

BIM EMFAF Work Programme Project Report 2022

BENEFICIARY:	Bord Iascaigh Mhara
PROJECT REFERENCE NUMBER:	22/KGS/STS-BG010-BR055
NAME OF PROJECT:	Shellfish Monitoring and Food Safety
IMPLEMENTATION PERIOD:	1st January to 31st December 2022

Project Scope

Food Safety is an area where there is constantly evolving legislative and policy requirements. It is a principle of Irish and European Law that all Food Business Operators (FBO's) (producers, manufacturers, distributors, retailers and caterers) bear the primary responsibility for the safety and suitability for human consumption, of any food placed on the market by them. Furthermore, FBO's are required to take all reasonable steps to ensure the safety and hygienic standard of their products. These principles require the implementation of appropriate food safety management systems throughout the food chain.

In 2017, the European Food Safety Authority's (EFSA) Panel on Biological Hazards (BIOHAZ Panel) concluded in its Risk Assessment that the most effective public health measures to protect consumers from exposure to *Norovirus* in oysters was to produce oysters in areas which are not contaminated or to prevent contamination of mollusc production areas. According to the Panel, methods currently used to remove *Norovirus* in shellfish should be improved. Due to these initial findings, a 2-year (2017-2019) EU-wide Baseline Survey on *Norovirus* in oysters was commissioned by the EU to provide information on overall consumer exposure and the impact this would have on an oyster producer.

Upon completion of this 2-year EU Base-line survey, the Panel recommended establishing acceptable limits for the presence of *Norovirus* in oysters that are harvested and placed on the market in the European Union. The analyses of the substitution approach showed that selection of a potential limit within a microbiological criterion close to or lower than the LOQ (for example, less than 300 copies, given the current test used in this survey) would be difficult to apply.

The testing of oysters is critical to demonstrating compliance with quality control procedures and provide quality assurance to customers. The presence of *Norovirus* is a potential threat, particularly in the winter months and can lead to a negative impact by consumers and at times create a health risk.

The scope of this project was to ascertain best practices for *Norovirus* monitoring of Irish oysters for export to protect public health risk and commercial markets and by investigating the correlation and ratio of infectious and non-infectious virus in oysters at different stages of oyster production. This was achieved by:

- Examining up to 1,000 samples per year.
- Establishing levels of *Norovirus* in those samples.
- Creating weekly reports on the profile of samples submitted.
- Producing a project report that can be used by industry to establish national *Norovirus* trends, make recommendations on best practice, and thus ensure the maintenance of premium position in the marketplace.



- Preliminary development of a study that will ultimately help establish the ratio of infectious & non-infectious virus at key points in the oyster production chain (harvest area, pre-depuration & post-depuration) using FRNA bacteriophage.
- Knowledge exchange for all stakeholders.
- Provide materials which support Food Business Operators in implementing Food Safety Management Systems incorporating HACCP that meets the highest regulatory and voluntary standards of food safety management.
- Develop & deliver a blended approach to food safety training via online workshops and via one-to-one tailored meetings.

Objectives

- Development of best practice for *Norovirus* monitoring of Irish Oysters for export to protect public health risk and commercial markets.
- Investigate the ratio of infectious and non-infectious virus in oysters at different stages of production.
- Development of best practice in Food Safety Management Systems.
- Aid Food Business Operators

Outcomes

A key element of quality assurance is demonstrating the absence of *Norovirus* in oysters at levels that may cause illness. Testing of oysters is critical to demonstrate compliance with quality control procedures and provide quality assurance to customers, thus protecting public health risk and commercial markets.

Although ISO 15216-1 is recognised by European Food Safety Authority (EFSA) and others as an important risk management tool for the detections of *Norovirus*, it cannot distinguish between infectious and non-infectious virus. Currently it is not possible to routinely culture *Norovirus* from shellfish matrix. F-specific RNA (FRNA) bacteriophage are commonly present in human wastewater and have been proposed as suitable surrogates of human enteric viruses. Infectious phage can be readily detected using a standard plaque assay and when coupled with in site hybridisation procedures, it is possible to differentiate between the genogroups of F-specific RNA FRNA bacteriophage. Preliminary work commenced to establish the ratio of infectious & non-infectious virus at key points in the oyster production chain (harvest area, pre-depuration & post-depuration) using F-specific RNA FRNA bacteriophage. This ongoing work is providing a useful indicator towards the extent of the estimation of infectious *Norovirus* provided by the use of RT-qPCR procedures.

In addition to the bacteriophage work conducted, the examination of up to 40 industry-provided samples per week (Max 1,000 per year) with a higher frequency of samples over the winter months, the BIM funded *Norovirus* project has assisted in the development of best practice for *Norovirus* monitoring of Irish Oysters for export.

The implementation of this project has:

- Inaugurated frequency of testing.
- Tailored this monitoring to incorporate seasonality.
- Established a geographic distribution of norovirus in a given harvest area or end product (Post depuration).
- Enhanced sampling and transport storage condition procedures.
- Forged excellent knowledge sharing opportunities with industry through forums such as the Irish Oyster Packers Group.



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- Informed the development & implementation of individually tailored producer Norovirus Risk Mitigation Management Plan procedures in the majority of production sites and assessed their fitness for purpose based on the Norovirus data obtained. In turn resulting in greater food safety procedures.
- The deliverance of quality assurance to the consumer, which in turn has secured markets and the safeguarding of the Irish oyster industry.

Development of Food Safety Management Systems Manual

The Integrated Food Safety Management System Manual provides the Food Business Operator (FBO) with the skills to identify and control any potential hazards that could pose a danger to the preparation of safe food. With the assistance of the BIM'S Food Safety Management System Manual, FBO's can identify what can go wrong, plan to prevent it from going wrong and reduce any potential risk to an acceptable level, thus ensuing public health.

Summary of Project Spend

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Total Approved Costs	€165,262
Total Eligible Expenditure	€165,262
EMFAF Eligible Expenditure	€82,631
Exchequer	€82,631

Report by: Vicky Lyons

Date: February 2023



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