Framework for the application of SEPA's interim position on the use of emamectin benzoate in fin fish farms

Version 2

18 October 2017

Purpose

1.1 This paper sets out a working framework for implementing SEPA's interim position on the use of emamectin benzoate in fin fish farms.

1.2 SEPA will apply the framework when determining proposals to discharge emamectin benzoate or to increase existing discharges of emamectin benzoate.

1.3 The primary objective of the interim position is to enable SEPA to regulate in a way that ensures the protection from deterioration of marine protected areas (MPAs)[1] and the protection of the national status of priority marine features (PMFs)[2].

1.4 SEPA will use the framework to inform the environmental risk assessments it carries out when determining applications. These include risk assessments required under the legislation establishing MPAs[3].

1.5 In particular, the framework will be used by SEPA to identify the relevant MPAs and the relevant PMFs where application of the draft new environmental standard for emamectin benzoate is appropriate.

Background

Emamectin benzoate is used as an in-feed sea louse treatment for farmed fish. It is typically excreted by the fish over a period of over 200 days post-treatment. The excreted chemical is bound to organic matter in the fish faeces and is deposited on the seabed along with that matter.

Depending on the characteristics of the farm site (strength of tides; wave exposure, etc), the matter may be deposited close to the cages or be carried away from the cages before being deposited in less dynamic areas of the sea.

Emamectin benzoate is very toxic to crustaceans and insects but is of low toxicity to vertebrates including, fish, mammals and birds. Although emamectin benzoate can stay in the tissues of exposed animals for some time it is not likely to biomagnify through food chains.
When determining applications, SEPA assesses the risk to the environment posed by the organic matter as well as the emamectin benzoate.

Where there is a conservation interest[4] within the area of the seabed in the vicinity of the cages on which organic matter will be deposited, SEPA works with the developer to identify cage

[1] Marine protected areas include **Special Areas of Conservation** (SACs) and **Special Protection Areas** (SPAs) designated under the Conservation (Natural Habitats &c.) Regulations 1994; **Nature Conservation MPAs** designated under the Marine (Scotland) Act 2010; and **Sites of Special Scientific Interest** (SSSIs) designated under the Nature Conservation (Scotland) Act 2004.
[2] Protection of the national status of PMFs, GEN 9 (Natural Heritage), the General Planning Principles of Scotland's National Marine Plan 2015.
[3] eg Conservation (Natural Habitats &c.) Regulations 1994
[4] Conservation interest includes species or communities of species for which an MPA has been designated; and examples of PMFs on which adverse effects would be likely to threaten the national status of a PMF.

layouts that will avoid deposition on that interest. If this cannot be done, SEPA will restrict the biomass of fish that can be farmed or refuse the application, as appropriate.

Where discharges of emamectin benzoate are authorised, the total quantity that can be used at a farm is limited to that which will not breach environmental standards. The derivation of that total quantity takes account of the slow breakdown of the chemical in the environment (half-life around 250 days) and hence the potential for environmental concentrations to build up over successive treatments.

Relevant areas and PMFs

1.6 Relevant MPAs for application of the draft new standard are those whose conservation interest is likely to be susceptible to a proposed discharge of emamectin benzoate.

1.7 The relevant PMFs are PMFs[5] that:

(a) are in locations that have not been designated as MPAs;
(b) are likely to be susceptible to a proposed discharge of emamectin benzoate; and
(c) if adversely affected, could put at risk a PMF's national status.

1.8 Susceptibility to proposed discharges of emamectin benzoate is likely where all the following circumstances apply:

(a) the emamectin benzoate is likely to be deposited on the part of the MPA where the conservation interest is located; on the PMF concerned; or on locations supporting species on which the conservation interest or PMF is dependent;
(b) emamectin benzoate is toxic to the conservation interest or to the species on which the conservation interest is dependent (e.g. for food or shelter); and
(c) the conservation interest or the species on which the interest is dependent are not already likely to be exposed to emamectin benzoate as a result of existing discharges.

Background to the use of standards to prevent deterioration

For those conservation interests that are unlikely to have any significant exposure to emamectin benzoate at present, SEPA will apply the draft new standard when determining applications in order to avoid any risk of deterioration of those interests.

For those interests already likely to be exposed to emamectin benzoate as a result of existing discharges authorised against the current environmental standard, SEPA will continue to apply

[5] A description of 81 PMFs is available on the SNH website. Information on the location of some PMFs is available on the Scottish Government's website.

the current standard to ensure proposed new discharges do not pose a risk of further deterioration.

