

EPA STRIVE funded project

Assessing the Impact of Waste Water Treatment Plant Effluent on Norovirus contamination in shellfisheries

Funding Programme: EPA STRIVE 2007-2013 Environment and Human Health

Start date: 1st October 2008

Duration: 3 years

Summary of the proposed research

Norovirus (NoV) is the leading cause of gastroenteritis in the general population. NoV contamination of shellfisheries presents a significant public health risk. This study will compare NoV survival during sewage treatment and in seawater alongside indicator organisms. The impact of sewage discharges on NoV contamination in shellfisheries will be assessed.

In-situ studies will investigate NoV levels in influent and effluent from a waste water treatment plant (WWTP). The relative impact of storm overflows and continuous treated sewage discharges will be investigated. Laboratory studies will investigate the survival of NoV in seawater. Finally, laboratory-based studies will investigate the use of UV treatment of secondary effluents to reduce NoV levels.

Project objectives and targets

The overall aim of the project is to provide a robust data set on the survival of NoVs during sewage treatment and in the marine environment in the Irish setting. This will allow regulatory authorities and planners to make informed decisions on the level of sewage treatment required and the location of sewage outfalls to prevent or reduce NoV contamination in shellfisheries and other sensitive marine environments. Protection of shellfisheries will increase public health protection. Specific objectives are to;

1. Quantify the level of norovirus found in sewage influent, intermediate stages and effluent in a secondary treatment WWTP and identify the extent of norovirus removal during sewage treatment.
2. Determine the relative contribution of storm overflow discharges and continuous treated sewage inputs to norovirus contamination in shellfisheries.
3. Establish the time required to reduce 90% of norovirus (T90 values) in seawater under typical winter and summer conditions.
4. Determine the extent of the reduction of NoV levels using UV treatment.

The project will be split into three Workpackages

Workpackage 1. (0-6 months) Methodology Selection and Implementation.

Workpackage 2. (6-30 months) Impact of sewage treatment on NoV and indicator organism levels in the marine environment.

Workpackage 3. (12-34 months) Laboratory studies on NoV survival in the marine environment and during UV disinfection