

## **Bakkafrost Scotland (BFS) Response: *Detailed proposals for a risk-based, spatial framework for managing interaction between sea lice from marine finfish farm developments and wild salmonids in Scotland.***

### Summary

**Bakkafrost Scotland (BFS) maintains its opposition to the implementation of the Sea Lice Risk Framework (SLRF) in its currently proposed format and highlights the following specific issues:**

- 1. The SLRF proposals fail to consider farmed fish health and welfare and create a new legal conflict.** SLRF will result in permit conditions setting maximum numbers of sea lice, determined from a currently unvalidated model, to protect wild salmonids from a theoretical risk which remains unsubstantiated and is not supported in scientific literature. Circumstances **will** arise when producers are forced into a position of compromise between their legal obligation to protect stock health and welfare under the Animal Health & Welfare (Scotland) Act 2006 and their legal obligation to maintain lice levels in accordance with the CAR licence condition. **This is an untenable position, and one that requires urgent clarification from SEPA.**
- 2. SEPA intend to implement the revised EQS for EmBz and the SLRF coincidentally. This is practically and operationally unviable as producers will be required to enact significant operational changes to their lice management strategy to satisfy the requirements of two conflicting regulatory objectives.**

In BFS' response to the first consultation, a copy of which is attached, BFS (formerly The Scottish Salmon Company), detailed several concerns relating to technical, logistical, and impactful aspects of the proposal, including the underpinning science and justification, socio-economic impacts, and conflict with existing regulatory mechanisms. BFS does not consider that the concerns raised in response to the first consultation (hereafter, the 'Primary Response') have been adequately addressed by SEPA, either in the Analysis of Feedback<sup>1</sup> or in the current consultation document. BFS therefore guides SEPA to refer to the Primary Response in addition to the detail of the current response when analysing the consultation feedback.

**BFS maintain that the proposal presented outlines an untenable basis for regulation.** For the second time, the consultation document is presented as a largely complete framework, ready for implementation, when this is very clearly not the case. Significant modification, clarification, and detail is still required before the framework can be successfully enacted and therefore **it is of utmost urgency that SEPA now act to respond directly to address the concerns raised.**

BFS have responded directly to the questions presented in the consultation and, in addition, has summarised outstanding concerns and additional points in the following text.

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<sup>1</sup> [https://consultation.sepa.org.uk/regulatory-services/protection-of-wild-salmon/supporting\\_documents/20220816%20%20Official%20%20Sea%20Lice%20Regime%20consultation%20analysis.pdf](https://consultation.sepa.org.uk/regulatory-services/protection-of-wild-salmon/supporting_documents/20220816%20%20Official%20%20Sea%20Lice%20Regime%20consultation%20analysis.pdf)

## Basis and Justification

In its Primary Response, BFS provided a detailed presentation that the science used to justify the need for the framework and the mechanisms underpinning the framework were not unanimously agreed, often misrepresented by SEPA, and did not present a solid empirical basis for the proposals (see particularly response to Q8 and Section VI of Primary Response). SEPA did not provide further or alternative scientific justification for the SLRF proposals. SEPA's rationale for not discussing the scientific foundations of the framework were stated as follows<sup>1</sup>:

*“Progress of such a framework is a Scottish Government Bute House Agreement and Programme for Government commitment. We do not therefore propose to revisit the discussions on the scientific basis of the decision to introduce a regulatory control regime.”*

This expressly confirms that a political imperative to progress with the SLRF overrides the necessity to establish a fit-for-purpose regulatory framework based on robust science. BFS contest that SEPA, as the lead body responsible for the management of interactions between sea lice from fish farms and wild salmonids, has a duty to alert the Scottish Government if indeed there is no scientific basis to implement such a framework, or at the very least the research requirements needed to conclude whether or not there is risk of significant environmental harm to wild salmonids arising from salmon farming activities, which has so far not been evidenced.

## Model Development

BFS maintains significant concerns over the development of the SEPA screening model, such that it does not believe that the model is currently fit-for-purpose as a tool to determine the potential for risk to wild salmonids from a fish farming operation. Further, BFS does not believe that the model can be relied upon as a robust regulatory tool. BFS implicitly disagrees with several aspects of the model development:

- The science on which the exposure threshold has been based (e.g. critical lice thresholds resulting in mortality, interpretation of prophylactic smolt survival studies);
- The inherent precaution contained within the model is excessive, and therefore reflected in its outputs (4-5 times overestimate);
- The omission of lice interactions within low salinity water fields; and
- The lack of model validation.

BFS have provided further observations on the model in response to questions 3 and 4 of the consultation, and specifically Section V of Primary Response.

## Regulatory Conflict

In its Primary Response (Section III, and throughout), BFS highlighted areas of significant conflict between the SLRF proposals and other regulatory regimes, in addition to the principles advocated within the Professor Griggs Aquaculture Review<sup>2</sup> (hereafter, the 'Griggs Review'). **BFS believes that these areas of conflict are increasingly apparent, given there is no evidence of SEPA making any progress to remediate these conflicts in the consultation paper.**

**Most pertinent, and as stated above, is that the SLRF proposals fail to consider farmed fish health and welfare creating a new legal conflict.** The SLRF will result in permit conditions setting maximum numbers of sea lice, determined from a currently unvalidated model, to protect wild salmonids from a theoretical risk which remains unsubstantiated and is not supported in scientific literature. Circumstances **will** arise when producers are forced into a

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<sup>2</sup> <https://www.gov.scot/publications/review-aquaculture-regulatory-process-scotland/pages/2/>

position of compromise between their legal obligation to protect stock health and welfare under the Animal Health & Welfare (Scotland) Act 2006 and their legal obligation to maintain lice levels in accordance with the CAR licence condition. **This is an untenable position, and one that requires urgent clarification from SEPA.**

BFS have also recently responded to the consultation on the revised environmental quality standard (EQS) for emamectin benzoate (EmBz). The implementation of the revised EQS will result in largely unusable quantities of EmBz at many sites, thereby greatly reducing the ability to use a key intervention for lice, particularly on small fish early in a production cycle. **It is unacceptable that SEPA intend to implement the revised EQS and the SLRF coincidentally, as producers will be required to enact significant operational changes to its lice management strategy to satisfy the requirements of two conflicting regulatory objectives.** This is clearly a case of unnecessarily targeted regulation of the farmed finfish sector and overly constraining on producers' ability to ensure compliance across their various consents and permissions. If the regulation of finfish farming requires producers to minimise lice numbers on a farm, while also minimising use of medicinal intervention, the sector must be supported by the Scottish Government, and its supporting agencies including SEPA, to develop and trial innovative lice interventions.

