

Friends of the Sound of Jura
Tayvallich
Argyll

If telephoning ask for:
Anne Anderson

29 January 2018

Dear Sir/Madam

Dounie Marine Cage Fish Farm, Sound of Jura - Licence application CAR/L/1152438

I refer to your letter of 26 September 2017 regarding application ref CAR/L/1152438 for a new fish farm at Dounie, Sound of Jura, which was made by Kames Fish Farming Ltd.

Jim Frame advised you in his e-mail of 9 November 2017 that SEPA would provide details of the determination of our decision when the application determination was concluded. As you are aware, Kames Fish Farming Ltd. advised SEPA that they wished to withdraw their application on 12 December 2017, as such no decision on the determination of the application will be made by SEPA.

The reasons given by the Applicant for withdrawing the application relate to the natural heritage features that you describe in your letter and the discussions between SEPA and SNH and the Applicant on these. I can advise that SEPA's consideration of the application had progressed to the point of considering the potential impacts on protected areas and features of the natural heritage and that we had detailed discussions with SNH on the potential for the proposed fish farm to adversely affect these. Following these discussions and our initial assessment of the potential impacts, we relayed these to the Applicant.

You mention that Friends of the Sound of Jura have made a response to our consultation on Depositional Zone Regulation (DZR); SEPA is currently considering all of the responses and will be undertaking further consultation on this in the near future, we will ensure that you are invited to take part in this.

A substantial section of your letter relates to the modelling used to predict impacts from proposed fish farms or in support of changes to existing farms. As you will be aware this is a very complex area but I trust that the following provides you with the reassurance that SEPA has utilised the Depomod tools to effectively manage the risks of adverse environmental impacts on the seabed from fish farming operations.

Models cannot be expected to be accurate "out of the box" and this applies to Depomod; to check their accuracy and to determine whether this is in an acceptable margin of error they need to be tuned against field observations. When the Depomod framework was established it was decided to *not* expect operators to individually tune and validate the model for each site. Instead, the model and the framework around it were designed to be conservative and include factors of safety.



Chairman
Bob Downes

Chief Executive
Terry A'Hearn

SEPA Stirling Office

Strathallan House, Castle Business Park,
Stirling FK9 4TZ
tel 01786 457700 fax 01786 446885

www.sepa.org.uk • customer enquiries 03000 99 66 99

For example, the model was run with a small dispersion coefficient to produce a worst-case accumulation around the farm. In addition, a maximum biomass limit was placed at 2500 t and a limit placed on Emamectin Benzoate (relative to the biomass, up to 5 x biomass equivalent) as failsafes, and an “export limit” was applied to EmBZ for cases where material was predicted to be transported beyond the small 1 km² area.

Effectively, the model was not used with the aim of accurately predicting the accumulation of farm waste at a specific location. Rather, the model has been used as a *screening tool* to screen out bad risks. The value of this approach derives from the conservatism that is applied in the model set up, as well as consistency of the approach and therefore comparability among sites. Factors of safety are then applied (biomass limit, EmBZ limit, export limit, etc.) to give yet more confidence that outcomes will not be adverse for the environment. The model is intended to produce *safe* outcomes, rather than necessarily accurate ones.

In this context, comparisons of Depomod model output with real data are not very instructive for judging the value of the model, which should be considered as part of the regulatory framework within which it is employed. The model is not necessarily expected to produce accurate spatial predictions at either high or low energy sites. What is important is whether the modelling flags up any risks that should trigger particular policy responses. In the case of Dounie, and other high energy sites, the use of this modelling approach suggests that there is a risk to the wider environment because a significant quantity of material is expected to be exported out of the model area. This information is then used, for example, to limit the quantity of Emamectin Benzoate that is authorised for use. The work done by SEPA in Shuna Sound shows that, despite the appreciable use of Emamectin Benzoate by several farms in the water body, medicine residue concentrations across the seabed were mostly below the limit of detection at that time and no significant impacts above the applicable environmental quality standards were found. Several of the sites in Shuna Sound have limited Emamectin Benzoate consent quantities because of modelling outcomes, and this suggests that the regulatory framework in its entirety – the modelling as a risk-screening tool plus the associated policy responses – have been reasonably successful.

AutoDepomod has been a reasonably successful screening tool when used in conjunction with failsafes such as a maximum biomass limit and “export” limits on medicines. However, there are a number of policy questions that it is unable to address and which become increasingly significant with industry growth. Depomod cannot address large scale dispersion, identify specific transport pathway and sensitive receptors, nor deal with the cumulative impacts of several farms (or other interacting discharges). The standard for modelling in other industries is to use numerical hydrodynamic modelling techniques to address these types of regulatory concerns.

SEPA has for the past couple of years been engaging with the industry on these matters and explaining the benefits of hydrodynamic modelling and will continue to do so as this is increasingly expected to be normal practice. Moreover, we have new modelling guidance in final draft form which outlines the future requirements for modelling in application for aquaculture-associated discharge licences. The guidance differs from the previous framework in several ways, including:

- (1) a requirement to use NewDepomod rather than AutoDepomod
- (2) the use of “tidal-only” flow data to add additional conservatism to modelling outcomes and to promote the use of tidal locations rather than less dispersive environments that rely on episodic weather for dispersion
- (3) A requirement for 90 days of flow data

- (4) An option to calibrate and validate NewDepomod in order to provide demonstrably accurate model scenarios
- (5) A requirement for numerical hydrodynamic modelling in cases where perceived risks warrant it (e.g. sensitive features, cumulative impacts of several farms, etc.)
- (6) A requirement to agree acceptable modelling approaches on a case-by-case basis prior to applications being made

These changes were originally planned to coincide with the launch of DZR and the adoption of NewDepomod, but unanticipated delays to both of those projects have delayed these changes in modelling requirements.

Note that the current "export limitations" described above pertain only to the Emamectin Benzoate discharges. Historically, we have limited licensed Emamectin Benzoate quantities when Depomod has shown that appreciable quantities are dispersed out of the scope of the model. We have not limited biomasses – and therefore general organic solids waste – on this basis. We are currently in the process of developing larger-scale spatial standards that will help to deal with waterbody-scale issues including overlapping impacts. It is possible that these standards may lead to limitations of biomass in some cases based on considerations of cumulative organic solids impacts as indicated by hydrodynamic modelling.

Regarding your comments on the potential interactions between farmed fish and wild stocks, whilst recognising the listing of Salmon under Annex II of the Habitats Directive, which requires protection and promotion of salmon habitats and the wider ecological considerations imposed upon SEPA under the Water Framework Directive, the specific issue of containment / security of farmed stock at fish farming installations does not fall within SEPA's regulatory remit. SEPA acknowledges that sea lice and escapes of farmed stocks are pressures in the water environment. For these pressures however, Marine Scotland and the Local Authorities are the principle bodies for regulating existing and new aquaculture developments. As you are aware, SEPA has a significant role in regulating fish farm developments under the provisions of the Water Environment (Controlled Activities) (Scotland) Regulations 2011, but these regulations are not appropriate to address the issue of containment and sea lice. These pressures are more appropriately addressed through the Aquaculture and Fisheries (Scotland) Act 2007 and the Town and Country Planning (Scotland) Act 1997, regulated by Marine Scotland and the local authorities respectively.

I too will be providing evidence to the ECCLR Committee's inquiry on the 6th February, and would offer the opportunity to meet to discuss some of the issues that you have raised in the letter around that.

Yours sincerely



Anne Anderson
Chief Officer, Compliance and Beyond

Electronic copy to: info@friendsofthesoundofjura.org.uk

