



STORIES FROM THE FRONTLINE OF BLUE INNOVATION



Delivering to FRDC's strategic goals of 'achieving sustainability while lifting prosperity' during a period of rapid industry change.

Shifts in consumer tastes and expectations require a change in culture away from an inwardly conservative mindset towards an externally connected approach. To learn how to drive this cultural change, FRDC initiated the Fish-X Project.

Fish-X is a three-year research project to explore whether new venture creation methods utilising Design Thinking, Lean Startup and Agile Methodologies can be applied to build innovation capability and drive cultural change in the fisheries, aquaculture, seafood and recreational fishing sector, extending upon existing R&D investments. Our desired objective is to shift the industry towards an externally-connected, entrepreneurial approach, better able to collaborate, to create sustainable and scalable business models.

The stories told by participants from the program share insights into how these entrepreneurial methods and ways of working have started building capability and creating the cultural change needed to grow the Fisheries, Aquaculture and Seafood Industry. However, the world is changing faster than ever and this project has identified that there is a great need to share these new ways of working right across the industry. Now in its third year, the Fish-X program is undergoing changes in order to trial an expanded online delivery approach, allowing all applicants to gain assistance with turning their ideas into businesses.

The Fisheries, Aquaculture and Seafood innovation ecosystem within Australia has been ignited alongside this project. In 2016, the Blue-X team who lead this research project observed that there was no coordinated 'startup' activity happening in what they describe as 'BlueTech' (technology solving real problems for Australia's Blue Economy). Their work has put Australia on the global map, introducing a number of Fish-X participants with connections both at home and overseas.

Since these stories went to press all of these businesses have evolved, grown or pivoted based on market feedback.



DOG TREATS TIP THE SCALES ON FISH WASTE

A clear course for business development from the Fish-X program is helping All Fish For Dogs reach new markets with its eco friendly, organic products.

Writer: Catherine Norwood **Images:** All Fish for Dogs
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Getting the most value from every fish caught, and from every bit of that fish, is the philosophy that underpins Glen and Selena Murray's premium pet treat business, All Fish For Dogs.

For 16 years Glen was a commercial fisher, based at Mission Beach in Queensland, and he is all too familiar with the challenges of the sector. Among these are large catches of fish that the market just doesn't want, and the relatively small proportion of each fish used for human consumption – often only about 30 per cent.

This waste of ocean resources has always troubled him, and when the Queensland Government offered fishing licence buybacks in 2014, Glen decided to sell his licence and do something about it.

And thus, was born All Fish For Dogs, aided and abetted by his wife Selena and the family's three canine members, Kosmo, Rosie and Minty.

The business takes offcuts from fish species that fishers bring to shore, such as the tails of Spanish or Grey Mackerel along with further trimmings from seafood processors, and turns them into nutritious dog treats. In Australia, this market is worth \$185 million. The Murrays also buy fish that are landed despite their low value, which often happens when markets are already flooded with the same species.

GREATER VALUE

"Sometimes when you're fishing for Barramundi, all you get is Queenfish," says Glen. "And so does everyone else. So the fish we use is not being diverted from human food; it is fish that would otherwise end up in liquid fertiliser. We're actually reclaiming it from that, and giving it greater value," says Glen.

"Anything we don't use is still sent to make organic fertiliser. So in that way, we're getting 100 per cent use of the fish, but we're trying to add the greatest amount of value by using as much as we can for the treats."

All Fish for Dogs takes these unwanted fish and offcuts and slowly dehydrates them, rather than cooking them. The low temperature preserves the nutritional value of the fish, although it takes four kilograms of fish to produce one kilogram of treats.

All Fish for Dogs is aimed at the premium end of the dog treat market, promoted and priced as a wild-caught, organic product.



CREATING A BRAND

Fish treats often mirror products customers are already familiar with, for example, sharkskins similar in size and shape to pigs' ears, or rolled mackerel or sharkskins as an alternative to rawhide rolls.

So far the Murrays have a range of 25 products, from training treats to large chews. Their range is sold wholesale, in bulk, and they have two buyers who supply national pet shop chains.

They also now have a retail brand, Fishtastic Dog Treats, sold online in pre-portioned packs. Glen says this development came from strategic planning and advice from the Fish-X innovation program they are part of. Fish-X is an entrepreneurship program sponsored by the Fisheries Research and Development Corporation.

"Creating our own brand helps to develop the value of the business as a 'saleable' venture," Glen says.

The Murrays were introduced to the Fish-X program through a two-day workshop with other fisheries innovators, to evaluate their business direction and practice their 'pitch'.



THINKING BIGGER

Glen says they were encouraged to dream big. "We thought we could use maybe 150 tonnes of waste and produce \$1 million worth of dog treats. But we were challenged: why not use 500 tonnes of waste, and turn over \$10 million? And then they showed us how that could be achieved by focusing on production efficiencies.

Fish-X also encouraged Glen and Selena to get exposure for their business by entering events such as the Tropical North Queensland Innovation Awards, which they did, winning both the Eco Innovation and the Proven Innovation awards in 2018.

These events have brought valuable contacts in government and business, and the ongoing mentoring through the Fish-X program has helped them to "work on the business" as they grow, side-stepping likely dead ends.

Assistance with their business plan has also put them in a sound position to seek finance for their planned expansion later this year. This will include some research and development into the formulation of innovative new products and production systems that can be scaled up - all with a focus on ocean-based ingredients.

"At the rate we are growing, we will need to add a new drier every four to six months,"

Glen says.

"In Australia fish is associated with cats, not dogs. It can be a hard sell on the domestic markets, although we are seeing more people providing specific diets for their pets to address health issues such as allergies, skin and joint conditions.

"But in other countries where people eat more seafood, such as Singapore, it's a more natural transition for them to feed fish to their dogs, too. That's a market we're hoping to break into this year.

