



MARINE FARMING ASSOCIATION
To Promote & Nurture Sustainable Marine Farming

JUNE 2022 NEWSLETTER

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IMPORTANT DATES

Big Day Out
28th July 2022

ECSC
29th July 2022

Last day to submit Q3 audits
31st July 2022

MFA & MSOP Conference
26th August 2022

President's Comment

Workforce shortages remain front-of-mind for many aquaculture businesses, as covid and border closures really hamper productivity. While there doesn't appear to be a short-term fix on the horizon, it is a good reminder that as an industry we need to be active in the labour and skills space.

The MFA is continuing its work with Top of the South youth, in the hope that the next generation will be as engaged with and passionate about aquaculture as the early pioneers. MFA worked with Sanford, NZ King Salmon, Mills Bay Mussels and Marlborough Oysters to 'show off' aquaculture at the Future of Work Conference held in Blenheim. Over 750 students attended the event with many taking the time to visit the aquaculture offering. Aside from the photobooth, the companies each had a variety of items on display to showcase the industry. The event was a great success. For us to ensure the future of the industry, it is imperative that aquaculture puts its best foot forward and interacts with this next generation.

On a similar note, in May the MFA was invited to Marlborough Girls College to run an aquaculture-based Maths lesson. Matt from Sanford and Alex from MFA gave the Year 13 statistics students the opportunity to work with some real-world data and perform statistical analysis on mussel sourcing. We hope this is just the tip of the iceberg and a range of learning activities can be developed for local schools.

On the MEP front, the grind continues. We understand that the Variation 1/1A Panel are nearing the end of their deliberations and that a decision can be expected in Q4 of 2022. The mediation on the wider MEP topics is also ongoing, with National Transportation Routes and Noise covered in recent sittings. We will keep you posted on progress on both fronts.

The King Shag project is nearing completion, with the final report being written up in June. I think everyone will agree, it has been an extremely worthwhile project to undertake. Four years ago, when we set the project up, it is fair to say there was some apprehension about what the findings would be. The King Shag has gone from one of the least well-understood bird species, to one of the most, all in a very short period. The research continues to show that marine farming is not having a negative impact on King Shag and that farms can be preferred feeding and roosting sites. Although the SIL funded project is coming to an end, MFA has committed to funding additional band resighting work to enable a better understanding of population dynamics.

The Pelorus Mussel Restoration Project is also coming to an end. This project has confirmed the ecosystem services mussels provide and how important

they are to maintaining ecosystem health. A lot has been learned throughout the restoration process, especially around sedimentation impacts and the role of predators. Further restoration work is being considered, including extending the concept into Golden Bay. I would like to thank the industry participants who provided support for both the King Shag project and the Mussel bed restoration project.

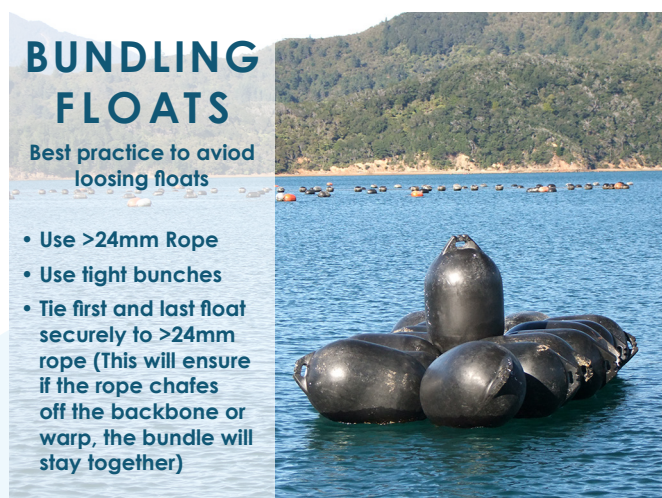
Applications for the \$40,000 MFA Contestable Fund are now closed. We received a range of worthy applications and will be announcing the successful projects very soon. Watch this space.

As many of you already know, the MFA Board has embarked on another industry book project. This edition will follow on from the original Lines in the water which was completed over 20 years ago. I know there will be lots of great stories to go into this edition. We expect that the book will take two years to complete, and rest assured, everybody will have a chance to contribute to the final outcome.

The MFA are pleased to be able to hold our AGM/Conference this year, after missing out last year. It will be great to see everyone in person and shake hands or tap elbows! The venue is the Picton Yacht Club, and the event is already sold out. The day will kick off with the MFA and MSQP AGMs. Amber has prepared a great line up of speakers who I'm sure will provide relevant and interesting content, along with a few take home messages. I am particularly looking forward to the evening guest speaker - Tony Christensen.

I look forward to seeing you all at the MFA AGM/conference.