Regulatory approach

1.9 Where a proposed discharge could affect a relevant MPA or a relevant PMF, SEPA will:

(a) apply the draft new environmental standard for emamectin benzoate recommended by WRc when determining the application; and

(b) limit the total quantity of emamectin benzoate which may be administered in accordance with the interim position statement, excluding any treatments of cleaner fish.

1.10 In the case of all other proposed discharges, SEPA will:

(a) apply its current environmental standard for emamectin benzoate; and

(b) limit the total quantity of emamectin benzoate which may be administered in accordance with the interim position statement, excluding any treatments of cleaner fish.

1.11 Where SEPA authorises an increased discharge of emamectin benzoate, it will undertake enhanced monitoring with the aim of identifying any effects.

Approach to existing discharges

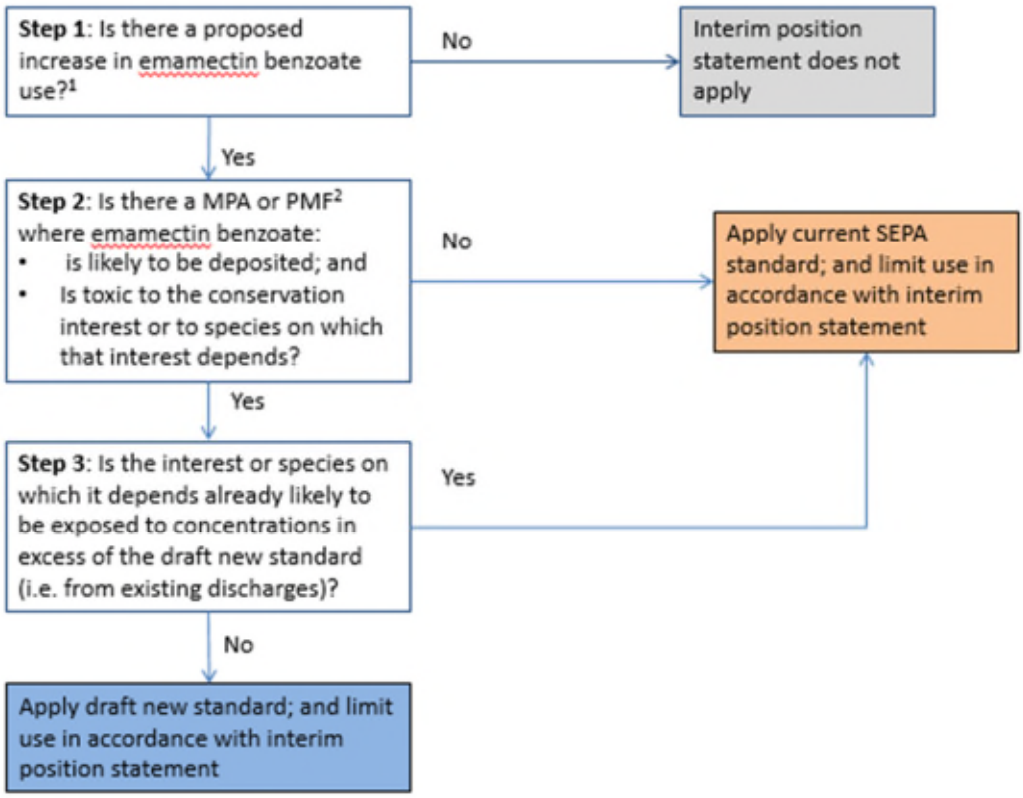
As a result of previously authorised discharges, the conservation interests of some MPAs or PMFs may be exposed to concentrations of emamectin benzoate exceeding the draft new standard.

Once the process of reviewing and finalising a new environmental standard for emamectin benzoate has been completed, SEPA will work with Scottish Natural Heritage (SNH) to identify those protected areas where conservation objectives are being compromised by that exposure.

A timetabled plan for improving the condition of the affected areas will then be developed and appropriate action taken in accordance with that plan. The plan will include appropriate action in relation to any discharges authorised under this interim position.

In the interim, SEPA will work with operators to seek their agreement to a voluntary reduction of around a 60% reduction in the total maximum quantity permitted under existing licences.

Framework: General process



Guidance on the general process

1. Proposed increases, in emamectin benzoate, include all applications for its:
   (i) use at new farm sites;
   (ii) its first time use at existing farms; and
   (iii) increased use at existing farms.

