Alongside S3 E2: The Next Wave: The Future of Fish Farming

00:00:00.320 --> 00:00:07.860
<v SPEAKER_1>It takes experience and hands-on time with those fish to learn how to spot issues before they happen.

00:00:07.860 --> 00:00:16.300
<v SPEAKER_2>As much as it's the oldest form of aquaculture, we haven't been to do it intensively because we haven't been able to develop the technology until recent years.

00:00:18.480 --> 00:00:23.900
<v SPEAKER_3>Hello and welcome to Alongside, the podcast from NorthStandard for the shipping industry across the world.

00:00:24.100 --> 00:00:25.640
<v SPEAKER_3>I'm Kait Borsay.

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<v SPEAKER_3>In this episode, our focus is aquaculture, one of the fastest growing food producing sectors in the world.

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<v SPEAKER_3>Aquaculture involves the farming of fish, shrimps, seaweed and mollusks, and has been practiced for thousands of years.

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<v SPEAKER_3>But as it becomes a more vital part of the world's farming sector, there are many challenges as well as opportunities.

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<v SPEAKER_3>On this episode, we look at these in detail, particularly at the impact of climate change, pressures from legislation and the development of new technologies.

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<v SPEAKER_3>To do this, I'm joined by Gareth Butterfield, Commercial Director, ReelData Incorporated, and Allan Lyons, Risk Management Surveyor with Sunderland Marine, which is part of NorthStandard.

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<v SPEAKER_3>Welcome to both of you.

00:01:07.400 --> 00:01:08.500
<v SPEAKER_1>Hello Kait, happy to be here.

00:01:08.500 --> 00:01:09.860
<v SPEAKER_1>Thanks very much.

00:01:09.860 --> 00:01:11.680
<v SPEAKER_2>Hi Kait, thanks for having us.

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<v SPEAKER_3>Let's take a look first at aquaculture more broadly, and how the sector is growing and changing.

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<v SPEAKER_3>And I'd love both of you to answer this.

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<v SPEAKER_3>Gareth, let's start with you.

00:01:21.280 --> 00:01:26.680
<v SPEAKER_2>I think looking at aquaculture today, to put it into context, we have to think about aquaculture in its past.

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<v SPEAKER_2>So, you know, you've already recognized the fact that aquaculture has been around for millennia.

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<v SPEAKER_2>We've had aquaculture from around the 1950s, where we had very low or no volumes of aquaculture production.

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<v SPEAKER_2>From the 50s until now, we've seen huge amounts of growth.

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<v SPEAKER_2>obviously, with that comes some challenges.

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<v SPEAKER_2>But I think the reality is that it'll continue to grow, but not as fast as what we've seen in the past.

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<v SPEAKER_2>There's several segments of aquaculture, the important species such as salmon, shrimp, tilapia.

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<v SPEAKER_2>Those are the focus areas of the future.

00:01:59.460 --> 00:02:00.100
<v SPEAKER_3>Allan.

00:02:00.100 --> 00:02:14.180
<v SPEAKER_1>Yeah, Kait, there are currently about eight billion people on the planet at the moment, and we're already farming everywhere it's possible to farm on land without resorting to cutting down more forests and draining more wetlands.

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<v SPEAKER_1>Aquaculture provides that space to increase our global food production, to meet a massively growing demand.

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<v SPEAKER_1>I mean, fish are by far the most efficient producers of protein in terms of feed input, but also in terms of fresh water, surprisingly, which is an increasingly limited resource.

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<v SPEAKER_1>We aquaculture can exploit salt water, which every country with a coastline has abundant access to.

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<v SPEAKER_1>The industry is expanding into new areas every year worldwide and becoming more and more efficient with the use of the resources through better technology and experience.

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<v SPEAKER_1>And as Gareth mentioned, large scale aquaculture, commercial aquaculture, has only really been in existence for about 70 years.

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<v SPEAKER_1>And when you compare that to traditional protein production, such as beef or chickens or pigs, they've been in commercial production for hundreds of years.