Jono



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

Mussel Restoration Project

The Marlborough Sounds - June 2022 Update

Intertidal Restoration Trials

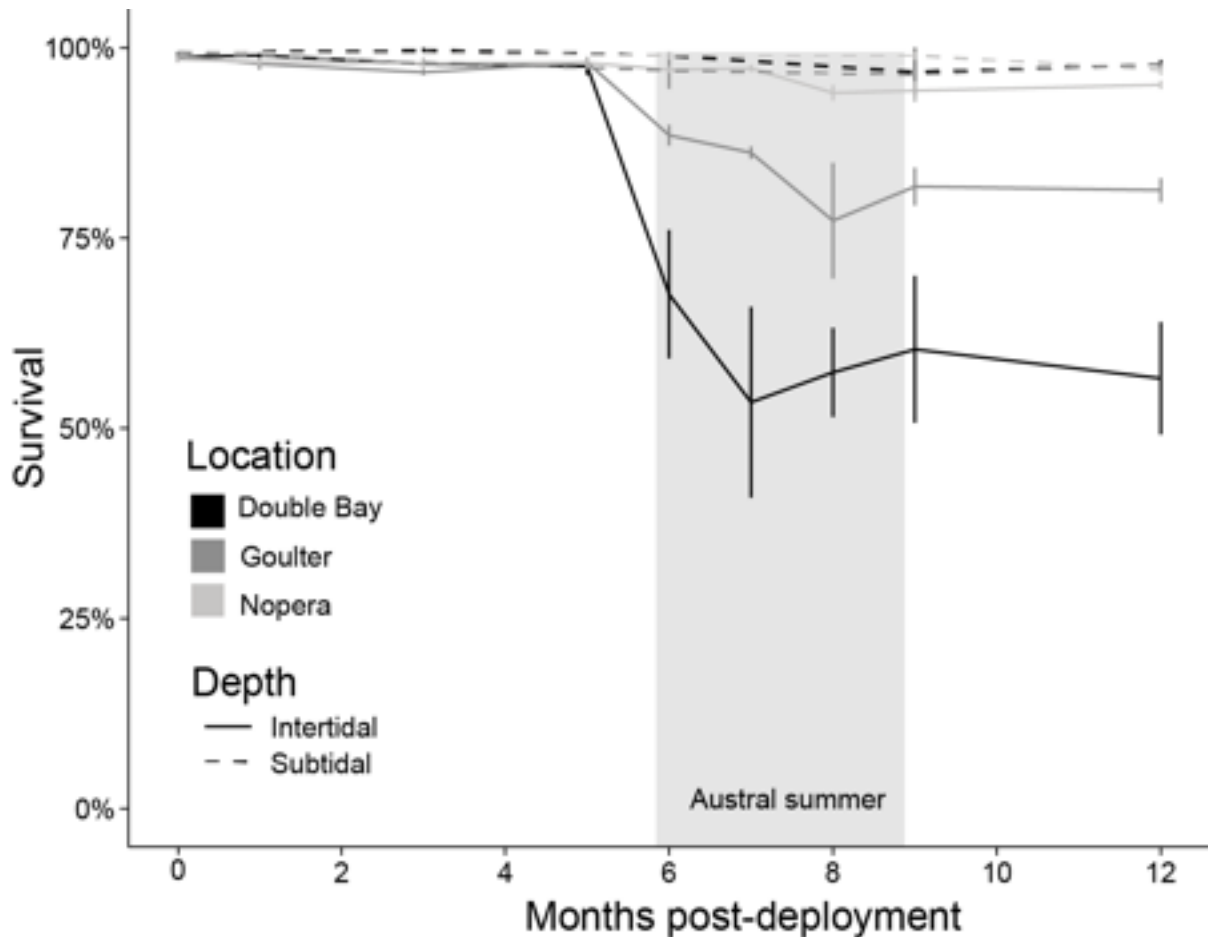
Background

Wild mussel beds once covered extensive areas of Pelorus Sound, but were dramatically overharvested in the 1960s and 1970s, leaving only around ~3% of the wild mussels compared to historical extent. The Pelorus Sound Mussel Restoration Project has trialled restoration efforts for these lost beds at 3-5 metres depth and seen high survival. Historically, mussels also thrived in the lower intertidal zone, or areas exposed to air on extreme low tides. However, while mussel restoration to this area is less expensive and easier to monitor, trials overseas have had very low survival. Following on the success of our deeper-water restorations, we were excited to test if we could restore mussels into shallow areas and still maintain high survival rates. To test this theory, we worked with Just Mussels Ltd to restore 5 tonnes of mussels to three locations in Kenepuru Sound in June 2021, half of which we restored to the intertidal and half of which we restored to the shallow subtidal (~1 metre depth) as a comparison.

Early Results

It has now been one year since we first restored the mussels! Over that year we have monitored them monthly to check on their survival as well as their growth rate, condition index, and any evidence of recruitment. These one-year results reveal some interesting trends. First, the mussels we restored to the shallow subtidal have survived very well (>95% survival). Second, the mussels we restored into the intertidal had varied survival depending on how high up the shoreline we restored them. Natural variations in the seabed at our three locations meant that there were slight differences in how long the intertidal mussels at each location were exposed to the air. For example, at our Nopera location the mussels were only exposed for around 2 hours on spring low tides while at Double Bay they were typically exposed for 3 hours. While this difference may seem small, it appears to have had big impacts on their survival! At Nopera the intertidal mussels had a similar survival to subtidal restored mussels (>95%) while at Double Bay only ~60% of the intertidal mussels survived after one year. Mussel deaths in the intertidal almost exclusively occurred during the summer months, with the greatest mortality occurring from December to January, suggesting that high summer temperatures are responsible.

We are still digging through the data, especially the condition index and growth data, but these early results are positive as they show that



Mussel survival from June 2021 to June 2022 at the three locations and two depths in Kenepuru Sound.



A restored intertidal mussel bed in Nopera



A restored subtidal mussel bed in Nopera

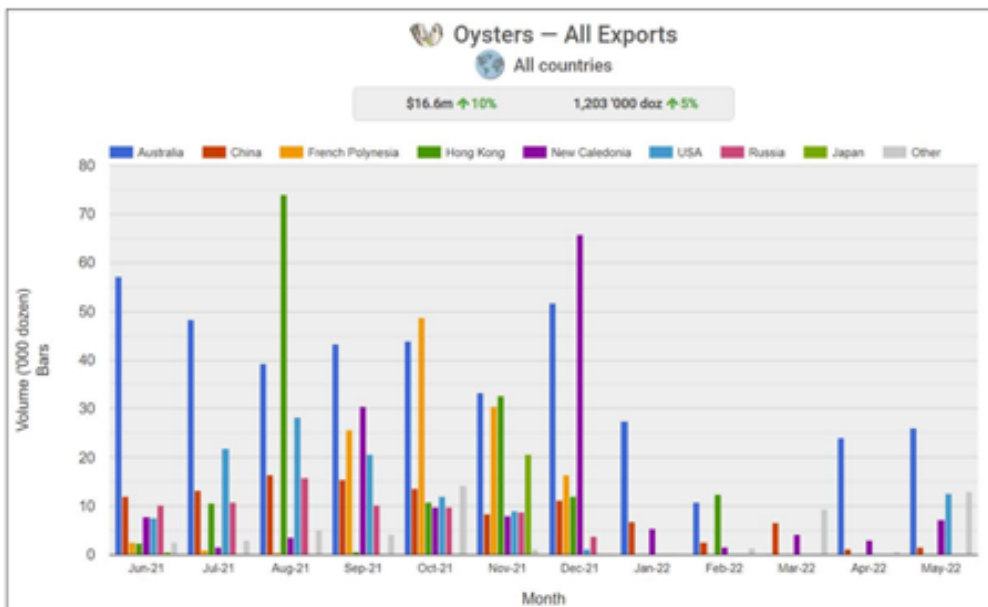
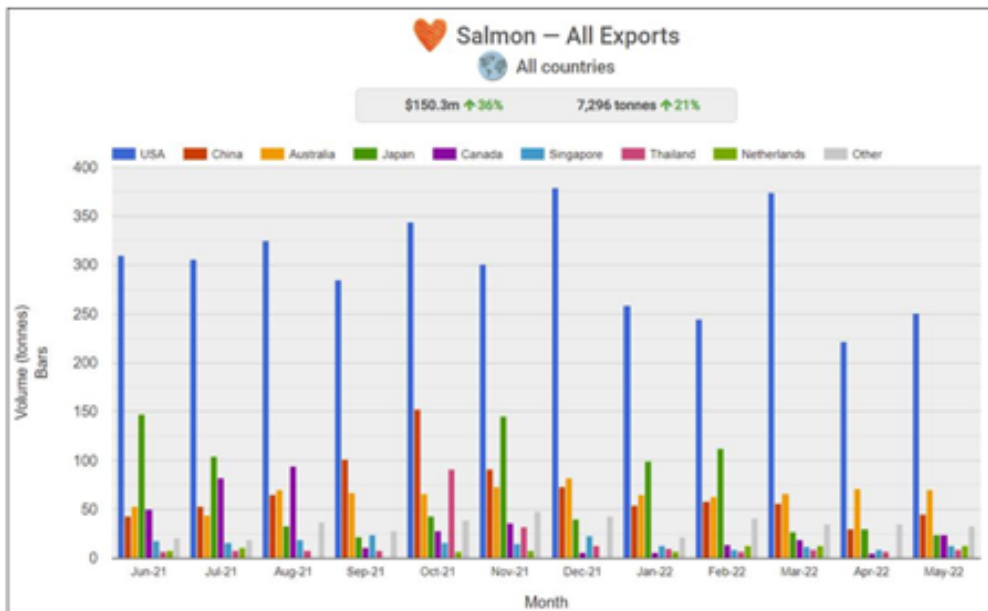
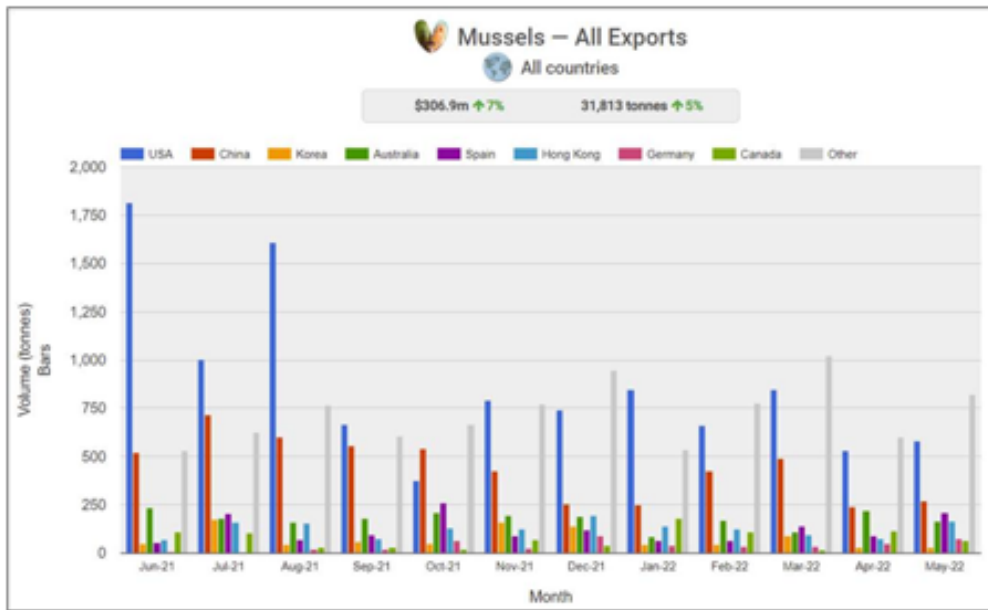
successful intertidal mussel restoration is possible as long as we are careful to only restore in areas low enough on the shoreline. I hope this has provided interesting insights into some of the mussel restoration work going on in the area and I will continue to update with more information and results! As always if you have any comments or feedback, please feel free to reach me at ttoo112@aucklanduni.ac.nz!

