OFFICIAL REPORT
AITHISG OIFIGEIL

Rural Affairs and Islands Committee

Wednesday 12 June 2024

Session 6

The Scottish Parliament
Pàrlamaid na h-Alba

Wednesday 12 June 2024

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RURAL AFFAIRS AND ISLANDS COMMITTEE

17th Meeting 2024, Session 6

CONVENER

*Finlay Carson (Galloway and West Dumfries) (Con)

DEPUTY CONVENER

*Beatrice Wishart (Shetland Islands) (LD)

COMMITTEE MEMBERS

*Alasdair Allan (Na h-Eileanan an Iar) (SNP)
*Ariane Burgess (Highlands and Islands) (Green)
*Rhoda Grant (Highlands and Islands) (Lab)
*Rachael Hamilton (Ettrick, Roxburgh and Berwickshire) (Con)
*Emma Harper (South Scotland) (SNP)
*Emma Roddick (Highlands and Islands) (SNP)
*Elena Whitham (Carrick, Cumnock and Doon Valley) (SNP)

*attended

THE FOLLOWING ALSO PARTICIPATED:

Charles Allan (Scottish Government)
Edward Mountain (Highlands and Islands) (Con)

CLERK TO THE COMMITTEE

Emma Johnston

LOCATION

The Mary Fairfax Somerville Room (CR2)

Scottish Parliament

Rural Affairs and Islands Committee

Wednesday 12 June 2024

[The Convener opened the meeting at 09:01]

Decision on Taking Business in Private

The Convener (Finlay Carson): Good morning, and welcome to the 17th meeting in 2024 of the Rural Affairs and Islands Committee. Before we begin, I ask everybody to ensure that all electronic devices are switched to silent.

Our first item of business is consideration of whether to take item 4 in private. Are we all agreed to do so?

Members *indicated agreement.*

Salmon Farming in Scotland

09:01

The Convener: Our next item of business is the continuation of our follow-up inquiry into salmon farming in Scotland. We will hear from the fish health inspectorate, which is part of the marine directorate of the Scottish Government and is tasked with monitoring compliance with aquaculture health regulations. I am pleased to welcome to the meeting Charles Allan, the group leader at the fish health inspectorate. Also joining us today is Edward Mountain MSP. I will bring you in to ask your questions at the end of committee members' questions, Mr Mountain. Do you have any relevant interests to declare?

Edward Mountain (Highlands and Islands) (Con): Yes, convener. They are fully declared in my register of interests, but, to be clear, I jointly own a wild fishery on the river Spey, which is on the east coast of Scotland. The fishery employs three full-time employees and provides fishing on a let basis. I do not believe that there is a conflict of interest, as there are no cages off the river Spey or on the east coast of Scotland. Full details are in my register of interests, convener.

The Convener: Thank you.

We will kick off the questions with a nice straightforward question, you will be pleased to hear. Can you briefly outline the key functions of the fish health inspectorate and how you work and interact with industry, the Scottish Government and other regulators?

Charles Allan (Scottish Government): Our primary role is the control of listed diseases—the prevention of listed pathogens from entering the country and, where listed disease outbreaks occur, their control and, in many cases, eradication. We have a wider role beyond listed diseases with regard to the regulation of sea lice, as far as it relates to aquaculture animals, and the containment of fish. We provide a diagnostic service to industry and to the wild fisheries, whether those are fishery boards or trusts. We also collect, on behalf of the veterinary medicines directorate, muscle samples for analysis of veterinary medicine residues. As far as import and export are concerned, we provide advice, information and certification to allow that trade to occur.

The Convener: Do you see your service as being more reactive or proactive?

Charles Allan: I would say that we are both. We have a risk-based surveillance schedule, which grinds on year by year. I have inspectors out on farm pretty much every week of the year,

and we have inspectors on call. We are both proactive—out looking—and reactive in that, where incidents occur, we are called and will attend.

Beatrice Wishart (Shetland Islands) (LD): Good morning, Mr Allan. The Rural Economy and Connectivity Committee's inquiry noted a concern that enforcement action in relation to breaches of sea lice levels had not been sufficiently robust. The report recommended that

"it must be robust, enforceable and include appropriate penalties."

Do you believe that the enforcement regime has improved since that report was published?

Charles Allan: I will answer that question in two ways. First, I think that the sea lice situation on farm in Scotland has changed significantly since that report came out. We have new reporting requirements in place and, in my opinion and in the opinion of lawyers, the enforcement action that is taken is related to the requirement of the law. Many people think that having high sea lice numbers, for example, is directly punishable—a direct offence—but it is not. The requirement of the law is that the farmers have satisfactory measures in place to control, minimise and prevent sea lice infestations. Where those measures are deemed not to be satisfactory, that is the point of law where regulation kicks in. The law would require me, where it is not satisfactory, to serve an improvement notice on the farmer. Where the farmer does not comply with that improvement notice or enforcement notice, that is the point at which a file could be produced and presented to the procurator fiscal for consideration for prosecution.

In my opinion, the law is satisfactory and reasonable to reach the point of compliance that the Scottish Government seeks to achieve, which is a satisfactory measure of control. We have served enforcement notices and farmers have complied with them. We have never taken a file to a procurator fiscal for consideration for prosecution.

Beatrice Wishart: Are you able to give any numbers in relation to enforcement or where you have looked at enforcement?

Charles Allan: We have to accept that, subsequent to the previous inquiry, the reporting requirements changed and we have seen, with a change in that reporting requirement, sea lice numbers come down on farm. In the past year, we have issued no enforcement notices. In previous years, we issued enforcement notices.

Beatrice Wishart: Thank you.

Emma Harper (South Scotland) (SNP): Good morning. I will pick up on what Beatrice Wishart was asking about: the enforcement regime and how the REC Committee's report recommended changes and moving away from the self-assessment culture to an independent approach to assessment and enforcement. What efforts have been made to move to a more independent monitoring process?

Charles Allan: At the time of the previous inquiry, as part of the assessment of satisfactory measures, there was a reporting limit and an intervention limit, which sat initially at a reporting level of three lice per fish and an intervention level of eight lice per fish. Only those farms that were above the reporting level had a subsequent requirement to report sea lice. As a direct result of the previous inquiry, the legislation has changed and an order has been put in place that all farms are required to report sea lice weekly, which gives us, as the regulator, a far greater oversight of what is occurring on farm.

Not only do farms report their sea lice numbers, but, every time that we are on site, carrying out inspections for whatever purpose, we audit a number of records, one of which is the site sea lice record. We then assess the accuracy of that report versus what is empirically observed on the farm.

Rachael Hamilton (Ettrick, Roxburgh and Berwickshire) (Con): It is nice to see you giving evidence this morning, Mr Allan.

Last week, we heard evidence that the sea lice situation is still very serious. You have said that the sea lice situation has changed significantly. If you have the figures to hand, the committee would like to understand how many incidences there have been of sea lice levels exceeding the mandatory figure.

