OFFICIAL REPORT
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DRAFT

Rural Affairs and Islands Committee

Wednesday 19 June 2024

Session 6

The Scottish Parliament
Pàrlamaid na h-Alba

Wednesday 19 June 2024

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RURAL AFFAIRS AND ISLANDS COMMITTEE

18th 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)
*Colin Beattie (Midlothian North and Musselburgh) (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:

Lin Bunten (Scottish Environment Protection Agency)
Christine Lawson (Scottish Science Advisory Council)
Mike Montague (Scottish Environment Protection Agency)
Edward Mountain (Highlands and Islands) (Con)
Professor Nick Owens (Scottish Science Advisory Council)

CLERK TO THE COMMITTEE

Emma Johnston

LOCATION

The Mary Fairfax Somerville Room (CR2)

Scottish Parliament

Rural Affairs and Islands Committee

Wednesday 19 June 2024

[The Convener opened the meeting at 09:12]

Interests

The Convener (Finlay Carson): Good morning, and welcome to the 18th meeting in 2024 of the Rural Affairs and Islands Committee. I ask everyone to ensure that they have turned their mobile devices to silent.

The first item on the agenda is to invite Colin Beattie, who is our newest committee member, to declare any relevant interests. In welcoming Colin, we thank Alasdair Allan, whom he is replacing and who sat on the committee from the start of this parliamentary session.

Colin Beattie (Midlothian North and Musselburgh) (SNP): Thank you, convener. I am delighted to be on the committee. I have no relevant interests to declare.

Decision on Taking Business in Private

09:12

The Convener: Our next item of business is consideration of whether to take in private agenda item 5, under which we will consider our approach to pre-budget scrutiny. Do members agree to take that agenda item in private?

Members *indicated agreement.*

Salmon Farming in Scotland

09:12

The Convener: Our third agenda item is evidence from two panels of witnesses in our follow-up inquiry into salmon farming in Scotland.

First, we will hear from representatives of the Scottish Science Advisory Council. We will discuss the council's report entitled "Use of Science and Evidence in Aquaculture Consenting and the Sustainable Development of Scottish Aquaculture", which was published last year. We have approximately one hour for this session.

I am pleased to welcome to the meeting Professor Nick Owens, who is a member of the SSAC, and Christine Lawson, who is head of the SSAC secretariat. I thank both of you for joining us.

Edward Mountain MSP is also joining us today. I will let him ask questions after committee members have asked theirs. Do you have any relevant interests to declare, Edward?

Edward Mountain (Highlands and Islands) (Con): Yes. Thank you, convener.

I remind committee members that, if they look at my entry in the register of members' interests, they will see that I have an interest in a wild salmon fishery on the River Spey on the east coast of Scotland, which relies on wild fish and employs three people. As far as aquaculture is concerned, there are no fish farms near the River Spey.

The Convener: Thank you.

Professor Nick Owens (Scottish Science Advisory Council): Convener, I have what I believe may be a conflict of interests. Although I am here representing the Scottish Science Advisory Council, I am also the director of the Scottish Association for Marine Science, which has previously provided a lot of information and data that have appeared in reports that are relevant to the committee.

The Convener: Thank you. I appreciate that.

I will kick off the questions with a nice easy one. Can you briefly outline the role of the Scottish Science Advisory Council and explain what initiated your review entitled "Use of Science and Evidence in Aquaculture Consenting and the Sustainable Development of Scottish Aquaculture"?

09:15

Christine Lawson (Scottish Science Advisory Council): The Scottish Science Advisory Council is made up of 12 to 15 members,

who are a combination of ex-officio members and senior scientists who provide the highest level of scientific advice on Scottish Government policy areas.

Nick Owens will probably be able to give you a bit more advice on what prompted the report, because I am relatively new to the area. I was not around when the report was commissioned.

Professor Owens: Unusually, as I understand it, the report came about in response to a direct request from the Cabinet Secretary for Rural Affairs, Land Reform and Islands, Mairi Gougeon. Normally, reports are initiated within the council itself, although always with interactions with cabinet secretaries and the like. However, on this occasion, the cabinet secretary asked the chair of the council, Professor Gill, to look into the report that Professor Griggs had been asked to write on the aquaculture industry and, in particular, the Rural Economy and Connectivity Committee report. That had prompted a lot of disquiet—I think that that is probably the right word to use—so the cabinet secretary requested that the council undertake that report, focusing especially on the science issues rather than the wider context of aquaculture.

The Convener: One of the RECC's recommendations was to identify significant gaps in knowledge, data analysis and monitoring, but your report also identified a gap in funding for policy-driven research on aquaculture. Do you think that there remains that gap in funding but also a lack of co-ordination on research and the funding that ties it together?

Professor Owens: Yes—most certainly. If you ask any academic, they will always say that there is not enough money to do their research. However, it is true that, given the value of the industry to Scotland and the Scottish economy, our understanding and belief are that there really should be more funding available. The whole issue of getting scientific advice, using it properly and getting it communicated properly is very much influenced by the lack of co-ordination. There are many players involved in that, from blue-skies academia right through to those who do the very commercial work that is conducted by the industry itself. Co-ordination would be highly valuable, and it would obviously make the money that is available more effective.

The Convener: Do you believe that there are actually gaps in the knowledge, or is there just a lack of co-ordination to pull all the research together? Where should the funding for that research come from? Why is there a funding gap? Given all the examples of people doing fantastic research out there, why is that not better co-ordinated?

Professor Owens: There are three questions there. First, there is definitely a lack of knowledge—there is no doubt about that. Let us take the example of sea lice. The way that we treat sea lice in our mathematical models and so on is largely, although not entirely, as inert particles. It is clear that they are not—they have behaviour and so on. That is just one example of an area in which there is a lack of knowledge. There certainly is a lack of knowledge.

On who should pay for the research, it is clear that there are some politics involved that I will not enter into. It is not unreasonable to say that the industry itself should pay, as happens in Norway, through various mechanisms such as levies. It is not unreasonable to ask whether the industry should help. It does help: it does its own work, including through partnerships—for example, with the Sustainable Aquaculture Innovation Centre. The industry contributes, but perhaps there is something to be said for looking at that further.

One of the issues around funding for research goes to the root of how academic research is funded in the United Kingdom. I am not sure that we really want to go into this here, but the funding for blue-skies research in the UK is highly complex and, essentially, it does not fund the full costs of academic research. One could therefore say that a part of the issue is structural.

The Convener: I will tease something out a little. You suggested that there is a lack of data out there. Does that put at risk some of the decisions on consenting? The argument can be very polarised. The industry says, "There's nothing to see here. We're making improvements, and we have made significant improvements over the past five years," and other groups, including non-governmental organisations, and individuals say that we still have the status quo from when the first report was done. Is there a risk that we do not have enough data in order to make properly evidenced decisions on consenting? Do we run that risk from day to day at the moment?

Professor Owens: In absolute terms, yes. There is clearly a risk there, because we cannot know everything. There are unknown unknowns, if I may use such a term. There is always a risk, but there is no doubt that the knowledge on all aspects that are needed to underpin consenting has improved enormously over the past few years and it continues to improve.

As we touched on in the report, one thing that is not communicated particularly well is the level of uncertainty and what that actually means. Clearly, one can rarely be 100 per cent certain about anything. In the various types of science that are needed in the consenting process, there are different levels of certainty and uncertainty across the piece.

I am not sure whether that answers the question properly, but I hope that it goes some way towards doing so.

The Convener: Yes. Finally from me, we have heard that other countries have research pens or research farms. Why do we not have those in Scotland? What are the barriers to our having them here?

Professor Owens: That is interesting. I noted that in the previous evidence session. I do not know the history of that. I understand that there have been experimental pens in the past. I do not know this for sure, but my impression is that the reason for that is purely funding. There would be a great interest in and desire to have such a facility from the scientific community and, undoubtedly, the industry.

The Convener: That is helpful. We will move on to questions on communication and engagement from Beatrice Wishart.

Beatrice Wishart (Shetland Islands) (LD): The Griggs review identified

"mistrust, dislike, and vitriol ... between the industry ... regulators, parts of the Scottish Government and other stakeholders".

Your review found that

"science on aquaculture ... is not sufficiently visible"

and that there was

"a lack of shared arenas for voicing concerns and dialogue which continues to fuel a perception of secrecy and misunderstandings."

Will you expand a wee bit on the challenges that your review identified?

Professor Owens: It was interesting. As part of the data gathering for the report, we engaged with a wide community, from the industry right through to campaigning groups and the like. There is no doubt that that lack of trust is still there. I suspect that, whatever one could do, there will always be an element of that, because people will take, and have taken, entrenched views. The view out there is incredibly binary. However, when we were writing the report, we felt that a structured approach to trying to break down the barriers could be helpful.

In science in general, we are beginning to work hard on engagement with communities. I am experiencing that in my institution, for example. For a very long time, scientists have focused on one-way communication—we have been very keen to talk, but we have listened less carefully. The technique of science engagement is growing rapidly. Research is being done on how to communicate and engage effectively with communities that hold differing views. Using the mechanisms that exist, there is definitely a route by which we can at least try to make an improvement in bringing the two communities together.

In one of our round-table sessions, there was a very heartening and very civil discussion and exchange of views. We could not prove this, but I believe that the meeting ended more successfully than it started, so it is possible to improve the situation.

Beatrice Wishart: Will there be consideration of how social media is used to disseminate information?

Professor Owens: Yes. We mentioned that in our report. Personally, I do not think that that is the best way to do it, but that mechanism is clearly being used increasingly, particularly by younger members of society. How one gets across some of the complexity is a real challenge, but complex things do get communicated in one-and-a-half-minute videos. I am sure that there is a way to do that.

The Convener: I will bring in Emma Roddick.

Emma Roddick (Highlands and Islands) (SNP): My question has been answered.

The Convener: Okay.

Elena Whitham (Carrick, Cumnock and Doon Valley) (SNP): I will follow on from Beatrice Wishart's questions. I am interested in the social contract that Professor Griggs recognised is needed to represent communities. Your report states that there is

"a lack of shared arenas for voicing concerns and dialogue which continues to fuel a perception of secrecy and misunderstandings."

How can we help communities to have their voice and their needs recognised during the consenting process? As you have rightly identified, there are binary views out there, but there are communities that need to be heard during the consenting process. Beatrice Wishart asked about communication, the understanding of the science and the reality of the situation, but how do we address that issue?

Professor Owens: First—this is a trivial thing to say—that is a real challenge. Some members of the community have formal rights in the sense that they are statutory consultees, but the majority of the public clearly do not have those rights.

Academic work is being done on what we call the social licence to operate. Techniques are being developed so that, technically, one can engage if one takes the decision to do so and is prepared to fund that. I am not an expert on the social licence, but colleagues in my institute spend a lot of time on the issue. There are ways of doing it.

An important observation about such voices is that certain parts of the community are very well organised and well funded. That much is evident in the sorts of data that are brought to the table in the consenting process, so there is definitely an imbalance between voices at times.

Beyond the work that lies behind the social licence methodology, I am not in a position to say how one might be able to do what you ask about, but having the will is clearly the first step.

The Convener: I think that everybody understands the importance of fish as part of a healthy diet and the ability of aquaculture to deliver a low-carbon-footprint food source, the need for which will grow in the future. Given that the representation of the salmon farming industry in the media appears to be quite negative most of the time, how do we get the balance right? Whose job is it to do that? Last week, Professor MacKenzie said that different voices seem to have different impacts with regard to how information is delivered. We want to make sure that we have food security in this country, and salmon and aquaculture play a part in that. However, there are negative connotations around the industry. Whose job is it to get that balance right?