00:02:58.360 --> 00:03:02.100
<v SPEAKER_1>And so aquaculture is still really only at the start of its journey.

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<v SPEAKER_3>And I think when we talk about any growing emerging industry, we also need to talk about the fact that as it grows, it will face scrutiny and criticism as well.

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<v SPEAKER_3>Take us through some of that, if you can Gareth, areas that perhaps haven't been ironed out fully concerning aquaculture.

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<v SPEAKER_2>Yeah, I think what we see in aquaculture, I feel like it comes under a disproportionate amount of scrutiny.

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<v SPEAKER_2>And I think there's a couple of reasons for that, Kait.

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<v SPEAKER_2>Largely, you know, the understanding and the information that comes to the general public around what is aquaculture.

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<v SPEAKER_2>As we mentioned, farming, terrestrial animals has been around for years, whether it's cattle, sheep, swine, poultry, and everybody understands how that works.

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<v SPEAKER_2>You know, you're looking to a field and you see the cows or the sheep.

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<v SPEAKER_2>They understand what the mating and breeding processes look like and generally the nutrition and how it ends up onto the plate.

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<v SPEAKER_2>When you look at aquaculture, you look out onto a, let's say, an open net pen fish farm, and all you see is some floating infrastructure, maybe some noise on the back of a boat or a compressor running and one or two fish jumping inside of the pens.

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<v SPEAKER_2>To understand that there's over a million fish beneath that site is hard for a lot of people to comprehend.

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<v SPEAKER_2>Then when we go back to the comments around the fact that it's grown immensely from the 1950s, obviously a lot of people consider, well, is that a sustainable way to grow as well?

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<v SPEAKER_2>People look at it one from a lack of understanding, lack of information or potentially even misinformation, and start to ask those questions around how sustainable is the aquaculture industry.

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<v SPEAKER_2>The world is covered by 70 percent water.

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<v SPEAKER_2>We're using an incredibly small amount of that water to actually produce this very sustainable, very nutritious protein source.

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<v SPEAKER_2>Even within the pens that the fish are held in, of that entire volume, the fish only occupy around about 2 percent of the cage infrastructure.

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<v SPEAKER_2>As people start to understand that, and we're getting better at communicating that and allowing for that understanding, people have less scrutiny around it, less challenges with it.

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<v SPEAKER_2>Of course, there are other challenges, you know, around disease, environmental footprint, escapes.

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<v SPEAKER_2>Quite rightly, we should be criticized and under scrutiny for those things, but we are certainly better today than what we were 20 years ago and better than what we were 50 years ago as well.

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<v SPEAKER_3>Allan, do expand on that if you'd like to, but also I would like to focus on the cage farming sector and salmon as well, and more specifically the challenges in those areas.

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<v SPEAKER_1>Currently, the major scrutiny on the salmon farming sector probably revolves a lot around the disease and the parasites that they face, and particularly the potential spread of these parasites and disease from farmed fish to the wild fish stock.

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<v SPEAKER_1>And to be fair to the majority of the industry, the salmon farming industry, they try to be as open and transparent as possible with the disease and the parasites they're facing.

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<v SPEAKER_1>And a lot of these issues are part of the driver for the industry moving into new species and new areas and new methods of farming.

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<v SPEAKER_1>And that really doesn't mean that the established methods of farming, such as cage farming of salmon, are going to be reduced, you know, quite the opposite in fact.

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<v SPEAKER_1>I think with the new technologies such as vaccines and targeted breeding programs helping overcome many of these issues, perhaps the biggest challenge facing the traditional cage farming industry is communicating these advances to the concerned public and providing facts in an effective way.

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<v SPEAKER_3>How do you do that, Gareth, if I was going to challenge you?

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<v SPEAKER_2>Yeah, I think it comes back down to that data and the information and the communication around it.

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<v SPEAKER_2>The industry faces challenges in different ways, in different environments, different geographic environments.

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<v SPEAKER_2>So when we're talking about open net pen aquaculture, we're largely talking about salmon, salmon production, where the biggest producing regions are Norway, Scotland, Chile and Canada.

