APRIL ISSUE

THE SCOOP

MOWI®

Offshore farm, Muck

Aligning growth plans with the recommendations of the Scottish Parliament's Rural Economy and Connectivity (REC) Committee report

Stephen MacIntyre, head of environment at Mowi, explains how we already have a blueprint for implementing one of the key recommendations from the REC report – "locating new farms in more suitable areas away from wild salmon migratory routes" – and why we are optimistic about future growth.

Stephen explains: "We want to align our growth strategy with this precautionary recommendation and we hope the proposed changes in the regulatory framework will introduce the flexibility to allow farming in the most appropriate locations. In general, this will result in new farms being sited in offshore locations as opposed to enclosed lochs. Collaboration with the wild fish sector is already being embraced by Mowi. About eight years ago, Mowi realised the potential for moving to offshore locations that had lower potential for interactions with wild salmonids. This evolution has led to the development of new sites at Colonsay, Rum and Muck. The subsequent success of these fish farms gives me confidence that we can replicate this model elsewhere."

When going through the process of identifying a possible site for a new farm, there are so many factors to consider in addition to the potential environmental impact and how it might affect wild fish populations. Stephen expands: "The environmental team at Mowi is multi-skilled across a range of scientific disciplines which means that we are able to properly assess the sustainability of fish farm locations whilst ensuring that we meet or exceed regulatory standards and conservation interests. Years ago we didn't have the tools to properly investigate the environmental impact of open sea locations, but now we do.

"A robust EIA (Environmental Impact Assessment) is undertaken for any proposed new site. I think people would be surprised at the broad remit of an EIA as it covers everything from the obvious impacts such as the impacts upon species or habitats of conservation importance; to interaction with predators and wild salmonids; to the impact on sensitive landscape receptors; to the impact on navigation, anchorage, commercial fisheries and other non-recreational maritime uses; to waste management (non-fish); noise; cultural heritage and the socioeconomic, access and recreational impact."

It is the final impact that Stephen considers amongst the most important and where he is proud of Mowi's track record in this area. He continues: "Fish farming can bring a lot of social and economic benefits to an area and when you think about open sea locations then the immediate communities will be amongst the most remote and fragile in Scotland. Because of the location, you could argue that we have the opportunity to make the biggest positive impact.

"We are grateful for the support shown at Rum, Muck and Colonsay, which has helped us bring the social and economic benefits of fish farming to these islands. At Muck, we built houses for Mowi staff; on Rum similar house building is about to start and we are also providing serviced plots for community-led development. In addition, we contribute to a community and infrastructure development fund to be spent locally and which has provided significant improvements to the infrastructure on the islands including roads, power, communications, pontoons and conservation projects.

"We provide high quality jobs and as a company provide apprenticeships and a graduate scheme. We look to integrate our staff and operations into community life and share our resources, not least our boats to help islanders get on and off the island. Then of course, there is the obvious economic benefit - Mowi's annual wage bill for staff operating just one of these new farms is nearing £300,000."

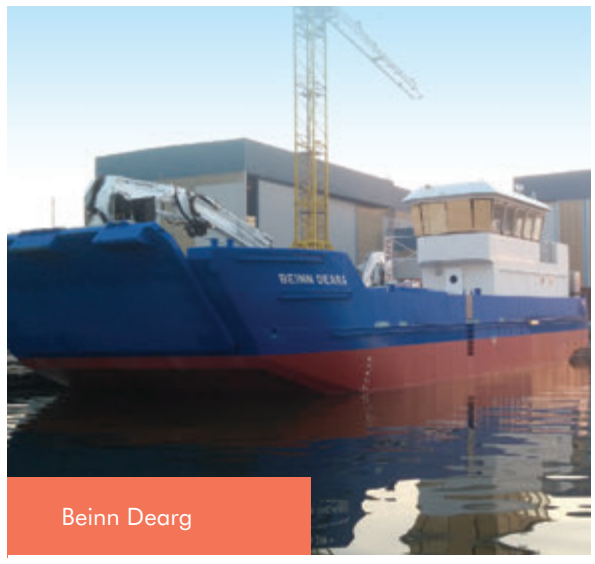
Stephen is therefore optimistic about the future of salmon farming in Scotland and is considering more open water locations. His closing remarks: "Obviously open water locations are really good for the salmon; whose welfare is at the heart of what we do. It is clean tidal water so the fish never see the same water twice. Our fish at Rum, Muck and Colonsay have thrived in this environment in terms of overall health and growth."

Our resident loch star!
We are delighted to see our very own Andy Martin, Leven farm manager, featured in Lidl's marketing across the country to promote "beautiful Scottish salmon". Go Andy!