09:30

Professor Owens: My frank answer is that I do not know whose job it is to do that. I guess that it is potentially a job for all of us, in some respects. Science communicators might be the most relevant people. The one thing that strikes me as curious, and which came very much to the fore while we were doing the work for the report, is that people have a different perception of aquaculture—farming the sea—from that of farming the land. That is something to do with the newness of aquaculture and the fact that it is now getting attention.

We take agriculture on the land for granted now. This might be an academic debate—forgive me, but I am an academic—but the question of what the reaction might be if we were to suddenly introduce cattle farming as a new strand of agriculture is interesting. What attention would that get now, compared with aquaculture? I bring that up partly to suggest that the answer to your question is that it is just a matter of time before people get used to it, because there is recognition that we have to get our food from somewhere.

Rhoda Grant (Highlands and Islands) (Lab): Your report highlighted the need for "horizon scanning syntheses" to provide advance warning of environmental issues and the impacts of climate change, as well as economic shocks. How can the industry, academia and Government work together to future proof the industry against those risks?

Professor Owens: That is a challenging and important question. Within the worldwide academic community now, there exists something that is really quite a remarkable achievement—the Intergovernmental Panel on Climate Change. It is doing some tremendous work on looking at the challenges that the future climate will bring to society. Over the decades that the panel has been running, it has become increasingly concerned about the impact of climate on society.

The answer is to ensure that the aquaculture industry is completely aware of and plugged into the work that is going on in that regard. There are many elements of the IPCC process in relation to which people can volunteer and contribute, and it is important for the aquaculture side of the industry and academia to ensure that it is part of the IPCC process, so that it can ask questions and get answers. The process exists, but we have to take advantage of it.

Rhoda Grant: How do we do that? Are we doing it sufficiently? Is there good practice elsewhere in terms of the industry and academia working closely together?

Professor Owens: I am not familiar with the day-to-day interaction of the industry with the IPCC process, but my colleagues who are academics in the aquaculture field are definitely taking advantage of it, and there are multiple mechanisms that enable it. I am uncertain—simply because I am not exposed to it—of the extent to which the industry is involved in that process, but from what I know about parts of the industry, such as Salmon Scotland, a lot of academic thought is going on there. My impression is that the industry is probably aware of the process.

Rhoda Grant: Do you work quite closely with the industry? Do you have interaction with it? Is it taking on board the things that you are saying?

Professor Owens: I am answering now not as a member of the SSAC but in a personal capacity. We work with the industry but in a completely independent way, and we generate academic reports and papers that are of value—or not, sometimes—to it. We interact in a professional way, but not in any commercial way.

Rhoda Grant: In your report, you identify the need for the precautionary principle to be socialised. Can you explain what you mean by that?

Professor Owens: That is rather interesting. The problem with the precautionary principle is that, if we took it literally, very few of us would get out of bed in the morning. The fact is that risk is always there, so the notion behind socialising the precautionary principle is to introduce the pragmatism that is necessary.

There will be people—we know that there are such people, because we have heard from them in our interactions—who will say, "Well, actually, there is a risk in aquaculture and in salmon farming and therefore they should not happen—full stop." Socialising is really just another way of saying that we need to engage properly to ensure that there is a proper and better understanding of what uncertainty and risk are all about.

Rhoda Grant: Do you think that the precautionary principle is influencing the consenting process at the moment? Are we being too careful? Do things have to change?

Professor Owens: The precautionary principle is, to a certain extent, embedded in consenting; indeed, there are elements in which it is certainly written into how consenting happens. As for whether it is too much or too little, I cannot say.

Rhoda Grant: When you say that the principle should be socialised and perhaps more balanced, the fact is that, in practice, you are not sure. I suppose that I am trying to get to the bottom of what you thought was wrong in that respect.

Professor Owens: Right. I am not sure that we thought that the idea was necessarily wrong, other than in that if, as I said, one were to interpret the precautionary principle literally, one would not do anything. We were trying to say that the precautionary principle is a good principle, but there is also reality, and one can strike a proper balance in using the principle through having a better understanding of things such as risk and uncertainty. There will always be a continuum of people from those who say, "The precautionary principle says that we shouldn't do anything," to those who say, "Well, we can do this much, but only this much," and then there are others who are prepared to go further. There is no right answer.

Rhoda Grant: So, given where the tensions lie, that approach might not solve the problem.

Professor Owens: It might not. However, our hope—certainly, it is one of the areas that are coming out in the report—would lie in improving communication and having more formal arrangements. For instance, with our recommendation 1, we were hoping that there would be greater understanding among more people and members of the community of how uncertain an awful lot of the principles are that lie behind things like consenting, and how difficult and challenging consenting is.

Rhoda Grant: Okay.

The Convener: I do not know whether Rhoda Grant was touching on this, but do we need, say, the Scottish Scientific Advisory Council to carry out a cost benefit analysis and to clearly and transparently identify the risks and benefits that you know about, make a decision on whether those risks are worth taking for the outcomes and then decide what should be consented to, while still applying the precautionary principle to the unknowns that you cannot quantify?

Professor Owens: Gosh! That is a complex question. I am not sure that I fully understand it.

The Convener: To put it simply, should somebody do a cost benefit analysis as part of the consent process, and should that be a body such as your organisation, or should it be peer reviewed? If we make the decision on the basis of the protein that could be produced from one salmon farm for the whole population of Scotland, it is probably fine. However, if we look at it on a community basis, and there are 300 people who might be affected, that is a different scenario. Who should make the decision? It should not be the aquaculture industry, and it perhaps should not be the community, so who should undertake a cost benefit analysis and make a decision on whether a new site should receive consent?

Does that make the question more complicated?

Professor Owens: Well, it does. That is definitely outwith the remit of the Scottish Science Advisory Council. The SSAC would definitely be the right place in which to debate the academic merits of what you describe, but I am certain that the process you highlight is not something that it would wish to do itself.

The SSAC could possibly engage with the academic steps and rigour, and the merits of the case. I think that what you are asking is, should there be a cost benefit analysis of aquaculture? Of course, if one wanted to do that, but that process would lie elsewhere. I venture to suggest that it would probably have to happen in this building.

The Convener: Okay. Thank you.

I have supplementaries from Ariane Burgess and Emma Harper.

Ariane Burgess (Highlands and Islands) (Green): Good morning to the witnesses—I thank you for joining us.

The SSAC's report highlights the need for "horizon scanning syntheses", particularly in relation to climate change. As you said, the IPCC is doing some great work in that area. Obviously, climate change is here, so the horizon is not very far away. I would be interested, therefore, in getting a sense of how you think that science and scientists can help stakeholders to embrace the urgency that is needed.

Certainly, on the west coast of Scotland, we are seeing warming waters. We know that, although salmon can cope with warm water, it means that the pathogens on the fish increase. That is already

happening, and we are seeing a high level of mortality.

I am hearing from some stakeholders that it is not enough just to review literature from other countries and that we need things such as spatial planning and guidance for local planning authorities. How can science help us to move with that sense of urgency?

Professor Owens: That is an important point. At the root of all this, whoever is going to be making the decisions, is education. There is enough known about climate change and what is likely to happen to be able to communicate it much better and to communicate the magnitude of what is happening to the climate. That message starts at school, to be frank.

One thing that is happening—the Scottish Association for Marine Science is involved in this—is a big increase in science, technology, engineering and mathematics, and in bringing that type of information into society, starting at the lowest levels.

There is a real risk there—one hears about anxiety in schoolchildren, which we have to address. Nonetheless, the process starts with education, at all levels, and then it is about making clear, in communicating with those in the industry, what the range of impacts will be. As you mention, the fish themselves can largely cope, up to a point, with the warming; it is the pathogens that are the problem.

We are beginning to know enough about the areas in which there is a lack of sufficient knowledge—that is part of the research piece. We have a rough idea, and a hazy view, of the topics that really need to be addressed. Enough is known about the climate changes that are happening and the areas of society where there will be impacts. Certainly, enough is known about the general topics with regard to what is likely to happen to the salmon industries and, therefore, what further research is needed.

Ariane Burgess: Could you just unpack the areas that are known, as hazy as they are?

09:45

Professor Owens: I think that you have described them very well. There are impacts on the fish themselves. For example, there is a whole piece of work on the physiology of salmon, some of which is already known about, but not all. That is also the case with the interaction of salmon with parasites and diseases. On invasive species, we are hearing that the current infestation of micro jellyfish is probably a climate change impact. I am not sure that I want to get into a debate on that, because it was not covered by the report, but—dare one say it?—interactions between farmed and wild salmon, and the general decline in salmon populations, are almost certainly linked with climate change to a certain extent. There is a lifetime's work there.

Ariane Burgess: Thank you.

Emma Harper (South Scotland) (SNP): Good morning. Thanks for coming. I am looking at your report, which identifies issues with the fragmentation of research—you have mentioned communication and having wider engagement—but the regulation of aquaculture involves local authorities, the Scottish Environment Protection Agency, the Government's marine directorate and the Crown Estate for the sea bed. There are various bits of regulation. Does the wide range of aquaculture regulators contribute to that fragmentation of research?

Professor Owens: Yes it does, in part. To a certain extent, all those players contribute, either directly or indirectly, to funding research and setting research questions. Having multiple customers—if one can use that word—for research outputs, and also multiple funding sources, all contributes to complexity. There is no doubt that the system is fiendishly complex—you only have to look at a route map on how one gets consent to be able to see that—and that definitely plays out into the funding arena.

The important thing about funding, though, is being able to do both fundamental research—what we might call blue-skies research, which involves discovering unknown unknowns—and also applied research, which might involve work with a very clear end benefit. It is therefore necessary to have a range of funders. One would not want to say that there is only one source of funding, because that would be wrong. There definitely has to be an ability to cover the continuum of research, from what we might call uber blue skies at one end through to very hard, almost consultancy, work at the other. We have to be able to cover that spectrum but, because of the varying needs, there will always be a tendency for things to be a bit complicated.

Ariane Burgess: Convener, could I ask a clarifying question?

The Convener: Yes.

Ariane Burgess: You mentioned activity ranging from blue-sky thinking research to consultancy work. When you say "consultancy work", what is in your mind?

Professor Owens: That is just about answering a technical problem that part of the industry might want to examine. The output is perhaps unlikely ever to get into the scientific literature, although that sometimes happens. The intention is always

very clear, though: it is to answer a specific question about a specific problem.

Ariane Burgess: Thank you.

Colin Beattie: I would like to continue on the topic of the fragmentation of research. Would I be correct in taking from your report that aquaculture research is somewhat isolated from other research areas?

Professor Owens: Some of it is, just by its very nature, in the sense that it has some unique features. Many of the elements of aquaculture research, such as the physiology of fish and nutrition of animals, for example, are very well connected with the wider scientific community.

A big feature of the modelling that is done to underpin some of the consenting has its roots in ocean physics, which is a very big worldwide community. The scientists that are involved in, for example, modelling aquaculture outputs are also involved in dealing with the circulation of the North Atlantic Ocean. The underpinning science that lies behind that is generally very well connected to the wider scientific arenas, I would say.

Colin Beattie: So, the fragmentation does not prevent co-operation and working with other areas of research where there is crossover. How significant is that?