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<v SPEAKER_2>If you go to Canada, it's driven around wild fish interactions, so the farming of Atlantic salmon in Pacific waters.

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<v SPEAKER_2>And, you know, there's a lot of people that will turn away from potentially the, the fact driven and the head driven decisions that should be made.

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<v SPEAKER_2>So we're seeing a decrease of the industry in the west coast.

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<v SPEAKER_2>I just moved from British Columbia, Canada, so I know this very, very well.

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<v SPEAKER_2>We've seen a diminish of that industry from reduction of 30% down to 50% of what it was only just five or six years ago.

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<v SPEAKER_2>The industry is doing a very good job of being incredibly transparent, using scientific data to prove their arguments.

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<v SPEAKER_2>You know, the arguments against aquaculture are not without cause.

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<v SPEAKER_2>You know, wild fish interaction is a real thing, but it's really a matter of how we handle that and how we execute on the plans around it to make sure that it remains a sustainable industry.

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<v SPEAKER_2>Likewise, in Norway, we're seeing a lot around health and welfare challenges, particularly over the last couple of years.

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<v SPEAKER_2>The environmental conditions are always changing, so the new challenges will emerge.

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<v SPEAKER_2>And it's really about how the industry is going to react to it.

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<v SPEAKER_2>And we've reacted to it incredibly transparently, sharing with the public our concerns, sharing with the public our action plans on how we're going to have remedial actions around the issues and challenges that are faced.

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<v SPEAKER_2>And we're swift in those actions.

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<v SPEAKER_2>We're very prompt to deal with it.

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<v SPEAKER_2>But things don't change overnight.

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<v SPEAKER_2>And it's really going to be the technology that allows us to take that extra step forward to continue in that progressive development.

00:08:17.720 --> 00:08:17.940
<v SPEAKER_3>Okay.

00:08:17.940 --> 00:08:21.420
<v SPEAKER_3>Well, let's talk more about land-based aquaculture then.

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<v SPEAKER_3>Facilities are being built around the world.

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<v SPEAKER_3>How do these work?

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<v SPEAKER_3>And how do they help overcome some of the issues that we've discussed, Allan?

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<v SPEAKER_1>Yeah, land-based aquaculture is really probably the oldest form of aquaculture, I guess.

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<v SPEAKER_1>If you want to go back to the darkness of time, you know, carp have been farmed in ponds for hundreds and hundreds of years.

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<v SPEAKER_1>And probably parts of the world continued to be farmed as they were back then, pretty much in a broadly similar way.

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<v SPEAKER_1>But in order to increase the production like we need to, and expand it in new species, greater volumes, greater efficiencies, we have to use a bit more technology than the way it has been done in the past.

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<v SPEAKER_1>So let's take high-value species such as salmon, trout, yellowtail, turbot, like we're currently doing in land-based farms.

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<v SPEAKER_1>That means we're talking about in tanks and raceways.

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<v SPEAKER_1>Water is supplied to the fish either by gravity or pumped past the fish.

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<v SPEAKER_1>Low-intensity systems, it can be pretty much as simple as river water flowing through a raceway, which is where the trout industry in the UK has its origins.

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<v SPEAKER_1>But as production volumes increase, then that water has to be better managed in terms of filtrationing and ensuring that all the water quality parameters, the water chemistry, it's optimal for the growth of the fish and for efficient growth of the fish.

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<v SPEAKER_1>And this means managing oxygen levels and removing any wastes produced as the fish feed and as the fish grow.

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<v SPEAKER_1>I guess some of the largest systems we're currently seeing continue to be flowed through technically, but they're more of a pumped raw seawater through their tanks and raceways.

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<v SPEAKER_1>But having the fish on land means it is probably easier to control parasites and also prevent the waste products entering the environment.

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<v SPEAKER_1>In locations where that optimal water is not abundant, and we need more control over the environment in which the fish are grown, then recirculating agriculture systems, RAS systems are used.

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<v SPEAKER_1>These recycle up to 99% of the water.