Significant conflict also exists between SEPA as the lead body responsible for the management of interactions between sea lice from fish farms and wild salmonids, and the Local Authorities (LAs) that will retain the responsibility to consider any fish farm proposal in the context of sites designated for wild salmonids and freshwater pearl mussel. One of the key aspects that requires urgent clarification the intended fate of Environmental Management Plans (EMPs), and any transitional arrangements should they be considered redundant following implementation of SLRF. **SEPA must urgently lead engagement with the sector and LAs to understand the implications of the SLRF on EMPs and planning obligations.**

## Economic Impact

In its Primary Response (see response to questions 18 and 19), BFS extensively detailed its concerns over the potentially significant, negative impact that the proposals could have on its operations and proposed that a Business Regulatory Impact Assessment (BRIA) should be undertaken at the earliest opportunity. **Following analysis of the proposals detailed in the current consultation, BFS maintains its position.**

SEPA state that it has specific duties to "*have regard to the social and economic impact of the exercise of our functions in protecting the water environment*", yet despite repeated requests from the sector, has not produced an adequately detailed socio-economic impact assessment (SEIA). Section 10.4 'Initial Analysis of Implications' presents a crude, idealistic and subjective assessment of the magnitude of benefits/impacts arising from the SLRF. **BFS disagrees with many aspects of the detail contained in this assessment and reiterates that a SEIA and BRIA must now be undertaken as a matter of urgency.**

When considering the potential implications of the SLRF to the business, the disproportionality of the proposals are increasingly evident when compared to the regulation of other known and certain, quantifiable pressures impacting wild salmonid populations. **BFS discussed this at length in its Primary Response and maintains this position.**

## SLRF Progression

BFS notes its outstanding concerns with the SLRF as currently proposed and BFS flagged the significant majority of these in detail in its Primary Response. Given the timetables for SLRF implementation proposed by SEPA, it is now considered that there are many facets which are insurmountable without an entire cessation of the SLRF's progression to facilitate the necessary level of consultation required to alleviate and remediate the issues.



BFS therefore believe that the most productive course of action is to define and agree a collaborative programme of work with SEPA, to establish validated models which accurately and proportionately assess the risk that might arise from farming activities.

**BFS are committed to engaging with SEPA and the Marine Directorate on this programme of work and believe that it should be delivered through a series of pilots in which a validated model can support appropriately designed trials of the framework, encompassing the various components including permitting, monitoring and compliance. Such a programme can be administered via a mutually agreed memorandum of understanding (MoU), in which BFS are satisfied to commit the provision of resource and data for specific purposes to be agreed and defined by the signatories of an MoU.**

**Please see responses to specific questions below.**

**Question 1: Do you agree with our revisions to the WSPZ? If not, please explain why you disagree and what would be your alternative.**

BFS does not agree with the WSPZ revisions, and maintains its criticisms of the use of expert judgement in the determination of WSPZ boundaries as detailed in its Primary Response.

SEPA have added a further layer of precaution to its risk estimation by imposing a *minimum* 5 km WSPZ buffer from all river mouths. The only justification provided by SEPA for setting 5 km as a minimum buffer distance is that it is assumed outward migrating smolts will exist in greater concentrations in these areas. This assumption is unfounded and unjustified, and conflicts with SEPA's statement that '*we are targeting protection in confined areas of sea (WSPZs) through which we know large proportions of wild salmon post-smolts must pass*', as 5 km is an arbitrary distance and does not relate to the confines of any given area of coastline.

The assumption that potential migration pathways '*multiply considerably*' beyond 5 km is also unjustified, with no basis for this assumption provided in the consultation paper. In some areas, particularly where rivers enter the open-sea, it is more likely that the multiplication of potential migratory pathways occurs far closer than 5 km, as near-shore influences on migratory pathways dissipate as fish quickly enter deeper water. Until such a point that wild salmonid migratory pathways are known with confidence, an appropriate alternative would be to limit WSPZs only to confined/constrained areas of sea, that are *likely* to support migration i.e. in direct path between river mouth and open sea.

The consultation document proposes that all areas of sea within 5 km of a Special Area of Conservation (SAC) designated for Freshwater Pearl Mussel (FWPM) will be included as a WSPZ. **BFS does not support this proposal.** As the framework is inherently designed to protect wild salmonid populations, it must therefore automatically afford protection to populations of FWPM.

Defining WSPZ's based on the existence of a designated site for non-salmonid species deviates from the purpose and remit of the SLRF as originally intended. Expanding the scope of the SLRF in such a way is inappropriate and creates duplication, as impacts from aquaculture operations on both the designation and qualifying species of a given site are already assessed by alternative, existing mechanisms that consult NatureScot as the relevant authority (e.g. Environmental Impact Assessment).

In response to the first consultation paper, SEPA received suggestions that some WSPZs should be removed/amended for several reasons, including well-reasoned arguments that they were unlikely to be used for migration by wild smolts. In the current consultation paper, SEPA has expanded the coverage of WSPZs and notes additional suggestions it received relating to the expansion of selection of WSPZs. However, neither the Feedback Analysis document or the consultation paper acknowledge any of the suggestions to reduce the extent of WSPZs, such that it appears any suggestions to reduce WSPZs have been ignored in entirety. It is essential that following consultation, SEPA provide transparent and reasoned justification for the adoption and rejection of suggestions that it receives.