Cheers,

Trevyn Toone, Ph.D. Researcher, University of Auckland (based in Nelson)



AQNZ Export Data



A marine farming career by chance, not design

Ben Armstrong was heading for a career in design when a neighbour's request for help on a mussel harvester completely altered his life's direction. That nudge and some good industry mentors have seen Ben spend more than 20 years working on and skippering mussel industry vessels and now he's mentoring the next generation.

The Marlborough Boys College pupil had been working with his father and brother, both builders, doing construction work and roofing in school holidays and then did a polytech course in design.

A neighbour, industry pioneer Graham Hood from Marlborough Mussel Co, asked the 17-year-old if he'd assist for a day on a harvest.

"My first day out was on the Intrepid with skipper Bruce Sampson. After we'd finished, Graham turned around and said 'We need some full-time guys and if you're looking for work, let me know.'"

Ben was hooked and worked on Marlborough Mussel Co harvesters for the next five years, moving between the Intrepid and the Kai Kutai (skippered by Kim Huddleston).



Lifting sub-surface lines on board the Lady Marie

He then grabbed the chance to go on the seeding boats. With a Monday to Thursday work week, it allowed Ben to spend weekends with his then partner and baby son Sam and also to play competitive rugby; including representing Marlborough in the fast paced 7s format. .

“Then I got an opportunity to work on the Lady Marie with Dean Higgins as skipper.”



Ben as Skipper on the Lady Marie

Dean and his offsider Vaughan Ellis proved to be great bosses and mentors. “They really encouraged me to get ahead.”

Ben did his skipper’s ticket in Nelson and within a couple of months was at the helm of the Enterprise for Marlborough Mussels where he stayed for a couple of years, before taking over as skipper of the Pacifica.

After Sanford bought Marlborough Mussel Co, he felt it was time to do his OE and headed for the Canadian ski resort of Whistler where his brother Richard was living. He stayed for a year doing various jobs including snow removal and running a small hospitality team. While in Whistler he met an Australian woman, Lisa McDonald.

“Luckily enough she followed me back here.” That was in 2012 and now the couple have 5-year-old daughter Bailey and three-year-old son Max.

On his return, Sanford offered Ben a deckhand role on the Lady Marie, about a year later he became skipper.

“I actually quite enjoyed being back as a deckhand for a while.”

Sanford put a lot of new recruits on the vessel. The Lady Marie provided a good training platform as a maintenance vessel, without the harvest or seeding pressures.

“I really enjoyed that – turning the young ones into good workers. A lot have gone on to get their own tickets.”

He valued working with Grant Boyd, Sanford's Floating and Farm Development Manager, who backs the Graeme Dingle Foundation in Marlborough and its Career Navigator programme which puts senior college pupils into workplaces to test career options. Some students came



Ben back as a deckhand

onto the Lady Marie while Ben was skipper.

“I told them how I'd started really young as a deckhand and progressed to become a senior skipper. You earn really good money if you are prepared to work hard enough – and with four days on and off!”

Ben says the career progression starts once someone has done a three-month trial, with aquaculture companies putting young workers through training such as First Aid, forklift and Hi-Ab qualifications.

“A lot of people in Marlborough think there's only the wine industry.”

He credits those within aquaculture such as Grant Boyd and Jonathan Large who promote the industry as a career option to young people.

“I'd like to see other companies getting onto the schools and telling them marine farming is a great career.”

One thing he's observed in his 22 years in the industry is the change in attitudes and practices towards looking after the marine environment.

“Twenty years ago I don't think we stopped on a beach. Now days, you see our boats and crews cleaning beaches all the time.”

The majority of the rubbish collected is not from marine farms but floats do stick out.

“No one likes to see one on a beach.”

He credits the MFA for driving the change with initiatives such as the Environmental Certification and Beach Cleaning programmes.



One of the career benefits of marine farming is the chance to reel in trophy kingfish like this one landed in the Tawhitinui Reach.

“The industry recognises the need to do better.’

Ben has his own opportunity to contribute with a recent move to Aroma to manage its on-water operations.

He was only in the job a month when he had a serious bout of ill-health caused by a reaction to medication prescribed for an injury.

“Aroma’s been really good,” he said, as he itched to get back to light duties.

There will still be some time skippering boats but the job is more focused on planning and management.

“I am assisting in managing the on water operations, learning from Wayne Hollis..”

At 40, Ben is glad to have that change.

“It’s quite a physical job out there.”

Another reason Ben chose to join Aroma was to reconnect with Merv Whipp in his role as General Manager. Merv was another of Ben’s early mentors at Marlborough Mussel Co.

“He’s always been about getting the best from his staff and supporting them all the way.”

Having been mentored by some of the best in the mussel industry, Ben Armstrong is ready in his new role to help the next generation.

As it happens, his eldest son Sam is now in his third year at Victoria University completing a degree with a focus on design and IT.

He loves going out on the boat with his father. Time will tell if history repeats.

Brendon Burns

Award Nomination Form

It's the time of year again when the Marine Farming Association offer all members the opportunity to nominate an individual or organisation for the MFA Annual Awards.

The Awards will be presented at the MFA Annual Awards Dinner, this year being held on at the Queen Charlotte Yacht Club on Friday 26th August 2022.

Please complete the details below and return your nomination to admin@marinefarming.co.nz by 5pm on 29th July 2022.

Details of Nomination:

Nominee Name: _____

Nominee Company: _____

Category:

- | | |
|---|--|
| <input type="checkbox"/> Merit Award | <input type="checkbox"/> Outstanding Marine Farmer |
| <input type="checkbox"/> Environmental Award | <input type="checkbox"/> Recent Entrant Award |
| <input type="checkbox"/> Research & Development Award | |

Reason form Nomination:

Signed: _____

Date: _____

Award Categories



MERIT AWARD

Merit Award

Awarded to an individual or an organisation that has made significant and beneficial difference to our industry over a sustained period.



Environment

Awarded to an individual or an organisation that has demonstrated outstanding commitment to the environment through advocacy, leadership, best practice or just getting out and doing it.



Research & Development

Awarded to an individual or an organisation that has demonstrated excellence in research and development, with measurable outcomes relevant to the understanding, growth, sustainability, or profitability our industry.



Outstanding Marine Farmer

Awarded to a farming individual or an organisation that has made a significant contribution to the marine farming industry in the Top of the South over the last 12 months



HELLO I AM...