Charles Allan: If my memory serves me correctly—I have the figure and I will find it before I finish my answer—the previous intervention level of six lice was exceeded once in the last full reporting year.

Rachael Hamilton: While you look for those figures, that leads me on nicely to the number of enforcement actions that have been taken. You said that, if satisfactory measures were not demonstrated and the situation was not satisfactory, that would lead you to issue an improvement notice and then escalate it to the procurator fiscal. What enforcement actions have been taken and have there been any prosecutions for failure to reduce sea lice levels?

Charles Allan: There have been no prosecutions for failure to reduce lice levels.

Rachael Hamilton: Can you explain to the committee the practicalities of doing an inspection, asking individual salmon farms to put in satisfactory measures and then giving an

improvement notice? That is all tied up with the next part of my question, which is about the no counts. Of course, a number of people are not reporting for various reasons.

Charles Allan: Although they are a requirement of the law, satisfactory measures are continually being applied. Farmers are continually considering the lice populations in their fish and taking appropriate action to keep the health of the fish on the site satisfactory.

Sea lice treatment is very much a balance. You have to consider the health of the fish, the population of the sea lice, the state of the environment and the tools that are available to farmers to deal with the sea lice. We have seen a decrease in the availability of veterinary medicines, and farmers have had to apply other measures. We have plain, straightforward husbandry practice and management, fallowing of sites and single-year classes. A limited number of veterinary medicines are available.

The Scottish Environment Protection Agency deals with consent to discharge, so there is a limited volume of veterinary medicines that farmers can use. Biological controls in the way of cleaner fish and physical processes such as bathing in fresh water and the application of hydrolicers and thermolicers are also used. Farmers are routinely taking a whole range of measures to control the lice populations on their fish, and it is not simply because they are required to do so by law—it is a continuing husbandry operation.

Rachael Hamilton: You did say, however, that the sea lice situation has changed significantly. What did you mean by that if the mandatory measures have not actually made a difference?

Charles Allan: The management of sea lice in farmed fish populations in Scotland has improved. It may well be that the statutory driver for that improvement is a requirement for everybody to report lice weekly.

09:15

Rachael Hamilton: Your approach sounds as though it is a little bit more carrot than stick. I would like the committee to understand the timeframe for going in, inspecting, saying that things need to improve and then being satisfied. How many times do you subsequently go back to an individual because the situation has not improved? You seem to be saying that there has been a breach at six farms but, looking at the raw data, there seems to be a more varied picture than that. There have been a number of breaches—more than you are describing—but they have not led to enforcement or referral to the procurator fiscal. Do you work out how long, on average, it takes for you to give somebody an opportunity to improve and to improve and to improve and to improve?

Charles Allan: On your first point, am I more carrot than stick? As a regulator, I would see myself as having failed if I had to apply the stick. My primary driver, and the driver of the Scottish Government, is continuous improvement and compliance. In my view, when you come to the stick, you have failed to regulate appropriately. I would far rather drive compliance than seek prosecution.

On your last point, you are correct in saying that there is progressive ramping up of enforcement action. We would start with informal advice and then move to a formal warning letter. If the situation did not change during that process, we would proceed to an enforcement notice.

Rachael Hamilton: Okay. Maybe we will cover that later. I just want to know the average time, but I do not want to go into somebody else's questions, convener. Can I ask about that?

The Convener: Yes—go ahead.

Rachael Hamilton: Have you worked out the average time for one of these commercial enterprises to get back to normality or to the threshold level? Is that possible? Are you monitoring that? If I was doing your job, I would be quite worried if, for example, it took somebody six or 12 months to get to that stage.

Charles Allan: We are nowhere close to that time period. One good treatment could take you from enforcement back to absolutely satisfactory. It is very variable. Good and effective treatment is key to demonstrating satisfactory measures.

Rachael Hamilton: I am afraid that I do not really have much of a grasp of how it works from your answers, and I know that you are giving what information you can.

Can I move on briefly to the no counts? Again, looking at the data, and as you have described, there are various reasons for individuals giving no counts—as in not giving the data. Do you track the justifications for describing a no count? How do you go to somebody and ask whether it is true that those individuals have not been able to give the data because of weather conditions or withdrawal periods?

Charles Allan: The simple answer is yes. You will be aware that a number of reasons are given for no count, and some of them are pretty much absolute. We do not require farmers to count the presence of sea lice on fish that have recently been transferred from fresh water to sea water. There is a biological rationale for that in that it takes time for sea lice populations to settle and mature through to adults or ovigerous females.

The fish are also very soft, so they are prone to damage if you handle them. To carry out sea lice counts at the moment, you are required to handle the fish.

Weather is fairly straightforward to track. As I said, we have inspectors out in the farming regions pretty much every week of the year. We are as prone as fish farmers are to being weathered off. There are days when we cannot get to sea to carry out inspections.

I also cannot go against the advice of the consulting vet who has the animals under his clinical care. I cannot trump that, and I would not.

Two areas are possibly more contentious. One is where the farm is being treated. I can understand the rationale for farmers not wanting to give their count during the week when their staff are tied up with carrying out the physical treatment and the numbers will change during that treatment. Often, farmers will count lice numbers directly after treatment and will submit those counts.

The one factor that causes the greatest discussion, I think, is stocks being held for harvest. At the moment we count lice on fish by physically removing them from the environment, anaesthetising them and counting the lice. Those fish are then recovered and put back into the cage. That anaesthetic has a withdrawal period and those fish cannot be offered for sale during that period of withdrawal. Farmers will offer stocks having been withdrawn for harvest as a reason not to count lice on those fish, and we are attempting to minimise the number of no counts that are not carried out for that reason.

Rachael Hamilton: Are you worried about the repeated no counts?

Charles Allan: I would say no. Initially, there were a few sites where significant periods of time were covered by no counts, and there have been a couple of very public discussions surrounding that. We have given assurances that that will not be repeated. We have spoken directly with the sector and it has also given an assurance that it will not be repeated. It is something that we monitor weekly, so it becomes very apparent in the data set when we start to see sequential gaps.

The Convener: Ariane Burgess has a supplementary question.

Ariane Burgess (Highlands and Islands) (Green): Good morning. Thanks for joining us.

My understanding is that the number of sea lice per fish was set at six in order to protect farmed fish, but one of our concerns is our wild salmon. I understand that the count on those fish is 12 times higher than the figure in the industry code of good practice—which has been exceeded by 30 farms in recent weeks—and that it is 30 times higher than Norway's mandatory level on all farms in the spring. Apparently, Norway culls fish on farms where the level of 0.2 lice per fish is exceeded in the spring, in order to protect wild salmon. What are your thoughts on that? The recommendations in the report were also partly about protecting Scotland's wild salmon.