Bolder and WiSA
Charlotte Maddocks, health manager at Mowi, made the headlines with the launch of WiSA, Women in Aquaculture Scotland on International Women's Day. The group, which will be industry-led and co-chaired by Charlotte Maddocks and Noelia Rodriguez, operations manager for Scottish Sea Farms' new Barcaldine hatchery, will seek to encourage more women into all levels of aquaculture and support them throughout their careers.

Proud to be a woman, but happy to be "one of the boys"
Also on International Women's Day, Clara McGhee used her regular blog on the fishsite.com, Notes From a Small Island, to highlight the rewards of working on a salmon farm - regardless of gender.

Introducing Beinn Dearg, Beinn Bhreac and Beinn Nibheis – our new fleet



Beinn Dearg

Mowi Scotland has three new boats on a ten-year time charter with Dess Aquaculture Shipping; a joint venture between Mowi and Deep Sea Supply that started back in 2016. Dess Aquaculture Shipping will manage the vessels locally and is in the process of setting up shore-based operations in Scotland. The Scoop spoke to Don Macleod to find out more.

Don's role is to oversee non-medicinal fish health treatment vessels for Mowi in Scotland and as fleet development manager, he is also tasked with updating the working fleet with more suitable vessels. The sense of excitement about the new fleet is evident when talking to him: "I've been in salmon farming for over 20 years and these new vessels joining our fleet show just how many advances there have been in boats for the aquaculture industry in terms of the size, capability and technology."

Beinn Dearg

Beinn Dearg joined our fleet in February. It will be operated as a peroxide treatment vessel and, with four tanks, will have twice the capacity of the third-party charter vessel it has replaced. Beinn Dearg will cover every seawater farm in the company. With four ISO tanks fitted on board, offshore or outer isle farms can be treated without the vessel having to return to port or mainland to refill. This will reduce transport costs but also allow for farms to complete treatments within a short window, particularly useful in more exposed locations.

Beinn Bhreac

Beinn Bhreac is an additional vessel to our fleet and will mean that Mowi will not have to charter in other high cost third party vessels for support. It will cover our farms in Lewis, Harris, Skye and those in the north of mainland Scotland. Beinn Bhreac joins us this month.

Beinn Nibheis

Beinn Nibheis will have a brand new Quad Line Hydrolicer installed on board that will potentially be used by all seawater farms in the company. Mowi has invested £2.3 million in the new hydrolicer system. Joining us in August, Beinn Nibheis replaces Leslie Anne and Arromanches, two older landing crafts from third party suppliers.

Operating the vessels

Each vessel will have two masters and four deck crew to cover a three-weeks-on-three-weeks-off shift pattern, staffed by Dess Aquaculture Shipping. Beinn Nibheis will have an additional four operators for the hydrolicer, staffed by Mowi.

Springing into our new ranges

After reading The Scoop, why not go and treat yourself to our latest product range, developed by the team at Rosyth and available at Sainsbury's. There are new dishes to try in all three categories of cold smoked, fully cooked and ready to cook.

Choose from Smoked Hebridean Salmon in the Taste the Difference range, a mellow rich and smoky flavour and definitely a smoked salmon for the connoisseur. Or what about our ginspired smoked salmon? Infused with gin and enhanced with lemon zest and crushed juniper berries, it's definitely one to try.

Spicing things up we have our sweet chilli salmon bites. These tasty salmon chunks marinated with sweet chilli and cooked will make a handy snack or be great as a salad topper. Or we have also developed bake in the bag salmon portions with sweet chilli butter, guaranteed to come out beautiful and succulent every time.

Following on from the February issue of The Scoop where we highlighted Mowi's aim of achieving zero food waste, our Thai style salmon fishcakes are our latest innovation to use as much of the salmon we raise as possible. Finished with a sticky chilli sauce and designed to pan fry in 15 minutes, these make a great meal.

Sometimes, you can't beat a traditional salmon pâté terrine. We have developed new dainty terrines which are great for a light meal as a toast topper or served with oatcakes, or as a starter with some leaf salad on the side.

Carradale's video control centre

How the use of cameras has improved the Feed Conversion Ratio (FCR) across Mowi

Allan Murdoch, farm manager at our Gorsten site, explains how the use of cameras in fish pens has dramatically improved the FCRs at Mowi's Linnhe network of farms.

Cameras have been used at Gorsten for over 15 years and were rolled out across the whole of Mowi a few years ago. For Allan, there is no doubt that the use of cameras has produced great results: "Before the cameras, you had to go by surface response, you couldn't see into the pen to check that the salmon were eating below the surface. Now the cameras show us everything and we have found that we can feed the fish a lot more accurately, improving both conversion and growth, which of course, saves us money. The average FCR for salmon is 1.2, i.e. a salmon needs around 1.2 kg of feed to grow to 1kg but we have been able to beat that FCR and the Linnhe network is now regularly producing FCRs of 1.02 to 1.07."