**Question 2: Do you have any additional information on, or suggestions how we could identify, important sea trout rivers in the West Coast, Western Isles and Northern Isles?**

BFS believe that where 'important' populations are identified, any restriction imposed on aquaculture must be part of a catchment-wide plan to reduce all pressures potentially acting on the sea trout population, particularly those with a certain and demonstrable impact.

It is unclear on what SEPA consider an '*important*' sea trout river.

*Important* can infer a population that is notable as a large producer of sea trout relative to the local or national population. Alternatively, *important* could refer to a population that is near-extinction and therefore of value for the purposes of

conservation. Further, Important could infer a population that is used to support a fishery (both recreational and commercial). It is essential that important populations, in the context of this consultation and any impending regulation, are defined based on the objectives of the SLRF rather than, for example, an aim to support an exploitative fishery.

In developing protective measures for sea trout, SEPA must recognise the differences between the state of salmon and sea trout populations, their respective legal protections, and considering their respective data deficiencies. From this, a better understanding of the true interaction risk to sea trout may be established, accepting that sea trout are notoriously transient and cosmopolitan in their migratory behaviour between not only fresh- and marine-environments, but also in their use of a wide variety of marine habitats including between catchments. Therefore, sea trout have the ability to readily adapt and mitigate risk if the aquatic conditions in a particular area are sub-optimal.

Above all else is the need to determine whether interactions between aquaculture and sea trout are indeed occurring in a manner that significantly impacts on local populations, and this must include establishment of baseline conditions and a review of existing data such as sweep netting data collected by Marine Scotland (the Marine Directorate), in some areas for in excess of 20 years.

### **Question 3: Do you have any suggestions to improve our screening models?**

BFS maintains its objections to the implementation of the framework in its current form based on outstanding concerns relating to the framework's underpinning science, metrics used to estimate risk of impacts and salmonid mortality, and the excessive levels of precaution that are embedded within the model itself. These concerns are detailed at length in BFS' Primary Response, and we believe that these points have not been adequately addressed by SEPA.

Over and above the outstanding points, the consultation paper states that risk screening is important to ensure that resource use and regulation on developers is *proportionate to environmental risk* and delivers *the greatest benefit for environment*. As both the *environmental risk* of lice interactions and *benefits* of the SLRF remain unvalidated and unquantified, it is not possible to confidently screen risk, without the potential for conflict to arise between both objectives. This highlights the need to rapidly undertake a validation exercise of the screening model, prior to implementation of the SLRF.

The screening model would be further improved by utilising real data, rather than synthetic data. This is an important process to follow to ensure that farms identified as 'high risk' by the screening model, are not unjustifiably penalised with onerous restrictions if there is demonstrable evidence of existing lice management that is effective in minimising risk below the thresholds proposed by SEPA, despite being sited in a sub-optimal location (according to the model).

### **Question 4: Do you have any suggestions on how we could better present the outputs of the models?**

Modelling files should be accessible and available to producers in a variety of formats to enable end-users to use the outputs with ease, without needing to undertake any sort of data transformation, or use of excessive computational resource to download and store unnecessary files.

BFS note the following observations on the model outputs shown in Appendix 4:

- The outputs could be displayed on an online, interactive, layered map for users to select specific data to be shown;
- The site locations symbolised by circles scaled to the consented biomass are unnecessary and add no value, as SLRF and assessment of risk is independent of biomass at a site. The current symbolisation of sites in this way magnifies the footprint of fish farms which can be misinterpreted and add to an incorrect narrative related to aquaculture presence in the marine environment;

- The outputs would benefit significantly by being presented as standalone, full-page figures that do not require any accompanying text to describe what is shown i.e. the legend must detail the limitations of interpretation that could be achieved if there was no accompanying narrative e.g. statements that the outputs are illustrative only and do not infer impact; and
- All modelled outputs must be accompanied by a detailed legend for ease of interpretation.

**Question 5: Do you agree with our proposed approach to developing a risk assessment framework for sea trout? If not, please explain why you disagree and what would be your alternative?**

A sea-trout specific risk assessment framework should only be implemented if there is clear evidence that aquaculture operations present a real and demonstrable risk to sea trout populations, based on the current lice management performance of the sector. A specific sea trout framework should not be implemented simply as a natural progression from the SLRF being consulted on, as this would be disproportionate to the risk and result in onerous regulation.

SEPA note in the first consultation paper, that *'Understanding of the interaction between sea trout and sea lice is improving but more science is needed before knowledge is sufficient to enable us to design a practical, risk-based regulatory framework'*. SEPA have also stated that it intends to consult on a proposed sea trout framework as early as 2024. Therefore, BFS object to the proposal to develop a risk assessment framework for sea trout on the basis that SEPA have conceded there is an outstanding workstream that must be completed ahead of implementation of a sea trout framework. It would not be appropriate or justifiable to progress with the development of such a framework until the *'knowledge is sufficient to enable us to design a practical, risk-based regulatory framework'*.

We believe that the current SLRF has been developed in an identical theme, i.e. ahead of sufficient scientific data, establishment of baseline, quantification of risk, or understanding on the subject matter. We believe that the intention and willingness to deliver these important elements has been overshadowed by overarching, political drivers. This was a point clearly made in BFS' Primary Response, and we again refer SEPA back to this response for further detail and scrutiny on this point.

Please also refer to the response to Question 2, which provides additional detail on assessment of risk for sea trout.

**Question 6: Do you agree with our proposed risk assessment methodology? If not, please explain why you disagree and what would be your alternative.**

BFS remain concerned with several aspects of the risk assessment methodology. These were detailed extensively in BFS Primary Response, and we do not believe that any of these concerns have been adequately addressed. In summary, these points relate to:

- Use of unvalidated metrics to define what constitutes risk to wild salmonids;
- The inclusion of a 'low impact' simulated threshold value for impacts to wild fish, is not justified within the consultation, or the literature referenced. This is considered baseless and unjustifiably conservative;
- Attempts to define the 'capacity' of a WSPZ do not consider baseline conditions, that may naturally exist above the threshold stated to cause harm; and
- There has been no attempt to consider risk based on whether there is existing evidence of actual harm being caused to wild salmonid populations.

