



**Water Environment (Controlled Activities) (Scotland) Regulations
2011**

LICENCE APPLICANT GUIDANCE

**FORM C – POINT SOURCE FISH FARM
DISCHARGES TO THE WATER ENVIRONMENT**

FISH FARMS

The intention of this guidance is to describe the information requirements to supplement the licence application form.

SECTION A: GENERAL INFORMATION**Site Details**

It is important to ensure that the applicant provides a clear description of the fish farm site together with a map showing its position. For marine cage sites a map showing the extent of the leased area should also be provided which identifies the proposed location(s) of the cages. Four NGRs should be annotated onto the map identifying the boundaries of the area proposed for the cages (i.e. ten characters XY 1234 5678). It is usually preferable that an applicant applies for "planning" permission (presently a Crown Estates Commission Lease) prior to making a licence application. This ensures that planning/ infra-structure issues are considered first and an Environmental Impact Assessment has been undertaken where appropriate. However, Planning permission is not required prior to a licence application.

Production

Maximum planned production is required for the models used to predict the impact of nutrients and organic matter. The maximum planned biomass (the weight of fish which can be held on site at any one time) is also required for inclusion in the licence, for the modelling of environmental impact and assess the appropriate charge.

Stocking and Growing Plan

Supplementary information on the number of smolts to be introduced, length of growing cycle, stocking density in kg/m³, anticipated time for which maximum biomass will be held and the anticipated harvesting strategy should be supplied. It is accepted that applicants may wish to vary their stocking plans in future. However, the outputs from the AutoDEPOMOD modelling package which are used to determine the site biomass limit are dependant upon the stocking density and thus the density should not exceed that proposed in the application.

Fish Food

The annual quantity of feed to be used, the proposed feeding method, the feed conversion ratio and the phosphorus and nitrogen content should be included in the application.

List of Chemicals

SEPA requires information on the intended usage of medicines and chemicals to be provided in any application. Applicants are required to list all medicines and chemicals, whether in-feed or bath treatments, that they intend to use on the farm which may enter the water (e.g. therapeutants, anaesthetics, disinfectants, antifouling net coatings) including the trade name, manufacturer and active chemical ingredients in the products. For any antifouling treatments it should be stated where and when the nets were treated and are likely to be retreated.

The applicant is also required to list the method by which these chemicals will be used (including maximum treatment concentrations, total quantities necessary for each treatment and probable number of applications). It is important that the applicant can demonstrate that he/she has considered how to minimise their use in each case.

Cage Details

The application should provide information on cage number, size and layout. The cage layout has an important bearing on the outputs from the model AutoDEPOMOD used to determine site biomass and it is important therefore that plans are provided of cage construction and the anticipated position of the cages or cage groups.

Fallowing

The introduction of sea bed fallowing can have direct implications for effective planning and management of a site as well as a benefit in maintaining environmental quality. Whilst SEPA do not consider them to be a mandatory requirement, significant fallowing periods, e.g. at least a year, can allow any accumulation of organic wastes to be assimilated by benthic processes. Site rotation is a common practice in some parts of the country which allows site fallowing for significant periods. At sites with low current speeds a higher biomass may be considered if the growth cycle is followed by a fallowing period long enough for the sediment to recover.

Fallowing periods can also help to break the life cycle of sea lice particularly if included in management agreements between operators. The application should include details of proposed fallowing periods to reduce parasite and disease infestations. The application may also include details of longer fallowing periods where necessary to enable recovery of the sea bed and its fauna.

Environmental Information

SEPA will provide detailed specifications with the application form on the appropriate level of pre-development environmental survey data required. Applicants must contact their local office to discuss these needs to avoid this request at a later date (i.e. to avoid delays in processing the application).

Hydrography

SEPA requires tidal current measurements, bathymetric information and modelling outputs from the AutoDEPOMOD modelling package to be provided in support of any application for discharge from a marine cage fish farm. This is needed to assess the dispersion and dilution of organic wastes, nutrients, medicines and chemicals and determine a site specific footprint and biomass limit. The provision of hydrographic and modelling data is essential to assess the likely environmental impact of a marine cage fish farm. The data can be used in several ways:

- as a quantitative assessment of dispersion around the site,
- with other data to set the maximum licensed biomass at the site,
- modelling of the impact of faeces, waste food and chemical usage.

In general, the higher the mean current speed, the greater the dispersion. The area of benthic impact of discharges from the site is defined from current speeds and other site specific data using AutoDEPOMOD.