Each pen has two cameras, one situated at the surface and one underwater. The surface camera is there to check surface response to feeding and for any problems with the spinner which is used to spread feed evenly to all fish. Sometimes the spinner can stick resulting in the pellets being fired into just one area of the pen which isn't good for accurate monitoring of the fish feeding. The underwater camera is located underneath the spread of the feed and this means that the operator can check both that the pellets are coming through the water column as well as identify any problems with fish behaviour, health or abnormalities with the fish such as parasites.

The camera operator is in control of the feed. One operator will monitor the cameras in each pen on screens and will adjust both the speed and the quantity of feed distributed based on the real-time information shown on the screen. At Gorsten there are 12 x 36m square steel pens with the ability to feed 4 pens at one time between 8am and 5pm each day. For Allan, with feed accounting for over 50% of the cost in fish farming, the camera operator has the most important job on the farm.

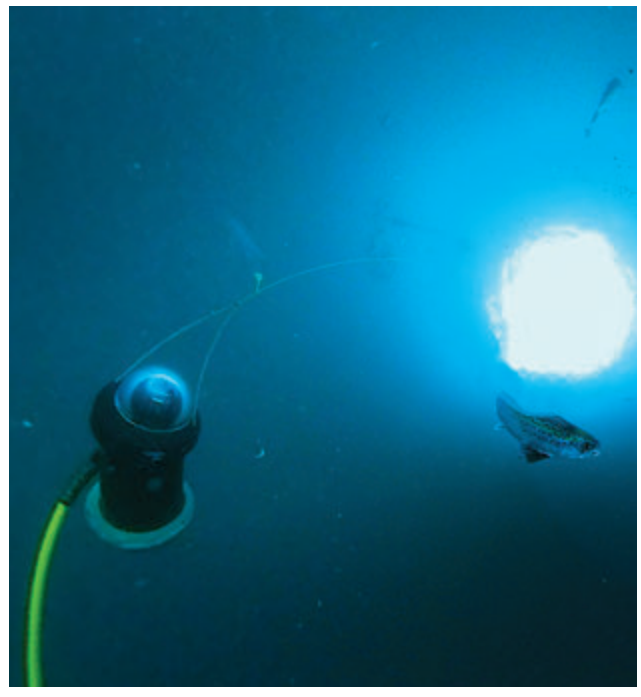


Photo of the month

Muck farm.
By The Airborne Lens Company Ltd.

TalkSafety

This month we wanted to highlight the success of the team at Mallaig. Not only has the team achieved the impressive result of 3,500 days with no lost time to injury but they also won first prize in the postcard challenge in the TalkSafety campaign.

As Billy Glen, health and safety manager explains: "The team at Mallaig harvest station has not had a lost time incident for over nine years, which is amazing when you consider the health and safety risks present at a harvest station, dealing with up to 50,000 fish a day. They have totally bought into the culture of health and safety and are extremely proactive. The ideas they came up with for the TalkSafety campaign really stood out and we will be investing the £50,000 prize into implementing improved health and safety measures at Mallaig this year. If I knew how they've achieved such an impressive health and safety track record at Mallaig I'd bottle it!"

Community news

Rosyth has sponsored the "Highlanders", a non-profit organisation that welcomes over 18s to learn and play in an ice hockey league. Men and women play and it is a great way to make new friends. We even have a few players from Mowi and plenty of other staff who go to cheer on the team.

Comic Relief!
'Team Mowi' from the Rosyth site joined forces with Sainsbury's for a Red Nose Day photo challenge in London. Competing with around ten other suppliers, they were tasked with taking a photo of the entire team in a variety of locations all around the capital including inside a phone box, re-enacting a Shakespeare play outside the Globe Theatre and forming a human pyramid outside The Guildhall. The total amount raised by all teams was £53,000. Well done to all!

Meet Heather O'Neill

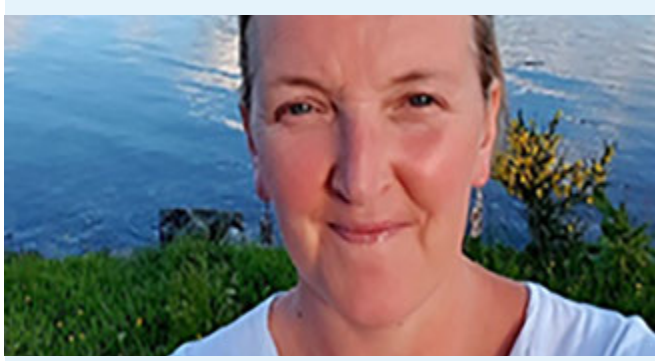
Job title: Operational Support

Date started: July 2017

Main duties & responsibilities:
Administration and organisational support to the site manager and the management team. I manage the daily running of the offices, as well as establishing and maintaining relationships with Mowi colleagues and stakeholders.