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<v SPEAKER_1>They're used through pretty complex filtration process, using mechanical filtration, biologic filtration, etc.

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<v SPEAKER_1>They provide a highly controlled environment that means we can locate these farms where it was never previously possible to locate a fish farm.

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<v SPEAKER_3>Gareth, for you, are there any other risk management issues that need to be addressed at land-based sites?

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<v SPEAKER_3>There have been some well publicized issues over the last few years in land-based systems.

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<v SPEAKER_3>To expand on those as well, what can you tell us about how that's impacted the sector?

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<v SPEAKER_2>Yeah, of course, I like to consider the agriculture industry a little bit like whack-a-mole.

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<v SPEAKER_2>You solve for one problem and then another problem emerges.

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<v SPEAKER_2>So to Allan's point, moving away from open net pen farming or in addition to open net pen farming and moving into land-based, it's not an extension of open net pen farming operating in land-based system.

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<v SPEAKER_2>It's actually like a sister or a cousin industry.

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<v SPEAKER_2>So it does remove some of the risks associated with open net pen farming, like wild fish interactions, like disease, environmental impacts.

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<v SPEAKER_2>But it's not without its challenges.

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<v SPEAKER_2>It's a brand new way of dealing with the farming environment for the fish.

00:11:37.060 --> 00:11:38.560
<v SPEAKER_2>So the technology has changed.

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<v SPEAKER_2>So as much as it's the oldest form of aquaculture, we haven't been to do it intensively because we haven't been able to develop the technology until recent years.

00:11:47.120 --> 00:11:53.160
<v SPEAKER_2>So depending on the type of system, we're drilling boreholes much deeper than what we have historically.

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<v SPEAKER_2>We're using heat exchangers much more effectively than we've done in the past.

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<v SPEAKER_2>We're looking at nutritional profiles compared to the open net pen sector.

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<v SPEAKER_2>There are inevitably new challenges that are going to come up from land-based farming.

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<v SPEAKER_2>A lot of those are around regulation as well.

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<v SPEAKER_2>So one of the biggest challenges that we see for land-based farming is you need to have a good water supply, you need to have a good electricity supply, you need to have the permits or the licenses in place, and then you also need to have the logistics chain to get into and away from the land-based system for effectively raw materials in, finished goods going out.

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<v SPEAKER_2>So if you've got a Venn diagram where all of those things meet in the middle, you've got a pretty robust business model, but finding that is never easy.

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<v SPEAKER_2>To move the entire open net pen industry onto land, it would take millions of square kilometers to do that.

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<v SPEAKER_2>And I don't think anybody's wanting to do that or suggesting to do that, where the arguments are based on fact and science.

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<v SPEAKER_2>But we need to know that, you know, you transfer it onto land-based systems, there are inevitably going to be different challenges to face.

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<v SPEAKER_3>Have those challenges impacted the sector at all Gareth?

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<v SPEAKER_2>Yeah, definitely.

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<v SPEAKER_2>I think one of the biggest limitations we see is skilled individuals.

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<v SPEAKER_2>Again, the technology is emerging.

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<v SPEAKER_2>You'll talk about, you know, RAS, so full RAS systems.

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<v SPEAKER_2>And people will claim that it's been around for 25, 30 years.

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<v SPEAKER_2>It has to some degree, but not in any commercial scale.

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<v SPEAKER_2>So now what we're finding is there are limited people that have grown up with RAS or land-based systems in mind.

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<v SPEAKER_2>Most people have operated in the net pen industry and they're transferring into land-based systems.

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<v SPEAKER_2>To have somebody that's been operating in land-based systems, RAS in particular, for the last 20, 30 years is like finding a unicorn.

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<v SPEAKER_2>So when we only have a few people around the industry, what that means is they'll transfer from company to company to company in order to help them set up.

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<v SPEAKER_2>And really we're looking for a different type of individual and land-based systems moving forward.

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<v SPEAKER_2>People with engineering qualifications, people with water chemistry, water quality backgrounds, as well as the general fish husbandry, fish nutrition, fish health backgrounds as well.