NEW

Recent Entrant Award

Awarded to an individual who during the first few years of involvement in our industry has shown exceptional passion, commitment, and achievement.

Note: The choice of the award recipients will be made by a panel of adjudicators.

Their decision will be final, and no correspondence will be entered.

It will be the adjudicator's decision to whether all awards will be presented.



2022 Conference

At the Queen Charlotte Yacht Club in Picton
on Friday 26 August 2022.

For members & invited guests.



**If you haven't received a link to get tickets for this event –
please contact us:**

E | admin@marinefarming.co.nz

P | 03 578 5044

Programme of Events

Day Session

Time	Event
8.30am	Doors Open - Tea & Coffee available
9.00am	Karakia Amai Thompson, Te Atiawa
9.10am	Welcome Jonathan Large, President of the Marine Farming Association
9.20am	Marlborough Shellfish Quality Programme Annual General Meeting
9.50am	Marine Farming Association Annual General Meeting
10.20am	Morning Tea
10.50am	Science Update Niall Broekhuizen, Serean Adams, Mark Jarvis, Brad Skelton & Dave Taylor
11.35am	Marlborough Environment Plan Update Gascoigne Wicks – Quentin Davies & Emma Deason
12.20pm	Graeme Dingle Foundation Update Kelvin Watt
12.30pm	Lunch
1.20pm	MFA Book 2 – Julie Brown
1.30pm	Practical innovation & thinking differently Mike Hutcheson
2.15pm	Environmental Update Amber McNamara
2.30pm	Employing differently in challenging times & implementing a positive culture Hortus - Lucy MacLean
3.15pm	Afternoon tea
3.30pm	Market Update AQNZ - Ted Culley
4.15pm	Karakia Amai Thompson, Te Atiawa
4.25pm	Day session closed

Evening Session

6.00pm	Doors open – Drinks & Canapes
6.30pm	Welcome & Housekeeping QCYC Commodore
6.40pm	Awards Ceremony
7.30pm	Dinner
8.20pm	Tony Christiansen
9.05pm	Dessert
12.00am	Venue close

Calling for Nominations

MFA Board

Elections for the MFA Board are coming up at the AGM in August. We currently have a vacancy on the MFA Board, and are looking for new board members.

This is an opportunity to network and influence what the MFA does to help aquaculture thrive in our region- Te Tau Ihu.

One of our goals is to be the most trusted industry representative body in Te Tau Ihu. To achieve that, the Board needs to reflect the diversity of our workforce and our communities.

No prior board experience is required. To help people who are new to governance roles, we offer mentoring and development opportunities.

The MFA board meets 5 times a year at the MFA offices in Blenheim. We also offer the option of attending virtually by Zoom.

Appointments to the board are made for a term of one year, by election at the Annual General Meeting, which is held in August each year.

Under the MFA Constitution board members have to be an Ordinary MFA member or represent an organisation that is an Ordinary MFA member.

The 2022 AGM is to be held on Friday August 26 in Picton.

If you're interested in finding out more, please call me, or General Manager Ned Wells (027 255 2069) or speak to any MFA board member.

Jonathan Large

President

(027 477 2377)

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.

Students see the diversity that marine farms support

The benefits that marine farming brings to ocean diversity was one of the key learnings for Nelson College students during a visit to Croisilles Harbour oyster and mussel farms in May.

The MFA and Nelson's Regional Economic Development Agency hosted 20 students and teachers on board the Grey Heron.

Marine scientist Emilee Benjamin, who is the lead researcher on the MFA project to return wild mussel beds to the Sounds, was on hand to describe the diverse marine communities observed on marine farming lines.

"Marine farms don't just grow mussels, they also create habitat that provides a home to many different invertebrates and algae" she explained, as a mussel line was lifted for closer inspection. "It's incredible that we can pull a complex ecosystem out of the water and show it to you – that's not something we can normally do."



Students were fascinated by the wealth of species found on mussel lines



MFA President Jonathan Large boiled the kettle and blanched some undaria, inviting students to taste what is a popular meal in many countries.

Emilee said more marine reserves are being developed around New Zealand and these help marine life to flourish. She told the students they'd now seen how marine farms can also create biodiversity hotspots.

One difference between marine reserves and marine farms was that fishing is banned in reserves, while marine farmers welcomed fishers, so long some basic rules are followed. Emilee said fishers always comment on the good fishing around a marine farm.

Jonathan Large said he'd once counted 268 recreational fishing boats around a mussel farm off the Coromandel coast.

NMIT Aquaculture and Marine Conservation lead tutor Denise Briggs said fishers, who may have once opposed marine reserves, were now lobbying for more of them.

"The more areas we protect, the more fish there are. Marine farms also create environments where fish can breed and grow".

Marlborough Oysters owner Aaron Pannell outlined the benefits of his Flip Farm technology before hosting students on board the floating barge where pacific oysters are graded and bagged.

He told the students that oysters filter 150 litres of water a day. "They are like nature's vacuum cleaners." Oysters are used around the world to increase water quality.

Back on the Grey Heron, students had rotating sessions with MFA's Alex Henry on marine farming careers, Jonathan Large on rope typing, Emilee Benjamin on marine biology and time on the bridge with skipper Kris Solly.



NMIT's Denise Briggs dissected an oyster to show students its various features



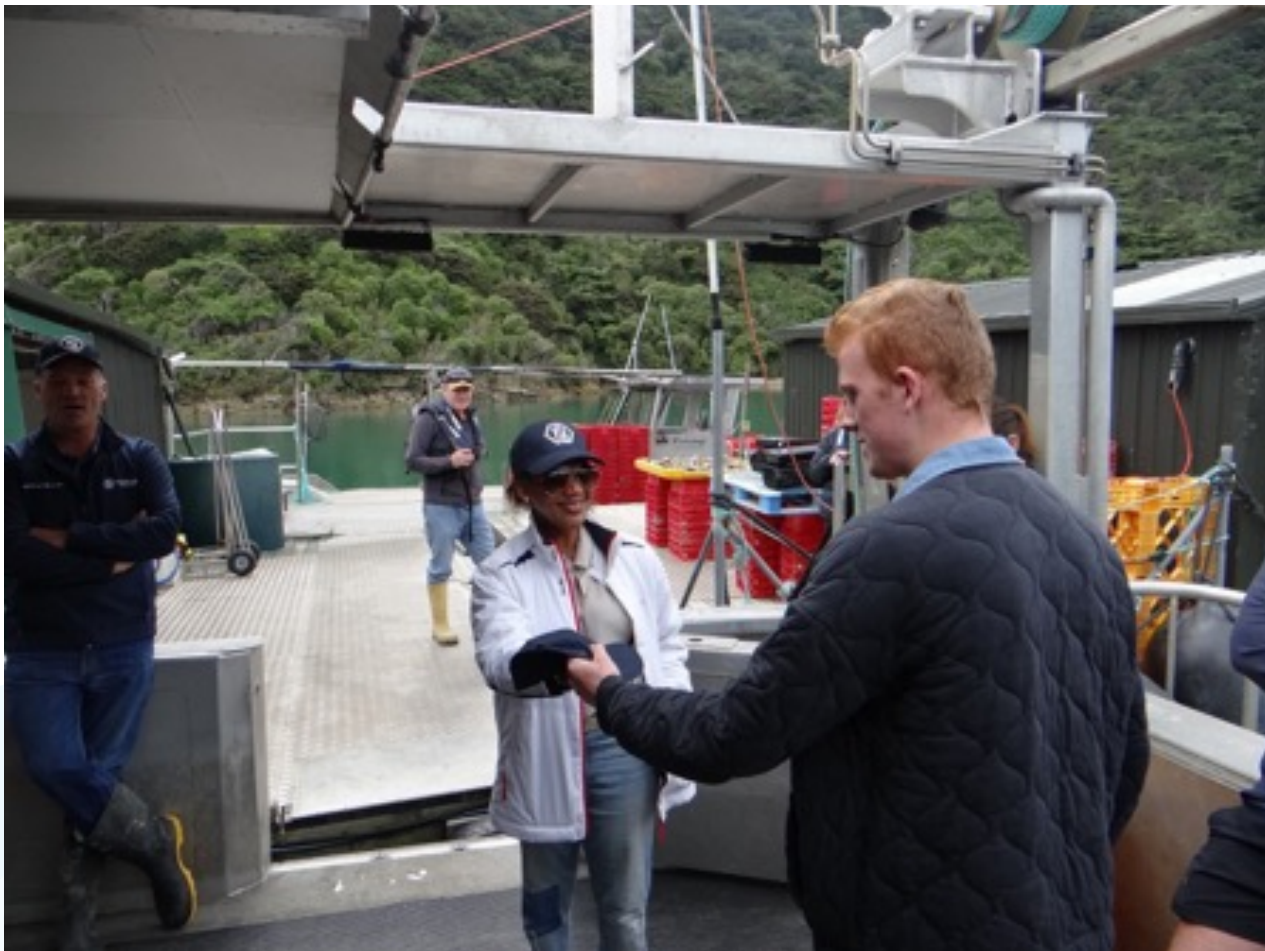
Aaron introducing the students to oyster farming.



