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Depositional Zone Regulation: A new regulatory method for marine cage fish farms

The Scottish Wildlife Trust welcomes the opportunity to comment on SEPA's Depositional Zone Regulation consultation and is pleased to see advancements in assessing and modelling the environmental impact of the salmon farming industry.

The Trust remains concerned by the Scottish Government's and the salmon farming industry's plans to double salmon production in Scotland by 2030, and considers these timely advancements in assessing benthic impacts of fish farms as an important step in identifying and reducing the environmental impact of an expanding salmon farming industry.

The Trust supports sustainable finfish aquaculture and will campaign for effective regulation, monitoring, enforcement and research to achieve a Scottish fish farming industry sold on the basis of high quality and unrivalled environmental credentials.

In order to be sustainable, the Scottish fish farming industry must maintain the quality, health and biodiversity of the waters it occupies, avoiding significant, cumulative, long-term or irreversible damage to the environment. The Trust believes two crucial steps to achieving the ambitious finfish aquaculture expansion targets in Scotland are still missing. Firstly, the Trust would like to see a broad sectoral strategy for expanding the finfish aquaculture industry and, secondly, the implementation of marine spatial planning, which is a fundamental component of the ecosystems approach.

Question 1 – Do you support the principle of trying to make it easier and more attractive for fish farm businesses to develop in exposed, deep waters with strong tides?

The Trust supports the *sustainable* development of the fish farming industry, which is largely dependent on fish farms being appropriately located in areas where their environmental impact is minimal. To this extent, the Trust would support the principle of placing fish farms in more exposed, deep waters with strong tides **if** it prevents further fish farm development in shallower, inshore waters where the marine environment and wild fisheries are more vulnerable to negative impacts from fish farming activities. It is essential that any expansion of offshore fish farming replaces the expansion of inshore fish farming. If not, the environmental impact of offshore fish farms will only contribute to the increasing cumulative environmental impact of the industry as a whole, rather than help mitigate the industry's impacts.

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The Trust recognises that despite being located in deeper waters with stronger currents, offshore fish farms will still have an environmental impact, although potentially far less than inshore farms. For example, some chemical therapeutants used in fish farming have been found to be detrimental to marine organisms (in particular crustaceans) at very low concentrations.¹ Therefore, placing a fish farm that uses chemical therapeutants in an area with high tidal currents may increase the spatial extent of its impact on marine habitats and organisms. Because of this, the Trust does not consider the locating of fish farms in exposed, deep water areas as a solution to the environmental impact caused by the excessive use of chemical therapeutants. It is important that fish farms located in offshore waters are required to adhere to the same controls for chemical use as those located in inshore waters.

Question 2 – What are your views on our proposal to remove the current cap of 2,500 tonnes on the maximum fish biomass that a farm can stock?

The Trust recognises that the 2500 tonne cap currently imposed on fish farms is artificial, being a result of the limitations of the previous model. The new DZR model provides an improved ability to predict the environmental impact of larger fish farms on the seafloor. However, the Trust considers any decision to increase the current 2500-tonne cap should be approached with caution and prior to an industry-wide removal of the biomass cap, the Trust considers it essential that SEPA ground truth the DZR model with a series of pilot studies that include extensive environmental monitoring programmes.

The Trust would support further investigation, through a series of pilot studies, into whether the areas identified by SEPA's new model can sustain larger fish farms. However, the Trust has concerns over the impact a higher fish biomass will have on other aspects of the surrounding environment (e.g. wild salmonid populations) that this consultation has neglected to include or address. The Trust recognises that this consultation focuses on the DZR and the impacts fish farms have on the surrounding seafloor, but the environmental impacts of increasing fish biomass extend beyond the seafloor and acceptable fish biomass levels should not be assessed using only the DZR. Therefore, the Trust would like clarification on whether the DZR analysis alone will be used to determine the maximum fish biomass a fish farm can stock or whether it will be one component of a larger, integrated assessment that takes a more comprehensive approach to assessing environmental impacts.

Appropriately located offshore fish farms that contain over 2500 tonnes of fish may pose a smaller risk to wild salmonids, but fish farms located in shallow, inshore waters threaten wild salmonid populations (principally via sea lice infestations) at biomass levels which are currently far below the 2500-tonne cap. Therefore, the Trust believes the biomass cap could be increased for offshore fish farms, but should be decreased for inshore fish farms, in particular for fish farms located in MPAs and in coastal areas regularly used by wild salmonids. Introducing a stricter biomass cap for fish farms in inshore waters, but not in offshore waters, will have the advantage of encouraging fish farm operators and companies to invest in offshore sites with the concomitant lower environmental risks.

The Trust considers that converting to the new DZR system should not be a matter of choice for operators of existing farms, rather if the new model provides a more accurate assessment of a fish farms environmental impact, it should be applied across all fish farms both new and existing. By

¹ SARF098:PAMP Refreshment Study – final report A statistical analysis of sea-lice medicine use and benthic monitoring at Scottish marine salmon farms (2002 – 2014)

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providing a choice, the farm operator will most likely chose the option which allows the greatest fish production, rather than the option with the lowest environmental impact. The Trust accepts that applying the DZR to all existing fish farms could result in an increase in fish biomass for some farms, but also recognises that it will reduce fish biomass for other farms currently breaching acceptable environmental standards.