"This is only year four of All Fish For Dogs, but we have some big plans in terms of where the company can go and what the ocean can offer pets. At the same time, it's really important to us knowing we are helping fishers and conserving resources by making the most of every fish caught."



QUALITY IN THE BOX

When polystyrene proved a barrier to better marketing their premium reef fish, Queensland's Tom and Kath Long took a leap of faith to develop an alternative packaging system.

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Queensland fishers Tom and Kath Long have developed a new packaging system. To ensure their premium reef fish arrive at their destination in peak condition. And their innovation could well transform seafood supply chain packaging around the world.

The Longs are small-scale operators based at Kurrimine Beach on Queensland's north coast, midway between Townsville and Cairns. Tom line-fishes for some of the highly sought after tropical species the region has to offer – Red Emperor, Goldband Snapper and Rosy Snapper, to name a few. Kath works in the processing room and is responsible for marketing and promotion; they share the office work.

They also both have their day jobs. Tom is a plumber and Kath is a teacher at the local primary school. But it's the fishing business that has taken hold of their hearts and is consuming an increasingly large portion of their time.

Their business, TomKat Line Fish, is based on two underlying principles: a premium product and environmentally responsible practices. Tackling the challenge of polystyrene, a hard to recycle and often single-use plastic, addresses both of these issues.

A long problem

The specific driver in developing new packaging is their signature fish, the Red Emperor.

The minimum catch size for a Red Emperor in the Queensland Coral Reef Fin Fishery is 55 centimetres. The maximum size of a polystyrene box is 53 centimetres. For Tom this meant his prized catch had to be bent to fit the box when he sends the fish, whole, to chefs at Sydney's top restaurants. It wasn't a good look.

"Because we fish along the continental shelf, a lot of our other fish such as the Goldband and Rosy Snapper are also larger than those from the inshore fishery. So it's been an ongoing problem for us," says Tom.

This quandary has led the Longs to develop the TomKat KoolPak™. The initial prototype combined existing materials in a new way to provide re-usable, customisable packaging that initial tests show has a better thermal performance than polystyrene.

Kath says they've continued to refine the prototype using high-grade plastics. "We wanted to ensure 100 per cent recyclability by our manufacturers, embracing the 'cradle to cradle' principles of sustainability."

The Longs were among the participants in a Fish-X workshop in Brisbane in 2018, part of an innovation program that X-Lab Ventures run for the Fisheries Research and Development Corporation (FRDC). The Longs' original intention was to improve their marketing, having invested heavily in realising their seafood ambitions during the past seven years.

When they first established the business in 2012 they sold fish into the wholesale market in Cairns. But in 2016 they established their own processing facility at Kurrimine Beach to achieve greater control over product quality.

“We produce high quality product using dry-filleting techniques. Fillets are portioned, vacuum sealed and blast frozen, locking in that premium freshness,” says Tom. “We also supply premium chilled product to clients who appreciate it, such as Josh Niland, who operates The Fish Butchery and Saint Peter restaurant in Sydney.”

New skills and a need to innovate

Tom says the Fish-X workshop introduced them to a host of business practices they weren't familiar with, including 'pitching' and critically analysing their operations for continuous improvement. It supported their marketing, which is based on provenance and premium quality.

But the underlying polystyrene box issue remained a barrier to better business processes. The Longs have used data loggers in their deliveries, which are undertaken by a freight company and involve a two-hour drive north to Cairns and airfreight to Sydney.

“When you put a data logger in, you realise how long your delivery is actually out of the cold chain - when it's unloaded, weighed, sits on the tarmac at Cairns, is on the plane and again on the tarmac at Sydney. Even within the cold chain, there are temperature rises. It really hits home how important a thermally insulated container is,” says Tom.

International investigations

Following the Fish-X workshop the Longs joined the Fish-X business mentoring program, and also received an FRDC bursary to attend the Global Seafood Expo in Brussels in 2018.

With more than 1000 exhibitors at the expo Tom searched the trade hall for fish processing technologies. Kath went looking specifically for alternatives to polystyrene. “I went from stall to stall, looking for the magic box for our fish to go in. But there wasn't one,” Kath says.

She did find a couple of things, including a flat packable plastic box that, while good, wasn't quite good enough for the out-of-cold-chain challenges they needed to address. But she did like the way the box could be folded and unfolded, stored flat and reused. “So we looked for a way to make it better,” she says.

Homegrown design

Their own design is now “patent pending” and involves triple layer protection for the seafood inside. After developing a prototype they conducted a trial run, complete with data loggers, sending fish to an FRDC sponsored stand at the Sydney Lollaproducer event in June last year, an annual event that brings together primary producers and chefs.

“The fish looked great when they arrived and the data loggers gave proof of concept and that is where the journey really kicked off,” says Tom.



“We are always on a journey, and we are always going to do good things with our fish. But the Fish-X program and the support from the FRDC has been instrumental in helping us get to where we are today.

“Without that, we wouldn’t have developed the container; we wouldn’t be on the verge of launching this product. I think the real value of that assistance is still to be realised.”

Prototype trials

Their prototype was used in December to airfreight chilled and frozen product to Queensland Department of Agriculture and Fisheries food technology centre in Brisbane, part of an FRDC-funded chilled versus frozen product research project.

DAF’s lead researcher Sue Poole and the chefs involved in the tasting trial were all impressed with the quality of the fillets that came from the transport consignment.

The Longs are now on the verge of commercialising the TomKat KoolPak™, with final testing based on a 1000-box commercial trial scheduled to begin in April. There is widespread interest from the Australian seafood industry and conservation groups such as WWF. The trial will involve limited numbers of containers complete with data loggers supplied to a broad cross section of industry leaders.