Further to the above points, we make the following observations on the second consultation paper:

- We believe (and it has been accepted by SEPA) that the assumptions and error underpinning the screening model results in outputs which are precautionary by a factor of 4-5 times.

- The model could be made more accurate by utilising real data. BFS are committed to working with SEPA to establish a framework under which specific data examples could be shared for the sole purpose of developing the framework under a defined programme of work. We also note that farm level data has been in the public domain since 2018.
- It is unclear why figures of 0.04 and 0.02 infective lice/m<sup>2</sup> have been selected as a threshold to define 'substantial' and 'negligible' contributors of lice respectively. This approach adopts the principle of 'all else being equal' and implies that some farms *are* contributing substantially to planktonic infective stage lice, without validation.
- The assessment of risk is established entirely without considering the sensitivity of the receptor. This is a point that SEPA must consider as an alternative means of determining risk i.e. what is the status of local salmonid populations? Is the population *'important'*? Is the population currently subjected to pressures that will undermine any perceived benefit of permit conditions? Can success of the framework be measured where there are too few receptors to obtain an adequate sample size?

**Question 7: Do you agree with the proposed timetable? If not, please explain why you disagree and what would be your alternative.**

BFS agrees with the proposed timetable for developing the risk assessment process. BFS strongly believe that development of the models, including further refinement and validation, must be done prior to implementation of the framework, and therefore continuation of model development until it is fit for purpose is considered an appropriate means of progression.

In the interests of developing a fully functioning, fit for purpose model, we would like to see SEPA provision additional resource to accelerate the development process, ahead of what is currently timetabled.

**Question 8: Do you agree with the proposed workflow for pre-applications? If not, please explain why you disagree and what would be your alternative.**

The consultation paper outlines basic information required for screening, including:

- Maximum numbers of fish to be held on the site during the sensitive window;
- Maximum numbers of average adult female lice/fish; and
- Intended fallow periods.

SEPA must be aware when determining applications that this basic information may be subject to change significantly ahead of stocking the site in the first, and each subsequent production cycle. Changes may arise because of amendments to production strategy, production cycle length, smolt size, smolt availability, and fish health.

Regarding the pre-application workflow (it is assumed this refers to the process detailed in Figure 6), it is agreed that this should be aligned with the approach already used for biomass and medicines, as stated in the consultation paper. Alignment should exist across all aspects of the permit including submission, community engagement, case review, and subsequent determination, to prevent any duplication.

BFS maintains its criticisms of the metrics and underpinning science used to determine the risk categorisation and exposure thresholds, however regarding the workflow itself for pre-application, the process outlined appears logical.



**Question 9: Do you agree with the proposed timetable? If not, please explain why you disagree and what would be your alternative.**

BFS does not agree with the proposed timetable for phasing in of pre-application environmental assessment, as it currently timetables this to occur ahead of validation of the model.

BFS does not believe that the current model is robust or suitable to assess the risk that may be posed by farm-derived sea lice, as no validation of the model has been undertaken. The model is inherently conservative and precautionary by a factor of 4-5. BFS believes that implementation of the framework, including introduction of the model's use in pre-application environmental screening, must not proceed until full validation has been completed, and an appropriately designed pilot of the framework been undertaken. BFS remains committed to working with SEPA and the Marine Directorate on a programme of work to build an appropriately robust and validated modelling framework to assess interaction risk and assist in delivering this through an appropriately designed trial of the framework, *ahead* of implementation as a permitting and regulatory tool.

**Question 10: Do you agree with the way we have used the risk assessment matrix to identify where we will apply permit conditions for reporting and lice limits? If you disagree, please explain how you would apply the matrix and why this would deliver a better outcome.**

BFS does not agree with the metrics and science used to establish the risk profile of a farm i.e. the criteria and science used to define the likely lice contribution of farms and the thresholds used to define capacity of a WSPZ. These points are discussed in detail in BFS' Primary Response, and we consider that they remain valid.

In relation to *how* the matrix is used to *apply* permit conditions, BFS agrees with the principle of applying different permit conditions, proportionate to the perceived risk of the farm, rather than, for example, applying the most stringent conditions ubiquitously across all farms.

We note that suggestions for permit conditions include reporting of on-farm lice counts, and enhanced counting undertaken where necessary. It is imperative that SEPA work closely with Fish Health Inspectorate to align lice data requirements such that a single lice reporting process can be established. This is essential to ensure that coordination and consistency is achieved across regulatory regimes which would otherwise result in duplication and conflict, and misalignment with the principles of the Scottish Regulators' Strategic Code of Practice and the recommendations of the Griggs Review.

We also note that the proposed permit conditions will relate to 'adult female lice'. It is inaccurate to assume that all adult female lice in a farm setting will survive to produce viable eggs, contributing to the planktonic, infective stage lice in a body of water. BFS believes that this limit (and modelling inputs) should be based on gravid female lice counts, as this provides a more accurate representation of the lice potential on a farm, as many non-gravid adult females will not have sufficient time to mature without exposure to an intervention, which would remove the lice from or arrest its maturation.

BFS does not support the use of existing regulatory threshold limits (2 adult female lice/fish) as a 'backstop' level for average lice on farmed fish and as a threshold for which proposals considered to be 'medium risk' will be refused. The use of 2 adult female lice/fish is currently used as a level at which increased monitoring surveillance is required under fish health legislation and is therefore not determined based on wild fish interactions. There is no evidence to suggest that significant adverse harm will occur to wild fish if a farmed site average exceeds 2 adult female lice/fish, and as such we do not support SEPA's proposal to base its own regulatory controls for medium risk farms on this criterion.

**Question 11: Do you agree with our proposal for setting permit limits on the number of lice on a farm? If not, please explain why you disagree and what would be your alternative.**

The permit limits should be established using 'gravid female lice' rather than 'adult female lice', for reasons outlined in response to question 10.