Nelson College's George Harwood tried his first live oyster



MFA's Alex Henry was proud of her first oyster-opening effort



Debbie Pannell handed out a couple of Flip Farm caps after a quick quiz on oyster farming

Nayland College student Rianna Flintoft said the day out with MFA had rekindled her interest in a science career.

“I think the conservation side of it is really cool – how mussels are helping the sea life.”

Isla Kershaw, a Year 12 student at Nayland College taking marine biology said the day out had helped crystallise her thoughts about a science career in the mussel industry.

Ariana McGee, also from Nayland's Year 12, said the mussel industry was an option for her.

Nelson College's George Harwood wants a life at sea. “I might go on the mussel boats as a deckhand and then try to get a job as a skipper.”

Another Nelson College student Dylan Ferguson said he already had his scuba certification and had been diving for paua since he was little, but diving on salmon farms was another option.

Jonathan Large told the students they'd seen the huge range of jobs and what marine farming had to offer.

“There's so many opportunities in this industry and we need keen young people.”

Brendon Burns



robertson
environmental

OUR SERVICES



Ecological
Assessment



Compliance
Monitoring



Habitat
Mapping

Dr Ben Robertson

P: 027 823 8665

E: ben.robertson@robertsonenviro.co.nz

www.robertsonenvironmental.co.nz



Mussel Maths at MGC

At the beginning of May, the Marine Farming Association in conjunction with Sanford Limited jumped into a Year 13 Stats class at Marlborough Girls' College to provide a practical statistics workshop - how is statistics used in the work environment.

Matt from Sanford started off by telling the students about two different formats that the green shell mussel is sold in - half shell and powder.

The students were told the optimal size for the half shell market was the medium mussel (85mm - 100mm in length) and that these are processed at the Havelock Factory.



The best mussels for powder are mussels with the highest condition (highest meat to shell ratio, size doesn't matter).

The students were given two plates of mussels - Line A & Line B and were asked the question:

“Which line should go to the Havelock Factory for the half shell market and which line should go to the Enzaq Factory in Riverlands to be made into green shell mussel powder?”

The students started by measuring the length, width, and the weight of all their mussels and created a spreadsheet of their data.

The length & width information would be used to ascertain the best line to harvest for half shell processing.

The weight would be held aside for the next step which was cooking the mussels and extracting & weighing the meat. The average total weight of the whole mussel for each line was used divided by the average total weight of the meat to answer the question - which line should go to Enzaq to be made into powder.

It was an awesome, hands-on day which the students seemed to really enjoy (although some thought it was a little yucky).

An Aquaculture Adventure

On the 4th of April, Queen Charlotte College embarked on an amazing opportunity presented to us by MFA, King Salmon and Marine Farm Management. QCC was accompanied by a handful of students from Rai Valley School and Marlborough Youth Trust. Although the weather wasn't ideal, the day was spent in the beautiful Pelorus Sounds, visiting a local salmon farm, a nearby mussel farm and learning about businesses and careers that are available in our big blue backyard.

On the 40 minute boat trip over to our first stop there was no time wasted. We were occupied by aquaculture related activities, ranging from learning to tie knots to discussing all the unexpected jobs that make aquaculture industries possible.

While we were visiting the mussel farm, we had an up close and hands-on experience maintaining the mussel lines, exploring the community of creatures that call the lines home and learning general facts about farming and caring for the green shell mussel. For me, this was a personal highlight as I enjoy hands-on learning and being able to explore, touch, poke and prod everything. The very knowledgeable Jonathan Large, whose boat we were lucky enough to go out on, was an amazing mentor, showing us the ways of the mussel farming industries.



After cruising over to the salmon farm, we met up with Charlie from King Salmon who gave us a tour through the farm. We were shown the inside scoop of what it takes to farm the New Zealand famous Chinook salmon.



During our tour around the farm, we were shown many things, like where they store the food, the farming crew's living quarters and all of the gear used for maintaining the farms and looking after the fish. We were also accompanied by some very happy seals ready for the opportunity to have a snack on some of the salmon. This was a really fun and educational experience that myself and all the other students and teachers are thankful to be able to take part in. This was a great day away from school and I would highly recommend jumping on this opportunity in the future.

Lastly, a big shout out to the awesome crew that made this all possible. Jonathan Large and his pretty fancy boat 'The Grey Heron'. Chris the skipper, Chris Shaw who although couldn't attend the trip this time, organised from behind the scenes in his role with Marlborough Chamber of Commerce, Alex Henry from MFA, Emily Benjamin who shared her interesting studies and research on mussel bed restoration, Charlie from King Salmon, and Cheree from NMIT.

Jamie Cunningham

Year 12 Student Queen Charlotte College

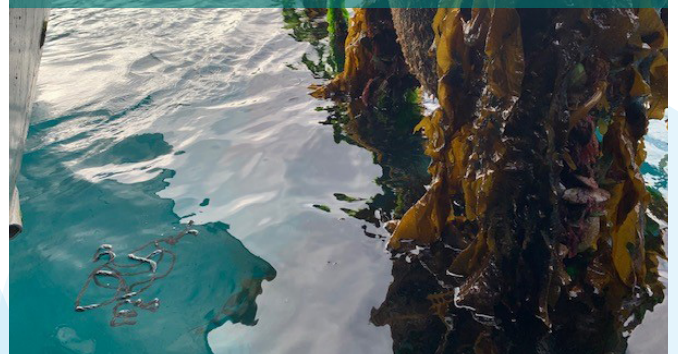
USEFUL IN THE RIGHT PLACE



NOT ON THE BEACHES

NOT IN THE WATER

CONTROL YOUR WASTE



The Global Ghost Gear initiative.

Late last year, the Marine Farming Association were contacted by Elisa Tjarnstrom from Chronos Intelligent Sustainability on behalf of the Global Ghost Gear Initiative (GGGI).

The GGGI had recently released its document “Best Practice Framework for the Management of Aquaculture Gear” and Elisa’s team were working on the implementation guide. This implementation guide was to act as a practical guide for all companies farming, selling, or purchasing fish and seafood, i.e., aquaculture companies, seafood processors and purchasers, in reducing the entry of debris and litter entering the aquatic environment from aquaculture.

