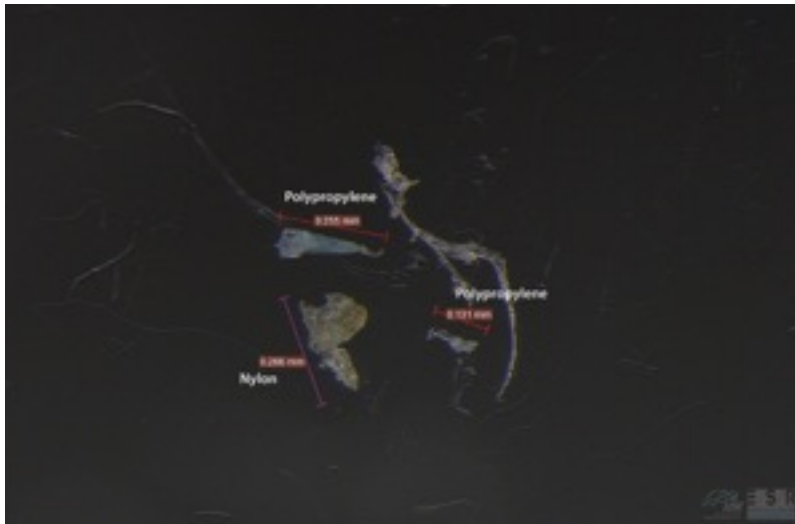
Plastics: our friend and foe

Synthetic plastic polymers have revolutionised our world, from improved food safety to fuel efficiency in vehicles. Since it came into mainstream use plastic production has increased exponentially, increasing from 2 million tonnes per year in 1950 to 368 million tonnes in 2019, and is expected to reach 600 million by 2025. Plastics are now used in every aspects of our daily lives, being used in everything from our clothes to the production of our food both on land and sea. With this increase in plastic production and its widespread use has come an increase in worldwide plastic pollution. It has been identified in all terrestrial and aquatic environments, from the Arctic to Antarctic, the highest mountain tops, to remote islands and deep ocean trenches. It has also been found in all animal groups across all ecosystems so far tested. Modelling of medium to large plastics has suggested that in 2016 around 19 to 23 million tonnes (11% of plastic waste generated globally that year) entered aquatic ecosystems, and this is expected to continue to rise with increased production and use.

Plastic is entering the environment at the end of its life both intentionally via mismanagement and unintentionally through general wear and tear and accidental loss. The resilience and strength of plastic under environmental conditions makes it both highly attractive for use but also means that it persists for decades to centuries, only breaking into smaller pieces but not being reassimilated into nature. The processes involved in weathering and breakdown of plastic into progressively smaller particles includes mechanical abrasion (e.g. ropes, crates), hydrolysis, UV photodegradation, biodegradation and biological erosion, ingestion and digestion (e.g. biting and chewing).

Small plastic particles less than 5 mm in size are referred to as microplastics, and those <0.01 mm size are often defined as nanoplastics. The amount of these plastics in the ocean is uncertain but current estimates suggest that there are 15-51 trillion particles present, weighing between 93-236 thousand tonnes. Plastic particles are also characterised as either 'primary' or 'secondary', which refers to whether they were made to that specific size (e.g. glitter and microbeads) or are the breakdown products of larger plastic items.

The ingestion of plastics by animals is most commonly associated with macroplastics and larger vertebrates such as seabirds and turtles, and microplastics by filter-feeding bivalves. However, due to its small size and resilient and indigestible nature, microplastic can enter the base of the food chain and be transferred continuously between trophic levels, and between feeding strategies, up to top predators. Microplastics



Microplastics particles isolated from cockles

can cycle back into the environment through excretion or when the animal dies, largely unchanged, apart from perhaps being smaller. For example, crustacea have been found to ingest microplastics and excrete nanoplastics due to the physical grinding occurring within their digestive tract. Plastic particles have been found in all marine species examined so far and their effects range from physical damage and nutritional impairment to physiological effects, and may result in impacts from the individual level to the ecosystem level. They can also present an indirect threat to organisms and ecosystems by acting as vectors for invasive species and pathogenic microorganisms.

When trying to determine the effects plastics have on organisms and the environment there are a lot of different factors that have to be taken into account, including their size, morphology (bead, fibre, fragment, film), the base polymer (e.g. polypropylene), the associated chemicals (added during production or gained from the environment), as well as the species that they interact with. Other factors that may influence their impact include environmental conditions such as temperature and salinity. Due to this, research into the impacts of nano- and microplastics is still in its infancy, however initial findings are highlighting the need to minimise our use of plastics and potential routes of leakage to the environment.