The rock lobster industry is also interested. Live lobsters are currently packed into polystyrene for transport, and although chilled to the point of sedation, polystyrene is noisy and can stress the cargo. Acoustically as well as thermally, the TomKat KoolPak™ may also prove a better choice for live exports.

Gathering support

Tom says they are particularly pleased to have award winning chef Josh Niland support the project. Josh has pioneered the dry aging of fish in Australia, with an ethos of using the whole fish, and using lesser-known species, which has seen his restaurant Saint Peter shortlisted for The Ethical Thinking Award in the World Restaurant awards, Paris. His focus on sustainability aligns strongly with the Longs’ approach.

“As a purchaser of our fish, Josh knows firsthand the problem around polystyrene packaging,” says Tom. “He is a huge supporter of our KoolPak™, and we look forward to the next delivery of fish to him in one.”

Worldwide manufacturers have struggled to come up with an alternative to polystyrene that can match its thermal properties, leaving many in the seafood sector wary of new products. The Longs hope they have finally cracked the formula, both for their own seafood and for others.

There’s a global push against single-use polystyrene. And wherever we went when we travelled in Europe we saw the same thing: polystyrene being used, small sections breaking off and making their way into drains or waterways. It was the same issue we have here, but on a much wider scale.

“If we could replace 10 million polystyrene boxes with our TomKat KoolPak™ (approximate yearly usage in Australia) that would be a tremendous boost to the Australian manufacturing and recycling industry. But it still represents only about two per cent of the world’s volume of single-use polystyrene,” says Tom.





THE DIGITAL LIFE OF OYSTERS

Australian oyster farmer Ewan McAsh is thinking big – across species and markets – to put smart aquaculture management in the palm of producers’ hands, with support from the FRDC’s Fish-X program

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Like many oyster farmers, Ewan McAsh faced a contradiction at the very heart of his business.

Despite working every day in a peaceful, pristine environment with a slow-growing animal, he was always in a hurry, constantly consumed by the management of his business.

“The entire business was in my head,” he says of his enterprise. He grows oysters across 120 locations in a range of age and size grades on the Clyde River in NSW.

“I would lie in bed and fly over the lease in my mind, continually reeling through where things were and what needed to be done.” Ewan McAsh

On top of that, he was also running an oyster bar and marketing company, Signature Oysters, selling his and other farmers’ produce into restaurants, with a focus on oyster provenance.

They were businesses close to his heart, but each came with its own travel commitments. And each time he left the farm, oyster production would suffer, quality would drop and mistakes would be made because, he says, “ultimately I was still the only one who really knew what was going on”.

The situation was simply not sustainable; something had to change.

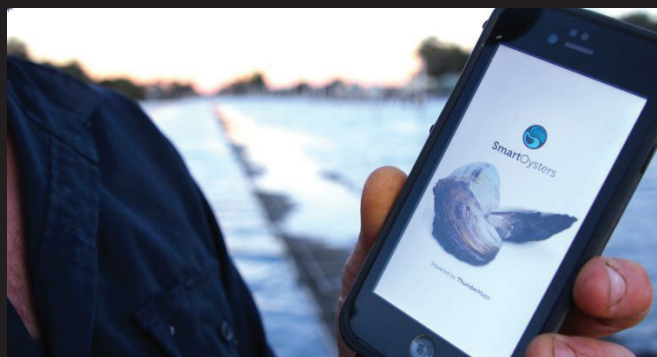
A smarter way

So he got together with digital strategist Philip Browning and developed SmartOysters – an ingenious piece of technology that has taken the business out of his head, and into the palm of his hand. SmartOysters is more than just “a database in the cloud”. The smartphone app is a complete farm management system.

Presented in a simple, colour-coded, visual format, it shows farmers instantly where their stock is, at what growth stage it is, and what action needs to be taken regarding any batch at any given time.

It also provides data analytics, environmental reporting and forecasting functions to help short and long-term planning and business strategy. Staff at all levels can use it and access information relevant to their tasks, ensuring mistakes are avoided and standards maintained.

For Ewan, it has transformed his business, and his life. In the 18 months since using the app, oyster production has doubled, their quality improved and price increased. Meanwhile, it has made more time available to spend with his young family, while he checks-in remotely on farm operations.



Easy to access information

"I've spent the least amount of time on farm than I ever have yet it's doing better than it ever has," he says. "I'm happier at home, I can switch off, go on holidays and take a whole day off once a week to look after my daughter while knowing we are not dropping any balls in the business. And I can feel connected to the farm wherever I go."

Ewan has travelled around Australia and the world marketing the app to other oyster and aquaculture enterprises including mussels, abalone, seaweed and finfish producers

Just a year after its commercial launch, SmartOysters is being used by small and large producers in Australia, New Zealand, Ireland, England and the US.

"Philip and I envisaged it to be versatile," Ewan says. "We have been able to solve problems for different industries because ultimately it's about recording important information really easily."

Critical to realising this vision, he says, has been Fish-X. Being involved in two-day Fish-X workshops and ongoing business mentoring has helped him hone his strategy and think big.

Expanded vision

"I was just a farmer looking for a solution on my own farm. The message from Fish-X was 'that's good - but we want you to be thinking about turning this into a \$100 million business'. Even \$10 million was still thinking too small!" he says.

While he is some way from those kinds of numbers (everything SmartOysters makes goes back into the business to further its development), Ewan says Fish-X gave him the solid grounding, clarity, strategic skills and opportunities from which that kind of growth is possible.

In fact, he says, SmartOysters may not even still exist without it.

"Having the business coaching through Fish-X has kept us focused and given everyone confidence in its progress and in the process," he says.

"If we had have been left to our own devices without the touchstone of Fish-X it would have been very easy to go off in the wrong direction. But we are growing in a strategic manner and adding value to our company and demonstrating that we are worth investing in." Ewan McAsh

The Fish-X experience also exposed SmartOysters to markets that have enabled growth, funding Ewan to travel overseas to demonstrate the app to producers in the US. While most Australian enterprises employ four or five people, some in the US have staff of more than 1000. Despite this, Ewan says the US management issues were surprisingly similar.