They were hoping to write a case study on the MFA highlighting the work we are doing in the Environmental space, as part of this implementation guide.

Ned and Amber caught up with Elisa and her team prior to Christmas and assisted in the writing of the case study that would go into the implementation guide.

Because of this, on the 18th of May, Joan Drinkwin invited the MFA to speak at the GGGIAPEC workshop on the Best Practices to Prevent and Reduce Abandoned, Lost or Discarded Fishing Gear.

Day one of the event was Aquaculture focused and it was a great session, Amber attended.

The day kicked off with an overview of the GGGI by Ingrid Giskes (Director GGGI), then a presentation by Tim Huntington from Poseidon Aquatic Resource Management on Managing Abandoned, Lost or Discarded Fishing Gear and Aquaculture Equipment in the APEC Region.

It was his Draft Baseline Report: Best Practice Guide, the MFA have posted this report to their website under Environmental for anyone who is interested in reading it.

After this presentation, the workshop attendees broke off into chat rooms to discuss this report and some of the challenges they are facing in their own regions.

Amber found this super interesting, even though, our industry in the Top of the South, know that we are improving in some respects, we believe we still have a long way to go and improving our performance will be on going, forever.

These discussions highlighted that the marine farmers in the Top of the South, are so far ahead of some regions with the improvements we have already made, some of the issues other regions are facing are crazy compared to ours and it was great to be able to share what we have

done so far and what we have learnt. Our small region should be very proud of that.

Amber then spoke about the current MFA environment programme, the beach cleaning programme, provided a link to the induction video that focuses on not losing anything overboard or off a farm. She spoke of the journey the MFA have taken since the inception of the MFA Environment programme in 1990, the mentors, the committee, and the collaboration of industry. She wrapped up by showing some of the engineering taking place to remove lashing from floats, clamp systems both new and retrofittable will be the way of the future, no plastic rope lashing, and the floats stay on the line, it seems like a no brainer. There was lots of positive interest from the group about the clamp float.

Amber wrapped up by talking about future goals for the Environment programme and the MFA.

The speakers who followed Amber were Esteban Ramirez from Chile and Chris Marrie from Canada.

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.

Our dedicated team of specialists have extensive experience over all aspects of the aquaculture industry - advising and supporting government, councils, policy makers, iwi, marine farmers, research agencies and new entrants into the industry.

From strategic planning, feasibility studies and resource consents, through to marine farm development, monitoring and compliance requirements, we provide a comprehensive consultancy service for the aquaculture industry in New Zealand. We provide pragmatic aquaculture expertise to support innovation, collaboration and new investment into this exciting sector.

What We Do

- Policy, Planning + Compliance:** Policy advice, Environmental + compliance, Strategic planning, Public consultation, Planning + resource consents, Planning + plan changes.
- Innovation:** Research, Feasibility + setup advice, New products + markets.
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Cawthron research

Cawthron research finds harmful algal blooms could threaten shellfish health and aquaculture productivity

Harmful algal blooms (HABs) are a known and well-managed risk to food safety and human health, with extensive monitoring and mitigation measures in place. However, new Cawthron Institute research has revealed that the health of shellfish that ingest or come into contact with the algae can be negatively affected, with implications for the shellfish aquaculture industry.

In a recently published article in the open-access scientific journal 'Toxins', Cawthron researchers examine the HAB species which are known to bloom both globally and in New Zealand and their effects on commercially important shellfish and fish species. Their findings include previously unpublished effects of *Alexandrium pacificum* (a common HAB species in New Zealand) exposure on juvenile flat oysters and Greenshell mussels, which include paralysis and reduced byssal pad formation, leading to increased shellfish mortalities. They also discuss the effects of climate change on HAB population structure and dynamics and what this means for New Zealand.

Cawthron Institute study lead Dr Anne Rolton Vignier says the results of this study are important because they demonstrate the need to widen the focus of research and management strategies for HABs.

“For obvious reasons, much of our research and work on HABs in New Zealand has been focused on the seafood safety implications – Cawthron



researchers have been instrumental in efforts to understand, predict and control seafood safety threats to protect human health,” Dr Rolton Vignier says.

“However, as leaders of the government-funded Shellfish Aquaculture Research Platform and research providers for many shellfish aquaculture industry partners, we were eager to better understand the animal health implications of HABs, so this is a new area of research for us.”

“We had anecdotal evidence and observations from marine farmers which suggested HABs could be having an impact on shellfish health, but we needed to verify that.

“For example, in the Marlborough Sounds, an important Greenshell™ mussel (GSM) production area, new HABs of *Alexandrium pacificum* first appeared in 2011, around the same time as a reduction in GSM spat-fall in traditional spat catching areas was first observed.”

Dr Rolton Vignier says the New Zealand government’s 2019 Aquaculture Strategy targets growth of the industry to NZ\$3B by 2025; however, a risk to this ambitious target is the occurrence of HABs and the uncertainty around the effects of HAB species and their associated toxins on cultured shellfish species.

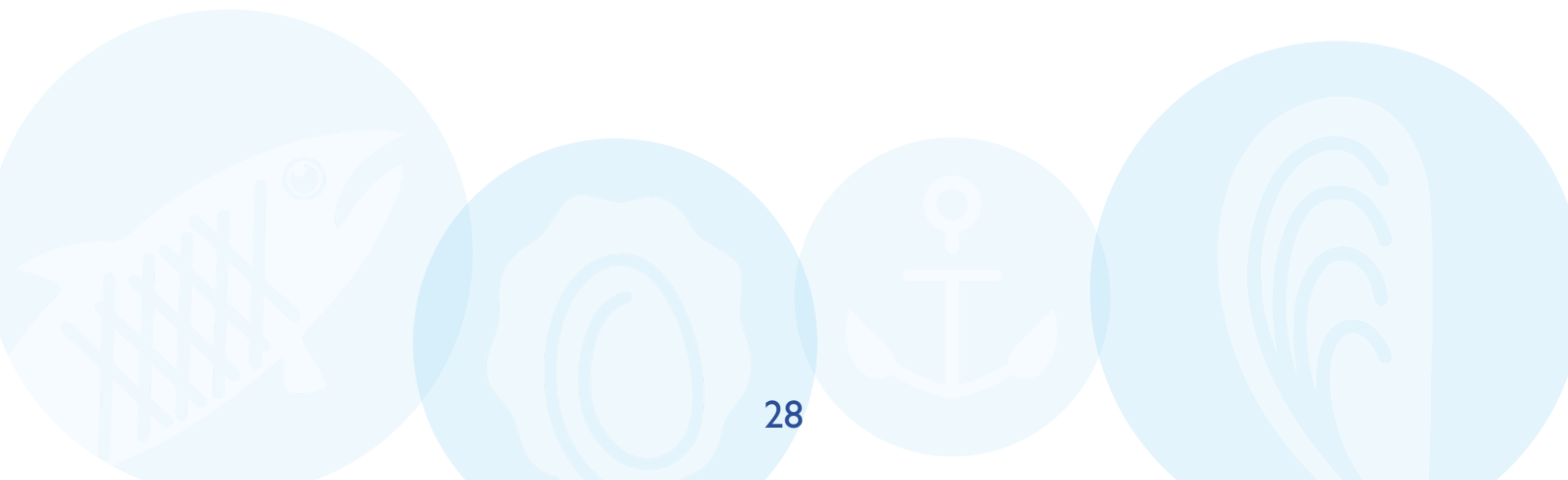
“For example, the earlier, larval life stages of shellfish are more sensitive to the effects of stressors such as HABs, so seeing that there are effects on juveniles implies that these earlier life stages will also be significantly affected.”