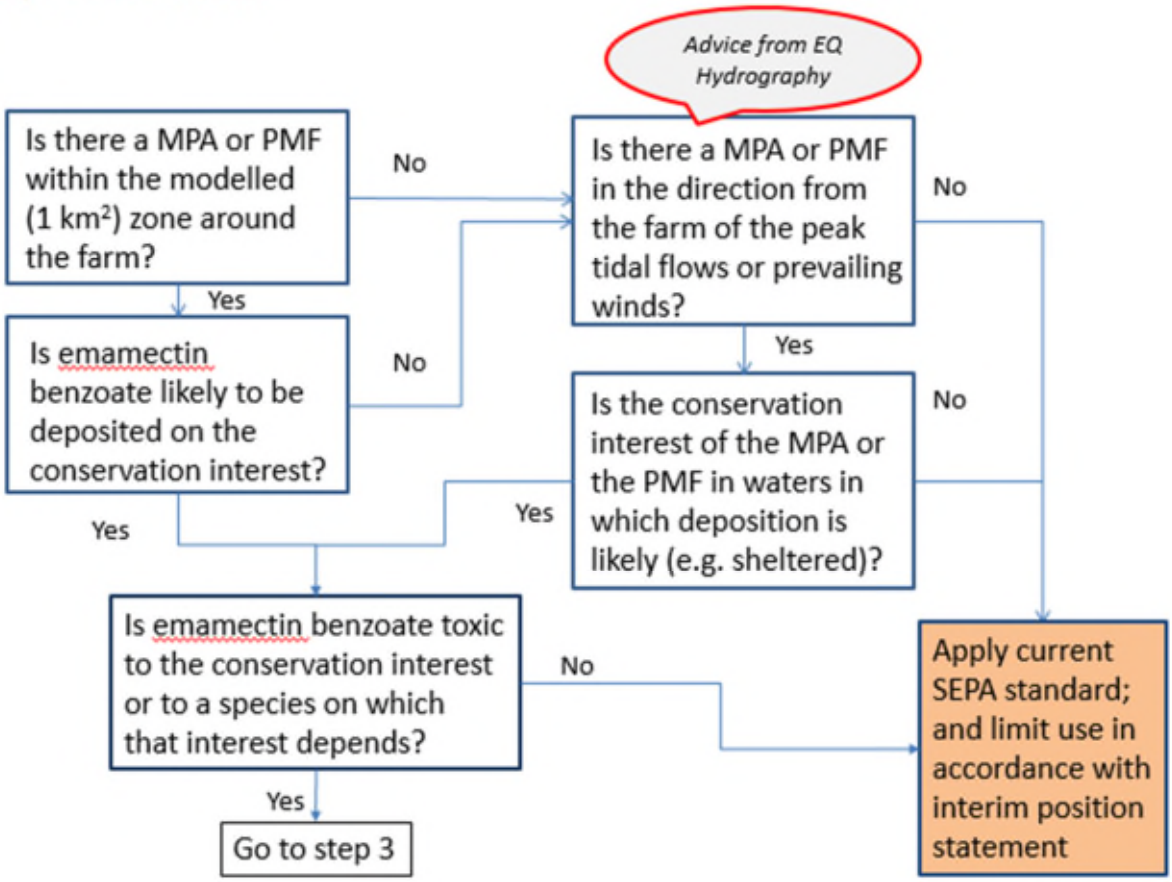
   Changes to cage layouts or Monitoring Protocol Specification are not considered as proposed increases in emamectin benzoate use and are therefore not subject to this position statement.

2. If a conservation interest is not distributed across a MPA, the assessment will only consider that part of the MPA in which the conservation interest and any species on which it is dependent are located.

   Where a PMF is identified for which emamectin benzoate is toxic, SEPA will work with SNH to decide if an impact on the PMF at the location concerned could affect the national status of the PMF.

   Specialists from SEPA Ecology will provide advice on the conservation interests for which emamectin benzoate is toxic, in liaison with specialists in SNH.