Charles Allan: The Aquaculture and Fisheries (Scotland) Act 2007 is very clearly directed at aquaculture stocks. My regulatory function is with regard to that rather than the protection of wild fish. I am not saying that there is no merit in what you describe, but my regulatory boundary lies with the aquaculture animal.

Ariane Burgess: Is there something that we need to do—such as introduce a regulation order—to protect the wild salmon better than we are doing already, if you are bound in a particular box by the 2007 act?

Charles Allan: If I am correct, SEPA is coming to a separate evidence session, and it has an entire regulatory framework that is considering sea lice and the effects of sea lice on wild fish emitted from fish farms.

Ariane Burgess: So, in your role as the fish health inspectorate, you do not see that you need to be aware of the issue to do with wild fish or to take action.

Charles Allan: We are aware of it, but we do not regulate with regard to the impact on wild fish.

The Convener: I will follow up some of the evidence that you just provided to Rachael Hamilton. During last week's committee evidence session, WildFish Scotland and Coastal Communities Network Scotland expressed concerns that no progress had been made in reducing sea lice levels and that no sanctions were being applied to fish farms reporting high levels. You are saying that you dispute that—that that is not the case.

Charles Allan: I dispute that. I think that significant progress has been made by the sector, both in its own right and by dint of a carrot to lead it in a particular direction. I do not think that those efforts can be discounted.

The Convener: Do you think those improvements are the result of better enforcement of counts and sanctions, or has there been a general improvement in the industry's ability to deal with sea lice?

Charles Allan: I think that two things have driven it. One is the requirement on all farmers to report every week. Public opinion and almost a competitive element—wanting to be better than your competitors—are driving it. There has also been a very significant investment by the sector in

next-generation lice control strategies, particularly the development of physical means. We are seeing changes in the mechanics of how physical sea lice treatment is carried out and a huge investment in reverse osmosis—the production of fresh water in wellboats.

Something that I should have said in response to the no count issue is that we are seeing increased interest in automated sea lice counting. We have high-resolution cameras in individual pens and, through the joy of artificial intelligence, systems that are able not only to recognise individual fish but to count the lice on those individual fish. I have spoken with the producers of that technology and with farmers who are interested in applying the technology, and I would see that as the next step in sea lice recording and reporting. Farmers' concern is how that would sit with regard to the law on their requirement to report. We have to satisfy ourselves that the counting technology is as good as, or better than, the human eye.

The Convener: In previous sessions, we have heard that some physical sites are more prone to larger sea lice populations. Do you have any role in looking at sea lice populations when it comes to the consenting process? Can you rule out some sites because they have the potential for a higher sea lice load than others? Do you have a role in planning and consent?

Charles Allan: Within the inspectorate, we have three members of staff for whom either their full time or the majority of their time is spent providing comment to planning authorities. One of the considerations in responding to applications for planning consent is husbandry, one aspect of which is sea lice and what the applicant proposes with regard to sea lice control measures.

09:30

Emma Roddick (Highlands and Islands) (SNP): I will pick up on a couple of points. You have said a few times that the management of sea lice in Scotland has improved. Have the numbers of sea lice in Scotland gone down significantly?

Charles Allan: It is a reasonable question. Yes—I think. That is borne out by the data that is submitted. Practically, on site, we see almost no epizootics of sea lice, which cause significant physical damage to the stocks. The detrimental effects of sea lice are very visible when you get to significant parasite levels: you will see skin grazed off, particularly on the head and along the back. At that point, you have a clinical effect of sea lice. You have to bear in mind that sea lice and salmon have evolved together over aeons. However, when they get out of control, you see very significant damage, and we almost never see the effect of that clinical infection.

Emma Roddick: However, the treatment of sea lice does impact the salmon and the environment on occasion.

Charles Allan: I will set aside the environmental impact, because, again, that is regulated by SEPA rather than myself. A well-commissioned sea lice treatment should have no detrimental effect on clinically healthy animals.

Emma Roddick: Are some farms managing to reduce sea lice numbers better than others?

Charles Allan: I think that they all do it well. I could cite historical cases where intervention on individual sites may have led to sea lice numbers trending towards zero, but other sites have to work harder to control their infestation. Yes—some do better than others.

Emma Roddick: Given the incidence of no counts and the differences in data collection, do you feel that the data we have is reliable enough for us to be able to say for sure that we understand what the situation is with sea lice in Scotland?

Charles Allan: I have no issue with the data that is presented to me. Not only is it presented weekly, but, by dint of the 2008 record-keeping order, the farms are also required to keep a fuller record of sea lice numbers on site. When we are on site, we will audit the record on site versus the record that has been submitted.

Emma Roddick: You said that all farms are managing their sea lice numbers well. Are any in particular failing to reduce the number?

Charles Allan: No. As your colleague inquired, that would be a failure to demonstrate that the measures in place were satisfactory.

Emma Roddick: If the numbers were declared?

Charles Allan: If the numbers were not declining. What we are looking for is a rate of change.

Emma Roddick: Yes. So, what—if any—are the challenges that you face in ensuring robust enforcement?

Charles Allan: I do not have a problem with robust enforcement. I do have some concerns with regard to sea lice treatment as it is carried out. I say that because we cannot consider sea lice in isolation. They infect a population of fish, and your ability to manage the sea lice on the fish is also affected by their physical state—their clinical health. Where we see, for example, significant gill health issues, the fish are more fragile and some do not tolerate the treatment as well. So, either you have a negative clinical effect on the health of

the fish or, indeed, some of those fish may ultimately perish as a result of sea lice treatment. There is a continual balance being struck between parasite control on the one hand and clinical health on the other.

Emma Roddick: It is great to hear that farms are doing well and that sea lice numbers are going down. It is a different story from what others have been telling us over the past couple of weeks. Do you have a good grasp on why that might be and why others seem to have a different view of sea lice in Scotland?

Charles Allan: This is a personal opinion. Statistics can tell you many things—it depends on how you interpret them. If you interpret them to tell a particular story, it may be different from a story that is told by others. I genuinely feel supported by the data. Looking at the sector as a whole, across a long period of time, the sea lice situation in Scotland has improved. I cannot comment for other people who choose to take a contrary view.

Emma Roddick: From your perspective, there is no problem with being able to identify any issues, should they arise, with any particular farm not managing its sea lice numbers as well as you would expect it to.

Charles Allan: I regulate the industry as a whole without fear or favour, and the industry understands. The inspectorate has the powers to enter a farm at any reasonable time to inspect records and to inspect stocks. I am content that the data that is provided is a genuine representation of the stocks on site.

Ariane Burgess: I have a couple of questions about cleaner fish, but, before I go there, I want to pick up a few things on the sea lice issue. When you are counting sea lice on fish in a cage, how many fish do you inspect?

Charles Allan: Bear in mind that it is not the inspectorate that carries out the count. It is carried out by the farm.