Shared solutions

"I never expected a shellfish company with 1000 employees would be managing their stock with text messages, whiteboards and Excel spreadsheets," he says. "But they were either doing that or licensing very expensive geological software, which our app can replace."

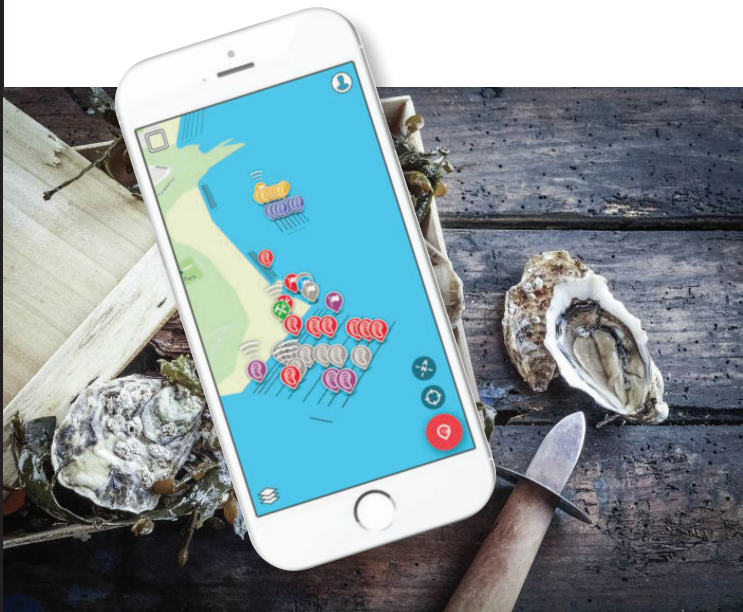
Ewan says the functions of SmartOyster have grown layer by layer like an onion, with more applications added through the experience of using it on his own farm. From managing stock, the app now also schedules machinery maintenance, can be used for employee management and also the movement of stock from the water into retail businesses.

Providing a virtual record of the enterprise, it can also be used as a business tool itself, allowing producers to demonstrate the value of their company, which in turn supports access to capital needed for growth.

"What it can do is actually quite complex, but it's easy to use," he says.

Ewan says benefits of Fish-X have not just been practical in a businesses sense, but have also been personal, through the people he has met. Sharing the stories and experiences of other innovators with fledgling start-ups has been invaluable.

"It's a lot of work and you can feel business is not moving fast enough and then you speak to other start-ups and they have amazing ideas with heaps of opportunity and they are going through the same thing. So it helps keep you going," he says.





LITTLE TUNA'S BIG DREAMS

Fish-X participant Kate Lamason and husband Rowan are taking on the big players in the canned tuna market with all-Australian Albacore Tuna products.



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Canned tuna is one of Australia's most popular seafood products.

After the decline of local processing, all of it has been imported in recent years.

This is despite availability of sustainably sourced Australian tuna, in particular Albacore Tuna (*Thunnus alalunga*).

Stepping into this gap are fisheries insiders, the husband-and-wife team of Kate and Rowan Lamason.

This year they established their Cairns-based company Little Tuna using Albacore Tuna, which Rowan describes as an under-valued and under-used species with a delicate, firm flesh that retains a pleasant white colour once cooked.

"A huge part of the product we are marketing revolves around issues of quality, sustainability and Australian-sourced fish. We saw a gap in the market, given the lack of Australian canned tuna. It provides the fishery with an opportunity to value add." Rowan Lamason

High-quality Australian tuna

The tuna is primarily sourced from Great Barrier Reef Tuna, the Lamasons' family-owned fishing enterprise run by Rowan's father. Having been born into a fishing family and worked as skipper, Rowan knows firsthand the care taken to conserve Albacore Tuna stocks and the onboard procedures to ensure quality. "The fish is caught using hook and line gear from a fleet of three vessels fishing in the Eastern Tuna and Billfish Fishery, which is governed by the Australian Fisheries Management Authority," Rowan says. "Fishing trips are kept deliberately short – to about seven days – to maintain the tuna's quality.

Healthy, tasty products

"This ethos continues inside Little Tuna where we cook with carefully selected high-quality ingredients, right down to selection of the best-suited oil for bottling." Initially the couple developed three products: tuna in oil, tuna in oil with chilli, and tuna with lemon and pepper. They sell these online and through an increasing number of retail outlets. They worked up these products themselves, spending about six months assessing hundreds of recipes, testing the results on family and friends. And occasionally – given a grand failure – on the dog. They settled on rice bran oil, which they found was the healthiest option and, being flavourless, did not overpower the tuna. There was also a steep learning curve related to entering the food industry, including food safety regulations and marketing.



Fish-X Support

In June 2018, Kate took part in the Fish-X program, an initiative of the Fisheries Research and Development Corporation (FRDC) and run by X-Lab Ventures, to mentor start-ups in the seafood sector.

She attended a Fish-X hackathon in Sydney, and says the event provided some great benefits, both personally and for the business. She received training, advice, feedback, networking contacts and even opportunities to refine her pitching skills to stockists.

Kate credits the program with increasing her confidence and helping to formulate a nuanced, forward-looking business plan to grow the company and reach consumers across Australia.

“The hackathon provided vital confirmation about the quality of our products.” Kate Lamason

And realising there were no competitors in their market niche – sustainable, premium, Australian sourced tuna – they’ve gained the confidence to move forward and to make use of contacts to grow the company. These new contacts also mean they no longer need to do all the product development work in isolation and by a costly process of trial and error, Kate says.