Interests & hobbies:
Music, reading, walking and plenty of socialising!

What attracted you to join the Mowi Scotland Feed team?:
I watched the site in Kyleakin start to develop in early 2017 and just knew I wanted to work here. Mowi is passionate about everything it does and I was keen to join the organisation to be involved in this brand new venture.



Working in partnership to secure the survival of Scotland's wild salmon

Jon Gibb is director of Lochaber District Salmon Fishery Board and Fishery Manager of the River Lochy. He spoke to The Scoop about our partnership and a pioneering trial in the pipeline to boost stocks of wild salmon.

Drimsallie Hatchery

"I am concerned with any developments that might adversely affect the population of wild fish. That could be industrial development on the one hand but on the other hand it also means that I have a close relationship with individual fish farms with regard to fish health. I have regular meetings with the farm managers and vets about levels of sea lice and other issues that might affect fish mortality."

Synchronous production

Enormous progress has been made over the last 20 years in terms of conditions for wild fish and the most significant factor has been synchronous production. "Now there is an area approach to fish farming and a synchronicity that simply did not exist before. Gone are the days where every individual fish farm has a different cycle to the others in the same patch. So, for example, great emphasis is placed on getting the lowest possible lice levels around April/May time which is when the wild smolts go to sea. This gives the smolts the best chance of survival.

"The Scottish Government has expressed an interest in doubling the industry's value. Growth should only occur in the right places and with tight control of biological results. A few years ago the industry was challenged by sea lice and effectively lost control of its management. Mowi had decided, rightly, to scale back its production for a few years until it had gained back biological control and to focus its growth in the least sensitive areas that are further offshore."

Understanding the factors affecting the declining population of wild salmon

Jon believes that the declining population of wild salmon is a result of a combination of different factors and thinks that the aquaculture industry is often unfairly criticised. He has worked with wild salmon long enough to witness the challenges to wild salmon first-hand:

"I spend 365 days a year on the largest river on the West Coast of Scotland which also happens to be in the same area as the largest aquaculture region. In the early days of fish farming the industry was not as regulated as it is today. Back in the 1990s I would have agreed that the biggest factor affecting wild salmon was rising levels of sea lice and escapes from fish farms. But in 2019, the industry is far better regulated and the local wild fish interests and the aquaculture companies work with one another and not against one another.

"Wild fish are affected by changes in the freshwater and oceanic ecosystems and the oceanic ecosystem in particular is currently facing a lot of challenges. There is simply no denying that the sea temperature is rising. Not only does the rising temperature encourage sea lice but it also makes it more difficult for wild salmon to find their naturally occurring food. Wild salmon feed off krill, shrimp and sand eels which prefer to live in colder water. A direct consequence of rising sea temperatures is that wild salmon are having to swim further north to find food, sometimes without success. Wild salmon are having to adapt and dive deeper to find food on the seabed which can result in them being attacked by parasites. We are currently experiencing an infestation of nematode worms in fish which are often thin and under-nourished.

"Other factors include scallop dredgers which destroy vital marine habitats but also other burgeoning wildlife, be that seals or birds that feed off fish."

Restocking Scotland's rivers with wild salmon

Drimsallie Hatchery shows how well the aquaculture industry can work with wild fish groups. "A few years ago we worked with Mowi on a wild stocking programme. Mowi gave us old equipment like fish tanks and egg incubation units as well as valuable skills from the hatchery teams. The result is that we have successfully taken brood fish from the river, created juvenile fish in the hatchery and then reintroduced those juvenile fish into the river. In the early days, this was very successful but today, as a result of all the factors affecting the wild salmon population outlined earlier, the wild salmon struggle when they reach the sea. So now we are thinking of more novel approaches to boost the number of wild salmon.

"I am very excited by the conversations I have been having with Mowi, especially about a potential 'smolt to adult supplementation' programme. The idea is that we trap migrating wild salmon smolts in the rivers (over 95% of which would die anyway at sea) and transfer these wild fish to Mowi sea cages. Mowi would then grow the wild salmon smolts to adult stage and then, once they reach maturity, we would release them directly back into spawning burns. The introduced salmon would spawn naturally in the wild and this would guarantee the numbers of juvenile fish going to sea in future generations. This is pioneering work and has never been tried in Scotland before."

Partnership approach will be the key to protecting wild salmon stocks

"Everybody working in aquaculture is interested in fish and their welfare and that is something we have in common. Working in partnership is the only way forward and I for one am very excited about the potential of what we can do together."