Step 2 process detail

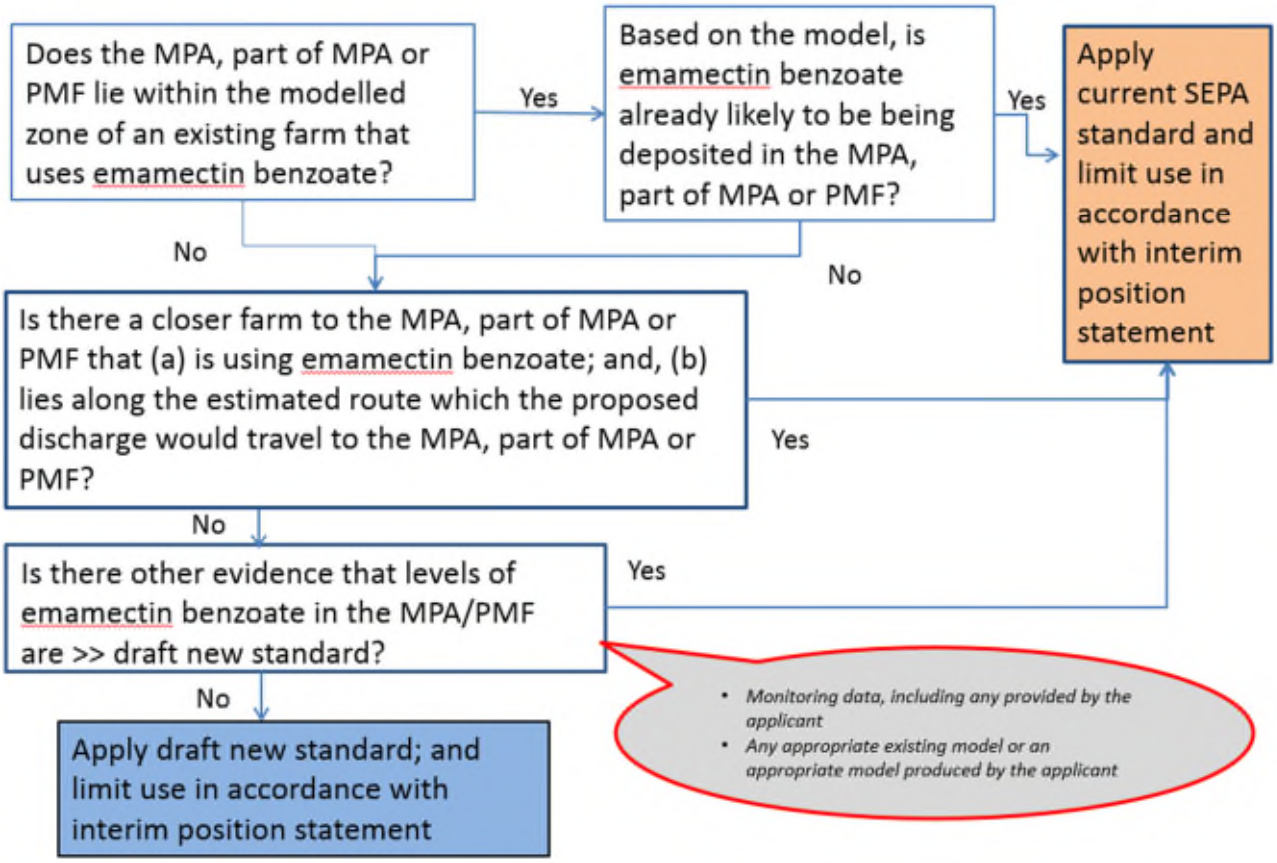


Guidance on the process detail for Step 2

The aim of step 2 is to identify any MPAs or PMFs in which the proposed discharge of emamectin benzoate is likely to be deposited and where the conservation interest may be affected by emamectin benzoate (i.e. because it is toxic to the interest or to species on which the interest depends).

Step 2 should be undertaken with the help of specialists in marine modelling from Environmental Quality in SEPA. The purpose of this help is to identify the likelihood of emamectin benzoate being deposited in a MPA/PMF rather than attempt to predict the likely resulting concentrations.

Step 3 process detail



Guidance on the process detail for Step 3

The aim of step 3 is to identify if any of the MPAs, parts of MPAs or PMFs identified in step 2 are currently likely to be free from any significant exposure to emamectin benzoate.

Significant exposure to emamectin benzoate means that emamectin benzoate from existing discharges is likely to be resulting in concentrations above those of the draft new environmental standard. These concentrations are likely to be close to the current SEPA standard against which existing discharges have been authorised.

If Step 3 concludes that an identified MPA/PMF in the modelled zone around the farm is already exposed to emamectin benzoate as a result of existing discharges, you should apply the second test of Step 2 (i.e. *is there a MPA or PMF in the direction from the farm of peak tidal flows or prevailing winds?*).