Ariane Burgess: How many fish are inspected?

Charles Allan: It is five fish from a minimum of five cages where the number of cages is equal to or higher than five. Where the number of cages is below five, it is five fish from all cages.

Ariane Burgess: So, it is five fish. How many fish are in each cage?

Charles Allan: It depends on the size of the cage. It is several thousands.

Ariane Burgess: So, five fish are inspected, out of several thousand fish in a cage.

Charles Allan: Yes.

Ariane Burgess: Do you have the sense that you are getting meaningful data if you are inspecting only five fish out of thousands?

Charles Allan: The work was not carried out by me; it was carried out by Crawford Revie, previously of Strathclyde University. When we introduced sea lice counts in the industry, we were asked what the counting strategy was. Crawford Revie did the stats, and that is the minimum requirement to achieve a meaningful count. However, I offer the observation that that is the minimum requirement. You will find that fish farmers are counting lice on far more fish weekly for their own management purposes. When they count lice on more than five fish from five cages, that is the basis on which they provide their average.

Ariane Burgess: Can you tell the committee who Crawford Revie is?

Charles Allan: Crawford Revie is an academic who was previously based at Strathclyde University. I believe that he is now working in Canada.

Ariane Burgess: Why would that person have been asked to do that work?

Charles Allan: He had a particular understanding of the statistics involved in the subject.

Ariane Burgess: Do you think that we may need to reassess that approach?

Charles Allan: I would have no difficulty in asking others to reassess the work, but I would make the observation that what was correct at the time is likely to still be correct now.

Ariane Burgess: I am also interested in hearing your thoughts on the fish health inspectorate's case report that sets out the numbers of salmon dying after physical and chemical sea lice treatments. You were talking to Emma Roddick about how fish farming is in a good space, but your reports say that there are large numbers of salmon dying after sea lice treatments.

Charles Allan: I think that the observation that I made was with regard to sea lice numbers rather than the number of fish that are dying in treatment.

The rate of mortality in Scottish aquaculture is relatively stable. The causes of mortality vary in time and in space. Farmers are farmers. They wish their stock to survive and attempt to drive that mortality to its lowest possible level, but they face a conundrum. Certainly, with regard to losses due to treatment, they have a sea lice population that they do not want to burgeon, because that will have a negative effect on their stock, but the treatment for those lice has a negative effect on their stock. Either way, they will attempt to drive

that loss to the lowest possible measure. Again, looking to the future rather than the past, we can see the introduction of more benign treatment methods, particularly next-generation hydrolicers and the use of freshwater technology.

Ariane Burgess: My understanding is that the salmon farming sector is expanding. How are we measuring that? We are saying that the numbers of lice are going down but that salmon farming is expanding. Have you done the sums to know, in absolute terms, whether the numbers have fallen, given that the sector is expanding?

Charles Allan: The sector has an aspiration to expand—one that I would support—within a sustainable framework, and the number of consents to produce farmed fish are increasing. However, the placing of smolts in the sea and the tonnage that is produced are not expanding at the same rate. There is an increased capacity to produce more, but the farms are not necessarily using all that consented tonnage.

Ariane Burgess: You mentioned alternative measures for working with the sea lice, which leads me to ask about cleaner fish. In terms of biosecurity, does FHI have any views on, or has it made any assessment of, the biosafety risks that are associated with the introduction of wild-caught wrasse into salmon aquaculture facilities? Does FHI consider those risks to be lower when farmed cleaner fish are used?

Charles Allan: The introduction of any fish to a site changes the level of biosecurity. We would consider the biosecurity of farmed cleaner fish to be subtly different to that of wild cleaner fish. The reason I say that is that both the wild cleaner fish and the farmed cleaner fish are raised in home waters. We know fairly well what the health status of fish in those home waters is. One of the primary reasons for the fish health inspectorate carrying out its health surveillance is to support the evidence base on which the United Kingdom as a whole has approved zone status for significant fish diseases. We know quite a lot about the health of fish in the wild environment.

09:45

Ariane Burgess: On the welfare of our wrasse, the Rural Economy and Connectivity Committee said that there was an urgent need for assessment of the implications of the farming, fishing and use of cleaner fish. I would be interested in hearing from you about the welfare of lumpfish and wrasse that are used as cleaner fish in salmon cages and any concerns that you have for them.

Charles Allan: My primary concern—and I am on the public record—is that the mortality that occurs in cleaner fish deployed in aquaculture cages is higher than we would like. All sites where cleaner fish are deployed have a duty of care. When those fish are deployed on site, they are regarded as aquaculture animals and come under the same control as the primary farmed population. Individual farms will take due regard to the welfare of those fish. They will provide hides for them. Where required, they will provide supplementary feeding. In occasional cases, antibiotic treatment is directed at the wrasse population.

We need to be aware that the Scottish Animal Welfare Commission is currently considering the welfare of cleaner fish in Scotland. It is still at the investigation stage and we await its report.

Ariane Burgess: You said that the mortalities are higher than you would like. What level are they at now and where would you like to see them?

Charles Allan: Ultimately, you want to get mortality to zero, but we live in a practical and real world, and fish do die. However, over the course of a production cycle, we have seen significant losses of over 50 per cent.

Ariane Burgess: You are seeing losses of more than 50 per cent at the moment.

Charles Allan: Yes. I would not say that that is typical everywhere, but we have seen losses in excess of 50 per cent, sometimes heading higher. It is something that concerns me.

Ariane Burgess: Do you know what the timeline is for the SAWC investigation?

Charles Allan: There is no date for the publication of the report.

The Convener: You have identified a problem with the use of cleaner fish that the fish inspectorate is concerned about. Currently, what actions do you take to try to ensure that fish farms are mitigating that issue? What are you actively doing to address the concern that you have just acknowledged?

Charles Allan: With regard to animal welfare, where we see instances that may give us concern about the welfare of the animals, we do not hold the statutory responsibility. We will consult with colleagues in the Animal and Plant Health Agency, where the Government veterinarians who hold the welfare remit reside. We have a working relationship with veterinarians in APHA.

The Convener: Are you satisfied that you have the appropriate staff and financial resources to carry out your function adequately?

Charles Allan: It is always useful to have more, but I have to balance my work with efficient use of taxpayers' money. I can discharge the requirements of the regulation with the staff that I have. You will not hear me say, "Ah, but I don't have the money." For the regulation that I am

responsible for, I have a suitable amount of staff and resource.

Ariane Burgess: When the inspectorate goes to inspect a farm, how many members of your staff go to carry out that process?

Charles Allan: Routinely, one.

Ariane Burgess: Just one person goes to do that?

Charles Allan: Yes.

Ariane Burgess: What are they actually doing there?

