

1. Introduction

Sewage discharges have the potential to create a risk of contamination of filter feeding shellfish such as oysters, mussels, cockles, scallops and clams. In order to protect the aquatic habitat of shellfish, waste water discharge authorisations (waste water discharge licences and certificates of authorisation) for agglomerations in the vicinity of designated shellfish waters¹ typically include the following, or similar, conditions:

- *The <licensee/certificate of authorisation holder> shall carry out an assessment of the impact of the discharge(s) from the waste water works on the microbiological quality (including viruses) of the shellfish in the adjacent designated shellfish waters in consultation with the Sea Fisheries Protection Authority (SFPA), the Marine Institute and Bord Iascaigh Mhara (BIM). The assessment, including a timeframe for installation of UV or other appropriate disinfection as considered necessary, shall be submitted to the Agency within 18 months of the date of grant of the licence where it is identified in the assessment that UV or other appropriate disinfection is required.*
- *Where the assessment indicates that the discharge(s) are having a deleterious microbiological (including viruses) effect on the quality of shellfish in the adjacent designated shellfish waters, the <licensee/certificate of authorisation holder> shall install UV or other appropriate disinfection system within the timeframe identified.*
- *Where a UV or other appropriate disinfection system is installed the <licensee/certificate of authorisation holder> shall ensure that it is operating to the designed disinfection efficiency at all times. The disinfection efficiency of the system shall be measured to demonstrate that the system is operated within its design range. The records from this verification process shall be recorded and maintained*

¹ The EPA notes that while the Shellfish Directive is repealed the wider obligation to protect and improve Protected Areas under the Water Framework Directive applies. In this regard the EPA considers that the standards specified in the shellfish regulations are the most appropriate for use at present and advise that impacts of waste water discharges are assessed against these.

This document provides guidance on conducting the impact assessment. While the waste water discharge authorisation (WWDA) typically allows eighteen months for the submission of this assessment to the EPA, it is important that work on the impact assessment commences early enough to allow sufficient time to undertake detailed assessment studies as necessary to inform the assessment process.

2. Document Review

The initial planning of the impact assessment should include a review of relevant documentation including: European Communities (Water Policy) Regulations 2003 ([S.I. No. 722 of 2003](#)); European Communities (Quality of Shellfish Waters) Regulations 2006 ([S.I. No. 268 of 2006](#)) and amendments, e.g. [S.I. No. 55 of 2009](#) & [S.I. No. 464 of 2009](#); European Communities Environmental Objectives (Surface Waters) Regulations, 2009 ([S.I. No. 272 of 2009](#)); the [Pollution Reduction Programme](#) for the designated waters; the Sea Fisheries Protection Authority [Code of Practice for the Microbiological Monitoring of Bivalve Mollusc Production Areas](#); EU Community [Guide to Microbiological Classification and Monitoring of Bivalve Mollusc Production Areas](#), the WWDA application, EPA Inspectors Report on the WWDA, Annual Environmental Reports for the agglomeration, which are available for download from the EPA website at <http://www.epa.ie/terminalfour/wwda/index.jsp>.

The extent of the designated shellfish waters, any existing shellfish production areas and/or harvesting zone(s) and the history of any illness outbreaks associated with sewage contaminated shellfish should also be confirmed with ‘the consultees’ (SFPA, MI, BIM) during the document review stage. All classified shellfish production areas can be checked via the SFPA’s website at: <http://www.sfpa.ie/SeafoodSafety/Shellfish.aspx>

3. Assessment Process

Contact with the Sea Fisheries Protection Authority, the Marine Institute and Bord Iascaigh Mhara (‘the consultees’) should be made at the outset of the process. The consultees may assist in providing technical advice, guidance and recommendations and this should be taken into consideration when planning the assessment. Contact details for the consultees are as follows:

Marine Institute	Sea Fisheries Protection Authority	Bord Iascaigh Mhara
Shellfish Microbiology Team Leader Rinville Oranmore Co. Galway Tel: 091 387200 e-mail: Bill.Dore@Marine.ie Contact Person: Mr. Bill Doré	Park Road, Clogheen, Clonakilty, Co.Cork. tel: +353 23 8859300 e-mail: seafoodsafety@sfpa.ie Contact: Mr Brian Nolan	Crofton Road Dun Laoghaire Co. Dublin Tel: 01 2144100 e-mail: ocarroll@bim.ie Contact Person: Dr Terence O'Carroll

When undertaking the assessment (which should have regard to the advice / guidance / recommendations of the consultees) the licensee is advised to consider but not be limited to the following:

- a. Is there a similar assessment already prepared for the shellfish water that considers the impact of discharges from the agglomeration?
- b. Does the assessment include all discharges² from the agglomeration including intermittent discharges (e.g. storm water and emergency overflows)?
- c. Is there sufficient data available on the discharge(s) from the agglomeration including; duration, frequency, volume, quality? This should consider all discharges including overflows.
- d. Have there been documented outbreaks of illness associated with the consumption of shellfish from the area? Have any of these outbreaks been attributed (either in