Although BFS disagree with the thresholds upon which the lice limits will be derived (see also references to this in response to questions 3,6, and previous consultation), multiplying lice numbers by fish stock numbers seems a logical means of establishing the permit limits. The specific phrasing of any permit condition must not stipulate the specific lice limit per fish or maximum number of fish, as this would impede the flexibility needed by producers to remain compliant.

It must also be made possible to vary permits easily and efficiently in the event of new science or data arising which suggests that a permit condition is overly precautionary.

SEPA must be cognisant of the potential conflict between permit conditions and the legal obligation of producers to prevent unnecessary suffering to its stock. This must be reflected in the wording of any permit condition, and derogation afforded to the producer where farmed fish health and welfare could otherwise be compromised by undertaking an intervention to ensure compliance with the SLRF. Minimising the risk of a potential interaction, which may not result in any detriment to a wild fish must not come at the expense of guaranteeing the health and welfare of farmed fish.

SEPA have intimated that 'Non-Compliances' will be recorded if a producer is unable to submit lice counts in a given week because of reasons that are currently considered legitimate under the existing lice reporting regime. Currently, sites are not required to submit a count if they are prevented from doing so for reasons including weather, stock being in quarantine prior to harvest, or the site having been recently stocked. Any non-compliance recorded against a CAR permit presents significant commercial implications, and therefore BFS believe that derogation must be afforded from the reporting requirement where legitimate reasons occur without receipt of a 'non-compliance'. This is already an established and familiar process within the sector, and therefore it will seamlessly align SLRF reporting with existing lice reporting requirements should SEPA wish it to. If SEPA defer from this process, this adds further evidence of conflicting regulatory processes being imposed upon the sector.

**Question 12: Do you agree with our proposal for applying a rolling average limit, and a maximum daily limit on the number of adult female sea lice? If not, please explain why you disagree and what would be your alternative.**

A rolling average limit and a maximum daily limit (which corresponds directly to the number of weeks in which the rolling average would be exceeded, i.e. 4 times) is considered an appropriate means of monitoring compliance against limits set in permit conditions.

BFS makes the following observations on this point:

- In weeks 1-3 of the reporting period (the period prior to a complete 28-day window) what figures will be used to assess compliance?
- As lice occur naturally in the marine environment, consideration should be made to afford derogation in situations where producers have had no ability to control the initial settlement of lice. For example, if the daily limit has been exceeded without any prior warning to the producer e.g. no upward trend of lice in prior weeks. If immediate intervention reduces the lice level below the permitted number, this should be recognised as good practice and not penalised with a 'non-compliance'.
- Similarly, consideration must be made when interpreting an exceedance of the daily limit compared to the 28-day rolling average. A single exceedance of the daily limit is likely to have significantly less contribution of

planktonic lice to the wider environment than, for example, consecutive weeks in exceedance of the rolling average limit.

**Question 13: Do you agree that it is proportionate to require enhanced sea lice counts at high-risk sites and that this should be delivered in due course via automated systems using artificial intelligence? Please give reasons for your answer.**

It is assumed that '*enhanced*' counting refers to obtaining a larger sample size when undertaking lice counts on farmed fish.

It is understood that increasing the number of fish sampled during any counting event will increase the precision of the lice count. However, this would suggest that 'standard' lice count lacks the confidence and precision needed to accurately reflect the lice numbers on a given site, which is an unwarranted assumption. On this basis, BFS do not consider it proportionate to require enhanced lice counts at high-risk sites, as 'standard' lice counts sufficiently and accurately reflect the lice numbers on a farm.

In relation to the use of artificial intelligence, BFS do not believe that its use for automated lice counting is appropriate. Lice counting is one aspect of several observations undertaken as part of routine health checks on farmed fish. Automated lice counting would not negate the need to routinely handle farmed fish for these purposes.

Furthermore, the current technology on the market to undertake automated lice counting lacks the accuracy and precision compared to manual lice counts. BFS do not have confidence in the ability of automated lice counters to distinguish between lice species and identify non-adult stages of lice. These two aspects of lice counting are essential for producers to assign appropriate intervention depending on the species, settlement, and population trajectory of lice among the farmed fish.

A further source of error with using automated lice counts is the potential for counts to be unrepresentative for example, if a fish carrying disproportionately high numbers of lice (e.g. a moribund, unrepresentative of the stock) is repeatedly tracked and counted.

The proposal that the requirement to install automated counters could be stipulated as a permit condition is inappropriate considering:

1. Unproven ability of the technology to deliver the required outcomes in a commercial setting;
2. The cost involved of such installations; and
3. The principle that the obligation to collect lice data does not lie with SEPA, and therefore the most appropriate method of doing so to ensure compliance must solely be determined at the discretion of the producer.

**Question 14: Do you agree with how we propose to provide a level of protection until the end of June for sea trout on the West Coast and around the Western Isles while we develop a new risk framework for sea trout? If you disagree, please explain how you would apply the matrix and why this would deliver a better outcome.**

BFS do not agree that it is appropriate to extend the protection period between 1<sup>st</sup> and 28<sup>th</sup> of June, as there is currently no evidence to support the rationale that a specific framework for sea trout is necessary. Please see response to Question 5 for more detail on this point, particularly regarding existing knowledge gaps on sea trout ecology.

Although we disagree in principle with the way that the SLRF has been progressed, developed, and timetabled, BFS is of the opinion that any measures put in place for salmon under the current SLRF proposals will equally provide a sufficient level of protection for sea trout. To increase the scope of the SLRF for an additional 4 weeks without a scientifically justified rationale is irrationally precautionous, as there is no evidence to suggest that there is any risk of adverse interaction between wild sea trout and farm-derived sea lice.

Further to this, the industry Code of Good Practice already identifies a suggested criteria for intervention set at 0.5 adult female lice/fish between 1<sup>st</sup> of February and 30<sup>th</sup> June, encompassing the period in which it is proposed that permit conditions for sea trout be applied.

BFS is of the opinion that concentrating the effort and resource from both the aquaculture sector and SEPA on the development of the SLRF for salmon must remain the priority. If at such a time the *'knowledge is sufficient to enable us to design a practical, risk-based regulatory framework [for sea trout]'*, then BFS are committed to working with SEPA to develop this through an agreed programme of work.