“Following on from this study, we’ve received funding through the Royal Society of New Zealand’s Catalyst Fund to develop toxin screening tests and we’ll be collaborating with two leading laboratories in France that have expertise in techniques that we’re hoping to draw upon.”

“This is all really important progress towards gaining the knowledge and tools we need to enable early detection and screening of local HAB strains to better understand the effects of HABs and other climate change related stressors to support effective stock management.”

“We want to help our aquaculture industry prepare for a changing environment and the uncertainty that goes alongside it as best we can.”

Natalie Bird



Aquaculture makes its mark with Marlborough students

Hundreds of Marlborough school students recently got to explore future career options – and aquaculture made a big impression for some of them.

The Future of Work conference was organised by Marlborough's Graeme Dingle Foundation and encourages college and intermediate students to interact with a range of potential employers.

Food is always an attraction for hungry students and Meagan Blom from Mills Bay Mussels was there to offer them some freshly cooked temptations.



MFA's Alex Henry was among those on hand to talk through various industry careers, with support from Sanford, Marlborough Oysters/Flip Farm, Mills Bay Mussels and NZ King Salmon.

Students were able to enter a best dressed competition using industry kit and props, with a prize offered for the funniest or most creative outfit.



Finn Stitchbury and Louie Poletti from Queen Charlotte College were among those taking part. Finn says he's probably going to become a diver working in aquaculture. Mika Bonniface, who is another student studying aquaculture at QCC says she plans to work on salmon farms.

Jess Cameron from NZ King Salmon had joined the company after coming out of the college's Aquaculture Academy.

"I got a few qualifications and a passion for it and I've never looked back."

Jess told students she's now an Aquaculture Technician working at NZKS's East Bay farm, feeding salmon, diving and looking after the fish. On her days off, she's often back on the water as a volunteer with Coastguard Marlborough or doing some diving or fishing.



Sheeba Ligoaliga and Fia'alii Solomona from Marlborough Girls College also took part in the best dressed competition. Fia'alii says her career focus is to become a police officer but she wants a Plan B. "That's why I'm looking around." Aquaculture was among the options after she attended some field trips last year.

Feedback from the industry participants was on the Future of Work conference was clear – this is a fantastic showcase at which aquaculture needs to be well represented.

Brendon Burns



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FURTHER ENTERTAINMENT TO BE ANNOUNCED

Cawthron Institute's new 'BeNeZe' tool helps fish farmers tackle parasites

Cawthron Institute has developed an innovative new web tool called 'BeNeZe' that helps fish farmers manage flatworm infections in Kingfish and Amberjacks (*Seriola* species).

BeNeZe (pronounced "Ben-easy") is named after three important ectoparasites: skin flukes, *Benedenia seriolae* and *Neobenedenia girellae*, and gill fluke, *Zeuxapta seriolae* which impact *Seriola* aquaculture. The tool is available through the BeNeZe website (beneze.cawthron.org.nz) and is mobile compatible.

Research leader Dr Kate Hutson says parasites are a persistent problem in kingfish aquaculture globally and can be challenging for start-up aquaculture businesses.

"Kingfish are susceptible to several ecto-parasites, and left untreated, numbers can build quickly on fish in aquaculture farms and compromise their health," Dr Hutson says.

"New Zealand is investing significant effort into scoping the establishment of a Kingfish aquaculture industry, and Cawthron has aquatic animal health expertise and science capability that can support this potential expansion.



“The team of researchers I worked with on this tool are thrilled to see BeNeZe out there and available to support existing Seriola aquaculture operations worldwide.”

BeNeZe works on the basis that temperature influences how quickly the number of flukes can build. Parasite populations don't build as quickly in cooler waters compared with warmer water, so it's important that treatment regimes factor in local sea surface temperature (SST).

Using the BeNeZe tool, farmers can select the parasites they have identified on the farm (using helpful identification guides on the BeNeZe website if required) and enter the current SST.

BeNeZe works by crunching life-cycle data for each parasite and sets a timed treatment regime which breaks the parasites' life cycle.

“Using the tool is really easy and the process for treating fish is laid out in six simple steps,” Dr Hutson says.

“BeNeZe also helps with identification of the correct parasite as they can look quite similar to one another to an untrained eye.”

Ultimately, Dr Hutson hopes the BeNeZe tool, combined with a disease surveillance plan, can help prevent and treat parasite outbreaks in Seriola aquaculture.

“There are lots of complex and tricky challenges to solve in aquaculture but knowing how different factors interact can help achieve best management practice.

“BeNeZe is supported by years of research and development and is presented on a straightforward platform to make the decision management process easy!”

Dr Kate Hutson is a senior aquaculture scientist at the Cawthron Institute. She leads the aquatic animal health programme. Her research background includes a combination of discovery and applied research.

The team of scientists who worked with Kate to develop BeNeZe include Australian collaborators Allan Mooney, Ingo Ernst, Alexander Brazenor, and Cawthron scientists Max Scheel and Javier Atalah.

Visit www.beneze.cawthron.org.nz to check out the tool.

Read the scientific paper with supporting research here.

Dr Kate Hutson

CH4 Global expanding operations in New Zealand

After raising over US\$14 million including US\$500,000 from Sir Steven Tindall, CH4 Aotearoa, part of CH4 Global, has begun expanding its operations in New Zealand. In May, the company officially opened its HQ in Auckland while it has also significantly expanded its R&D team based at NIWA's Northern Marine Research Centre.

CH4 is a pioneer in utilising red seaweed (*Asparagopsis*) to drastically reduce methane emissions from ruminant animals such as cows, cattle and sheep. When added to feedstock, CH4's asparagopsis supplement reduces ruminant methane emissions by up to 90%. In New Zealand, agricultural methane emissions are by far the biggest factor driving the country's carbon footprint – much higher than transport. At the recent COP26 Summit, New Zealand pledged to contribute to a 30% global reduction in methane emissions.



CH4 Aotearoa is busy researching and developing products to address this challenge and 2022 has seen several new roles being taken up, including two Aquaculture Research Scientists, two Aquaculture Systems Operators, and an Analytical Lab Supervisor at its Northland site.

The company has already completed a one-year marine farm trial in Big Glory Bay, Rakiura Stewart Island and completed several small harvests which allowed CH4 to test and refine harvesting methods as well as gaining insights in seeding and growing conditions.

The trial results are now enabling the creation of several pilot marine farms in other parts of the country, with long term water space leases signed in the Marlborough Sounds and Tasman Bay in addition to shorter term



research leases in the Marlborough Sounds. Negotiations are also underway on additional long-term leases in Tasman Bay, Golden Bay, and the Hauraki Gulf. Having implemented the first 2 pilot farms in the first quarter, CH4 hopes to have 10 pilots implemented in the Marlborough Sounds, Tasman Bay, Golden Bay, and the Hauraki Gulf by the end of 2022.

For the last 18 months CH4 Aotearoa's R&D programme has been based on a collaboration with NIWA at their Northland Marine Research Centre which has been conducted under a grant from Seafood Innovations Limited. The company's latest investment has enabled it to transition this partnership to become a tenant on the site – currently the largest

operating Aquaculture Park in New Zealand. CH4 has now constructed its own purpose-built facilities on the site.

Recently completed, the Northland facility is a world leading *Asparagopsis* Hatchery, Nursery and R&D Centre focussed on maximising product quality and yields – underpinning the company's approach to mass production and commercialisation, with initial sales this year. The first two 25,000 litre bioreactors are operational and supplying quality seaweed material for hatchery & nursery operations.

