

Environment, Climate Change and Land Reform Committee

Environmental impacts of salmon farming

Written submission from the Scottish Environment Protection Agency (SEPA)

Thank you for the opportunity to comment on the Scottish Association for Marine Science Research Services Ltd (SAMSRSL) report on the environmental impacts of salmon farming in Scotland. The report from SAMSRSL is comprehensive in its coverage of the topic, but inevitably given the breadth of the report, it is not fully up-to-date or accurate. Using the report headings as a guide, we have made some comments below in relation to modelling, or correct potential inaccuracies.

3 The Discharge of Waste Nutrients & their Interaction in the Wider Marine Environment

The report on p22 provides comparisons of pollutant loadings between salmon, sheep and humans. These estimates of loading can vary to a great degree dependent on which pollutants are examined. For example, the report considers nitrogen (an important pollutant in marine waters), but could equally have examined the production of carbon or phosphorus from each of these groups. Applying a "Population Equivalent" (PE) based on different pollutants will give substantially different figures.

The nutrient loads from salmon farming set out in the report may be in the correct area in terms of PE, but that in itself doesn't necessarily present a problem; high PE polluting discharges are managed by SEPA from many sectors, e.g. sewage, whisky and food production. The PE for salmon farming is dramatic in terms of a direct comparison, but not necessarily as an environmental management issue.

Section 3.2 of the report includes discussion around water column eutrophication caused by fish farms. While there can be localised effects, large scale eutrophication is generally not a significant issue; ocean driven processes can cause more change to nutrient levels in Scotland's coastal waters.

There is some discussion around the modelling of the impacts of fish farms; an approach used extensively by SEPA within the regulatory framework. All models involve simplifying the real world to a greater or lesser extent, and it is necessary to understand these limitations in order to use the output of the model most appropriately.

In aquaculture, we have used a relatively simple model as a way to identify risks to both the immediate and wider environment and thereby inform appropriate policy responses such as licensing limitations.

The simplicity (and uncertainty) of the model and the potential risks posed by some elements of the discharges from salmon farms warrants a conservative, cautious modelling approach and the use of safety factors to be employed when translating the model outcomes into policy. This has been done in the way that SEPA has limited the maximum biomass on fish farms and limited the use and release of sea

louse medicines such as those based on emamectin benzoate (EmBZ). This approach has been successful as indicated by the low incidences of occasions when the seabed beneath fish farms fail to meet required standards at the edge of the cages and the absence of any detectable wide-scale EmBZ impacts above the environmental standards currently in force in water bodies subject to extensive surveys – Lochs Shuna, Etive, Sunart, Shell.

We acknowledge that with a growing industry, particular types of risks and policy concerns require different modelling approaches (e.g. sensitive features, cumulative impacts). We have therefore developed new modelling guidance and requirements that address these needs and which will be adopted in the near future.

With reference to section 3.1.4 and Depositional Zone Regulation (DZR), it is important to note that SEPA is still developing this proposal following the close of our recent consultation on the issue last year; [DZR – A new regulatory method for marine cage fish farms](#).

The range of engineering solutions, including the use of Recirculating Aquaculture Systems (RAS) or any system of closed or semi-enclosed fish farming, also continues to evolve and offers a whole spectrum of potential benefits over the current open cage farming approach as the industry further invests.

4 Effect of the Discharge of Medicines and Chemicals from Salmon Farming

Here the report contains a range of legislative inaccuracies which we have summarised in Annex 1.

In places this section also makes inaccurate references to various chemicals such as disinfectants, net cleaning treatments and protectants, and veterinary medicines. The language also interchanges between the use of chemical, medicine and therapeutant when referring to veterinary medicinal products.

Contrary to table 4.2, there are no products containing cypermethrin, dichlorvos and diflubenzuron that hold marketing authorisations from the VMD for use in fish and therefore they cannot be used. In the UK only the products emamectin benzoate (SLICE) and teflubenzuron (CALICIDE) benefit from active marketing authorisations under The Veterinary Medicines Regulations 2013 (VMR). Teflubenzuron is no longer marketed in the UK and authorisation to use it has been removed from CAR licences. The importation of any other product requires permission from the Veterinary Medicines Directorate (VMD). Of the anti-microbial discussed, only three have VMD marketing authorisations for use in fish in the UK – amoxicillin trihydrate , florfenicol and oxytetracycline hydrochloride.

The summary provided on the setting of EQS and the use of standards in connection with medicines is inaccurate; most of the standards used by SEPA in connection with medicines and other pollutants are regulatory standards rather than formal EQS. The UK National Centre for Environmental Toxicology (NCET) in WRc is not directly involved in the setting of EQS, other than they have provided commercial consultancy services to collate data and review existing EQS on behalf of SEPA and the UK Technical Advisory Group.

There is no mention in this section of “bath” or topical sea louse medicine treatments and their regulation.

Annex 1

The report contains legislative inaccuracies in relevant regulations including reference to repealed regulations. There is also a mixing up of responsibilities and procedures across different chemical regulations.

The legal framework described in 4.8.1 is incorrect. The relevant European legislation is the Veterinary Medicinal Products Directive 2001/82/EC (as amended). The Directive sets out the controls on the manufacture, authorisation, marketing, distribution and post-authorisation surveillance of veterinary medicines applicable in all European Member States. It is enacted into UK law by The Veterinary Medicines Regulations 2013 SI 2033 which came into force on 1 October 2013.

Section 4.8.1 also discusses the Dangerous Substances Directive (76/464/EEC) (DSD). This Directive was repealed in 2006 and although a new codified version was brought in (2006/11/EC), much of it refers across to the Water Framework Directive (2000/60/EC).

Section 4.8.2 refers to “consents to discharge” a term relating to the Control of Pollution Act 1974 – the pre-CAR licensing framework for water pollution regulation. It again discusses the DSD.

The relevant Directive setting out the approach required for deriving EQS is The EQS Directive - Directive 2008/105/EC of the European Parliament and the Council on environmental quality standards in the field of water policy. This Directive amends and subsequently repeals Council Directives 82/176/EEC, 83/513/EEC, 84/156/EEC, 84/491/EEC, 86/280/EEC and amending Directive 2000/60/EC and was published in the Official Journal on 24 December 2008.