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<v SPEAKER_1>Just to add to that, to what Gareth will say, Gareth and I finished up in New Diversity about the same time in the early 2000s.

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<v SPEAKER_1>And when he and I graduated, there was probably about 10 to 15 students graduating around the same time as us.

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<v SPEAKER_1>And that was every year.

00:14:17.280 --> 00:14:20.740
<v SPEAKER_1>But I was recently talking to a couple of my lectures from the time.

00:14:20.860 --> 00:14:24.700
<v SPEAKER_1>And these days, there's probably three to four, they think, on a good year.

00:14:25.160 --> 00:14:30.480
<v SPEAKER_1>There is a lack of highly trained students coming out of the education system.

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<v SPEAKER_1>But not only that, their funding has been cut.

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<v SPEAKER_1>So whereas Gareth and I, back in the day, would have done a lot of practical work with fish, and we have hands-on fish experience by the time we left university, that's the first sector of the university courses to be cut when the funding is lowered.

00:14:46.140 --> 00:14:56.860
<v SPEAKER_1>So these students are coming out, yes, they're very well trained, but they're still lacking a lot of the experience that we would have had, whereas we would have had a head start over the current students.

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<v SPEAKER_1>And it takes time to build up that hands-on fish experience.

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<v SPEAKER_1>When I'm doing a risk management survey on a RAS site, the number one thing I'm looking at is the people and how they're trained and how they understand how the fish behave within the system.

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<v SPEAKER_1>And to do that, that takes experience.

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<v SPEAKER_1>You need to be able to look at a fish, and the language of that fish is talking to you.

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<v SPEAKER_1>Yes, they don't speak, but how they behave tells you a lot about how that system is operating.

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<v SPEAKER_1>And they're a very good indicator, but it takes experience and hands-on time with those fish to learn.

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<v SPEAKER_1>The fundamental part of running a RAS system is understanding the water chemistry.

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<v SPEAKER_1>Yes, you can have the full suite of measurements, but you have to be able to understand that.

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<v SPEAKER_1>But as well as understanding it, the fish will also communicate in their behaviour.

00:15:45.100 --> 00:15:46.440
<v SPEAKER_3>How do they communicate that?

00:15:46.560 --> 00:15:48.460
<v SPEAKER_3>Just, I mean, this is utterly fascinating.

00:15:48.460 --> 00:15:52.240
<v SPEAKER_3>This is, of course, why you need skilled staff within the industry.

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<v SPEAKER_3>It's not something I've ever really thought about before.

00:15:54.760 --> 00:15:58.380
<v SPEAKER_3>I would have no idea how to pick up signals like that from fish.

00:15:58.380 --> 00:16:01.060
<v SPEAKER_3>How can you tell that there might be an issue?

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<v SPEAKER_1>A skilled operator will be, as they're hand-feeding the fish, they'll be looking at the feed response, how the fish are swimming, where they are in the water column.

00:16:08.520 --> 00:16:09.060
<v SPEAKER_1>Are they deep?

00:16:09.060 --> 00:16:09.740
<v SPEAKER_1>Are they shallow?

00:16:09.740 --> 00:16:11.760
<v SPEAKER_1>Are they swimming fast against the current?

00:16:11.760 --> 00:16:13.600
<v SPEAKER_1>Are they turning around and swimming against the current?

00:16:14.360 --> 00:16:18.620
<v SPEAKER_1>Are they stuck against the outlet screen of the tank and don't have the energy to swim away from it?

00:16:18.620 --> 00:16:21.120
<v SPEAKER_1>That's a pretty obvious indicator, as you can imagine.

00:16:21.120 --> 00:16:25.780
<v SPEAKER_1>But it's a full suite of behaviour that you learn over time.

00:16:25.780 --> 00:16:26.900
<v SPEAKER_3>As I said, that's fascinating.

00:16:26.900 --> 00:16:34.440
<v SPEAKER_3>Let's talk about new technology, because when there's a shortage of skilled workers, often technology plays a bigger part.