Nigel Little



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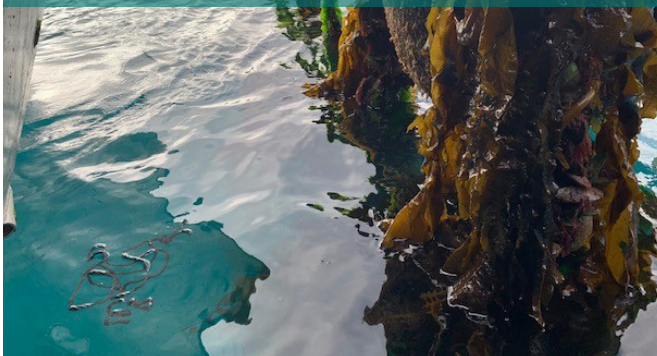
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NOT ON THE BEACHES



CONTROL YOUR WASTE

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- 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

Aaron's innovation was no quick flip

It took Aaron Pannell seven attempts to revolutionise the oyster industry. Standing on a boat overlooking his Croisilles Harbour oyster farm, he points to a small vessel which is effortlessly going down a line of FlipFarm baskets. "That used to take three guys 15 minutes; now it's 50 seconds." Entire FlipFarm lines can be turned over in less than a minute



Nearby, three crew are harvesting oysters for grading. This used to be a half day's work. The crew finish the line in 20 minutes.

Aaron and his wife Debbie started Marlborough Oysters 11 years ago. Previously he'd worked in the mussel industry for Pacifica Seafoods which was sold to Sanford in 2010. His innovative streak showed through as the originator of the Havelock Mussel Festival and leading the effort to secure Government funding for the SpatNZ hatchery.

Their oyster business started by taking spat and growing juvenile oysters in bags tethered to lines until they got to a size where Moana, a large North Island producer, would take them and develop the finished product.

Now Marlborough Oysters is producing more than 2m Pacific oysters a year and they've become a premium and sort after seafood including being flown to high-end outlets in China.

Much of that is due to the benefits of the FlipFarm technology. The oysters sit in baskets connected to a backbone line which are turned on a regular basis. Flipping the oysters regularly strengthens their abductor (closing) muscles which allows them to keep fresh longer. The turning of the baskets also deals with the bio-fouling which blocks waterflow to the oysters and allows the establishment of pest species.



The oysters are attracting premium prices in markets including China.



FlipFarm is now the bigger business but Marlborough Oysters is still one of NZ's bigger producers.

Aaron began experimenting with equipment after a series of big storms meant he'd arrive at his farm in aptly named Squally Cove to find bags of oysters lining the shore "I was getting really frustrated at losing gear." He also had to deal with the aftermath of an oyster virus and a plague of flatworms, not to mention the perennial problem of bio-fouling of the bags traditionally used to grow oysters.

He started trialling some rigid Hexcyl baskets that'd been sitting in his yard before deciding to thread the rope through the basket. When he went to lift the line, something unexpected happened. The baskets began to flip over. This was when things began to gel. After some further development, Aaron quietly sought a patent for FlipFarm before in 2019 starting to offer the technology to other oyster farmers. Now FlipFarm has been installed on 70 farms in more than a dozen countries. Moana New Zealand, our biggest oyster producer, is currently converting its major site in Northland's Whangaroa Harbour to FlipFarm. Manufacturing of the components takes place in Auckland, China, Australia and the United States.

Last year, FlipFarm won the aquaculture innovation award at the Global Seafood Alliance Awards.

"The phones rang hot after the award," says Debbie Pannell.

Debbie says a distinct advantage with Pacific oysters produced from hatchery spat is they can be supplied all year round, rather than the few months that Bluff oysters or wild caught Pacific oysters are available.



*Aaron Pannell with MFA
President Jonathan Large*

Marlborough Oysters bought a factory at Riverlands near Blenheim early this year to meet growing demand, currently supplying oysters to New Zealand restaurant and trade outlets as well as to several other countries. The company is also building a new nursery at the Cawthron Institute's Aquaculture Park near Nelson.

To date, the couple have funded all their innovation without funding assistance, however they are now looking at some Government funding for some of their next innovations. These include new grading machinery and future uses for the FlipFarm system.

"There's still lots of opportunity out there." He says anyone wanting to innovate in aquaculture needs to put in the effort and learn about their industry. "Do your time and the ideas will come. This was the 7th growing system I tried."

The outcome is a revolution taking place in oyster farming; one quick flip at a time.

Brendon Burns

Workshop to refloat the boat on connections

Paul Smith thinks soaring fuel prices and increasing storm intensity may support his efforts to have industry rethink mussel float connections.

The Nelson inventor has previously developed a new float which connects to the backbone using a rubber sleeve and stainless-steel collar; now, he has turned his attention to developing a retrofittable connection for the floats already supporting Top of the South mussel farms.

“Our sea conditions are changing - we need to build a stronger connection system.”

He points to last July's storm which saw 8m waves in Tasman Bay and considerable damage to mussel lines. Paul says one in 100-year storms are becoming more like annual events.

“The pioneering designs that allowed for the establishment of farms in the Sounds don't necessarily cut it in higher energy areas like Tasman Bay”.

He says diesel nudging \$3 a litre might help drive efforts to develop an alternative connection for existing floats that requires less maintenance.

The co-owner of S&S Floats, with Peter and Kris Solly, has developed a mock-up model of a stainless-steel connector which could eliminate lashings on existing floats.



An early prototype retrofittable clamp solution

A key feature is a rubber sleeve which protects the backbone.

While he thinks his innovation might provide an answer, Paul is keen for the industry to explore all the options.

To support the development of a retrofittable solution MFA is hosting a workshop on the 23rd of June to explore ideas from a range of companies/ industry members.

“It’s a clean sheet of paper on this.”

With more than 20 different float geometries/handle configurations already in circulation, a universal solution is required.

Paul is proposing to apply for Sustainable Food and Fibre Futures funding. S&S Floats earlier received half the cost of a \$145,000 project through the SFFF to develop its new float and connection. The company is producing 20-25 of these a day and is now looking to supply the mould to other float producers.

Paul Smith is no stranger to innovation. An engineer by training, he won the 2003 MFA R+D Award for work he did building a de-clumper that reduced mussel shell breakages and developing the first size-grader for GSMs.

Brendon Burns



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Grant's terror brings bliss and \$9,000 for charity

Grant Boyd experienced a full range of emotions – from terror to bliss – when he joined more than 100 other skydivers in jumping out of a perfectly good aeroplane to raise funds for Marlborough's branch of the Graeme Dingle Foundation.

Grant personally collected over \$9,000 and the Foundation raised \$134,000 overall – it's single biggest ever fundraiser.



Grant experiencing the 'pre-jump jitters

The moments before he jumped were the hardest for Grant, who's previous experience with planes involved getting on – and off - via the traditional steps or ramps.

“When you are sitting in that doorway and someone's giving you the shove it's awful.”

Then there is 10-15 seconds of freefall before the dive-master pulls the cord.

“It seemed like about an hour.”

Once the chute was open, Grant said he was overcome with a sense of peace and really enjoyed the graceful way the pair of them gently drifted to earth for a perfect landing.



The Sanford Manager of Floating and Farm Development is grateful to all his colleagues and supporters who chipped in to help fund his jump.

“The whole community got behind this event. All sorts of people and businesses got involved.”

He's no stranger to such efforts, previously kayaking Cook Strait for the charity.

The Drop for Youth fundraiser saw Skydive Abel Tasman take 104 people up for the fundraiser.

The \$134,000 will support Graeme Dingle Foundations programmes in Marlborough such as Kiwi Can which teaches life skills and values to primary-aged children and Career Navigator which helps college students get real job experience, including in aquaculture.

Brendon Burns

And finally...

Introducing our newest members

Ada Wells

Born: 28th April 2022

Congratulations to Ned (MFA) and Anna.



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Congratulations to Pete (Marlborough Oysters) and Ellen.

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