**Question 15: Do you agree with how we propose to set permit conditions to protect sea trout populations? If not, please explain why you disagree and what would be your alternative.**

BFS disagree in principle with setting permit conditions to protect sea trout in the absence of sufficient knowledge of sea trout ecology and interaction potential to enable the design of a practical, risk-based regulatory framework.

Please see responses to questions 2,5, and 14 for more detail.

**Question 16: Do you have any comments or suggestions on how we plan to phase in the framework?**

SEPA have previously stated that the framework will not be implemented *'until it is ready'*. It is therefore alarming that this position appears to have changed, such that it is stated in the consultation paper that a definitive implementation date will be published following analysis of the consultation responses.

BFS does not agree with the plan to phase-in the framework, as there are outstanding, significant issues with the current proposals that must be addressed **prior to implementation**. BFS have detailed these in response to the current consultation, and its Primary Response

BFS is committed to working with SEPA on a programme of work to develop the scientific basis and principles on which to build the framework, and to support the development and completion of an appropriately robust and validated modelling framework. We believe that this should be delivered as part of a collaborative pilot between SEPA and industry, ahead of framework implementation.

**Question 17: Do you agree with the proposed timetable? If not, please explain why you disagree and what would be your alternative.**

BFS does not agree with the proposed timetable for permitting on the basis that it does not believe that the framework as currently proposed is ready for implementation.

BFS does not believe it is possible to develop a robust permitting scheme without first validating and piloting the framework to ensure that any permit text, limits, and conditions are defined in such a way that is:

- 1) Robust and founded on science;
- 2) Proportionate in relation to the actual risk presented by the farming operation;
- 3) Aligned with alternative and potentially conflicting regulatory regimes;
- 4) Workable for the producer in terms of the ability to demonstrate compliance; and
- 5) Workable for the regulator in terms of being able to undertake enforcement.

As stated previously, BFS remains committed to working with SEPA to complete a defined programme of work designed to develop a robust, validated, and tested framework.

**Question 18: Do you agree with our approach to monitoring and reporting conditions and the way we have used the risk assessment matrix to identify where we will add lice limits to permits? If you disagree, please explain how you would apply the matrix and why this would deliver a better outcome.**

BFS does not agree with the metrics and science used to establish the risk profile of a farm i.e. the criteria and science used to define the likely lice contribution of farms and the thresholds used to define capacity of a WSPZ. These points are discussed in detail in BFS' Primary Response, and we consider that they remain valid.

The matrix in Figure 10 of the consultation paper illustrates the 'no deterioration' conditions that will apply to existing farms. There is currently no evidence to suggest that aquaculture is an activity likely to have a significant adverse impact on the water environment because of lice, and therefore that the imposition of such conditions is necessary. Furthermore, BFS does not believe that any condition applied under the SLRF will achieve the aim to prevention of deterioration as SEPA do not have the regulatory authority to act on alternative, more significant pressures impacting wild salmonid populations e.g. recreational fisheries, predation. These points are clearly detailed in BFS' Primary Response, and we consider that they have not been adequately addressed.

In relation to how the matrix is used to determine where to add lice conditions to permits, BFS agrees with the principle that any permit conditions should be proportionate to the perceived risk of a given site, rather than the ubiquitous application of permit conditions across all aquaculture sites.

As previously noted, we consider that the proposal to include enhanced sea lice counts to be unnecessary (see response to question 13).

**Question 19: Do you have any existing evidence that could be used to assist assessments of the WSPZs where the sea lice exposure threshold is potentially being exceeded?**

As BFS has outlined extensively, it does not believe that the proposed sea lice exposure thresholds are scientifically robust, and therefore any evidence suggesting that the threshold is currently being exceeded cannot be relied upon as a measure to determine where risk exists, and where regulatory intervention may be needed. BFS outlined this in great detail in its Primary Response (please see particularly the response to Question 8 of the Primary Response). The focus of any data gathering exercise at this stage must be to establish an agreed evidence base upon which an appropriate lice exposure threshold can be defined. BFS are committed to working with SEPA to identify and validate an accurate exposure threshold as part of the SLRF development phase, **ahead** of implementation.

**Question 20: Would you be interested in collaborating with us in carrying out the assessments required to determine if action is required to reduce infective-stage sea lice concentrations in those WSPZs in which screening suggests the sea lice exposure threshold may be exceeded?**

BFS remains committed to working with SEPA on a programme of work to build an appropriately robust and validated modelling framework to assess interaction risk and assist in delivering this through an appropriately designed trial of the framework, *ahead* of implementation as a permitting and regulatory tool. This process would naturally include undertaking assessments of lice concentrations in WSPZs, and identifying mitigating actions should they be deemed necessary.

However, BFS does not agree that such actions should be based on the outputs of the current screening model, as it remains incomplete and unvalidated. Actions to reduce infective-stage sea lice concentrations in a WSPZ may result in significant economic and regulatory burden for producers, possibly resulting in significant socio-economic impacts. Therefore the decision to undertake/apply action cannot be taken lightly and must be founded on scientific certainty, and on consensus between both producer and regulator that the framework is fit for purpose to arrive at such conclusions.

SEPA state that it *'will act to protect wild salmonid populations as soon as we have good evidence they are being impacted and evidence confirming the contributions of individual farms'*. SEPA have also stated that before it takes action, it will ensure that action is *'evidence-based, proportionate, reasonable and necessary'* and that it needs to *'be confident based on suitable evidence that the activity is contributing to the adverse impact'*.

BFS have previously requested that SEPA clarify what constitutes 'good' evidence, and which data sources SEPA anticipate being able to use to evidence and isolate an impact from an individual farm. These questions have not been answered and BFS considers that SEPA must clarify these points ahead of framework implementation, to ensure that transparency and consistency exists in the regulation and enforcement of the framework.

**If so, how would you be willing to contribute?**

Please see response to Question 20.