00:16:34.440 --> 00:16:38.580
<v SPEAKER_3>Is something like AI having an impact on aquaculture?

00:16:38.580 --> 00:16:39.380
<v SPEAKER_2>Yeah, absolutely.

00:16:39.380 --> 00:16:44.100
<v SPEAKER_2>So I started with a AI technology company just back in January, actually.

00:16:44.100 --> 00:16:57.680
<v SPEAKER_2>One of the reasons that I did that was to stretch myself a little bit, because I'm the kind of traditional archaic type fish farmer that being in open net pen industry, lifting bags and filling feed systems and feeding the fish and observing them.

00:16:57.680 --> 00:17:02.260
<v SPEAKER_2>But the role that technology is playing now is incredibly intensive.

00:17:02.260 --> 00:17:05.560
<v SPEAKER_2>To Allan's point, there's a double dilution effect of skilled workers.

00:17:05.560 --> 00:17:10.020
<v SPEAKER_2>One, there's not as many people coming through into the industry, but two, the industry is also getting bigger.

00:17:10.740 --> 00:17:17.660
<v SPEAKER_2>So, it's almost like a factor of four, rather than a factor of two for that dilution effect, where we're seeing less and less skilled workers coming through.

00:17:17.660 --> 00:17:22.260
<v SPEAKER_2>And aquaculture usually operates in some of the most beautiful places in the world.

00:17:22.260 --> 00:17:24.320
<v SPEAKER_2>It's some of the most remote locations.

00:17:24.320 --> 00:17:26.160
<v SPEAKER_2>It's in the islands of Scotland.

00:17:26.160 --> 00:17:28.300
<v SPEAKER_2>It's off of Vancouver Island.

00:17:28.300 --> 00:17:29.620
<v SPEAKER_2>So, they're remote locations.

00:17:29.620 --> 00:17:38.780
<v SPEAKER_2>So, where they've changed from other industries, which could be fishing or the pulp and paper mills in Vancouver Island, the populations tend not to be substantial.

00:17:39.640 --> 00:17:47.140
<v SPEAKER_2>So, finding technologies that can actually replace human interactions and human interventions is going to be an important element of that.

00:17:47.140 --> 00:17:56.140
<v SPEAKER_1>I mean, as part of my job as a risk management surveyor, I have to go in when there are unfortunate losses on some of these, the RAS sites.

00:17:56.140 --> 00:18:04.660
<v SPEAKER_1>And despite all our technological advances, human error is nearly always a factor in the root cause of losses in, certainly in RAS systems.

00:18:04.660 --> 00:18:16.400
<v SPEAKER_1>Currently, there are developments within AI and machine learning that are helping eliminate these human error factors and identify problems pretty much before they ever happen within these systems.

00:18:16.400 --> 00:18:29.200
<v SPEAKER_1>It's very early days for this type of technology, really, and it's not very widely adopted, but it will work alongside the operators and the technicians within the systems to eliminate this human error factor going forward, hopefully.

00:18:29.200 --> 00:18:44.160
<v SPEAKER_2>If I could take the conversation back to the people as well, because it's important to note that as much as the technology is improving and we're going to be much more dependent on in the future, we also have a responsibility to train those that have been in the industry for a long period of time to use the new technologies as well.

00:18:44.160 --> 00:18:51.140
<v SPEAKER_2>So there's kind of this management of change process where, you know, when you talk to people about things like AI, and it's kind of terrifying, right?

00:18:51.140 --> 00:18:54.200
<v SPEAKER_2>I'm one of those guys that is like, hey, I don't know how to use that.

00:18:54.200 --> 00:18:56.020
<v SPEAKER_2>It sounds very sophisticated.

00:18:56.020 --> 00:18:57.300
<v SPEAKER_2>What does that mean?

00:18:57.300 --> 00:19:02.620
<v SPEAKER_2>But when you take it down to a basal level of, hey, this will help you to improve.

00:19:02.620 --> 00:19:11.380
<v SPEAKER_2>Most of these technologies act as a core pilot, so we still need the people there to be able to maintain them, to be able to manage them, to be able to use them effectively.