Charles Allan: They do a number of different things. Farms are authorised under the terms of the Aquatic Animal Health (Scotland) Regulations 2009, and conditions are associated with that authorisation and we check to see that the conditions of that authorisation have been complied with. We do a certain amount of record checking with regard to sea lice, movement and mortality. We will look at the farm's veterinary health plans and biosecurity measures. We will go out to site and physically inspect all the stocks, primarily looking for moribund, sick or abnormally behaving fish and any evidence that would suggest the presence of a listed disease. In my introductory remarks, I said that one of our primary roles is the control of listed diseases. We are permanently surveying for listed diseases, looking for clinical signs that might suggest their presence.

We will also consider levels of parasites, making sure that what we are seeing in the written record is manifested in front of us. We will not spot small variations in the average, but, if the farmer has said that the average is one sea louse, you can spot if there are 10 or two. What we are looking for is a significant difference between the written record and the physical record.

Ariane Burgess: When you go to inspect a farm, is it a random check? Do they know you are coming or do you just show up?

Charles Allan: They generally know that we are coming. There are three reasons why we would give them notice of attendance. First, we want the right person—the manager—on site. Secondly, we want them to have records available for us. The third reason is a practical one: the inspectorate does not own boats. Bearing in mind that these sites are at sea, we have to be able to get there. At the moment, we are largely reliant on the farmer taking us to and from the site.

I speak with the head of operations and, if I had an absolute need to be on a site tomorrow, I could be put on the tasking list for the capital ships. However, that is not something that we do as a matter of routine.

Alasdair Allan (Na h-Eileanan an Iar) (SNP): We have talked a bit about the transparency of the data that exists, and you have talked about some of your preferences around that. Are there any developments to update the Scotland's Aquaculture website? Related to that, are you able to say anything about how the data in the public domain in Scotland compares to that which is available in other countries?

Charles Allan: With regard to the development of Scotland's aquaculture database, I believe that Professor Griggs, as part of his regulatory review, raised it as a consideration. Policy colleagues and other parts of Government are looking at that review. It is simple for me to access the data, because I know where everything sits. I think that the data that is available is useful and is clearly publicly available. However, it does not necessarily all sit in one place.

Previously, I was asked about resource. If more resource to produce a different information technology system were available, we—by which I mean the regulators of aquaculture—could make that data more accessible.

Alasdair Allan: The second part of my question is around how the situation that you have described in terms of transparency and data compares with other places.

Charles Allan: I do not have any issue with the transparency. Indeed, in certain regards we are more transparent as a regulator. The reason I say that is because, for every case that we carry out, a complete case record—all the information that we have collected on site, the observations of the inspector and the report that has gone to the farmer—is placed in the public domain.

In previous inquiries, there was interest in mortality publication and sea lice number publication. Both of those are addressed as fully as they can be at the moment. The structure and presentation of the data could probably be improved, but, as to accessibility to the data, I personally think that all the data that is collected by the inspectorate is reasonably presented in the public domain.

The Convener: Thank you. Emma—sorry, Elena Whitham. I beg your pardon.

Elena Whitham (Carrick, Cumnock and Doon Valley) (SNP): Thank you, convener—I will answer to anything, really. Good morning, Charles.

Last week, the committee heard from Professor Sam Martin that mortality normally starts to drop off in the winter time, when we have colder waters and colder weather. However, more recently we have seen warmer winters, which has caused more significant issues in relation to gill health,

causing a higher level of mortality. The REC Committee had already recognised the serious challenges presented by poor gill health and disease, particularly in the context of rising sea temperatures. On the basis of on your surveillance work, are you able to say whether the prevalence of diseases has increased or decreased in recent years with the warmer weather?

Charles Allan: I would characterise the presence of infection and disease as being a constantly changing situation, but what you say about the situation is true. If we look at the mortality pattern over a number of years, we see a significant peak in the late summer/autumn months. Rather than that being characterised as because the water temperature is high at that point, the peak of that mortality can reasonably be correlated back to the temperature of seas in the previous winter. We need to understand and deal better with that challenge.

I think that we are at a point where we will see step changes in the Scottish aquaculture sector. We will increasingly see larger smolts being put to sea, which will not face that challenge because their growth cycle will be shortened. There are several advantages to that, but one is the reduced opportunity for that pathogenic effect to manifest itself, which is generally manifesting itself in the second summer.

Elena Whitham: Do you feel that the data is being collected in the way it needs to be collected so that the industry can start to address the issues, obviously with input from the Scottish Government? Do you think that we have the data that we need to see how climate change is affecting the sea temperatures and impacting the aquaculture sector?

Charles Allan: We recognise that the data that is submitted to the inspectorate is not a full data set, but it is all mortality that is considered to be significant. The reporting threshold was agreed with the sector—it does not lie in legislation—and it was designed to report areas of concern. We are receiving information on the higher mortality that is both temporally and spatially widespread. That is, we have a spread of data throughout the year and throughout the country, which gives us the opportunity to look at trends. It is very difficult to ascertain absolutely what caused the death, but we can see patterns in, for example, gill disorders from certain viral and bacterial diseases and how they are affecting the fish through the course of the year.

10:00

Ariane Burgess: I am interested in how the FHI is integrating its evidence on the impact of climate change on mortality rates, which we have started to touch on. The mortality rate has been extremely high on many farms recently. The two worst-performing farms, both at Gigha, recently completed production cycles with a total mortality rate of over 80 per cent. The Coastal Communities Network has calculated, from SEPA's figures, that 17.5 million farmed salmon died at sea in 2022 and that a million more died in hatcheries.

Recommendation 10 in the RECC report is that

"there should be a process in place which allows robust intervention by regulators when serious fish mortality events occur. ... this should include appropriate mechanisms to allow for the limiting or closing down of production until causes are addressed."

Recommendation 9 is that

"no expansion should be permitted at sites which report high or significantly increased levels of mortalities, until these are addressed to the satisfaction of the appropriate regulatory bodies."

I am interested in hearing from you whether it is correct that those recommendations have not been implemented yet.

Charles Allan: I think that that is a remarkably unfair assessment. I was aware of the comments that were made and I found them personally and professionally hurtful. I felt that it was an attack on individual members of staff who spend their full working days providing comments to planning authorities about the appropriateness or otherwise of applicant farm sites. We consider each application under 10 categories, and the first category is location. Has it previously been authorised to farm fish? Is it a modification to an existing farm or is it a new farm?

We consider its position with regard to disease management areas. We would not want farms to develop in areas that bridge disease management areas—we do not want to see disease management areas adjoin. We make an assessment of the final stocking density in which fish will be farmed to make sure that it is within identified norms, because we know that excessive stocking density is related to the outbreak of disease. We also consider the husbandry proposed at any site, which might be to do with sea lice control or mortality removal, and whether it is novel in its operation. We specifically consider the measures that will be in place for the control of sea lice, and we look at the measures that are proposed for the containment of the farmed fish.

I am sorry, but the accusation that we do not in any way consider fish health at the point of an application and do not provide advice to planning authorities is just plain wrong.