**Question 21: Do you agree with the proposed timetable? If not, please explain why you disagree and what would be your alternative.**

BFS does not agree with the proposed timetable for introducing measures at existing farms on the basis that it does not believe that the framework as currently proposed is ready for implementation.

As the intention to implement measures at existing farms will be based on outputs from the screening model, it would be impossible to determine if such measures were proportionate or necessary without first fully validating the model.

SEPA state *'Where we are confident that the sea lice exposure threshold in a WSPZ is exceeded and salmon populations are not in a good state or are declining, we will work with the operators of those farms making the greatest contribution to exposure to require action to reduce pressure from sea lice on the wild salmon population.'*

This approach seems to suggest that SEPA will introduce measures at sites, relying solely on the screening model outputs as an evidence base. Additionally, regardless of the sea lice exposure threshold (that remains unvalidated), WSPZs may have salmon populations that are either *'not in a good state or are declining'* because of pressures Outwith SEPA's regulatory control, and therefore to introduce measures at a fish farm would be irrational, disproportionate, unnecessarily targeted. The proposed approach clearly conflicts with the principles of the Scottish Regulators Strategic Code of Practice.

BFS' concerns in relation to the permitting timetable for new sites (see response to question 17) are equally valid for the timetabled introduction of measures at existing sites and consequently, BFS does not believe it is possible to introduce measures at existing sites without first validating and piloting the framework (for the same 5 reasons outlined in response to question 17).

As stated previously, BFS remains committed to working with SEPA to complete a defined programme of work designed to develop a robust, validated, and tested framework.

**Question 22: Do you agree with the way we are proposing to use the risk assessment matrix to identify where we should focus our regulatory effort. If you disagree, please give your reasons, and describe what you would propose instead.**

BFS does not agree with the metrics and science used to establish the risk profile of a farm i.e. the criteria and science used to define the likely lice contribution of farms and the thresholds used to define capacity of a WSPZ. These points are discussed in detail in the BFS' Primary Response, and we consider that they remain valid.

BFS agrees with the principle that regulatory effort should be targeted toward sites identified as higher risk, however, using risk assessment criteria that is agreed between both the aquaculture sector and SEPA.

BFS are concerned that SEPA state that it will '*be responsive to any credible intelligence about farm environmental performance including from other regulators or the public*'. SEPA have not clarified what will be considered as 'credible intelligence'. This statement raises the following concerns:

- 1) SEPA do not believe that the framework currently drafted is fit for purpose to adequately capture a farm's environment performance, such that intelligence received may contradict SEPA's interpretation of a farm's performance at any given time;
- 2) SEPA do not trust the sector to comply fully with the framework regarding monitoring and reporting requirements (i.e. lice counting), such that intelligence may arise that contradicts the data being shared by producers;
- 3) SEPA are welcoming receipt of intelligence from 3<sup>rd</sup> parties, which may encourage 3<sup>rd</sup> party activity at farmed sites resulting in significant biosecurity and public liability risk for producers; and
- 4) SEPA's regulatory resource must not be constrained and exhausted by being 'responsive' to 3<sup>rd</sup> party intelligence which could be conflated, misconstrued, antagonistic, and malicious toward the aquaculture sector and its employees.

**Question 23: Do you agree with the proposed timetable? If not, please explain why you disagree and what would be your alternative**

BFS does not agree with the proposed timetable for compliance activities on the basis that it does not believe that the framework, as currently proposed, is ready for implementation.

BFS is committed to working with SEPA on a programme of work to develop the scientific basis and principles on which to build the framework, and to support the development and completion of an appropriately robust and validated modelling framework. We believe that this should be delivered as part of a collaborative pilot between SEPA and industry, ahead of framework implementation, which would naturally include the development and trialling of compliance-related activities.

**Question 24: Do you agree with how we propose to prioritise where we target effort under the first environmental monitoring strategy for the framework? If not, please explain your reasons and what you think we should do instead.**

BFS does not believe that the first environmental monitoring strategy for the framework should be targeted in WSPZs that the screening model suggests the sea lice exposure threshold is exceeded. BFS opposition to this approach is based on the following:

- BFS does not believe that the screening model is robust enough to adequately identify risk, and therefore any risk identified prior to validation of the model remains unfounded;
- As the WSPZ risk categories have all been identified using the same assumptions, metrics, and risk criteria, it is likely that the WSPZs marked as 'priorities' may be alike in their physical and environmental characteristics. Therefore, any monitoring undertaken and then further used to validate and support the modelling framework will reinforce and compound any error already embedded into the model. For this reason, the early-stage monitoring strategies must be far reaching to provide suitably varied replicate sites for monitoring purposes;
- BFS believes that establishment of baseline conditions and validation of the model must be the priority, and that environmental monitoring and analysis of all existing data (e.g. sweep netting data) is the primary step that must be undertaken prior to targeting monitoring effort for regulatory purposes.

**Question 25: Do you think the focus of the monitoring strategy should be on the types of monitoring listed above? If not, please explain your reasons and what you propose instead or in addition.**

BFS provided an extensive response to the questions related to monitoring in its Primary Response and refers SEPA to this.

SEPA must clarify *why* it intends to include the proposed methods of monitoring, and to what purpose they serve to directly satisfy the objectives of the SLRF.

BFS believes that the 'types' of monitoring to be the focus of the strategy, should be those that will assist in answering specific questions needed to assess the effectiveness of SLRF i.e. methods should not be included for the sake of monitoring if they do not yield data that directly contributes toward the targeted objectives of the SLRF. The inclusion of any type of monitoring must be robustly justified as each additional method will result in additional resource requirements.

Above all else, BFS maintain that any environmental monitoring must be:

- Inclusive of quantified baseline conditions (we note that SEPA have not yet commenced a programme of work to establish such baselines);
- Collaborative with industry;
- Measurable with well-defined parameters that are relevant to an application or site;
- Relevant and proportionate to risk identified by a fully validated model;
- Aligned with best practice, using recognised, validated methods; and
- Timebound to ensure clearly defined timescales for monitoring, reporting and subsequent reviews are adhered to.