Expansion and automation

The game plan is to expand the company enough to raise the capital that will allow them to shift from their three \$1000 cookers to the automated efficiencies of a \$100,000 industrial cooker.

Without the automation, Little Tuna sales are limited by their manual cooking processes. “Automation at the cooking phase is where we can gain efficiencies without compromising the quality associated with the Little Tuna brand,” Kate says.

They will be able to reconfigure their operation, maintaining the same staffing levels to make more product of the same quality much more efficiently. “That’s where we want to go and we are well on our way,” Kate says. To reach their target, they have focused on marketing and on increasing the range of flavours of their tuna product. In November 2018, Little Tuna launched two new flavours: tuna in olive oil and tuna in spring water. These were the flavours that consumers asked about most frequently.

Value of networks

“When it came to acting on that consumer feedback, it really helped to have skills gained at the Fish-X hackathon,” Kate says. “I relied on those skills across the development process, from sourcing ingredients, to contacting agencies that could provide services to the food industry.”

Particularly helpful were Brett Wedding, from the Queensland Department of Agriculture and Fisheries, and Gordon Young, from Foodstream.

Selection of the olive oil proved especially finicky. Kate and Rowan wanted an Australian product for its unblended quality. At the same time, they did not want to overwhelm the flavour of the fish. They finally settled on a light-tasting blend that meets their requirement for quality and reliability of supply.

“Besides the two new flavours, we are also working on an entirely new product as well,” Kate says. “That’s taking a little longer to get to market as it requires more testing.”

Sustainable Albacore Tuna

For consumers concerned about seafood provenance and sustainability, the Australian Fisheries Management Authority classifies Albacore Tuna’s fish stocks as ‘sustainable’ in Australian fisheries.

The species is found throughout the Pacific and Indian Oceans, and is a highly migratory species that travels long distances. They are commonly found in eastern Australian waters and are caught with low levels of bycatch.

The Commonwealth catch of Albacore Tuna is managed by quota, which means the catch is restricted by weight, with the limit for the 2017-18 season set at 2500 tonnes. There are also limitations on the type of gear used to fish for Albacore Tuna.

They grow up to 1.2 metres long and 55 kilograms, although they are more commonly found at 50 to 90 centimetres in length and 3 to 22 kilograms. They live up to 13 years.



FILLET OUT THE MIDDLEMAN

Fish-X participant Serena Zipf is pursuing market development to put the seafood supply chain in the hands of her customer



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Building relationships directly with customers to offer them the freshest possible seafood is the latest enterprise challenge for Serena Zipf of Rocky Point Aquaculture.

As part of a family operation on the Logan River in southeast Queensland, the business produces Queensland groper and cobia, having turned to fin fish after White Spot Disease wiped out their prawn production in 2016.

Serena recognises the farm-to-customer concept is hardly new, but says efforts to establish direct supply chains in Australia have had limited success so far. There are two “chokes” in the process: the concentration of power in the existing supply chain, and Australia’s supply chain logistics.

She says getting it right would be “the ultimate disruptor” of current business models for fresh products such as seafood.

“Right now, because of the way the distribution system is set-up, somebody else decides what you eat, based on how much money they can make out of that product. Consequently a lot of fish is imported because distributors can gain a higher margin on it.

“But a fresh-to-you distribution network puts control in the hands of the consumer in deciding if they want to support a particular fish farm, or region. It lends authenticity to a provenance movement and the food miles movement.”
Serena Zipf

Serena says buying direct also supports provenance because labelling laws in Australia do not require the hospitality industry to supply the county of origin, and customers may not always be getting what they think they’re paying for.

Distribution challenges

“We know at Rocky Point Aquaculture that we have a long shelf life for our fish – 16 days for groper and cobia. We can put it on a flight and get it to a specific location within 24 hours. The airfreight logistics already exist.”

But while this is feasible in theory, distributing to individual households becomes more complicated. Serena says larger companies are struggling with the same issue.

“The food and commercial technology is there, and we have a generation of tech savvy consumers; it’s just the supply chain needs to catch up. I’ve seen the customer-direct concept in Japan, where the supply chain is very sophisticated. They can get virtually any product from farm to the customer’s doorstep for about \$10.

“By contrast, we simply don’t have the cold supply chain worked out in Australia yet, so this is quite a BHAG – a Big Hairy Audacious Goal. The biggest challenge, of course, is the distances that need to be covered in Australia.”

Image top: Serena Zipf with head chef of new restaurant Donna Chang, Jason Margaritis (left), and Ghanem Group executive chef Jake Nicolson (centre).
Photo: James Barnes, Destination Food

It's this BHAG that Serena took to a recent Fish-X hackathon – part of a Fisheries Research and Development Corporation (FRDC) initiative to support innovators in fisheries sector, helping to refine ideas and business models.

Innovation community

She says the Fish-X event was an opportunity to see what other people had attempted in this space and to connect with others working on similar concepts. Spending a day together with other like-minded people resulted in a new marketing initiative with two other Fish-X participants, oyster producer Ewan McAsh and seafood provedore Umar Nguyen.

“Instead of knocking on restaurant doors in a particular region we invite chefs to an event where we showcase seafood – how it can be cooked, particularly if it's a new, or underutilised species. Queensland groper, also known as giant groper, is really only known in Asian cuisine.”

Their first collaborative event was in the Hunter Valley, and with some tweaking, they're planning to roll it out at other locations.

Serena says this is a very different way of doing business, when it comes to marketing new seafood products. It's a concept that works for the new generation of chefs; the up-and-comers who are searching for food inspiration and new products and who are active on social media.

It opens new doors for fisheries innovators too; business with new products and new supply chain models. One of the most welcome changes she sees in the emerging generation of leaders in the seafood and hospitality sectors is their more open attitude to women in business.

She says it can be very difficult for innovators in general, but particularly for young women who are trying to do something different: “So having access to a community of support and to mentors is important.”