² Primary discharge, any secondary discharges and all overflows.

part or full) to the impact of sewage discharges from the agglomeration? Have any relevant actions to eliminate/ minimise the impact of waste water discharges on the shellfish water been identified by relevant bodies in any previous assessments

- e. Is there existing and current monitoring data (including microbiological data) for the receiving water to assess impact to relevant standards? The SFPA maintain a database of *E.coli* results from the monthly microbiological monitoring programme of all classified shellfish production areas, (approx. 145 sample locations nationwide). The data is available from SFPA on request. The EPA carries out a coastal and transitional waters monitoring programme. Current and historical data may be obtained by contacting the EPA. The EPA's [Water Quality in Ireland 2010-2012](#) gives a detailed review of all the main issues related to the quality of the aquatic environment in Ireland including transitional and coastal waters (Chapter 5).
- f. Is there any virus monitoring data for the shellfish water?. The Marine Institute has virus monitoring results for a limited number of sites and is embarking on a national virus monitoring programme which may provide relevant data for consideration by Irish Water in their assessments.
- g. From consultation with the MI, SFPA and BIM and review of available information, is there a requirement to for detailed assessment including site surveys and hydrodynamic modelling? Such detailed assessment should primarily but not exclusively cover the following:
 - i. Identification and monitoring of intermittent discharges such as secondary discharges, SWOs and emergency overflows in the vicinity of the shellfish waters
 - ii. Suitably designed microbiological surveys to clarify the location and extent of contamination due to urban wastewater discharges

- iii. Hydrography/hydrodynamic surveys including use of tracers and hydrodynamic modelling to determine the circulation characteristics of pollutants. In identifying whether hydrodynamic modelling would be beneficial in the assessment process, the significance of secondary discharges and SWOs should be determined, and they should be included in the modelling assessment as appropriate.

The consultees should be given an opportunity to comment on any detailed assessment prior to implementation. The assessment programme should have regard to any comments the consultees may have.

- h. Where a UV or other disinfection system is in place, are there operational criteria established to assess the efficiency of the system in terms of microbiological disinfection. The report should also provide detail on how Irish Water will ensure the system is effective at disinfecting the effluent prior to discharge including details of operational procedures and controls in place to ensure that the disinfection system is operating to the design disinfection efficiency standard at all times. Appropriate supporting records should be maintained. It should be noted that the Marine Institute recommend that the discharge is tested for FRNA bacteriophage to demonstrate the efficiency of the treatment process for virus reduction (Ref: [STRIVE report series no 109](#)).

4. Assessment Reporting

A report on the assessment and findings should be compiled including details of consultation with the consultees. Any comments and recommendations received from the consultees should be addressed in the final report. Issuing of the report to the EPA should be carried out in accordance with the requirements of the relevant licence / certificate of authorisation conditions relating to the impact assessment. In the case of licences that do not require the report to be submitted to the EPA the report should be available to the EPA for inspection upon request.

The report should identify whether ultraviolet disinfection or any other appropriate disinfection system is required to protect the shellfish waters and prevent discharges from the waste water

works from having a deleterious microbiological effect on the shellfish quality. It is noted that the EPA have adopted a precautionary approach to the protection of shellfish waters and may require that appropriate disinfection or other suitable measures are implemented in the event that an assessment does not satisfactorily conclude whether discharges are impacting on the shellfish water. The EPA will decide on such cases on an individual basis and following assessment of the report and where necessary consultation with the consultees.

Where the report concludes that there is an impact on the shellfish water that is not attributed to a primary discharge with disinfection in place the investigation should focus on the impact of any other discharges from the works (secondary discharges and overflows).

Where the report identifies that intermittent discharges are having a deleterious effect on the shellfish water the authorisation holder shall consider and report on options including; cessation of the discharge, reduce the frequency of overflows events³; disinfection of the discharge and provision of additional treatment prior to discharge;

The report should detail the expected timeframes for completion of all recommendations. The report should also include details of any short term / interim measures to be taken to reduce the impact of discharges while awaiting the long term solution.

³ While current Irish SWO guidance '[Procedures and Criteria in Relation to Storm Water Overflows](#)', [DECLG, 1995](#), does not specify limits on the number of overflow events it does specify that relevant water quality (e.g. shellfish standards) must be considered for upgraded or new SWOs. For existing SWOs there is a requirement not to cause deterioration in water quality in the receiving water or give rise to failure in meeting the requirements of national Regulations on foot of EU Directives. SEPA guidance on Sewer Overflows ([WAT-RM-07](#)) limits the number of overflows events to shellfish waters to 10 significant spills where a significant spill is >50m³per year where the discharge pipe is below the Mean Low Water Spring (MLWS) level. For overflows where the discharge is above the MLWS the maximum discharge frequency 1 in 5years.