SEPA have been quick to reject the use of current water sampling techniques as infective stage lice distributions are predicted to be patchy in space and time, in favour of using methods such as sentinel cages. It must be noted that sentinel cages present several challenges with relation to sampling bias, logistics, and ethical considerations. Model validation directly against planktonic levels of infective stage lice in the environment is, therefore supported and the development of new methods of detection should be a priority area of research e.g. real-time monitoring systems, flow cytometry etc.

The aquaculture sector already undertakes a significant level of environmental monitoring under Environmental Management Plan (EMP) commitments made through Local Authority (LA) planning processes. BFS hold significant concerns that SEPA have so far failed to confirm, or appear to engage with LA on, any transitional arrangements for EMPs and the obligations that they pose on producers. BFS require SEPA to urgently lead engagement with the sector and LAs to understand the implications of SLRF on EMPs and planning obligations.

**Question 26: Do you think that the proposed collaborative approach is the best mechanism for developing and delivering a monitoring plan? If not, please give your reasons and describe what you would propose instead.**

BFS provided an extensive response to the questions related to monitoring in its Primary Response.

BFS is supportive, in principle, of a collaborative approach between industry, regulators, and verified expertise existing in third party organisations, however the involvement of third parties must not complicate or distract from the key objectives of environmental monitoring. The success of the framework (in both its effectiveness as a regulatory tool and achieving its environmental objectives) will hinge on the success of the monitoring strategy. BFS make the following observations on the proposed collaborative approach for SEPA to consider:



- **As a matter of urgency**, an environmental monitoring programme must be detailed, consulted on, and established **ahead of SLRF implementation**. This is imperative to ensure that baseline conditions can be established; monitoring methods can be tested; programme design is robust; and the results of initial monitoring can be used to refine and validate the SLRF model and assessment of risk;
- **As a matter of urgency**, SEPA must lead on coordination between interested parties to ensure that those involved are adequately resourced and committed to undertake and contribute to the monitoring programme. Given the importance of the environmental monitoring, the core aspects of monitoring design, logistics and interpretation must be delivered by a core technical group representative of both industry and regulator. The monitoring programmes **must not** be reliant on wider third-party involvement, including wild fish organisations, academic/research bodies, and other public bodies, as they may not consistently have adequate resource or expertise to contribute to a monitoring programme.
- Any third parties involved must be subjected to thorough evaluation of potentially conflicting interests or agendas;
- Monitoring programmes must be established by a core technical group to ensure that monitoring remains focused on the objectives of the SLRF and are not constrained by wider agendas or alternative objectives.
- A focussed technical group must be independently chaired and operate under defined Terms of Reference, with defined objectives.
- Environmental monitoring must be a consistent and coordinated core function of regulation, rather than a series of discrete, academic projects reliant on being able to source third party funding.

**Question 27: Are there other bodies and organisations you think would be interested assisting with a collaborative approach to environmental monitoring? If so, please can you say who they are and how you think they could contribute?**

BFS believes that any body or organisation that engages with a collaborative approach to environmental monitoring must demonstrate an applicable and verified level of expertise to which they will be able to benefit the consortium. SEPA must be cognisant of the fact that SLRF is intended to be a permitting and regulatory tool, with potentially significant adverse socio-economic impacts and implications for producers. Therefore it should not be assumed that enabling access to a key component of its function (monitoring) to any interested party who wishes to assist will be of automatic benefit, rather it may complicate and constrain the progression of a streamlined workflow.

BFS advocate that any interested party or stakeholder can and should remain engaged with the monitoring programmes through adequate, transparent communication of its outcomes by SEPA and the farmed fish sector. BFS has referred to the need for streamlining and efficient regulation on multiple occasions (see Primary Response), and this applies equally to any monitoring component resulting from SLRF, its subsequent interpretation and any operational implication that this may hold for a given site.

**Question 28: Do you agree with the proposed timetable? If not, please explain why you disagree and what would be your alternative?**

BFS does not agree with the proposed timetable for the development of monitoring plans.

BFS believes that environmental monitoring is a key component of the framework and, in essence, a scientific undertaking to gather and test data. BFS believes that such a programme must, as a minimum, follow fundamental principles of scientific experimental design. Essential foundations of building a robust programme are to ensure that:

- Baseline conditions are well established and defined;
- There is a clear hypothesis on which to test the data gathered;
- The way in which data is going to be analysed and interpreted is clear;

- The monitoring must be targeted to ensure regulatory action is based on robust evidence;
- That the monitoring programme has clear structure, is consistent and has clear aims and objectives.

SEPA have not provided any detail on these points, such that the monitoring component is being portrayed as an afterthought. BFS believe that as a minimum, a draft monitoring programme design must be developed and consulted on **prior to framework implementation**, to ensure that the entire framework is build upon robust, scientific modelling foundations that have been validated against empirical data. The current timetable conflicts with BFS' position.

BFS remains committed to working with SEPA on an agreed programme of work to develop a fully validated model, that is fit for purpose upon which supporting functions (including environmental monitoring) can be established. BFS remain of the opinion that this process should be delivered through a series of collaborative pilots between industry and SEPA, **ahead of framework implementation**.

**Question 29: Do you agree with the proposed timetable for improving accessibility of information collected in implementing the framework? If not, please explain why you disagree and what would be your alternative.**

BFS believes that any information and data collect for the purposes of delivering a final validated model, and any application thereafter, should not be published until the framework or any subsequent application is validated or determined respectively. This will ensure that the outcome of any determination or validation process is subject only to assessment on factual, scientific grounds, without political bias or influence. If at such a point any data or information is considered for publication, it must be independently verified as accurate, relevant and adequately contextualised to ensure that it continues to be representative of the subject and easily understood by the end user, without the need for technical expertise for interpretation.

BFS supports SEPA's investment into ensuring that data in the public domain is transparent and accessible for interested parties and individuals. BFS does not believe that the timetable for undertaking these improvements should detract resource from other priority components of SLRF development, and indeed, that the proposed improvement works should be at all subject to or dependent on the progression of SLRF.