Ariane Burgess: So, you are saying that recommendations 9 and 10 in the REC Committee's report were wrong.

Charles Allan: No, I am not saying that the recommendations were wrong. I am saying that what is done is correct.

Ariane Burgess: Okay. The recommendations are not wrong.

Charles Allan: We do offer the advice.

Ariane Burgess: That seems a little confusing. The recommendation in the report is

"that there should be a process in place which allows robust intervention by regulators when serious fish mortality events occur."

Do you believe that you provide the advice there?

Charles Allan: Sorry—I think we have been talking at cross-purposes. I was speaking about the advice that is given to planning authorities.

Ariane Burgess: I was asking specifically about those two recommendations in the RECC report—recommendations 10 and 9. Recommendation 10 is that

"there should be a process in place which allows robust intervention by regulators when serious fish mortality events occur. ... this should include appropriate mechanisms to allow for the limiting or closing down of production until causes are addressed."

Recommendation 9 is that

"no expansion should be permitted at sites which report high or significantly increased levels of mortalities, until these are addressed to the satisfaction of the appropriate regulatory bodies."

I asked whether it the case that those recommendations have not been implemented yet.

Charles Allan: On the first recommendation—the recommendation about either reducing or depopulating in the face of significant mortality—there is no legislative structure that would allow me to do that. I have legal controls within my grasp that allow me to control stocks of fish that are suffering from a listed disease—indeed, I have removed them from the water. However, there is currently no mandatory requirement for stocks of fish that are suffering from a non-listed disease to be removed from the water.

Ariane Burgess: So, you are saying that, in order for the fish health inspectorate to address recommendation 10, you would need more powers.

Charles Allan: It would require a change in the law, yes.

Ariane Burgess: Recommendation 9 is about not expanding sites that have significantly increased levels of mortality until they are addressed to the satisfaction of the appropriate regulatory bodies, including you.

Charles Allan: I will say yes to that one, for the reasons that we discussed at the start of my answer about what we offer the planning authorities. Ultimately, it is the planning authority that decides whether or not to permit modification where there has been significant mortality in a farm or farming in a new area. I am thinking, in particular, of an application in Loch Fyne, where it was permitted to change the equipment and increase the volume of that equipment but on the condition that that would not result in an increase in held biomass.

Ariane Burgess: It sounds to me as though you see your role under recommendation 9 as being to provide information to the local planning authorities, whose responsibility it then is to decide whether or not expansion can be permitted, based on the information they get. You give them the information that something is going on at the site and it is then up to them.

Charles Allan: Ultimately, the decisions to change the permitted equipment or grant a new site are not for the inspectorate to make. Those are decisions that the planning authorities make on the basis of the information that is provided by a number of consultees.

Ariane Burgess: Yes. So, even if you see—

The Convener: We are going to have to move on.

Ariane Burgess: Just one more?

The Convener: No. I am sorry—we have to move on. We are very short of time.

Rhoda Grant (Highlands and Islands) (Lab): I have a question on climate change and its impact. We recently heard about micro jellyfish causing problems for fish farms. How do you monitor the impact of climate change? What advice can you give fish farmers? Is there any science on that area? There are obviously concerns for fish health.

Charles Allan: I need to be careful with the advice that I give to farmers. I restrict my advice to the legislative matters for which I am responsible. At times, I have been advised by sector managers that what I am offering is business advice rather than advice on legislative matters. However, I have a good working relationship with veterinarians and managers in the farming sector.

We have seen a rapid northward advancement in a species of micro jellyfish that had not previously been seen in Scottish waters. Its northern boundary would normally lie somewhere in the approaches to the English Channel. We are seeing changes in the environment and the emergence of new pathogens—micro jellyfish, for example—and we will continue to see the emergence of pathogens, parasites and pests that we have not seen before, because our environment is changing.

It might well be that, with warming waters, the significance of some of our traditional diseases—if "traditional" is the right word; I am thinking here particularly of cold water vibriosis and winter sores—that have caused issues in the past will diminish. We are seeing a changing environment, but not all impacts will be negative.

The Convener: Just as you have a duty of care for the fish that you inspect, I have a duty of care for my witnesses, and I am very aware that we are quickly running out of time. I ask members to keep their questions as succinct as possible. Emma Harper has a brief supplementary question, then we will move to a further question from Rhoda Grant.

Emma Harper: I will be brief. Last week, Professor Simon MacKenzie told us that there are no research cage facilities in Scotland, so, when you are doing research, you are comparing sites A, B and C, which have different environments and conditions. He felt that that made it difficult to make research conclusions. Do you have a comment about why we do not have research cage facilities in Scotland? Should we have some?

Charles Allan: We had some in the past. There was a site close to Skye that operated mainly as a unit for feed trials—it operated for a good number of years as a feed-trial unit. Is there a reason not to have a research cage facility? No. Are there any reasons why we have not had one so far? In my head, yes. In general, those reasons run with ownership and operation. Somebody has to apply for it, be responsible for it and run it. It has been discussed for a number of years and it remains a point of discussion. Indeed, a desire to have a trials facility came up in sector discussions—last week, I think.

Often, you will see a trials facility referred to as an innovation site to trial innovative equipment or, possibly, to see where the boundaries are for the appropriate sizing of sites. However, they are quite challenging to run and quite expensive. There is no reason why it could not happen, but possibly the right consortium has not yet formed. Research on salmon aquaculture is carried out around the world, and we often rely on research that has been carried out elsewhere and extrapolate it to Scotland.

Emma Harper: So, it could run in tandem with the national aquaculture technology hub in Stirling.

Charles Allan: Potentially. I imagine that it would run with a series of partners, so it is a matter of identifying the right partners and bringing them together in an enabling environment, and that can be challenging.

Rhoda Grant: Environmental standards on medicine use have been tightened since the publication of the REC Committee's report. Have you seen a reduction in the testing of medical residues since that tightening took place?

10:15

Charles Allan: The simple answer is yes. I am not regulatorily responsible for monitoring the use of medicines in the Scottish aquaculture arena. However, I look at reports from the Responsible Use of Medicines in Agriculture Alliance, which made an observation about antibiotic usage, stating that, compared with 2020 and 2021, the amount of antibiotics has reduced. Reduced usage was observed in fresh water and sea water. The use of antibiotics in aquaculture is relatively small compared with their use in other animal production sectors. Around 1.5 per cent of freshwater farms and 8.7 per cent of marine farms report some use.

From any discussion that I have had about the use of antibiotics, which can be a polarised debate, I know that antibiotics can be useful. We should not be shy of using them where they are required. There is a veterinary adage that we should use antibiotics as little as possible but, where you need to use them, use them as much as you require to provide the clinical effect. At the end of the day, you want to rid your animal population of infection.

Rhoda Grant: Have you seen any impact from the tightening of the regulations on fish health, or has fish health remained the same since the regulations changed?