For reliable modelling of deposition and dispersion, an assessment is required of the variability of currents over a full spring-neap-spring tidal cycle (15 days minimum) at several depths. At Island sites where tidal currents close to the shore are relatively weak, a longer current speed record may be beneficial in identifying the full importance of wind-driven currents for the dispersion of waste solids. For all data sets, the provision of wind speed and direction records is fundamental and the application will be considered incomplete without this.

Location and Bathymetry

To assess the localised impact of discharges from the farm, details of the local bathymetry and shoreline are required as inputs to the AutoDEPOMOD package. The minimum distance of the cages from the shore is important in assessing the dispersion of discharges before they reach the shore. In most cases Admiralty charts or local plans with the same format will provide suitable information on the shoreline and depth around the cage location and within the leased area. Applications should be accompanied by the appropriate Admiralty chart, or copy of the appropriate part, on which the location of the cages should be annotated. If this is found to be inadequate it may need to be augmented by local measurements.

Baseline Environmental Conditions

The application should be accompanied by sufficient information to allow SEPA to assess the existing water quality and the effects that the proposed discharge will have on that water quality. Existing water quality is more likely to be a limiting factor where the existing biomass is high and the flushing characteristics of the receiving water are poor. Therefore a site specific monitoring strategy and pre-development water quality data are required. Further advice can be provided by SEPA Marine Science staff.

Dissolved oxygen depletion is seldom a problem in connection with cage fish farming and so baseline monitoring of dissolved oxygen is only required if the residence time of the defined system is greater than 3 days and there is more than 1000 tonnes total biomass proposed. If this is the case then appropriate dissolved oxygen measurements should be made.

Similarly, nutrient enrichment is rarely a problem, although where there are a number of farms in slowly flushed systems hypernutrification could occur. Baseline information on nutrients is only required if the residence time of the defined system is greater than 3 days, and when the total biomass exceeds 1000 tonnes. In such a case, appropriate nutrient measurements, should be made.

Applications which include the use of antifouling agents should include any available data on the expected concentration of the active ingredient (e.g. copper) within the water column in the vicinity of the cages and/ or the rate of loss into the water following treatment (this may be available from the manufacturers).

If the application is for increased biomass or for sea lice medicines which may reach the sea bed then the existing condition of the sea bed should be taken into account. A sea bed survey should be undertaken if this is not already available to SEPA (if there is an existing farm with a history of monitoring then this information should be used in the sea bed assessment).

Minimising the release of Polluting Matter

SEPA has a strategic aim to progressively reduce the pollutant load per tonne of fish produced by the marine cage fish farming industry. In order to achieve this objective it is essential that the applicant demonstrates that they will follow best environmental practice.

SEPA requires that marine cage fish farms carry out bath treatments within full containment. The applicant must confirm that the net construction will allow the use of tarpaulins which will fully enclose the treated fish. In addition, applicants must **confirm** that the treatment volume **can** be reduced by a significant percentage of the cage volume.

SECTION C: LAND BASED FISH FARMS

Site Details

In addition to answering the questions within the application form, the applicant should provide a plan of the layout of the farm showing:

- location and volume of tanks, raceways and ponds;
- location of treatment facilities.

The applicant should demonstrate that the design of the site will minimise the pollutant load to the river. Best environmental practice requires that feeding techniques minimise the loss of food (i.e. maximise the food conversion ratio). In addition, it is important that particulate matter generated within the farm is removed rapidly from the system to minimise the solubilisation of the organic and nutrient constituents of the food and faeces. The farm should therefore be designed to be self cleaning preventing the accumulation of particulates within fish holding facilities or channels. Filtering devices, which remove particulates from the main farm flow are preferred to settlement ponds. Settlement ponds do perform a

useful purpose as polishing facilities after a filter or as a backup form of treatment in the event of the failure of the filter.

It is important to ensure that the handling of any filter backwash is adequately addressed.

ANNEX

The Annex to the form (Substances)

The Annex to the application form lists a number of substances which are considered to be potentially dangerous if they are discharged to the water environment. Under the Water Environment and Water Services (Scotland) Act 2003 SEPA is under a duty to protect and enhance the aquatic environment by, amongst other measures, the progressive reduction of discharges of priority substances and the cessation or phasing out of discharges containing priority hazardous substances.

The annex lists the;

- Priority Hazardous Substances,
- Priority Substances under review
- Priority Substances not proposed as Priority Hazardous Substances, and
- Other specific pollutants SEPA is concerned to limit within effluents.

You must check the annex to record whether the influent into or effluent from your site contains any of the listed substances.