Recognising this, Serena is also an official mentor for participants in the FRDC's National Seafood Industry Leadership Program, which has most recently included her fellow Fish-X participant Umar Nguyen.



Murray (left) and Serena Zipf from Rockypoint Aquaculture with chef Jason Margaritis (right). Photo: Destination Food

Aquaculture evolves

Serena's fresh-to-you business challenge is one she intends to keep working on as her family also continues to develop its cobia and groper aquaculture expertise, extending on three decades of experience as prawn farmers.

While there are differences between fish farming and prawn farming, the essential husbandry aspects of animal handling, behaviour, feeding and disease are fundamentally similar, she says.

"You still need to ensure that you cater to the needs of the animals you are growing and anticipate, where possible, what problems may be threatening in the future.

"Animals still need good-quality water and to be fed and checked every day to ensure their wellbeing. Once you develop a feel for what is normal for the species you are working with, the similarities between species become clearer"

Serena Zipf

While cobia and groper are emerging species in both aquaculture and in the marketplace, the versatility of the white-fleshed fish are already making an impact in the restaurant trade.

Groper on show

Rocky Point groper has become a special feature on the menu at the new restaurant, Donna Chang, which opened in Brisbane in July 2018. The restaurant is a new take on a traditional Chinese restaurant for the Ghanem Group, with diners able to select live fish from tanks.

Ghanem Group executive chef Jake Nicolson says the groper, with its beautiful bright yellow and black markings, is a wonderful choice for the new restaurant. "It's a uniquely Queensland product, is sustainable and lends itself beautifully to the flavours of Chinese cuisine."

The product is sold live to the restaurant and delivered daily at a size of about one kilogram. Jake says the fish, which has a fantastic layer of fat just beneath the skin, is cooked on a wood-fired, open grill.

"We wrap it in paperbark and flavour it using a blend of Australian desert limes, Chinese black tea, local ginger and soy.

"It will be the essential flavours of modern Chinese cuisine, beautifully highlighted by our unique Australian ingredients."





FISH GIRL ON A MISSION

A Fish-X workshop gave chef Umar Nguyen a clearer business direction. And this has led to a dynamic new seafood knowledge resource for the chefs of Australia.

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Umar Nguyen is on a mission to elevate consumer awareness and enthusiasm for the great diversity and quality of Australian seafoods.

As her alter ego, The Fish Girl, Umar has built a large social media following, using Instagram in particular to illustrate the tantalising wonders that can come from a seafood kitchen when culinary flare is combined with product knowledge.

But this persona is just the window front for a serious business that has seen Umar travelling Australia for the past three years to engage directly with chefs. Her purpose: to increase their awareness of seafood quality and diversity and the limitless ways in which chefs can imbue the preparation of seafood with their own creativity.

Umar, a qualified chef in her own right, runs Platinum Providedore. She established this business to link fishers with top chefs, acting as an information resource to support chefs' creative use of seafood products – and consequently to heighten the consumer experience.

Like most people who start a business, Umar did her time in the twilight zone between leaving a job that was going nowhere and trying to crystallise a business plan that would go somewhere.

“I started out as a chef, but was a single mum. The hours were long so eventually I was forced to work in an office, which I hated, until it led to a job in fish sales where I learned about distribution. I was still a bit lost and bored until one of the companies I dealt with invited me to take responsibility for their national fish sales ... and that’s how I started my own business.”

On the back of this opportunity, Umar launched Platinum Providedore in 2016 to promote three distinctive products – Cone Bay Barramundi, Yarra Valley caviar (from hand-milked freshwater Salmon, Rainbow Trout and Brook Trout) and Fraser Island Spanner Crabs.

Her mission was to create a personalised link between producers and chefs by providing and articulating the best-quality product along with knowledge that chefs – especially junior and up-and-coming chefs – needed to work with the product.



Image top: Tim Parsons, Ewan McAsh, Umar Nguyen and Serena Zipf.

Fish-X insight

However, Umar was still finding it hard to establish a clear business identity and it was this that prompted her to join the Fish-X program. She joined a workshop and was puzzled every time her mentors told her that to differentiate her business she needed to become its beacon.

“It took a while for me to understand. I thought my business was the product, but finally the penny dropped that my business is me, and that’s when I came up with branding myself as The Fish Girl to create a marketing identity for Platinum Provedore.”

Umar says the Fish-X course opened her eyes to the ‘what’ and the ‘why’ of who she is, which in turn clarified how to progress the business and her future ideas.

“Essentially, the business deliverable is information. I introduce chefs to the products; offer them the knowledge and information they need – with the credibility of being a fellow chef. This allows them to be enthusiastic and creative users of these products,” she says.

“To begin with, I started taking the three main products to chefs in Brisbane. I very soon realised that this direct, person-to-person approach to distribution worked and was the way forward. I also realised that I needed to expand out from Brisbane.”



In 2017, Umar lived in each state for a month at a time, learning about local seafood scenes and building relationships. That exercise was exhaustive and exhausting. But she says as a result people now understand what she does.

“And they know that the ‘why’ comes from me genuinely caring about the product, about the people who produce that product, about the chefs, about how it can support their individual creativity and how it looks on a plate and is enjoyed by customers.”

Value-chain immersion

“So my business plan is about me being immersed in the seafood value chain and, importantly, being seen to be immersed. It’s a network of like-minded people coming together, making a tangible difference to the elements we care about – seafood quality and sustainability.

“I’m a chef and I know chefs, like anyone, can get bored, so it’s information like this that gets people excited.”

Umar has made it a habit at the end of each year to assess what she has learned and adjust her business plan accordingly: “I’m now planning to do more group presentations and develop a strategy to involve the wider community so people better understand that our seafood is a sustainably managed resource of the highest quality,” she says.