It is important that all fish farms (existing and new) adhere to the most accurate and up-to-date environmental standards, rather than the standards that were in place when the farm licence was granted.

The Trust would like to know how the results from the new DZR model compare with results from the previous AUTODEPOMOD analysis. If they vary, then this could have important implications for the management and operations of existing fish farms that were assessed using AUTODEPOMOD.

Question 3 – Do you support our proposal to allow fish biomass to increase by up to 10% per production cycle, provided compliance with the proposed seabed standards is not threatened?

With regard to the impact on the seabed, the Trust considers one production cycle to be too short a time period to identify all environmental impacts, in particular slowly accumulating or long-term impacts. Therefore, the Trust would like to see any assessments for increasing fish biomass to occur after multiple production cycles; how many production cycles will most likely vary between sites and will need further investigation.

With regard to the impact on wild salmonids, the Trust does not support an incremental increase in biomass unless the impacts of sea lice on wild salmonids have been mitigated and the farm operator can demonstrate they can control the problem. The Trust also believes that the current cap on fish biomass (2500 tonnes) should be reduced for fish farms located in shallow, inshore waters (see response to Q. 2).

Question 4 – What are your thoughts on our proposal that, for DZR sites, we will take on responsibility for monitoring the effects of the farms on the seabed?

The Trust agrees that environmental monitoring of fish farms should be carried out by SEPA and not by the aquaculture industry, due to a clear conflict of interest. The Trust also considers that monitoring should, at least in part, be funded by the aquaculture industry.

The Trust would like to see a SEPA-led monitoring programme to be carried out in a transparent manner (in particular monitoring technique and frequency) and for farm-specific performance information to be made available to the public. If a fish farm is found breaching environmental standards, the Trust would like to see confirmation that its operation has been suspended until the seafloor has recovered and / or the impact has been mitigated.

A list of farms found breaching environmental standards should be made available on SEPA's website. This will allow public scrutiny of the aquaculture industry and also act as an incentive for farm operators and the aquaculture industry to pursue and advance innovative techniques for effectively controlling their environmental impact. Similarly, the publication of fish farm performance data will also assist in assessing the cumulative impact of multiple fish farms within a given area and detect problematic areas.

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Question 5 – What are your views on our proposal that there should be a break in production if seabed standards are breached to allow the seabed to recover?

The Trust agrees that any fish farm found breaching environmental standards should stop operations and allow the seabed to recover. However, the Trust believes the length of the break in production should be determined by the level of impact and the rate of recovery of the seabed, rather than a fixed one-year period. The Trust considers it essential that an environmental monitoring programme is implemented during the break in production to assess the rate of recovery, determine whether the seafloor has recovered, and support decisions for recommencing fish farming operations.

Question 6 – What are your views on our proposal that, under DZR, the maximum area of seabed that can be affected by the deposition of farm wastes would be standardised to 0.5 km²?

The Trust has concerns about standardising the allowable area of seabed that can be affected and that a one-size-fits-all approach should not be applied due to the variation in environmental conditions that exist between inshore and offshore sites. For example, fish farms located in shallow waters should have a smaller allowable area of effect than a farm in deeper water, due to the closer proximity of the fish cage to the seafloor and the shorter suspension and transportation time of waste particles in the water column. Indeed, for fish farms located in deep water with strong currents, the spatial extent of waste dissemination could be large enough that any monitoring within a 0.5km² area around the farm may not detect any impact.

The Trust believes that the allowable area of effect must be calculated on a case-by-case basis and that SEPA should perform a series of pilot studies to determine how best to calculate this area.

Question 7 – Are there any other comments or suggestions you would like to make about the proposals?

The Trust would like to see more information on how the new DZR model was developed and tested (specifically, ground truthed) and why SEPA can be confident of its ability to accurately model the benthic impact of larger fish farms. The Trust considers it important that SEPA clarify this before the DZR model is applied to the fish farming industry.

The Trust recognises that placing fish farms further from shore will be a necessity for increasing salmon production. However, increasing offshore sites does little towards improving the current environmental impact of the existing salmon farms in shallow, inshore waters. This consultation focuses primarily on offshore sites and new sites, but the Trust would like to see a plan of how the new DZR will be applied to existing farms and how quickly changes to current practices, identified as unacceptable by the new model, will be made.

The Trust recognises that this consultation focuses on impacts on the seafloor, but has concerns over the narrow vision of the implementation of the DZR and how the consultation fails to consider the impact on the environment as a whole. It is important that the DZR is considered as part of a larger, integrated suite of environmental assessments that provide a comprehensive assessment of the carrying capacity of a given area and all the potential environmental impacts – this is the ecosystem approach.

The Trust welcomes SEPAs efforts to reduce the environmental impact of the salmon farming industry, but we would like to know whether SEPA is investigating the use and viability of marine

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closed-containment systems as a means of reducing environmental impacts. This DZR consultation focuses on the levels of waste released from fish farms, which is a direct result of the open-net design. In recent years there has been an increase in investment in offshore *and* closed-containment systems in Norway because there the environmental impacts of open-cage fish farming are considered to be too great for existing practices to continue. Closed-containment systems offer an opportunity to prevent many of the environmental impacts that currently result from fish farming activities, and would allow inshore fish farming to continue with minimal risk and also allow fish farm operators to increase their fish biomass without increasing their impact on the surrounding environment.

Could you please keep the Trust informed of any further advancements of this consultation.

Yours faithfully,

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