Charles Allan: You have to bear in mind that I have been in the industry for an awfully long time and I have seen the emergence and disappearance of technologies. The biggest single positive impact supporting fish health in past decades has been the development of effective vaccines. You can look back to the 1990s when the impact of furunculosis, a bacterial disease, was incredibly significant, but an effective vaccine was developed in the 1990s and it remains effective today. The continual development of vaccines for diseases that we know are likely to occur is the single biggest benefit and has had the single biggest impact on reducing the use of medicines in Scotland.

We invited the chief scientific advisor for Scotland to the farmed fish health framework working group some months ago, and one outcome of that was her facilitating a meeting with the major pharmaceutical companies to stimulate the development of additional vaccines. Another recommendation was to take that discussion into other fora to provoke international interest in the development of vaccines. We have to bear in mind that we are not looking at Scotland in isolation.

These issues affect salmon farmers around the world.

Rhoda Grant: Have you seen any negative impact from the tightening of the regulations on medicines?

Charles Allan: It is not necessarily about the tightening of the regulations; it is about responsible use.

The Convener: That leads us to a question from Beatrice Wishart.

Beatrice Wishart: The committee has heard concerns that the use of chemicals has increased since 2018. What does your monitoring tell you about trends in the amount of medicines and chemicals used since 2018? Has the availability of data and analysis improved to provide a better picture all round?

Charles Allan: I will deflect that question and suggest that you redirect it to SEPA when it gives evidence to the committee next. It is SEPA, not us, that regulates medicine and the use of treatments in Scotland.

The Convener: We have supplementary questions from Emma Harper and Ariane Burgess.

Emma Harper: I am conscious of the time, convener, so I am happy to pass on to colleagues.

Ariane Burgess: Me too.

The Convener: Okay. We have a question from Emma Roddick.

Emma Roddick: It is a brief question on breaches in relation to medicine use in fish farms. Is enforcement where it needs to be on that issue?

Charles Allan: Yes. I base that answer only on my observation of the work that we do with the UK Veterinary Medicines Directorate. The directorate's survey looks for the presence in fish flesh of medicine residue, permitted substances above permitted levels, environmental contaminants and medicines that are not permitted for use in fish. We collect the samples and the directorate does the analysis. If follow-up action is required, if the directorate detects something that should not be there, we carry out that follow-up action. I could not even tell you the last year when we had to carry out an investigation on an unexplained residue.

Emma Roddick: Have you not done so recently?

Charles Allan: No.

Elena Whitham: I have a great interest in the welfare of wild Scottish salmon. Although you have no locus in relation to the health of wild salmon, as you said to my colleague Ariane Burgess, you have responsibility for ensuring compliance with the reporting requirements for fish farm escapes. I accept that there is a complex picture in relation to why wild salmon populations are decreasing. Is the number of fish farm escapes being recorded accurately? Is there a need to strengthen the current fines and sanctions, or are they appropriate? I suppose that that was too many questions to ask at once.

Charles Allan: I ended up focusing on the part about sanctions.

Elena Whitham: The thrust of my question is about the sanctions regime that you are responsible for in relation to the number of escapees and how escapes are reported. Is the regime strong enough?

Charles Allan: There are a number of responsibilities. The 2007 act gave us powers to carry out inspections to judge the suitability or otherwise of the measures in place to contain fish, to prevent them from escaping and to recapture them if they escape. When measures are deemed not to be satisfactory, there is a regulatory process—similar to that for sea lice—through which we issue an enforcement notice, and non-compliance with an enforcement notice is an offence.

Fish farmers are required to report any escapes and the circumstances that might have given rise to suspicion of an escape, so they need to report not only when fish have escaped but when they might have escaped. Reported escapes are stochastic in nature—they come and go.

From the work of my colleagues in the freshwater fisheries laboratory, it is apparent that there is evidence of interbreeding between farmed fish and wild fish. It is very hard to work out how that has occurred in the absence of any reported escape. As part of the wild fish catch statistics, there is consideration of the number of escapee farm fish that crop up in the wild environment. The reported number is remarkably small. I always query it, because we know that we have had escapes, but such fish do not crop up in the wild catch.

There is another consideration. In young salmon, there is a condition that is known as precocious parr. Those fish are very small but are sexually mature, and they never run to sea. We see the same thing in wild fish. Is that the impact of precocious parr? I do not know. More work needs to be done to understand the introgression of farmed genes into the wild population.

You asked whether the sanctions are appropriate. I apply the sanctions that are in legislation. It is not for me to make a judgment as to whether the punishment for non-compliance is suitable.

Emma Roddick: What can farms do to mitigate the risk of fish escaping?

Charles Allan: There are some things that farms can mitigate and some things that they cannot. One of the big things that we look at in applications for planning consent is the farm's design specifications. We consider those specifically in relation to containment. We ensure that there is good understanding of the meteorological and hydrographical impacts that there might be on a site, and we take advice from suitably qualified people on whether the moorings and equipment are suitable for containing fish under those circumstances.

Generally, the Scottish aquaculture sector has a good record on containment. The difficulty is that farms are large and, when something systemic goes wrong, the loss of containment can be significant. The purpose of the regulation is to ensure that suitable measures are in place for the containment of fish.

What can be planned for is planned for, but you cannot plan for the bizarre. Off Coll, I think, a wild tuna swam straight through the side of a cage. You cannot plan for that. You cannot spec a farm cage to cope with that kind of insult. Although you can reasonably plan for expected weather—normally, you would plan for a one-in-100-year event—weather events far in excess of what your farm is specified for will catch you foul.

Emma Roddick: There have been calls to significantly increase the available sanctions on farms when escapes happen. Would such sanctions be justified if an escape happened due to a lack of potential mitigation measures being taken?

Charles Allan: That decision is for others. I will apply whatever sanction the Government feels is appropriate, given the impact. When developing sanctions, you largely consider the impact. If a significant impact can be demonstrated, the sanction should perhaps also be significant. However, as I said, that is a decision for others, not for me.

The Convener: Are you aware of advancements in research on the breeding of infertile fish, which would reduce the potential impact of interaction between wild fish and farm fish in the event of escapes?

Charles Allan: Yes. Such work is not new. When I first joined the laboratory, there was work on the triploiding of Atlantic salmon.

As an aside, I note that triploiding is routinely used in rainbow trout for farming for table purposes and for restocking. However, it is not done to reduce the risk of inbreeding. It is done because, if the requirement for an animal to sexually mature is removed, the energy that would have been put into sexual maturation is put into growth. That works quite well in rainbow trout. However, although triploid Atlantic salmon performed well in the freshwater phase, they performed quite poorly in comparison with normal diploid fish in the marine environment. If two parallel populations of fish were challenged, the triploid population would come off worse than the diploid population.