“I’ve also been surprised at how many people, in general, are actually afraid to eat fish because they don’t know about fish or about how to prepare or cook fish. So there’s a lot of work to be done to overcome a lack of basic knowledge.”

Umar says.

Also in Umar’s plans is a campaign to increase awareness of under-utilised species: Honey Bugs, razorback prawns, white lobster tails and scampi eggs (fast gaining market interest as Wild Scampi Caviar) from Shark Bay in WA, to name a few.

“Again, so much great product has been left under-utilised or not utilised at all because of this lack of knowledge. It’s an information gap I am keen to research and fill.”



VOYAGE TO AN ELECTRIC FUTURE

Smarter technology could be the drawcard that brings new respect and a new generation to the fishing industry.

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Dennis Holder is a career fisher, a 31-year veteran of fishing for Blue Swimmer Crab off the South Australian coast. In that time he has owned 11 boats, two of which he built and project managed, progressively modernising and innovating to keep in step with changing environmental, regulatory and consumer influences.

But with each progression there has remained a seemingly unresolvable issue: the high cost of running diesel motors, and also more recently his awareness of their hefty carbon footprint. The issue came to a head in 2010 when he built his latest boat, Silver Spectre, a state-of-the-art 24-metre vessel able to harvest about 250 tonnes of Blue Swimmer Crab a year.

“We’d built this fantastic boat, incorporating all the experience-based improvements we had made through the succession of boats we have operated, but were still handicapped by the motors. We agonised for months on what motors to install and even after this deliberation, the two engines we eventually selected were still going to cost us \$10 an hour just in repairs and maintenance,” Dennis explains.

“Because of the long periods of idling when pulling crab pots we knew we would be burning out injectors about every 1500 hours ... so we came to the inevitable question: what else can propel a boat?”

That simple musing launched Dennis onto an extraordinary journey of discovery that has brought him to the point he is at today: building Australia’s first commercial diesel–electric fishing vessel. It has also caused him to reflect deeply on the industry’s standing in society and the role that technology could play in reviving its reputation and morale.

His initial search for alternative engines was on the internet, where he found numerous pleasure boats running on electric motors and then finally a diesel–electric trawler built in the Netherlands as part of a European Union investigation into ‘greening’ fishing fleets. The reviews on the test trawler were outstanding – a 75 per cent reduction in diesel fuel consumption and a 70 to 80 per cent reduction in repairs and maintenance. It was clearly worth investigating further and his wife Karen encouraged him to apply for a Nuffield Australia Scholarship to do so.



Surprise finding

Dennis travelled to the US, the Netherlands, Norway, Iceland, Ireland and the UK, studying work being done on batteries, electric motors and power propulsion electrics. In his examination of the data he came across an unexpected, significant side benefit – a reduction in human fatigue.

“Take away the constant noise and vibration and the whole working environment is changed. I spent six hours on an electric-powered fishing boat in Norway (the first diesel-electric battery commercial fishing vessel in the world) and the operator said the reduced fatigue was allowing them to spend 20 per cent more time fishing. Their cod season is three months with no catch limits so this extra fishing time during that fixed period considerably increases his catch.”

But this was only one aspect of Dennis’s journey: “My Nuffield project was titled ‘Old men, older boats, electric drive power storage, and power generation in commercial fishing vessels’. And it was the first part of this description that began to worry me more and more – the age of fishers and the age of their boats ... translating to a lack of innovation and ‘get up and go’.

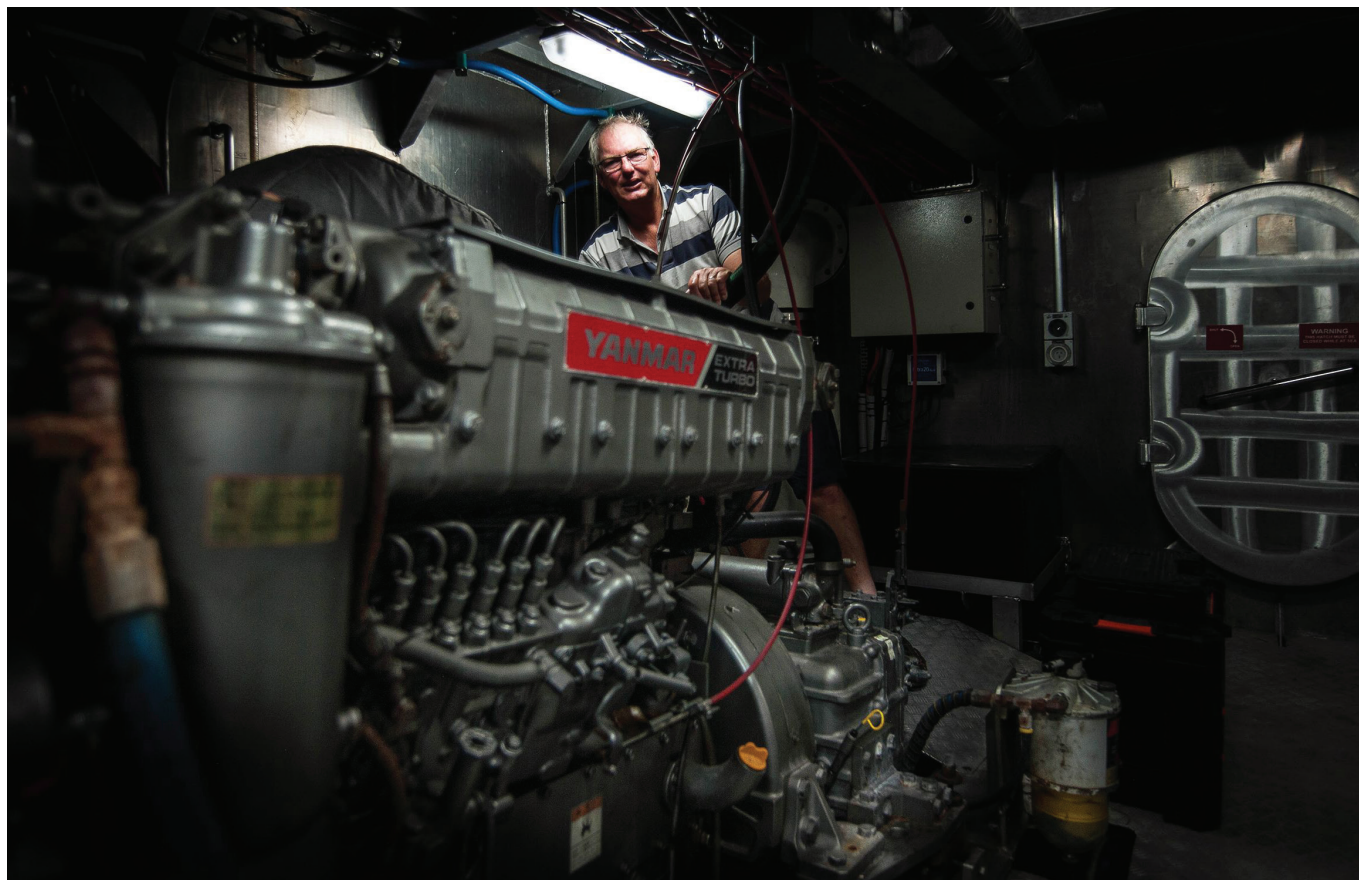
“I felt it was clearly connected to the overt negativity towards the industry from the community and governments over the past 30 years and the increasingly tough regulatory environment in the name of sustainability.