00:19:11.380 --> 00:19:23.020
<v SPEAKER_2>To Allan's point, a lot of the time, the AI or the technologies are just taking the decision-making processes away from the people, which helps us to get away from both the subjectivity, the potential errors associated around that as well.

00:19:23.020 --> 00:19:33.160
<v SPEAKER_2>So it's really bringing the industry up as a whole to allow all of us to be able to use the technology appropriately and to be more efficient and effective in the aquaculture industry.

00:19:33.500 --> 00:19:39.500
<v SPEAKER_3>Let's add on to this then, any other thoughts from both of you on what's next for land-based aquaculture?

00:19:39.500 --> 00:19:41.860
<v SPEAKER_3>Sustained growth, of course, is the target.

00:19:41.860 --> 00:19:43.140
<v SPEAKER_3>Will it remain salmon?

00:19:43.140 --> 00:19:47.080
<v SPEAKER_3>You've talked about that a little bit already, Allan, but do expand either of you on that.

00:19:47.080 --> 00:19:50.680
<v SPEAKER_3>Are we likely to see more challenges and setbacks?

00:19:50.680 --> 00:19:54.120
<v SPEAKER_2>Yeah, I think we're going to see much more moderate growth.

00:19:54.120 --> 00:19:58.140
<v SPEAKER_2>Again, we've come off the back of exponential growth, which is fantastic.

00:19:58.140 --> 00:20:01.160
<v SPEAKER_2>We've saturated the space for open net pen farming.

00:20:01.880 --> 00:20:08.780
<v SPEAKER_2>I think we'll start to see more offshore aquaculture with open net pen farming, so the closed and semi-closed containment systems.

00:20:08.780 --> 00:20:12.260
<v SPEAKER_2>And then the land-based systems, they will inevitably grow.

00:20:12.260 --> 00:20:18.540
<v SPEAKER_2>We go back to that Venn diagram of having the power, the water, the permits in place and the logistics, etc.

00:20:18.540 --> 00:20:22.300

<v SPEAKER_2>But I think we've seen the worst of the worst already happen, essentially.

00:20:22.300 --> 00:20:25.140
<v SPEAKER_2>People have already learned from those big mistakes.

00:20:25.140 --> 00:20:35.580
<v SPEAKER_2>And I think the farmers that are coming through now that are looking for investment are really looking for a much more proof-of-concept, paced approach around, hey, let's make sure that we do this on a smaller scale.

00:20:35.580 --> 00:20:36.800
<v SPEAKER_2>Let's get it right.

00:20:36.800 --> 00:20:42.800
<v SPEAKER_2>And then we start to build the economic benefit of the slower growth rate.

00:20:42.800 --> 00:20:45.520
<v SPEAKER_2>So I definitely think the industry is going to grow.

00:20:45.520 --> 00:20:47.000
<v SPEAKER_2>Salmon is a big proportion of that.

00:20:47.000 --> 00:20:48.340
<v SPEAKER_2>I spent last week in Iceland.

00:20:48.340 --> 00:21:03.280
<v SPEAKER_2>You know, they're expecting 200, 250,000 metric tons out of there, which is pretty much the size of all of Scotland's salmon production or West Coast Canada production or greater than West Coast salmon production today.

00:21:03.280 --> 00:21:07.160
<v SPEAKER_2>But also the diversification into those of the high value species.

00:21:07.160 --> 00:21:08.980
<v SPEAKER_2>So we're already seeing kingfish in the Netherlands.

00:21:08.980 --> 00:21:11.160
<v SPEAKER_2>We see kingfish in Norway.

00:21:11.160 --> 00:21:17.640
<v SPEAKER_2>Across in Saudi, we're going to start to see things like yellowtail and kingfish there as well, migra, salmon species.

00:21:17.640 --> 00:21:22.920
<v SPEAKER_2>So we're going to see pockets of fish that haven't traditionally been available to the markets.