Professor Owens: It is vital that the science that goes into underpinning aquaculture—both its practice and its consenting—is connected and is credible. It must be part of the mainstream scientific endeavour. It should not somehow be seen to be second-class science or separate in any way, although it clearly has to be separate in the sense that it is very specialised.

Colin Beattie: Yet, there is a concern about fragmentation. Is that driven by the issue of multiple funding sources?

Professor Owens: Yes, I think that that is right. As we mentioned earlier, it is the variety of players involved that creates the potential for fragmentation.

Colin Beattie: How can that be fixed?

Professor Owens: I understand that one of the things that has been set up is the Scottish aquaculture council. I am not hugely familiar with it, but I believe that it is an attempt to look at the whole piece and try to minimise that fragmentation. That is one area.

The other area is to pursue what we suggested in our report. Recommendation 1 is to have more round tables where all the elements of aquaculture—the suppliers, the industry, communities and the people—get together in meaningful ways.

Colin Beattie: Aquaculture cannot be unique in having a unique direction of travel but still having areas of crossover with other research. You have already identified the multiple funding sources as an issue. Is that the only driver that is causing the fragmentation?

Professor Owens: You are probing my personal understanding and views rather than what we covered in the report. In part, it goes back to the point that I made earlier that aquaculture is a new industry, so it has not had time to mature in the way that other industries, such as farming, for instance, have. There has been a long-established evolution of how farming is understood by the public and how agricultural institutes exist, and communities and committees have been set up in agriculture.

I do not know whether that makes the whole thing any less complicated, but less attention is being paid to it, which is part of the issue. A lot of attention is being paid to aquaculture while other complex systems, such as the agricultural system, are now much more embedded in communities, science and society than aquaculture is. We might just be seeing a problem here that exists elsewhere and making a bit more of a meal of it than perhaps we need to. That is very much a personal view.

Colin Beattie: You have indicated areas of what I will keep saying is research crossover. Do you have any examples of good practice in research co-ordination where there has been successful working together?

Professor Owens: I am not sure how to answer that. I could give you examples of where that is happening within a relatively restricted area of aquaculture. For example, there is some really good communication and interaction between disciplines in trying to understand the sea lice issue, where people are interested in parasitology and hydrodynamic modelling, for instance, and all that is entailed there. That is a good example of a community getting together in crossover disciplines.

This is not really my field and it did not come up in our report, so I am trying to think of an example of a good crossover between aquaculture and a wider area such as agriculture. That almost certainly happens within fish health, but that is completely outside my arena.

Colin Beattie: Thank you.

Ariane Burgess: I am going to ask a question about good practice, but I want to put in a thought about farming and why we are not paying so much attention to it. My sense is that we have very good practices on the land in animal welfare and that type of thing, whereas understanding what we are trying to do in the marine space is new to us.

In terms of good practice, one of the key findings in your report is that there is good practice in Norway, where the Norwegian research council provides for

"four aquaculture-relevant funding themes every year"

and you say that that could be replicated by the UK Research and Innovation research councils. You have made that recommendation and it seems as though that could be a way of dealing with fragmentation. I got the impression that there is a bit of a competition for funding if different bodies want to look at a particular area. Could you expand on that a little bit more?

Professor Owens: When we were working on the report, we came back time and again to what they do in Norway and whether it would be a good idea. The chair deliberately engaged an expert from Norway to join our working group. It was revealing to see how the industry works there and how the links with consenting and government happen in Norway. If we could match that in Scotland, we would largely be better off. There is definitely good practice to be had there.

Ariane Burgess: What would be the barriers to that? What do we need to happen to get that kind of good practice happening here?

Professor Owens: This is my personal view now. We need the will to do it, quite honestly. It would be challenging to get the UKRI research councils' funding to be influenced by good practice in Norway, because it is definitely counter to the research councils' funding philosophy. The research councils definitely pay attention to societal needs and so on, but they are much more focused on the academic side and the blue skies end of the research. I do not think that saying, "Actually, all this funding should go through UKRI" is a likely outcome, frankly.

10:00

Aside from that—this is definitely a personal view; we did not come to this conclusion in the report—it is difficult to see how adopting some of the better bits of the Norwegian system could not benefit us in Scotland. That is very much a personal view.

Ariane Burgess: Okay. You are saying that adopting approaches that are taken in Norway would be a good thing for Scotland.

Professor Owens: I think that some of them would be, definitely.

Ariane Burgess: Do you want to name anything specific?

Professor Owens: The way that the funding flows is definitely a model that we should consider.

Edward Mountain: Nick, thank you very much for your evidence. I will ask you a couple of questions to make sure that I understand it. The precautionary principle is that, when the environmental hazard is uncertain or the stakes are high, you do not do it. Do you agree with that?

Professor Owens: As a definition, yes.

Edward Mountain: Do you support the precautionary principle?

Professor Owens: The precautionary principle has to be a sensible thing to follow. The challenge, as I mentioned earlier, is that if we took it literally in everything, we would not get out of bed in the morning.

Edward Mountain: I absolutely understand that, but you also went on to say that there is a lack of knowledge of fish farming. You mentioned lice treatments. The effects of emamectin benzoate and hydrogen peroxide, which are two of the main treatments, are not known. There is no evidence of whether the lice are building up resistance, whether the treatments are working or what the effects on other crustaceans are. Do you agree with that as a summary?

Professor Owens: On the very last point, we have a pretty reasonable idea of the crossover impacts.

Edward Mountain: The treatments will affect other crustaceans, such as crabs, lobsters, shrimps and prawns.

Professor Owens: They can do, yes.

Edward Mountain: It seems that we are doing something that we know has an adverse effect on the environment, so we are not sticking by the precautionary principle. You also went on to say that fish farming is a new industry and that they have not got it right and that, as legislators, we might not have got it all right. I think that that is a summation of what you said. With 25 per cent mortality among fish that are put to sea, can we just allow for things to carry on as normal if you believe in the precautionary principle?

Professor Owens: What we do not know—perhaps it is for society to decide—is whether a mortality rate of 25 per cent is acceptable. For some people, one fish dying is too many. As a society, we know that producing food will have an environmental impact and, as a society, it is up to us to decide where on that spectrum we are prepared to land. Really, that is what the precautionary principle comes down to.

Edward Mountain: Fish farmers themselves have said that 25 per cent is unacceptable. They lost 35,000 tonnes of fish in 2022 and 33,000 tonnes of fish in 2023. The mortality rate is not

moving. Does the precautionary principle tell us to just continue and let things go?

Professor Owens: No, certainly not. We are definitely straying away from my remit here, but I am happy to do that in a personal capacity. There is not a fish farmer around who is not desperately trying to reduce the mortality rate. They are businesspeople, and it makes no business sense, even if it is for no other reason, not to try to do something about that.

Edward Mountain: Thank you for your personal views, Nick.

The Convener: I do not believe that we have any further questions. Thank you very much for your helpful evidence. I will suspend the meeting until 10:15, to allow for a change of witnesses.

10:04

Meeting suspended.

10:15

On resuming—

The Convener: Welcome back, everybody. We will now hear from representatives of the Scottish Environment Protection Agency. We are joined by Lin Bunten, the chief operating officer for regulation, business and environment, and Mike Montague, an aquaculture specialist.

We have approximately 90 minutes for this session. Before we move to questions, I invite Lin Bunten to make a short opening statement.

Lin Bunten (Scottish Environment Protection Agency): Thank you for stating my title, which means that I do not have to repeat it.

I thank the committee for giving us the opportunity to provide evidence today. As a chief operating officer, I have responsibility for SEPA's regulatory activities in all the sectors that we regulate throughout Scotland. I bring all my 35 years of experience—25 years of which are in regulation—to the role that I deliver. Today, I am supported by my colleague Mike Montague.

SEPA is one of three fin-fish regulators in Scotland. Our role is to protect and, when necessary, improve the marine environment, which we do by ensuring that the aquaculture industry meets environmental standards.

We gave evidence to the Rural Economy and Connectivity Committee as part of its 2018 inquiry into salmon farming and we indicated, at that time and subsequently, that we were in complete agreement that the status quo was not an option. The committee's subsequent report highlighted 65 recommendations, 22 of which involved SEPA in their implementation. We provided the committee with further evidence in late 2020.

Our written evidence provided in advance of today's meeting outlines the further work that we have undertaken and summarises some of the early impacts that we are seeing.

Since 2019, we have introduced a wide range of improvements, many of which have been centred around the development and implementation of an enhanced regulatory framework for protecting the coastal marine environment from discharges from fish farms. The framework provides significantly enhanced risk assessment, modelling and environmental monitoring. Since 2019, all new and expanded farms have been regulated under the enhanced framework and, by the end of this year, we plan to have completed the roll-out of the same standards to all remaining operational farms.

We have also introduced new services, which I commend to the committee as a demonstration of our commitment to supporting the right developments in the right locations. We have received positive feedback on the improvements from a wide range of stakeholders, which sometimes is, I have to say, no mean feat.

The regulatory landscape has been simplified to provide greater clarity. That includes the transfer to SEPA, in 2020, of wellboat medicine discharge regulation and, in February this year, of responsibility for managing interactions between sea lice from fish farms and wild salmon.

I am pleased to say that we are starting to see the impact of the changes. They are helping developers to identify the most suitable locations for new farms that better align to where there is environmental capacity to accommodate them. That is noticeable in the emerging trend of a smaller number of larger farms in more dispersive coastal areas.

To support the implementation of the reforms, we have enhanced our programme of compliance assessment, which continues to be made up of three key strands: checking data and sample returns, checking sites through inspections and undertaking sea bed surveys. In 2023, we inspected 120 sites—I will not go on for much longer, convener—whereas this year we plan to inspect 112 sites. We are inspecting roughly 60 per cent of operating sites annually, and every data return made by every farm operator from every site is checked for compliance. This year, we plan to undertake 22 sea bed surveys.

Completing the roll-out of the framework is a really big step and means that, as farms undertake the enhanced monitoring over the next two to three years, we will have a fuller understanding of the impact of those farms. We are led by evidence

to target action, where that is necessary, to ensure compliance.

We remain committed to supporting further innovation and to reforms for the sector and for stakeholders. With our industry partners, we are already trialling a new integrated consenting process, and we are looking at further enhancements to that.

We are also planning to consult in early 2025 on proposals for an enhanced environmental performance assessment scheme that will cover all the regulated businesses that SEPA has responsibility for, including the aquaculture sector. Scotland's aquaculture sector is nationally significant and, as with all the sectors that we regulate, we have an important role to play in further strengthening its sustainability.

We have moved on considerably from the status quo that was noted in 2018. Although there is still more to do, significant progress has been made on the regulatory frameworks that we use, the support services that we provide and our environmental monitoring. I know that the committee will want to explore that progress, and we will do our best to provide you with information to help you to do that today.

The Convener: Thank you. I do not think that we have any further questions: you have covered everything. [*Laughter*.]

I will kick off by asking whether and how SEPA has changed since 2018-19 and whether you think the organisation is now fit for purpose in line with the aquaculture industry's wish to increase at the rate that was suggested, which I think was for a doubling of output. Is that still your view? Do we have a regulatory framework that will allow aquaculture to expand, bearing in mind the environmental impact that it might have?

Lin Bunten: I can say a lot in response to that. First, I have confidence that the steps that we have taken over the past few years as we have developed our framework have put us in a better place and that we will be in an even better place once we see implementation of the enhanced monitoring conditions across the board.

We undertook a charging consultation. The cost of our activity is broadly covered by the fees that we derive from our charging scheme and we reviewed that scheme as part of the change to the regulatory framework.

