

**BENEFICIARY:** BORD IASCAIGH MHARA  
**PROJECT REFERENCE NUMBER:** 19/KGS/STS010.2  
**NAME OF PROJECT:** BIOREMEDIATE  
**IMPLEMENTATION PERIOD:** 1<sup>st</sup> JANUARY -31<sup>st</sup> DECEMBER 2019

### Project Scope

The freshwater sector in Ireland is facing challenges relating to regulatory pressures on effluent discharge and water abstraction. The aim of this programme is to develop robust new culture and treatment systems for the sustainable development of the sector. This includes BIM working with industry and academic partners to develop appropriate systems and technology to reduce effluent discharge into the environment. Appropriate technologies, duckweed and algae bioremediation will be developed to reduce environmental impact and to provide an alternative source of renewable energy products etc.

### Objectives

Pressure from regulatory and legislative measures such as the Waterframework Directive have placed increased pressures on Irelands freshwater farming sector to comply with increased restrictions. The project will help develop technologies and management methods to ensure that farms become more compliant and efficiently remove waste outputs.

Irelands freshwater sector will have improved data recording of inputs and outputs, improved treatment measures and increased compliance with water based legislation.

Specifically the project focused on:

- Documented inputs and outputs on selected farms
- Trial of technological and management based solutions
- Increased compliance with discharge consents
- Utilisation of natural reedbed and wetland systems to treat effluent
- Assessment of duckweed protein for animal feeds & fertiliser production

### Budget

Maximum approved expenditure on the project totaled €25,000.

### Achievements / Spend

The project was run in conjunction with NUIG and AIT who looked at discharges from a number of freshwater fish farms in Ireland. A number of novel technologies were deployed to reduce the impact of discharges on the environment. A peer reviewed publication was published in Science of the Total Environment outlining the positive use of duckweed as a bioremediant in a novel system. Similarly, a detailed report outlined how the application of other novel technology could reduce the levels of nutrients in other fish farms and thereby allow for continued operation and expansion. Future work in this area will concentrate on clearer understanding of sediment processes and the utilization of probiotics and beneficial bacteria for stabilization of waste in freshwater farms.

## SUMMARY OF SPEND

<b>Total Approved</b>	
<b>Total Eligible Expenditure</b>	€25,000
<b>Total Drawdown</b>	€25,000
<b>EU – 50%</b>	€12,500
<b>Exchequer – 50%</b>	€12,500

Report: Damien Toner

Date: Jan 2020