“In other words for the past 30 or so years our industry, in Australia and internationally, has constantly been hammered by people telling us how bad we are. So it’s no surprise that we are not attracting young people or the new investment needed to stop the ageing process.

“It was actually heartbreaking to drill down through what started as a technical exploration and come to this realisation about a much more fundamental status affecting industry investment and innovation. Yes, there have been advances in equipment and fishing practices, but when it comes to our prime piece of equipment we, as an industry, are continuing to pour money into old boats.”

So for Dennis, modernising boats gradually became a much bigger objective than electric motors; it was about embracing technologies that would once more make the industry respected and valued – particularly when considering the world’s population still relies on it for 30 to 40 per cent of its food protein needs.

He describes his Nuffield journey as opening his eyes to this wider challenge, and also to opportunities. He became president of the peak industry group in South Australia, Wildcatch Fisheries SA, and joined the newly established national peak body Seafood Industry Australia as a director, where he says he has found like-minded visionaries.



Fish-X insight

In the meantime, he continued to pursue alternatives to diesel motors and became involved with FRDC's entrepreneurial program, Fish-X. That really clarified the way we needed to proceed.

"We interviewed a lot of fishers, looking at barriers to people changing or upgrading their vessels with technology such as hybrid propulsion and the common feedback was, 'Sounds good, but I can't risk being the first to try'.

"It became apparent that we needed a boat in the water proving, for all to see, what was possible and what could be achieved. This was the main lesson to come out of Fish-X ... that we needed to show, not tell." Dennis Holder

Dennis started working with Oceantech Design in Adelaide to begin building a sister ship to Silver Spectre, but with one clear difference. It will be diesel-electric. The plan is to have two similarly equipped working boats so that anyone in Australia will be able to look at the costs of the conventional diesel boat and the costs of the diesel-electric and judge accordingly.

In his own business, based on what he has already observed, Dennis is anticipating the diesel-electric will eliminate 80 per cent of his diesel consumption and about 80 per cent of repair and maintenance costs – a substantial amount of money.

For the sister ship to match the Silver Spectre's 880 kilowatts of power in the propeller he is looking at a 360-kilowatt diesel-electric set-up plus 600 kilowatt-hours of battery storage. The batteries would provide enough power for 10 operating hours pulling crab pots.

"Basically you head out in the morning, charging the batteries. Once you are on your fishing gear the diesel generator will be shut down and you'll be operating on batteries only, although we plan to supplement this with solar generation on the boat's roof." Dennis Holder

"Our initial calculations suggest we can generate about 15 per cent of power needs on the boat, and the rest to come from the batteries, however the final battery and generating set-up will be determined once we've calculated all of the power requirements for machinery, refrigeration, lights, and the boat's electronics."

The budget for the prototype vessel is \$3.5 million, for which Dennis will seek funding from his bank, NAB Agribusiness, through its Greening Fund. He says the bank has been quite open in its enthusiasm to finance the first such commercial fishing vessel in Australia.



In an article in The Guardian newspaper reporting on Dennis's time on the Norwegian electric-powered fishing vessel, NAB's head of agribusiness South Australia and Western Australia, Matt O'Dea, described Dennis and Karen as pioneers in sustainability.

He expressed the bank's support for "the courageous ideas" that will create a more sustainable industry.

The diesel-electric sister ship will cost about 30 per cent more to build than a conventional diesel-powered boat, but Dennis says he is working with an electrical design engineer on ways to reduce this differential because overlaying all of this is his burning ambition to showcase a modern, sophisticated industry that is embracing new technology, including technologies that reduce its environmental footprint.

Dennis says he is optimistic because he senses the industry has already turned a corner. "There is a building optimism, partially driven by the television food culture, which has driven home the message about knowing where your food comes from, and partially by an awareness that the recreational fishing sector must be accountable for its effort and catch rather than only having leisure activity as a benefit.

"When these two influences are combined, more and more commercial fishers can see a light at the end of the tunnel and are now worrying less and less that it's an oncoming train."

"I think we are on the way back to again being a respected group as fishers in society, doing what we love to do – providing a high-quality protein to consumers – which remains a service the world will always need."