We have increased the number of staff who focus directly on aquaculture from the mid-30s to the mid-40s—I cannot do the maths in my head—increasing the number of staff across a range of specialist functions. Those are the monitoring staff, but we have also enhanced our permitting team, which helps the industry. We are ensuring that we, as the independent environmental regulator, are putting in place the right steps to protect the environment from activities that sit in that environment. It is about environmental capacity and about putting activities in the right place.

I feel that we are in a better position, but we will review where we are as the years roll forward, and we will ask whether the tools that we have now are still fit for purpose.

Rachael Hamilton (Ettrick, Roxburgh and Berwickshire) (Con): I will dig a bit deeper into the REC Committee's recommendation that

"urgent and meaningful action needs to be taken to address regulatory deficiencies as well as fish health and environmental issues before the industry can expand."

The industry has clearly expanded dramatically. Mortality rates are high. Could you flesh out and put some numbers behind the mention in your introductory statement that you are going to increase the number of sea bed surveys? The figures that we have had are that, out of 210 farms, SEPA submitted 72 sea bed survey results. Could you put some figures behind the number of inspections out of the total number, rather than the number that you have done?

Lin Bunten: I talked about 60 per cent.

Rachael Hamilton: Sixty per cent.

Lin Bunten: Yes. The figure for inspections was 60 per cent over this year and last year.

Inspecting an aquaculture activity is complex. Some of that activity is land based, but such facilities are not permanently manned, so we have to make arrangements in advance. We undertake both announced and unannounced visits. I think that the committee will have evidence and information on the background to that in the pack that we provided. This year, we intend to visit—I will just repeat the figures—112 sites, which is roughly 60 per cent of active sites. We will also undertake 22 sea bed surveys, and we plan to undertake three unannounced visits.

Rachael Hamilton: The figure that we heard in evidence—I think that it was on 5 June, but I cannot remember the name of the gentleman who gave it—was that, out of 210 farms, SEPA submitted 72 sea bed survey results. Does that mean that the data that you have collected, and which we are seeing, is behind? Is there real-time data that we can see?

Lin Bunten: Can you be a bit more precise about the data that you are talking about?

Rachael Hamilton: I am quoting directly from the record of that meeting, which says that

"out of 210 farms, SEPA has 72 submitted sea bed survey results".—[*Official Report*, *Rural Affairs and Islands Committee*, 5 June 2024; c 16.]

That figure does not represent 60 per cent.

Lin Bunten: Those are the operator sea bed results that relate to—

Mike Montague (Scottish Environment Protection Agency): They are biological.

Lin Bunten: —the biological surveys undertaken by operators. That is the information that you have in front of you.

Rachael Hamilton: I see. So, that is different from what you are providing.

Lin Bunten: Sorry—yes. It is different from the information that I am providing. We undertake our own sea bed analysis in addition to the monitoring requirements that are placed on operators through their permits.

Rachael Hamilton: Okay. The question is whether the environmental issues have been addressed. Will you expand on that? You have been talking about the numbers of inspections that you carry out and about SEPA's obligations, but have the environmental standards improved with the expansion in the number of salmon fish farms that we have seen?

Lin Bunten: From the information that we have, if I compare the figures for 2017 with where we are today, we are seeing an increase in compliance. However, we are also seeing an increase in the intensity of the sampling that is undertaken at farms that are now part of the new regulatory framework.

Rachael Hamilton: Does the regulatory framework apply to existing or new farms? In your introductory statement you mentioned the number of farms that were complying and the number that you still had to inspect. Can you put some numbers behind those statements?

Lin Bunten: We are in a transition. The framework immediately applied to any new applications or applications for increased biomass. We have subsequently moved three of the seven companies' licences entirely on to the new framework and by the end of this year we will have completed that process. I think that we are sitting at 35 per cent of active licences still to be transferred over during this year, so 65 per cent of active salmon farms are currently operating under the new licence template.

Rachael Hamilton: I am trying to understand this, because I found it very difficult to extrapolate data from your website. Have the environmental issues that were addressed by the REC Committee been improved, or is it still too early for SEPA to monitor those improvements?

Lin Bunten: Given the way in which the monitoring exercise works, it depends on how we assess the likely risk from farms. There is a time lag for those, which differs from that for what we consider to be low-risk, previously compliant farms. Because of the number of samples that require to be analysed, the process is a very manual and intense one, so we are always running behind on environmental compliance measurement.

There is no real-time measurement with sea bed surveys. I expect to report on the sea bed survey compliance data for the full 2023 year before the end of this year, and some of our work—for example, the analysis verification checks that we undertake—still has to be concluded before we can actually do so.

That is not uncommon for all of the activities that we regulate. As the activity that we are talking about—fin-fish aquaculture—is a batch process, what we are looking for is information that allows us to identify where issues have occurred and ensure that we are either adding them to our list to include in own independent monitoring in subsequent years or taking action as necessary to prevent recurrence. That is the regulatory process that we go through.

10:30

Rachael Hamilton: Do you measure yourself on the number of sites that you inspect, the level of compliance or the outcomes for the environment? Have the environmental issues been addressed?

Lin Bunten: We have seen an increase in compliance. You will have to forgive me, as I was not involved in the detail of the 2018 committee inquiry and I cannot immediately bring to mind the precise environmental issues that triggered it. What I can say, though, is that what we are seeing now, based on the evidence that we have gathered ourselves or which has been reported by the industry, is an improvement in compliance. I am not sure whether that answers your question.

Rachael Hamilton: I am sorry, but it does not.

I note from your own information issues such as

"Discharge quality failures ... Seabed surveys failing licensing conditions ... Medicine/Chemical treatment causing sediment samples to exceed environmental quality standards".

On top of that, there are "poor data returns" for various reasons, whether because of the withdrawal of veterinary advice, the weather or whatever. I am just trying to establish a picture here. I understand that you are looking at the process while I am looking at the environmental outcomes of SEPA's actions, but, as far as I can

see—unless you can prove to me that this is not the case—some of those areas have been left wanting.

Lin Bunten: Perhaps I can reiterate by amplifying or adding to what I have already said. With regard to the impact on the environment, from the analysis, the monitoring work and the compliance checks that we are doing, we are finding an improvement. I think that that goes to the heart of your question.

Rachael Hamilton: Finally, where do I find that information?

Lin Bunten: The information is currently on—

Mike Montague: The Scotland's Aquaculture website.

Lin Bunten: Yes. I would also highlight a piece of work that I talked about in my introductory statement—our environmental performance assessment scheme, which is being worked through as a proposal. Historically, in the 10 years running up to 2019, we, as an agency, were able to provide holistic compliance data for all the activities that we regulated. However, we have not been able to provide that information since 2019, and we are developing a new scheme that will allow that scale of information at a holistic, comprehensive, calibrated-across-industries level to be provided to the public. That is one of the developments that we have in hand.

Compliance data, as it exists for this sector, sits on the Scotland's Aquaculture website.

Mike Montague: It is worth highlighting the lag in the data. We want to focus our efforts or our understanding on sites when they are at their worst with regard to their environmental impact. As we require to monitor only every two years, at the peak point of the production cycle, there is always a lag in the data. It probably runs about a year behind when it comes to getting the data in, with operators analysing it and submitting it to us so that we can review it and get the result out. There is always a natural lag. The 2023 data is up at the moment and the 2024 data will follow.

Rachael Hamilton: I apologise to my colleague Emma Harper. A lot of my questions have rolled over into questions 9 and 10 in our papers. My apologies.

Emma Harper: That is okay, Rachael, as another supplementary question has come to mind.

I am looking at information on the impact that Covid had for salmon farming. Fish were retained for longer, so they were larger and there was more biomass. That could have an effect regarding sea lice. Then, there is the question of discharge from the pens. Did the pandemic have an impact on data gathering? Were there requirements to be a bit flexible and to change things? People forget that Covid was not just about lockdown for us; it affected industries, businesses and communities, including salmon farming. Could you say a wee bit about how Covid impacted the data?

Lin Bunten: It had an impact on the ability to collect data. The core of the information that we need is the sampling information or the data returns information. It can depend on our ability to go to an operator's location and gather the information from them independently. All the restrictions during the Covid periods had an impact on what we were able to do and what the operators were able to do. We acknowledge that. For a short period, we were able to be flexible and support the industry in its operations, recognising that we would continue our monitoring activity thereafter.

Emma Harper: Were you playing catch-up for a while? As you have indicated, 65 per cent of salmon farms are now inspected and supported, which means that they are meeting the regulatory requirements.

Lin Bunten: Yes. A number of different figures come into it. We inspect about 60 per cent of the total number of operating farms on an annual basis, which is about 190. That gives us the figures of about 120 or 112. We have transferred 65 per cent of the operating farms on to the new regulatory framework. As Mike Montague has said, at the end of the two-year cycle or at the most appropriate point on the cycle, that requires a very comprehensive, enhanced operator monitoring requirement for sea bed sampling. On a programmed basis, we will then spot-check a number of farms in a particular year. This year, we will do sea bed surveys of 22 farms.

That information, which is generated by the operators and by us, takes time to be analysed, synthesised and then reported on.

The Convener: Emma Roddick is joining us remotely.

Emma Roddick: I want to pick up on Rachael Hamilton's line of questioning. I recognise that there is a gap between statements that compliance and environmental impact are improving and that environmental issues have been addressed. If we take the 2018 committee's statement that environmental challenges must be addressed as a priority before expansion can continue, are you comfortable that that is true and has happened, given that expansion has taken place?

Lin Bunten: The biggest improvement that was made in the period that we are talking about is the new regulatory framework. I believe that that provides us with significantly greater information,

which enables us to speak with confidence about the impacts of the industry on the environment. If I could, I would draw you a picture of how the sampling exercises that are required now are significantly more comprehensive than what was in place for the industry at the point that the Rural Economy and Connectivity Committee's inquiry was undertaken.

I can only speculate, but I think that the reason why we got to that point is that the industry has evolved and grown quite dramatically over a period of time, and we all need to recognise that regulation will always fall behind innovation—innovation comes first and regulation follows. However, the framework that we have in place now gives us significantly more comprehensive information. Once we have a longer period of familiarity with the outputs from that framework, we will have a better understanding of whether we have gone far enough. When we have several more years' worth of information to confirm the continuation of what we are seeing now, which is an improvement in compliance, I will say that we have gone as far as we can, but we will always be open to review. I hope that that answers your question.

Emma Roddick: It certainly helps. In terms of the remaining environmental impacts, what are the biggest challenges?

Lin Bunten: That is a really interesting question. The biggest challenge is that, if the industry wishes to grow further—I believe that it does—it must deal with the fact that the locations that have historically been used are unlikely to be able to sustain greater capacity. There is a need to balance environmental capacity with impact from a particular activity, which involves innovation and supporting the industry as it takes greater strides towards either larger offshore farms that are further away from the coast or other innovative approaches that can be taken, such as closed containment.

The Convener: Rachael Hamilton has a brief supplementary question.

Rachael Hamilton: My understanding is that SEPA does not have a duty to implement improvement and that you, as an organisation, do not have any penalties if you do not discharge your functions. Is that correct?

My second question is, have you issued any orders to withdraw or varied authorisation in relation to the sites that you have inspected for compliance?

Lin Bunten: On the first question, are you asking about sanctions on SEPA or sanctions that we can impose?

Rachael Hamilton: Do you get penalties or fines if you do not meet the functions that you are charged with by the Scottish ministers?