I am aware of the work that has been done in the past, and I know that folk still occasionally look at that issue.

10:30

Ariane Burgess: What enforcement powers do you have to ensure that fish farms have in place appropriate measures for the containment of fish?

Charles Allan: The enforcement measures are largely similar to those in relation to sea lice. We look at whether satisfactory measures are in place to contain fish, prevent their escape and recapture them if they escape. When such measures are deemed not to be satisfactory, we go through a process of offering advice before issuing a formal warning and moving to an enforcement notice. Those powers have been applied, particularly with regard to the state of net pens. In one case, the pens did not appear to be well maintained, and we were informed that new pens had been ordered, but we were suitably concerned about the state of the nets that the farm sought replacement nets from elsewhere. We did not get as far as issuing a formal enforcement notice because the farm had taken corrective action prior to the notice being issued.

Ariane Burgess: How often do you issue enforcement notices in the course of a year?

Charles Allan: With regard to containment, very rarely. What would the primary driver be? There is no benefit to a farmer in allowing stock to escape. It would be a bit like allowing fish to die. They do not do that. It is a consequence of something unusual occurring. So, yes, it is very rare that we would formally enforce in connection with containment.

Ariane Burgess: When you issue an enforcement notice, what is the process? Is there a timeline for response?

Charles Allan: What we would normally do is offer a timeline. If it is something simple, the timeline will be short. If it is something more complicated, the farm will be given more time to comply. It depends on the circumstances.

Ariane Burgess: In terms of all the regulatory public bodies, do you have a sense that everyone is clear about their enforcement roles?

Charles Allan: Yes.

Ariane Burgess: So, you know the space that you work in. I think that I have already heard that you are clear about where your boundaries are.

Charles Allan: I am comfortable in my regulatory space. I have a general understanding of the requirements of other regulators. Information is traded between regulators. If I come across something that I think is a significant concern for welfare, I will take it to APHA; if my concern is to do with the environment, I will take it to SEPA.

Rhoda Grant: I want to ask about new technologies such as enclosed cages, on-land cages, and the impact they may have. Will they have an impact on fish health? Could they mitigate some of the current problems? I am thinking of the lack of experimental cages and the like in Scotland.

Charles Allan: I will answer your question in three parts. Many people see semi-contained and contained technologies as a panacea—they are contained, therefore no fish escape, no disease gets in and everything survives and is harvested at premium weight and sold at premium prices. However, the reality is quite different. I will not say that the problems are the same—there are different problems—but the challenges are different. For instance, water quality issues can be quite significant.

Across the world, we have not seen any particular difference in final performance between the approaches. We have limited experience in Scotland—I will be honest about that. We have experience of recirculating aquaculture in the freshwater phase of salmon production—the production of smolt for on-growing at sea. We have had one or two attempts—I would characterise them as no more than attempts—and they did not perform well. We are in discussion with a new developer who is looking to establish semi-contained equipment in sea water. There are opportunities but there are also challenges.

Alasdair Allan: Related to the last question, and specifically on regulation, does regulation need to get ahead of those scenarios? I know that it is not your responsibility, but do you think that there is a need for regulation to anticipate new technologies? If not, is the existing regulation adequate?

Charles Allan: The current regulation will probably dovetail quite well with the operation of new technologies. Largely, the concerns will be the same—containment, parasites, listed diseases, environmental impact and welfare—although we might see differences in the relative balances. As for the absolute challenges and requirements to address them by legislation, it may well be that we will need changes to things such as planning consent, because the structures are different to what we are used to. However, in health and environmental control, although the challenges are different, the demands will be similar.

Edward Mountain: Earlier, Emma Roddick asked whether sea lice numbers were reducing across Scotland and your answer was that they were. Can I confirm that you were talking purely about farmed salmon in that case?

Charles Allan: I was talking purely about farmed salmon.

Edward Mountain: Thank you. Mortality from the diseases—amoebic gill disease, infectious salmon anaemia and cardiomyopathy syndrome—and the increasing numbers of micro jellyfish, is continuing to increase every year, is it not?

Charles Allan: Can I make a correction first?

Edward Mountain: Yes.

Charles Allan: You referred to infectious salmon anaemia. No—mortality from infectious salmon anaemia is not increasing.

Edward Mountain: So, we can take that one out.

Charles Allan: We can take that one out.

Edward Mountain: Is it the case that deaths from amoebic gill disease, cardiomyopathy syndrome and jellyfish are increasing across Scotland?

Charles Allan: The number of individual fish that perish due to each of those diseases has increased.

Edward Mountain: Okay. The latest full mortality figure, for 2022, is 36,000 tonnes, which was 25 per cent of the population by estimates of fish that had gone to sea. Do you see that number as a figure against the amount of production? The production had not gone up, but the number of fish deaths had gone up. Is that a fair assumption?

Charles Allan: They are not my figures. You are referring to tonnage. In recent years, the rate of mortality has not changed. The rate of mortality, as judged by survival to harvest, is remarkably constant. We can argue about points, but around 75 per cent of fish that are put to sea survive to harvest, and the mortality rate is fairly steady. However, we have seen a change in the age at which fish die. Twenty-five per cent of a small biomass is a relatively small number. If you grow those fish for an extra year and then they die, the same number of fish have died but the tonnage increases, because they are a year older.

Edward Mountain: So, bigger fish are dying.

Charles Allan: Bigger fish are dying.

Edward Mountain: That gives me confidence. The age of the fish when they die does not matter to me, but the fact that they are dying matters. Recommendation 9 of the RECC report says that there should be "no expansion" because mortality rates are too high across the sector. Recommendation 9 has not been enforced at all because the mortality rate has stayed the same. The mortality rate was too high when this report was published in 2019 and you are saying that the industry has expanded.

Charles Allan: The consented biomass accessible to the industry to grow fish has grown but the number of fish that are put to sea—

Edward Mountain: Has stayed the same.

Charles Allan: Largely.

Edward Mountain: And the same amount of fish have died, so the situation is exactly the same as it was in 2019. I think that that is the answer to my question.

The Convener: I have one final question about recommendation 17 of the RECC report, which was that a review of the compliance policy needed to be undertaken and that, in order for it to be effective, the policy should

"be robust, enforceable and include appropriate penalties."

Can you highlight any powers that have changed in the FHI since 2018?

Charles Allan: The biggest change in powers is to do with the collection of numbers of sea lice.

The Convener: Have you seen any other powers change since 2918?

Charles Allan: No. That is the big one.

The Convener: Thank you very much. That was a mammoth session, and we appreciate the extra time that you have been able to give us. We have certainly delved into the topic.

Subordinate Legislation

Seed (Fees) (Scotland) Amendment Regulations 2024

10:43

The Convener: Our next item of business is consideration of a negative instrument. Do members have any comments to make on the instrument?

As there are no comments, that concludes our business in public.

10:43

Meeting continued in private until 11:17.

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