00:21:22.920 --> 00:21:30.120
<v SPEAKER_2>Another one is Japan, where we see Atlantic salmon production and harvested fish coming out from land-based systems today as well.

00:21:30.120 --> 00:21:40.000
<v SPEAKER_2>So definitely opportunity for growth, but finding that Venn diagram of the perfect combination of all the things I've mentioned is going to be the biggest challenge on top of the skilled workers.

00:21:40.000 --> 00:21:49.780
<v SPEAKER_3>And Allan, in closing, do you feel that there's going to be any insurance challenges the industry will have to face in this next stage, this next phase of maturity?

00:21:49.780 --> 00:21:50.320
<v SPEAKER_1>Absolutely.

00:21:50.900 --> 00:21:59.420
<v SPEAKER_1>For an investor within this sector of the industry, the fish are quite often the highest value asset, not just in Ross, but in all sites.

00:21:59.420 --> 00:22:07.700
<v SPEAKER_1>And Sunderland Marine insurance provide a risk transfer mechanism to put those investors more at ease through the insurance mechanism.

00:22:07.700 --> 00:22:11.840
<v SPEAKER_1>But ensuring fish in land-based sites, it's quite difficult.

00:22:11.840 --> 00:22:13.100
<v SPEAKER_1>It's a difficult exercise.

00:22:13.100 --> 00:22:15.560
<v SPEAKER_1>Insurance rates are based on data.

00:22:15.560 --> 00:22:21.040
<v SPEAKER_1>And the data shows that the losses are quite a bit higher in land-based than in traditional cage farming.

00:22:21.860 --> 00:22:27.880
<v SPEAKER_1>And certainly, in newly built systems, are notorious for losses in their first 18 months or so of operation.

00:22:27.880 --> 00:22:35.520
<v SPEAKER_1>But I fully expect that within the next 8 to 10 years, that as the sector matures, that rates will fall.

00:22:35.520 --> 00:22:41.920
<v SPEAKER_1>And hopefully, we will see pretty much them becoming on a par with cage systems in the future.

00:22:41.920 --> 00:22:50.680
<v SPEAKER_1>But unfortunately, cage systems are going to be coming under pressure through climate change, and they may well see upward pressure on insurance rates.

00:22:50.680 --> 00:22:56.740

<v SPEAKER_1>So we could probably see somewhere in the next 8 to 10 years that insurance rates are lower in land-based farming than the iron cage farming.

00:22:56.740 --> 00:22:59.360
<v SPEAKER_3>Well, it's been a completely fascinating episode.

00:22:59.360 --> 00:23:04.680
<v SPEAKER_3>Aquaculture, of course, one of the fastest growing food producing sectors in the world.

00:23:04.680 --> 00:23:09.060
<v SPEAKER_3>We've learnt a lot how important it is to be able to read the behaviour of fish.

00:23:09.060 --> 00:23:10.460
<v SPEAKER_3>That's something I wasn't expecting.

00:23:10.460 --> 00:23:20.700
<v SPEAKER_3>How a growing industry goes about harnessing its potential, diversifying and learning from its current challenges to ensure it's got a viable, buoyant future.

00:23:20.700 --> 00:23:24.100
<v SPEAKER_3>Thank you to both of you for joining us on this episode of Alongside.

00:23:24.100 --> 00:23:29.180
<v SPEAKER_3>Gareth Butterfield from ReelData Incorporated and Allan Lyons from Sunderland Marine.

00:23:29.180 --> 00:23:31.240
<v SPEAKER_2>Thank you, Kait.

00:23:31.240 --> 00:23:38.500
<v SPEAKER_3>We'll join us next time on Alongside when we continue to explore key topics affecting the maritime industry and those who are part of it.

00:23:38.500 --> 00:23:41.740
<v SPEAKER_3>Click follow on this podcast to ensure you don't miss an episode.

00:23:42.240 --> 00:23:44.020
<v SPEAKER_3>Thank you again to both our guests.

00:23:44.020 --> 00:23:46.160
<v SPEAKER_3>From me, Kait Borsay, thank you for listening.