Lin Bunten: Not that I am aware of, but I suggest that that would be a question for the Scottish Government to answer. We operate at the discretion of the Scottish Government.

On the second question—

The Convener: We are going to move on to the issue of enforcement later in this session, so we will cover that question then.

Rachael Hamilton: Sorry, convener.

The Convener: It is quite all right.

Continuing on the theme of environmental impacts, Ariane Burgess has a question.

Ariane Burgess: Good morning. I want to focus on the use of chemicals. How have the regulatory changes that have been made since the Rural Economy and Connectivity Committee's report impacted on chemical use and waste arising from fish farms?

Lin Bunten: Our role is to regulate chemical use, and we have not seen any non-compliance around chemical use. We have seen declines in certain areas.

Mike Montague: Over the past 10 years, we have seen a decline in the amount of medicines that are used on farms, and that has probably stabilised a bit over the past five years. Our remit is to use the environmental standards to set limits on a site-by-site basis. We set limits and, if the operator stays within those limits, the impact on the environment is at a scale that is deemed acceptable.

10:45

Ariane Burgess: So, you are saying that the 210 farms will have different limits on the medicines that they can use, depending on circumstances such as their location. I am interested in understanding how many farms are still using emamectin benzoate in the same quantities as in 2018. Do you have that information?

Mike Montague: We have that information and we can follow up with it.

Lin Bunten: We can provide that information to the committee afterwards if that kind of detail would be helpful.

Mike Montague: It is fair to say that the bulk of the operational farms are still on the standard from 2018.

Ariane Burgess: Will you say that again, about the bulk of the operational farms?

Mike Montague: They are still using the standard from 2018.

Ariane Burgess: I thought that we were supposed to be reducing that.

Mike Montague: Since the UK technical advisory group process identified a new standard, it has been applied to new and changing sites, but we await Scottish Government direction on implementing it for existing sites.

Ariane Burgess: That is interesting, is it not? It is tricky, because there are different actions for existing sites. Some things—maybe sea lice things—are rolled out on existing sites, but the emamectin benzoate standard will not be rolled out, because we are waiting for the Scottish Government—

Lin Bunten: As Mike Montague said, it has been applied to anything new—

Ariane Burgess: Yes, I understand that, but I am most interested in existing sites, where that has not happened yet, because we are waiting for—

Mike Montague: —the direction from the Scottish Government. That is the standard process.

Ariane Burgess: Do we know the timing on that process?

Lin Bunten: I think that that is a question for the Scottish Government.

Ariane Burgess: Urgent action was called for in 2019, I think, and we are now quite a long way off from that.

In connection with that, I am interested in understanding what is being done to manage the chemical impact of the sector on the environment, in particular on the sea bed.

Lin Bunten: We set the standards in the permits that we issue, precisely for the purpose of managing the impact on the sea bed.

Ariane Burgess: But what is being done to monitor those?

Lin Bunten: We have monitoring requirements, which are set. We have transferred 65 per cent of existing farms to the new framework, which has that new monitoring requirement. The other 35 per cent will transfer this year. Just to note a difference, the figure that we have is 194 farms, I think, not 210.

Mike Montague: It is probably also important to note that, under the old framework, there is still a monitoring requirement; it is just a much smaller subset than what is under the new framework. The old framework requires four stations around a single transect, whereas the new framework requires 28 stations across four transects, which it gives us a much better spatial understanding of the farm's impact on the sea bed.

Ariane Burgess: Okay. If you start to understand that there are problems in a situation, how do you manage the chemical impact?

Lin Bunten: There are steps that we can take. We would move to considering our enforcement steps. One thing—probably the most powerful thing—that we can do is reduce the limit of the biomass in a particular farm.

Ariane Burgess: Do you ever do that?

Mike Montague: Yes. Historically, under the old framework, we often did that. One of the big benefits of the new framework is that, when we move everyone on to that and start moving forward with biomass reductions on the back of failures, the data that we get from the new framework will allow us to calibrate models and forecast what a sustainable biomass would be. In the previous iteration, it was partly guesswork. If it failed, we would reduce the biomass by a certain percentage, then we would run again and see what the results were. Under the new framework, we will have enough of a data set to calibrate the model, which should give us a sustainable biomass.

Ariane Burgess: Edward Mountain may know more about this than I do, and he will have questions later, but, overall, some of the trigger is around the polluting effects of the industry. We are talking about solid waste, bath chemicals and pesticides, and that is what we are trying to reduce. That is a tricky thing. It comes back to the question that the convener or Rachael Hamilton asked about how we balance the expansion of the industry while we are trying to address its environmental impacts.

There will inevitably be more solid waste, because we are expanding the number of fish in the cages and the amount of chemicals and pesticides that need to be used to mitigate various problems such as sea lice is also expanding, although I understand—we will get on to a question about this soon—that there are attempts to use fewer chemicals and pesticides through using cleaner fish. That is what we are trying to do, and that is a challenging thing.

Lin Bunten: If I can attempt to answer your question, in our role as a regulator we are always attempting to achieve a balance between an activity of some sort and the capacity of the environment to deliver that activity sustainably.

Based on the information that our enhanced modelling has been able to deliver under the 2016 framework that we brought in on the impact on the sea bed, sea lice and wild fish, I think that we will

see more—we are already seeing some of it—movement away from some of the slower-moving water areas to areas where the water is more dispersed. The consequence of that is that the impact will be far less and in a better location.

To me, the key thing is that the industry is recognising that there are other, better places to move to when it is looking to increase the footprint of its activity. If we think about how the industry has grown since the 1970s, we are seeing things shift dramatically. We will continue with that trend of moving to faster-moving waters where there is more dispersion.

Ariane Burgess: I want to stick with impacts and to understand whether the regulatory framework touches on this or whether it is something else separately. At the moment, there is permitting of one farm at a time. Why do we not look at the cumulative impact if, for example, a number of farms are close together? I hear your point that the industry is beginning to think about moving offshore and getting larger, and maybe that will change things, but, at the moment, existing farms are having a cumulative impact with things such as hydrogen peroxide, but we are not looking at the whole permitting system. We are already looking at a situation where there are a number of farms, and then we are saying that another farm can go here but we are not looking at the overall situation.

Again it is about balance. Surely it would be better to have an overview of the impact of the entire industry on other users of the sea. For example, we know that the chemicals have an impact on commercial fish stocks, particularly crustaceans—crab, lobster and prawns—on our priority marine features and on our marine protected areas. There is something there about needing to look at the bigger picture. Is that something that this new framework does for you?

Lin Bunten: The more recent work around the consenting task force is bringing together regulators in the up-front decision-making process, which is pre-application discussions around capacity for the environment, and the need for various different regulators to have various different pieces of information provided, and we are working on doing more of that.

In Scotland, environmental regulation for any kind of activity almost works on a first-come, first-served basis and that is quite different from the way in which the Norwegians operate. We operate on a case-by-case basis, but that is in the context of what is already in the environment. It is not blind to other activities that are already there, and that applies on land as it does at sea.

Ariane Burgess: Okay. I have just a final supplementary—

The Convener: I am sorry, but we have to move on.

Colin Beattie: Stakeholders have raised concerns about SEPA's capacity to monitor sea bed survey results, saying that the pace is very slow. The Coastal Communities Network has stated:

> "At present, out of 210 farms, SEPA has 72 submitted sea bed survey results, mostly from 2023, that have not been assessed, and some of those farms have been restocked. SEPA does not even have the capacity to assess those results, so providing it with more information is not really helping. It is not able to do its job properly."—[*Official Report, Rural Affairs and Islands Committee,* 5 June 2024; c 16.]

How would you respond to that?

Lin Bunten: We would always like to be faster in turning data around and providing it to the public in a transparent manner. However, as I have explained, the surveys that we undertake take a long time for us to analyse, because it is a very manual process. We also receive information from operators that undertake their own sea bed surveys. They have to go through that process before we can see that information, and then we have to do a quality check assessment. We are looking to innovate and at alternative and significantly faster mechanisms, to allow us to identify where there might be issues, and eDNA is an example of what we are looking to bring forward in the future.

Am I, as a regulator, ever satisfied that we are able to deliver as swiftly as I or the public would like? We have to balance so many competing demands across all the activities that we regulate that we have to prioritise where we see the necessity to do so. It is a difficult balancing act that we have to undertake. I respect the Coastal Communities Network's view, but we take a risk-based approach to assessment, analysis and putting our efforts where they need to be put.

Colin Beattie: I think that you are agreeing that the pace is slow. How slow is it? On average, how long does it take to do an assessment?

Lin Bunten: I think that we have already said that it can take up to a year before we provide the compliance data from the previous year's surveys. When I think about it, I would say that that is fairly consistent across a lot of our compliance activities. We produced results in late 2020—or, I think, early 2021—for the year 2019 across all of our regulatory activities.

Colin Beattie: Does a year not seem like an awfully long time?

Lin Bunten: It is a long time, but it is a big task that we have to undertake.

Colin Beattie: Are you satisfied with the level of monitoring that you are doing? Are you satisfied with the capacity to monitor effectively?

Lin Bunten: As I said earlier, this is a charge-based activity, and we have assessed, on the basis of risk and relative risk, where we feel that we need to direct our efforts. That is where we have put our efforts. If I felt that we were not able to target the highest-risk activities in a timely manner, I would not be as confident that we were using our resources in the best way possible.

Colin Beattie: Do you think that you are keeping up with demand?

Lin Bunten: We are doing what we can with the resources and the technology that we have available. Things are moving on the technology front.

Colin Beattie: You touched on the fact that this is a highly manual process. Why is that? Is it simply because you have not been able to invest in the technology?

Mike Montague: No, it is just the standard process. We do our assessments by looking at the fauna on the sea bed. One sample can have thousands of different fauna, and they need to be manually and individually counted. We have 28 stations and, if each potentially has three samples, you can see how it all adds up with regard to the number of days of work needed to look at the impact.

It is all about striking a balance between ensuring that we understand the environment and being able to report back. We could do less to understand the environment and, by doing so, get a quicker turnaround, but we think that the right thing to do is to understand the spatial impact. As Lin Bunten has touched on, we see eDNA as having potential in the future, and we have started working on its development jointly with the sector through the Sustainable Aquaculture Innovation Centre. If we could get eDNA up and running, we could turn things round quite well. It would certainly make looking at results significantly quicker.

11:00

Colin Beattie: Have you done comparisons with other countries to see how they tackle the issue?

Lin Bunten: We look across the international scene at those who also undertake these kinds of surveys, but we do things our way in Scotland. However, with regard to the role that our scientists play in physically looking at a sample, sorting through it and identifying what they are seeing, we have, at the moment, no other way to get that information, and we see no other way elsewhere in the world for that information to be taken and turned into the rich information that we need in order to be able to identify the impact on the environment.

It is critically important work. We have highly skilled staff who do that work, but it is very manually intensive. It takes expert judgment and experience to be able to sort through, quantify and identify what is seen within a sample and to report back on that. That is what takes the time.

Mike Montague: The issue is tied to the water framework directive standards. Again, we are trying to fit in with those, and we want quantifiable results for our sea beds that compare to a good status under those standards.

Colin Beattie: Timewise, how do you compare to other regulatory bodies for achieving that?

Lin Bunten: That is something that we will have to come back to the committee on.

Colin Beattie: I am just interested in seeing where you are in relation to your comparators.

Lin Bunten: Okay.

Emma Roddick: Following on from that, I understand that we are talking about complex data, but it is important that other people are able to scrutinise the data and understand the situation. What is SEPA doing to improve data transparency to enable that shared understanding of the evidence?