For a MPA/PMF that is beyond the modelled zone around the proposed discharge, other farms along the likely route of the proposed discharge to the MPA/PMF should be considered. This consideration should take account of the relative size of any discharges of emamectin benzoate from those farms and their relative distance from the MPA/PMF compared with the proposed discharge.

As indicated in the text bubble in the figure, SEPA will also consider any other evidence of existing exposure of the MPA/PMF to emamectin benzoate, including information provided by operators.

Appendix 1: WAT-PS-17-03 emamectin benzoate framework recording form

This form records the outcome of applying SEPA's framework for implementing interim position statement WAT-PS-17-03[6] on the use of emamectin benzoate in fin fish farms.

Site name

CAR licence number

Step 1 - Is there a proposed increase in emamectin benzoate use?		**Yes**	**No**
1	Is the application solely for a change in the layout of cages?	Interim position statement does not apply – end of process	Go to 2
2	Is the application for new site which includes the use of emamectin benzoate?	Go to Step 2 checklist	Go to 3
3	Is the application for the use of emamectin benzoate, for the first time, at an existing site?	Go to Step 2 checklist	Go to 4
4	Is the application for the additional use of emamectin benzoate at an existing site?	Go to Step 2 checklist	Apply current SEPA standard and limit Use in accordance with Interim position statement

[6] The application of this interim position framework will also ensure that there is no likely significant effect on sites designated under the Conservation (Natural Habitats &c.) Regulations 1994 or on the national status of Priority Marine Features as per the General Planning Principals under Scotland's National Marine Plan 2015, in particular in relation to GEN 9 (Natural Heritage).

Step 2 – Is there a MPA or PMF[7] where the emamectin benzoate is likely to be deposited?		Yes	No
1	Is there a MPA or PMF within the modelled (1km$^{2)}$ zone around the farm?		
		Go to 2	Go to 3
2	Is emamectin benzoate likely to be deposited on the conservation interest?		
		Go to 5	Go to 3
3	Is there a MPA or PMF in the direction from the farm of the peak tidal flows or prevailing winds?		
		Go to 4	Apply current SEPA standard and limit use in accordance with interim position statement
4	Is the conservation interest of the MPA or PMF in water in which deposition is likely (e.g. sheltered)?		
		Go to 5	Apply current SEPA standard and limit use in accordance with interim position statement
5	Is emamectin benzoate toxic to the conservation interest or to a species on which that interest depends?		
		Go to Step 3 checklist	Apply current SEPA standard and limit use in accordance with interim position statement

[7] A relevant MPA means an MPA that has been designated for the conservation of species or communities of species that are susceptible to emamectin benzoate (i.e. emamectin benzoate is toxic for them). Specialists from Ecology will provide advice on which MPAs are relevant. A relevant PMF means a site of a PMF:

(i) that is of national importance for the conservation status of the PMF; and

(ii) where the PMF species is susceptible to emamectin benzoate (i.e. emamectin benzoate is toxic for the species)

Step 3 – Is the conservation interest already likely to be exposed to concentrations of emamectin benzoate in excess of the draft new standard (i.e. from existing discharges)?		Yes	No
1	Does the MPA, part of MPA, or PMF lie within the modelled zone of an existing farm that uses emamectin benzoate?	Go to 2	Go to 3
2	Based on the model, is emamectin benzoate already likely to be being deposited in the MPA, part of MPA or PMF?	Apply current SEPA standard and limit use in accordance with interim position statement	Go to 3
3	Is there a closer farm to the MPA, part of MPA or PMF that (a) is using significant[8] quantities of emamectin benzoate; and (b) lies along the estimated route by which the proposed discharge of emamectin benzoate would travel to the MPA, part of MPA or PMF?	Apply current SEPA standard and limit use in accordance with interim position statement	Go to 4
4	Is there other evidence[9] that levels of emamectin benzoate in the relevant MPA/PMF are >> the draft new standard?	Apply current SEPA standard and limit use in accordance with interim position statement	Apply draft new standard and limit use in accordance with interim position statement

Date of assessment

Name of assessor

Position

[8] Significant exposure to emamectin benzoate means that emamectin benzoate from existing discharges is likely to be resulting in concentrations above those of the draft new environmental standard for emamectin benzoate.

[9] E.g. monitoring data, including any provided by the applicant, or any appropriate existing model or an appropriate model produced by the applicant.