Meso- and microplastics collected on a beach on the Waikato west coast



Polymer twine found on the strand line showing evidence of extreme weathering.

With plastics being so central to so many things we do in our lives it is not something that we are going to stop using overnight. However, with over 70 years of plastic pollution in our environment and growing evidence of a broad range of impacts on the environment and cultural and economic impacts, it is a recognised global problem that needs addressing as soon as possible. This may require the removal of unnecessary and high risk plastics from production chains, finding alternative materials with lesser impact or processes, improved stewardship or regulation of those that cannot be removed or substituted, or a combination of the above. Regardless, all of us, as individuals, organisations or countries can assist in reducing the impact plastics is having on the planet by reducing the amount of single-use and all other plastics we purchase and use.

Dr Olga Pantos



Introducing the new Harbour Master – Jake Oliver

Since joining Marlborough District Council as the new Harbour Master a few months ago now, it has certainly been interesting getting to know a new area to work in.

A little of my career to date; I started off in the British Merchant Navy at the age of 18, working on container ships plying the trade on the North Atlantic between Western Europe and Canada through the winter and Canadian ice season, followed by time on the North Pacific route between China, Taiwan, and the U.S.

I have been fortunate with my career to have travelled the globe and stepped foot on all continents except for Antarctica. Highlights must include sailing up the Amazon River and visiting the peace park in Nagasaki.

I met my wife onboard one of the ships we both worked on which brought me to New Zealand and provided me with regular trips on my leave periods to Christchurch.

Having made it ashore last year I relocated my family from Canterbury to Hawke's Bay for the role of Deputy Harbour Master. It was somewhat of a surprise to find the Marlborough Harbour Master position become vacant, but certainly worth the opportunity to relocate our family back onto this island and take another step forward with my career.

As a team here in Marlborough there are clearly plenty of opportunities to seize and progress the development and contributions to Navigation Safety within the Marlborough Sounds.

We are currently looking at a trial in Havelock for IoT (Internet of Things) sensors based around the existing aids to navigation. Part of this project is to install remote sensor technology which will feed data back to our office in Picton allowing us to monitor remotely the health of the AtoNs, including battery charge levels, & operation of the lights.

Whilst this will not replace physical inspections of the systems, it will allow us to have greater oversight of the state of our network. The other piece



of work we are investigating is to have a tide level gauge running for the Havelock Channel and providing this information to users.

There is still quite some work to do in this space to get a system operational & we are making in-roads. Should this system prove successful then it should provide us with the catalyst to roll these systems out throughout the Sounds.

Within the Queen Charlotte Sound we are currently working with both ferry companies, and Port Marlborough to develop a common passage plan for the Tory Channel. This is being designed to align the passage plans of the ferry companies and the Port so that a common operating picture is achieved.

With the ship tracking information available for large commercial vessels now, we can observe transits in Queen Charlotte Sound and understand the water space consumed.

Our intention is that once the Tory Channel plan is completed and operational, we will work on a common plan for the Northern Entrance, and then conduct a review of the aids to navigation throughout the Sound.

Further to this work we may then start to look at the Pelorus Sound and conduct a review of the aids to navigation within this space.


I look forward to working with yourselves and the MFA in the future and advancing navigation safety for all within the Sounds.

Jake Oliver

**BUNDLING
FLOATS**

Best practice to avoid
loosing floats

- Use >24mm Rope
- Use tight bunches
- Tie first and last float securely to >24mm rope (This will ensure if the rope chafes off the backbone or warp, the bundle will stay together)



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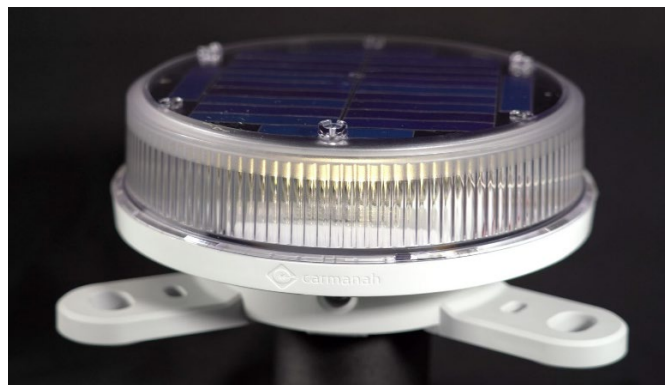
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