Lin Bunten: The information is published on the Scotland's Aquaculture website. That information has grown in volume and subject matter over the period since 2019.

Mike Montague: We now publish information on all medicine use, biomass compliance and the outcomes of the sea bed surveys.

Emma Roddick: I appreciate that. The committee has already heard during the inquiry that the data is open to interpretation, which has led to various witnesses taking different views on the conclusions that can be drawn from the data that is available. We have had opinions from each end of the spectrum. What is your take on that? How can the data best be interpreted, given that it is possible for the information that is out there already to be interpreted in such wildly different ways?

Lin Bunten: It would depend on the particular type of data. Mike Montague has mentioned that the water framework directive is the directive against which we classify water bodies. It sets the standards against which we compare the information that we generate through sea bed surveys. In terms of interpretation, we are comparing things with UK and international standards. The information could be interpreted to determine whether the comparison with the

standard was good or bad, but I am not sure that I agree that the fundamental information is open to interpretation in terms of its absolute value.

It is hard for me to see how I can provide you with a robust answer to your question. Can you help me with that?

Emma Roddick: Certainly. Last week, we heard that sea lice numbers are reducing significantly in Scotland and that all farms are managing sea lice numbers well. Do you concur with that? Do you have any comment on the self-reported nature of that data and how non-reporting of that information might impact our understanding of what the overall picture is on sea lice numbers?

Lin Bunten: In setting standards for sea lice, we are moving to require data to be reported to us, particularly in the areas that we have identified: the subset of farms that sit within the relatively high-risk areas for the transfer of sea lice to wild salmon.

We are in the territory of the fish health inspectorate at the moment but, in all environmental monitoring, we require those who operate processes to understand and tell us about what they are doing. Then, at an appropriate frequency, we check to identify whether we are comfortable with and confident in the way in which they are doing it, and whether we trust the information that they give us.

The fish health inspectorate provided information on that area last week, I think. We are now moving into requiring sea lice information to be provided to us, weekly, during a particular season. We will work with others to make sure that, collectively, we are confident that the information that we gather provides us with assurance that it is correct—that it is true—and that it is being gathered in a consistent way.

We are therefore developing an accreditation scheme. I am going to get the terminology wrong, but it is MACS—measurement assurance and certification Scotland—that will identify the mechanisms by which we expect people to undertake that sea lice count. It is very specific.

We have such accreditation systems for other types of measurement that we require people to undertake. Forgive me—I am not sure of people's backgrounds. The United Kingdom Accreditation Service certifies laboratory data. That is about the repeatability and accuracy of information. We will go through a similar process to ensure that the information that we receive meets the needs of the regulatory purpose for which we require it.

That should provide that degree of reassurance and trust as we gather sea lice information. However, I will not speak for the fish health inspectorate, which has been doing that job up to now.

Emma Roddick: At the moment, based on the data that is available to you and the evidence that you have around the impact of sea lice more widely—on wild salmon—are you confident that the numbers of sea lice in Scotland are going down, or are you waiting for the data that you will collect?

Lin Bunten: On the trend to date, I defer to the evidence that you were given last week. We are starting on the journey of looking at it very specifically in relation to the impact of farms on wild salmon. With increasingly sophisticated models, we have modelled where we think there is likely to be an impact, and we will place requirements this year on a subset of the farms, to ensure that we have the data that we need for the wild salmon migration period next year. This year, we worked with operators on a voluntary basis to get the same information. Ultimately, that information ends up on the Scotland's Aquaculture website.

Mike Montague: We have based our modelling on general assumptions. Right now, we are working on gathering further information from the sector, in order to do more detailed bespoke modelling using real data. We are right on the point of carrying that out, so it is difficult to comment at the moment.

Lin Bunten: We will certainly have more information available because, under the legislation, the provision of information will be a licensing requirement.

The Convener: Thank you.

Before the next question, I politely remind members that we are two thirds of the way through the session but not yet half way through the questions, so we should try to keep the remaining questions as tight as possible.

Ariane Burgess: I have mentioned the growing use of cleaner fish. I would be interested in understanding the regulatory implications that that has for SEPA, as well as what data SEPA is collecting from fish farms on the use of such fish.

Lin Bunten: Such a mitigating method would be the choice of the farm. Our role is to ensure that mitigation is in place but not to choose the method of it.

Ariane Burgess: So, you are not obliged to monitor cleaner fish deaths.

Lin Bunten: No.

Ariane Burgess: There was a situation on one farm where, apparently, at the end of the fish being harvested, there were 182,000 lumpfish and 31,000 wrasse that just—

Lin Bunten: We cannot comment on that.

Ariane Burgess: Who, then, would be responsible for keeping track of that? Given that the fish will replace the chemicals that you had been monitoring, who will monitor the use of lumpfish and wrasse?

Lin Bunten: I do not think we can comment on that, can we?

Mike Montague: I think that that would sit with marine directorate officials.

Ariane Burgess: So, it would sit under the marine directorate.

Lin Bunten: I think we would point you in its direction to answer that question. I do not think that we can comment with confidence on who is responsible.

Ariane Burgess: Okay. Thanks very much.

Emma Harper: I have a quick question on the back of that discussion. Does SEPA have a role in monitoring lumpfish that are now farmed? Cleaner fish—the wrasse and the lumpfish—used to be wild caught, but lumpfish are now produced in hatcheries, and health and welfare issues arise from looking after them. Salmon Scotland has staff who are dedicated to maintaining the health and welfare of their cleaner fish. You have probably just answered the question by saying that this is done by the fish health inspectorate, but does SEPA play any role in monitoring farmed cleaner fish?

Lin Bunten: No. Our role would be limited to the traditional regulatory role if water was being abstracted for the purposes of, say, running a hatchery somewhere in Scotland—that is, if that was the mechanism by which the hatchery was being operated. So, in answer to your question, I would say no, we would not have a role from a health perspective.

Emma Harper: Okay. Thanks.

The Convener: In effect, then, you are saying that you do not think there is any environmental impact from the increased use of cleaner fish.

Lin Bunten: We are not saying that. Cleaner fish are being used as a technique to deal with an issue. It is not within our remit as the environmental regulator to speak to—or to have control over—the points that the committee has made to date.

The Convener: So, you do not foresee any negative environmental implications of the increased breeding or increased use of cleaner fish. It is not on your radar.

Lin Bunten: Not at this moment in time.

Mike Montague: Not in terms of our regulatory role.

The Convener: Okay. Thank you. We move on to the issue of sea lice and interactions with wild salmon.

Elena Whitham: Good morning. I know that not a huge amount of time has passed since the introduction of the new regulatory framework, but has SEPA identified any evidence of significant harm to wild salmon from farmed salmon sites?

Lin Bunten: I am not aware of a direct link between farmed salmon and wild salmon per se. However, the salmon interactions working group has identified sea lice as a potential impact, which is why we brought in the framework at the beginning of February.

Elena Whitham: What about escapes from salmon farms and the introgression that we have seen in wild salmon populations?

Lin Bunten: I would direct you to the fish health inspectorate for an answer to that question. We have no role in looking at escapes from fish farms.

Elena Whitham: In its representation to Environmental Standards Scotland, WildFish Scotland says that the new framework focuses on the wild salmon protection zones. Obviously there need to be parameters. The zones do not include any rivers where wild salmon populations used to be but no longer are.

I have a concern about environmental degradation. SEPA is studying only eight zones at the moment—and I understand the capacity issue. There are sites operating now where nobody is monitoring the protected zone around them. If further environmental degradation has happened in the meantime, when the time comes to examine those zones, we could be at risk of losing some data and understanding because we are focusing on only eight of them. Will you respond to the allegations made by WildFish on that?

Lin Bunten: We started with 121 zones. We have undertaken a screening exercise, which used very sophisticated modelling. We took the number from the information on wild salmon locations—I might have that terminology wrong—that were identified by the Scottish Government. We modelled all those areas, looking at where fish farms exist in them. We narrowed it down to eight zones where we think there could be a high relative risk. We have gone through everything we know to see where we need to focus our efforts. That has brought us down to the eight zones, within which we have identified 19 farms on which we will focus.

That is the process that we have gone through up to this point. It does not disregard the balance of the wild-fish areas; it focuses our efforts on the

eight zones where, as the modelled information tells us, there is the highest relative risk to wild salmon.

Elena Whitham: Is the modelling iterative? If evidence is presented from the other organisations concerned, such as the fish health inspectorate, that you need to look at again, focusing your attentions on another zone, will that happen?

Lin Bunten: I could not be nodding more. We moved through an iteration as we were developing our response to the consultation last year. More information and better modelling techniques give us a better outcome at the end of the day.

The Convener: I am a bit confused. Can you tell us exactly what remit SEPA has when it comes to protecting what is now an endangered species—Scottish wild salmon? Where does your responsibility lie, or do you not have any responsibility at all in that? Are you just interested in the treatments that may reduce the impact on wild salmon, or do you examine the impact on wild salmon as a species?

Lin Bunten: Our remit comes through the water framework directive, which is implemented in Scotland under the Water Environment and Water Services (Scotland) Act 2003, going through to the Water Environment (Controlled Activities) (Scotland) Regulations 2011. That is the thread that gives us a role in protecting the habitat. Our focus is the water environment, which provides the context for what we all recognise as an iconic, protected species.

That has opened up, following the work that has been done over the past three to five years, which has allowed us to look at the controlled activity—fish farming—to identify where there is a potential impact on wild salmon and to consider what controls, if any, are necessary and where those might require to be put in place.

That is the thread. We can provide the committee with more detail—we have published the information already.

The Convener: That would be helpful.

Ariane Burgess: The committee heard concerns that SEPA's new sea lice framework is not precautionary, in part because it is not applied to existing farms. You have already explained that you are beginning to roll that framework out.

SEPA is taking an approach of "no deterioration", which could bake in sea lice levels that are a risk to wild salmon populations. Will you explain what you mean by "no deterioration"?

Lin Bunten: There is an evidence-gathering process. I said earlier that we are evidence led and require robust evidence to back up any changes that we make to licences or to enforcement.

We focus on a small subset of the farms that currently operate in the eight wild salmon protection zones that have just been mentioned. We will put stand-still conditions on those farms during this year. We already worked with the operators voluntarily during the migration period that has just ended so that we could be clear about sea lice numbers at that time. We will put conditions in place to hold the operators to the current biomass.

At the same time, we will undertake some monitoring of the sea lice across those catchments and the adjacent one, which is how we can compare and contrast the potential impact of an aquaculture activity. We compare a catchment with a surrogate location that is not impacted but that is nearby. We will then have evidence that we can compare to see whether we can say with any confidence that there is an impact from the aquaculture activity. The answer will take us down one of two paths by telling us whether we require to tighten standards to reduce the quantity of sea lice.

We are in the evidence-gathering phase. We are holding everything as it stands at the moment, hence the reference to stand-still conditions.

Ariane Burgess: What is the timeframe for the move from stand-still?

Lin Bunten: We have different levels of information in different catchment areas. One thing that we have said that is often interpreted in the most negative way possible is that it might take us up to five years in some areas, although we have better information in others. During the next few years, we will acquire information that will allow us to make evidence-based decisions. We will also look to enhance our modelling in those areas, based on the information that we have available to us.

There is a bit of modelling and a bit of monitoring and actual real-world testing, followed by reacting to what we find, and bearing in mind that that is one of a number of factors that may be affecting wild salmon stocks.

Mike Montague: It is probably fair to say that we can take action much more quickly if there is a really clear signal, but if it is more of a grey area it might take longer to gather evidence and to be sure that we are making the right decisions.

Ariane Burgess: That is helpful in understanding what you mean by no deterioration. Do you think that the no deterioration, stand-still approach is consistent with the recommendation by the REC Committee that sea lice trigger levels

"should be challenging and set a threshold that is comparable with the highest international industry standards"?

Lin Bunten: We are taking an approach that is appropriate for our regulatory framework in Scotland and our environmental capacity. We learn from the approaches that other jurisdictions take, but we bring that learning back to the Scottish context. We set out the approach that we are planning to take in the sea lice consultation that we published in December last year. It is fair to say that there are strong views on both sides.

Ariane Burgess: Strong views on both sides?

Lin Bunten: There are strong views about whether we are going too fast or too slow. That neatly encapsulates the role of a regulator, which is to seek the right balance to protect the environment.

Ariane Burgess: What are your thoughts on that quotation from the REC report about the highest international industry standards?

We have heard that, during the spring, Norway has a strict count of 0.2 female sea lice per fish. Why do we not take that approach? I know you said that Scotland sets its own approach, but the level here seems to be 30 times higher than the precautionary level in Norway.

Mike Montague: It might help if I come in here. We set out our framework by looking at risk. We do not think that having a default standard across the board is the right mechanism for Scotland. As with everything we do, we base the framework on risk.

We will set a site-specific control where that is appropriate. If someone wants to develop in a high-risk area they might have a standard of 0.2 sea lice per fish or less, but if they want to develop in an area that is at very low risk or that has minimal risk with lots of capacity, they might have a much higher standard. Each site's standard will be set according to the individual risk. As I have said, that is what we do with medicines; it is what we do with all our processes.

Ariane Burgess: So, that is the direction that we are going in and our aspiration.

Mike Montague: It is the direction that we are going in. From February 2024, any new sites that have been identified as posing a potential risk will come under that system straight away. For existing sites, there will be a stand-still condition whereby we will gather the evidence and react to it.

Ariane Burgess: Can I just clarify a point? Will that be the approach for every site or just those within the eight wild salmon protection zones?

Mike Montague: We will look across the board, at every site. By the end of this year, every site will be required to report to SEPA on sea lice for the next migratory period onwards. The best evidence that we currently have from modelling—although it might iterate—is that about a third of sites will have sea lice limits in place. As I said, there will be stand-still conditions based on previous performance as regards sea lice management.

Emma Roddick: The committee has heard concerns about the timescales for implementing the new sea lice framework. How long will it take SEPA to determine whether action is required on farms that pose a high risk to wild salmon? Is there sufficient urgency, given that Scottish wild Atlantic salmon is now considered to be endangered?

Lin Bunten: We talked a bit about that in the answer that we have just provided. We are gathering evidence from this year. We are taking a risk-based approach and will take action when we have a clear signal to do so, as Mike Montague has articulated well.

Emma Roddick: The committee has also heard that tighter sea lice regulation might have a knock-on effect on fish health due to pressure being placed on fish farmers to apply more treatments to comply with lice thresholds. Are you working with veterinarians to monitor any potential unintended consequences of tighter sea lice regulation on fish health and welfare?

Lin Bunten: We are collaborating with the working group on the fish health framework in that area. As you rightly say, there is a possibility for different objectives to be achieved and to have an adverse impact, which we wish to avoid.

Emma Roddick: Will you be able to react quickly enough, and with sufficient urgency, once information on where action is needed is there?

Lin Bunten: We will.

Emma Roddick: Okay.

The Convener: Can I just ask again: who has overall responsibility for wild salmon? You are talking not about wild salmon per se but about the water environment. Who is actually looking after those salmon? The fish health directorate said that it was SEPA, as part of your regulatory role. Who really takes command of the whole wild salmon area rather than just the water environment?

Mike Montague: From 1 February, we regulate the impacts of sea lice on wild salmon, so we manage that process.

The Convener: Thank you.

Beatrice Wishart: My question follows on from our earlier discussion about the new sea lice framework and modelling accuracy. Salmon

Scotland is concerned that the new framework places undue reliance on modelling. Other stakeholders have raised concerns that the sea lice counts are not based on statistically significant sample sizes and that there are data gaps. How do you validate and calibrate your modelling?

Lin Bunten: We work with all the parties from the industry and with other stakeholders on that modelling exercise. We conduct sampling activities in which we gather information to assess where we are as regards our confidence in the outputs from the model. The more real-time, consistent information we are able to gather and build in, the more accurate the modelling will become.

11:30

As I have said, we are working with other parties so that we are collectively confident in the modelling activity that we are undertaking. I ask Mike Montague to talk about the monitoring.

Mike Montague: In effect, we have set up a monitoring group with quite a number of stakeholders, which will take that forward in collaboration. That will include sentinel cage monitoring, in which we will deploy a cage with a set number of fish, identify and understand the sea lice that they get, then test the strength of our models to make sure that those are representative.

All of that work is being talked about for this year. Whether we will manage to get something up and running towards the end of the year is the question; it might be next year. That work will continually develop the models, which will be updated to reflect it.

Lin Bunten: The reason why I am concerned about the term “validate” is that the piece is constantly evolving. We are always looking to improve the accuracy of the model.

Beatrice Wishart: So, it is on-going.

The Convener: We move to the topic of enforcement.

Elena Whitham: Since the new regulatory framework has come into force, has SEPA taken any enforcement action? What enforcement action is open to you? Would you consider introducing biomass reductions or rescinding licences for serious or persistent breaches of licence conditions?

Lin Bunten: We have not been required to undertake any significant enforcement action in the past year, but we have accepted an enforcement undertaking and have issued a couple of notices that relate to less significant non-compliances.

If the evidence existed, we would look at reducing biomass limits. Mike Montague has described how we would go through that process.

Quite a number of enforcement tools are available to us. We have fixed and variable monetary penalties. A moment ago, I mentioned an enforcement undertaking. We can issue notices and we have talked about varying licences. We can put a report to the Crown Office and Procurator Fiscal Service. We anticipate that, with new powers from early next year, we will be able to use another type of notice. We are looking forward to the integrated authorisation framework that will operate.

A range of tools is available to us when we need to use them, but, by and large, we seek to ensure that operators remain compliant and that we do not have to use enforcement tools unless that is absolutely necessary.

Elena Whitham: There is a hierarchy of the application of sanctions, which could perhaps lead to a report to the COPFS.

Lin Bunten: Yes.

Elena Whitham: At that point, does the COPFS take the decision to shut down something, or do you have the powers to do that if something was really serious?

Lin Bunten: Prosecution is in the hands of the COPFS and the court system. We have the power to revoke and suspend licences but only in certain egregious circumstances. The evidence must be very robust. My reason for saying that is that, across the regulatory gamut, we must be able to defend any challenge that is made against the action that we take.

We can take those actions where, when and if we need to. They are used very sparingly, because our environmental regimes in Scotland operate on the basis of decisions that have been taken about the ability to appropriately carry out an activity before that activity happens. That is the precursor to our checking behaviours and, as necessary, ensuring that standards are complied with. We can take a range of actions across the life cycle of a regulated activity.

Emma Roddick: I want to pick up the issue of enforcement. You said that you have not taken full enforcement action in the past year. We have had assessments from WildFish Conservation that 1,391 counts of more than two sea lice per fish have been submitted since 2021. Can you give a fuller picture of why enforcement action, up to and including prosecution referrals, has not been taken?

Lin Bunten: To correct the beginning of your question, we have taken enforcement action; it has just not been of the most significant nature.

On the substance of your question, the simple answer is that the responsibility in relation to sea lice counts currently sits with the fish health inspectorate, which applies a system. Again, I ask you to direct such questions to the inspectorate.

Emma Roddick: Okay. You said that you would consider biomass reductions or rescinding licences in particular situations. In the past year, or prior to that, have there been times at which wider powers might have been useful, or used?

Lin Bunten: Earlier, Mike Montague commented that, historically, we have reduced biomass limits. We have experience of deploying that tool. Whether we could use other powers is an interesting question to ask a regulator. At the moment, I cannot think of anything that is not in my toolbox, but I am very much looking forward to the forthcoming integrated authorisation framework. That will bring us a regulatory notice, which is a new power that I can see being of great benefit across everything that we regulate.

Rachael Hamilton: I have a follow-up question to Emma Roddick's. Through the whole Scottish Government ministerial and committee process, SEPA now has enhanced regulatory and monitoring regime powers. However, when Russel Griggs came before us as a follow-up to his report, he said that the aquaculture monitoring process

"is not joined up. It is not ... difficult; it is not rocket science",—[*Official Report, Rural Affairs, Islands and Natural Environment Committee,* 22 June 2022; c 35.]

and that everybody needs to work together. Today, you have spoken quite a few times about the fish health inspectorate and other bodies. Is there a lack of continuity or cohesion between those organisations? I have been listening to the questions, and a lot of my colleagues have struggled to get answers. You have given them the answers that you can give from SEPA's point of view, but you have also referred to other organisations. Is there still a problem in that regard?

Lin Bunten: Some of the answers that I have given are because of the historical position. We are moving on. Our actions speak to our acknowledgement that the approach was not necessarily joined up in the best way. As individual organisations, we have different areas of responsibility. Sometimes, those intersect, but they rarely overlap. We now work much more closely with planning authorities, NatureScot, the marine directorate and others as necessary.

This is about the licensing process. It is about making sure that, in the first stages, when a new proposal is brought forward, we collectively come together and are more consistent about when we ask for different types of information. That means asking for it once and using it between multiple parties, which is a step forward. To me, that acknowledges that we cannot possibly have been as joined up in the past as we could have been. I therefore think that we are making great strides.

Rachael Hamilton: On enforcement, have there been situations in which your organisation has felt that the results that have been found by the fish health inspectorate to be non-compliant show that you should really have withdrawn a licence or taken measures with certain fish farms? Has there been a lack of enforcement because you have not necessarily had the full powers—or do you have the full powers?

Lin Bunten: In that area, it is less about powers and more about responsibility. We are now talking about what happens once an activity is licensed and it has been operating. We need to be very clear, as individual organisations with individual responsibilities, what we are targeting. My organisation does not have the competence that, for example, the fish health inspectorate has. We focus on an element of fish development and it focuses on what it is competent to cover. We operate in parallel, so I would hesitate to suggest that we would have been in a position, historically, to use information that was not within our competence for enforcement in any way. That would not fit with the legal framework that we operate within. We have to maintain the legal framework that we operate within.

Mike Montague: I would add that we are continually working on developing intelligence sharing. If we were out on site and identified an obvious fish welfare issue—our expertise is not in that area—we would share that with the relevant authority.

Lin Bunten: We would pass that on to the relevant authority to action.

Rachael Hamilton: That is really useful. Thank you very much.

On the detail that you gave us on the number of announced and unannounced inspections that you carried out, you said that SEPA carried out three unannounced inspections of fish farms in 2023 and that you have three planned for this year. How many unannounced inspections did SEPA carry out for agricultural-based sites in 2023, and how are you working on enforcement capacity to ensure compliance?

Lin Bunten: I think that I misheard something that you said there. Did you say "agricultural"?

Rachael Hamilton: How are you working to increase enforcement capacity?

Lin Bunten: For agriculture?

Rachael Hamilton: Yes. In addition, how many unannounced inspections did SEPA carry out for agricultural-based sites?

Lin Bunten: I will have to come back to you with specific information about the numbers. I think that the other part of your question was about what we are doing to enhance our enforcement capability.

Rachael Hamilton: Yes.

Lin Bunten: We have a specialised enforcement function that provides enforcement support across the regulatory framework. That was a step that we took to change our approach around the time that the committee was meeting, so that has been in effect since 2019 and it supports all our enforcement activities across everything that we regulate.

The Convener: I presume that your approach to aquaculture is no different from your approach to any other sector, such as agriculture, where your main route to a better environment is through encouraging compliance rather than through enforcement. Does that equally apply to aquaculture as it does to other sectors?

Lin Bunten: We take a consistent approach to regulating all the activities for which we have responsibility.

Beatrice Wishart: I noticed that, in your written submission, there was no mention of the cyberattack in 2020 and the recovery from that. Salmon Scotland told the committee that the system for assessing and grading the compliance of farms against the conditions of their permits was lost in that cyberattack and that it relies on that system to demonstrate high standards of practice. When do you expect to replace the system?

Lin Bunten: At the beginning of the evidence session, I talked about our environmental performance assessment scheme plans. We plan to consult on those later this year or early next year. It is a developing piece of work, so I anticipate that, over the next 12 months, we should be in a position to be clear about how we will be reporting on compliance across the board in the future.

Beatrice Wishart: That still leaves a bit of a gap.

Lin Bunten: As my colleague has said, compliance information is provided on the Scotland's Aquaculture website, so there is an element of information. However, that is not presented in the way that we did that historically. In the future, we will present information differently, and that will be across all the activities that we regulate.

Ariane Burgess: My understanding is that the fishery boards and trusts have been collecting data on the impact of sea lice in a particular water body for a number of years, funded by salmon farming companies and the Scottish Government, often for the purpose of environmental management plans. If that data exists, what are the barriers to SEPA using that data to inform its enforcement decisions?

11:45

Mike Montague: I can answer that. I mentioned that we set up a collaborative monitoring group to take forward our monitoring, and, as part of that, we are reviewing that data.

Ariane Burgess: You have access to the data and are using it.

Mike Montague: Yes, we are going to review the data to see how it could work and whether it is suitable to use. Some of that will be about looking at what is available and at any gaps, and then it will be about using that information to shape the data that we need to get in order to fill in any gaps.

Ariane Burgess: You mentioned that the data will be presented in a different way. I want to get an understanding of what that means. At the moment, SEPA publishes data on mortality by weight, but we have been hearing that we really need a key performance indicator on the number of deaths. Will you be presenting such data in future?

Lin Bunten: We gather information specifically for environmental purposes. At the moment, the information that we require is about biomass, not about the number of fish, and we will continue on that basis for now. When we gather environmental information, we must be clear that we do so for a purpose that sits within our area of responsibility.

Ariane Burgess: Whose responsibility would it sit within to publish data on numbers rather than on weight?

Lin Bunten: I am not sure that it would necessarily be in anyone's area of responsibility.

Mike Montague: We look at weight because we regulate against biomass. As we develop our sea lice framework, data on numbers will become more important to us, so we may look at that in the future.

Lin Bunten: It might not be numbers on mortality; it will be numbers on sea lice. At this point, we cannot confirm that we will be gathering the information that you are asking about.

Ariane Burgess: It is interesting, because we have been talking about cleaner fish. I think that, somewhere down the line, we might start to realise that a lot of the dead biomass on our sea bed will

have an environmental impact. We may need to start looking at that.

Mike Montague: My understanding is that any dead fish that are recorded are removed from the site. They do not sink down and sit on the sea bed.

Ariane Burgess: I have heard differently in relation to cleaner fish disappearing. Maybe that is something that we can look at.

Rhoda Grant: Salmon Scotland has raised concerns that SEPA is not meeting acceptable timeframes for reviewing information that has been submitted as part of a pre-application process. It has also told the committee that it is not able to identify any progress towards implementing the recommendations in the Griggs review, and that the consenting process remains long and complex. What are your current response times? How would you respond to Salmon Scotland's concerns?

Lin Bunten: The pilots that have been set up as a result of the Griggs review and the consenting task group started at the beginning of this year. They are in Shetland Islands Council and Highland Council areas. We are working across the board with the applicants and the other public sector parties to develop the consenting process. I believe that it is recognised as being an iterative process. We are learning as we go. I am disappointed to hear that that is the feedback that has been reported to the committee by Salmon Scotland.

Rhoda Grant: When do you expect those trials to conclude? When will you be changing the system?

Lin Bunten: Reports on that work will be given to the Scottish aquaculture council, which has oversight of that work. An independent validation of the work will be reported to the council at the end of the year, which is when I would anticipate that we will all be able to understand how we can further improve processes.

We are also looking beyond the Griggs recommendations, if I could call them that, to review how we can better approach things such as environmental impact assessments, habitats regulation assessments and other areas on which we could work collectively across the public sector. The Griggs review has certainly been the catalyst for more thinking about streamlining other processes.

Rhoda Grant: You say that the independent validation will be reported at the end of this year. How long do you expect that validation to take? Can the industry expect changes to be rolled out at the end of this year? How long will it take to have the independent validation?

Lin Bunten: I imagine that we will evolve that as we go. We are piloting the consenting process in two council areas. I say "we", but it is not SEPA that is piloting the process; it is the consenting task group, which is chaired by the marine directorate. We are moving the work forward and, as we see benefits, we will expand those to other applications. It was always agreed that the draft consenting process would be piloted in those areas.

Mike Montague: The pilots are about bringing the local authority and SEPA together, so that we are doing pre-application jointly and most efficiently. We are trying to identify any potential showstoppers at the earliest opportunity, so that nobody invests time and effort on a site that is not the right place to operate. That is the consenting task group's work.

Rhoda Grant: Salmon Scotland submitted a stage 2 service level complaint to you. Can you explain what that is about, what Salmon Scotland's concerns are and what improvements can be made?

Lin Bunten: I think that you are referring to something that Salmon Scotland submitted in 2019, which we have addressed. I am not aware of something having been submitted more recently.

Rhoda Grant: What was that about?

Lin Bunten: I do not have that information in front of me.

Rhoda Grant: Could you perhaps follow up with that?

Lin Bunten: I can ask Salmon Scotland if it would be prepared for the information to be shared with you.

Rhoda Grant: Thank you.

The Convener: I have a query. SEPA published a fin-fish aquaculture sector plan with key outcomes. Two of the outcomes jump out at me. One is:

> "Communities are confident that the environment is protected by being well informed and engaged with businesses operating on their land and waters."

Another is:

> Communities have a high level of trust towards regulators and businesses and benefit from open and transparent dialogue."

Anecdotally, it has been indicated that that is not happening at all. Do you think that you have made progress on that? What do you intend to do over the coming years to ensure that those outcomes are arrived at?

Lin Bunten: There are a couple of things that have changed as a result of our regulatory

framework, which opens up formal opportunities for communities. One is a requirement on the applicants to ensure that they have undertaken community engagement in the pre-application period. Another is that every single application in the area is advertised, which draws in formal consultation responses.

In 2019—or as we were leading up to rolling out the framework—we went round 19 communities and spoke directly to people. We engaged face to face over a period. That is one of the things that the sector is marked by: we have a far greater level of interaction with communities, and of interaction with stakeholders in general, so that we can provide information and reassurance where possible.

The Convener: You say that you are doing that and that communities are well informed, but I still have queries about whether there is a high level of trust. Judging from our evidence sessions and written correspondence, that trust does not seem to be there at all and the arguments are polarised. What are your objectives? What are you going to do to ensure that we can build that level of trust?

Lin Bunten: The industry is surrounded by very vocal individuals, companies, communities and sectors. We deliver our role as a regulator in as transparent and accountable a manner as we can, and as publicly as possible. Those actions are what I expect we will be judged against, and that is where I anticipate that we will start to develop greater trust.

Edward Mountain: In 2018, when I was on the Rural Economy and Connectivity Committee, we thought that aquaculture had a role in Scotland and could be expanded. Recommendation 51 of our "Salmon farming in Scotland" report asked for priority to be given to creating "a spatial planning exercise" to see where salmon farms could and could not go. We envisaged a map. Does such a map exist? Have you done the spatial planning that was asked for five years ago?

Mike Montague: We do not have a direct map as such. Along with partner bodies, we have been working on the pre-application process, which helps operators to identify areas where they will struggle to develop and where they will have to put in significant mitigation.

Edward Mountain: Do you have a map of the waters around Scotland showing where it is suitable to have aquaculture and where it is not? That is what the recommendation called for.

Lin Bunten: No, we do not. The answer is no.

Edward Mountain: And that is five years later.

Recommendation 10 of the REC Committee's report is that

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

Last year, mortality at Kishorn farms A, B and C over three months varied from roughly 37 to 43 to 48 per cent. That is nearly 50 per cent of the fish in one of those farms dying in a three-month period. Did you inspect them? What was the outcome of that inspection?

Mike Montague: Mortality is not within our regulated remit. Effectively, we do not have a role in that place.

Edward Mountain: So, you have no role in worrying about mortality and the effect that that will have on the environment?

Lin Bunten: As my colleague said, the dead fish are removed from the environment. Our role is very much about protecting the water environment.

Edward Mountain: Do you have any idea why those deaths happened? If it was to do with gill health, the transmitter of poor gill health would have had an effect on the rest of the environment, would it not?

Lin Bunten: There is another body that has responsibility in that area.

Edward Mountain: That probably demonstrates the fact that it is unclear who should be doing what.

Recommendation 53 in the REC Committee's report says that poorly sited fish farms should be re-sited and that

"this should be led by Marine Scotland".

I think that one farm was re-sited from the mouth of the River Ewe not long after the committee made that recommendation. Are you aware of any other farms being re-sited? Have you recommended any such moves—having worked out on the map that has not yet been produced where are good areas, where are bad areas and which farms should be re-sited? When will that happen?

Lin Bunten: The modelling that we have been able to do, which has become increasingly sophisticated, is pointing to areas where there are better locations for fish farms to be. If we were to intervene because we felt that there was a capacity issue, that would be another signal to a fish farm operator over the period of time since the report was put together. We have had quite a number of conversations about consolidations and moving to larger, more dispersive, flowing sites, and those are live, active conversations that we are having with the sector at the moment.

Edward Mountain: In the past five years, how many fish farms—apart from the one at Poolewe—

have closed down and moved or consolidated to better sites?

Lin Bunten: I do not have that information in front of me. We will provide that to the committee afterwards, if that is acceptable.

Edward Mountain: Thank you very much, Lin.

The Convener: That concludes our questions. Thank you very much for your attendance. It has been most helpful.

I will suspend the meeting for a few minutes so that our witnesses can leave and for a comfort break.

11:57

Meeting suspended.

12:04

On resuming—

Subordinate Legislation

Official Controls (Amendment) Regulations 2024

Sea Fisheries (Amendment) (No 2) Regulations 2024

The Convener: Our fourth item of business is the consideration of consent notifications for two UK statutory instruments: the Official Controls (Amendment) Regulations 2024 and the Sea Fisheries (Amendment) (No 2) Regulations 2024.

No member wishes to comment on either instrument. Are members content to agree with the Scottish Government's decision to consent to the provisions that are set out in the notifications being included in UK, rather than Scottish, subordinate legislation?

Members *indicated agreement.*

The Convener: That concludes our business in public.

12:05

Meeting continued in private until 12:37.

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