

BENEFICIARY: BORD IASCAIGH MHARA
PROJECT REFERENCE NUMBER: 19/KGS/STS007.3
NAME OF PROJECT: Fish health and husbandry innovation for the finfish sector
IMPLEMENTATION PERIOD: 1st JANUARY -31st DECEMBER 2019

Project Scope

On an annual basis there are numerous short trials that are required to be undertaken that improve fish health and husbandry practices that make the salmon industry more efficient and reduce fish mortalities. Various short trials will be undertaken with the industry and at the Marine Institutes Lehenagh Pool farm site to test and improve fish health and husbandry practices. The specific projects dealt with in 2019 within this work program include:

- Jellyfish tracking at sea
- The use of various light wavelengths to permit uniform growth.
- Lumpfish husbandry training
- The production of a Cleanerfish manual
- The running of phytoplankton identification courses

Objectives

Jellyfish tracking

The objective of this program was to enable finfish farmers to use drones complete with water landing capability to identify the location and scale of blooms close to farm sites. The deployment of drogues in these blooms also permit site managers to know the locations of jellyfish at any point in time in relation to the salmon cages. Remedial action can then be taken based on this knowledge.

The use of various light wavelengths to trigger smoltification.

This program aimed to establish if 6000 kelvin light promoted more uniform and improved growth rate, lower FCR and mortality.

Lumpfish Husbandry Training

This program aimed to educate and disseminate the most up to date techniques for managing lumpfish in salmon cages in order to prevent fish welfare issues arising.

Cleanerfish Manual

This manual was written with Fish Vet Group and provides all the information necessary to manage the health and welfare aspects of lumpfish properly and effectively in salmon cages.

Phytoplankton Identification course.

This course and relevant materials including identification guides were supplied to site operators and fish health staff to enable them to identify specific phytoplankton.

Budget

Maximum approved expenditure on the project totaled €135,000 corresponding to the following headings:

- Rental of small equipment etc. (outsourced).
- Technical consultant and reporting (outsourced).
- Veterinary services and reporting (outsourced).
- Miscellaneous transport, services etc. and any additional operatives that may be required above what is provided by the Marine Institute at Lehenagh Pool (outsourced).
- Boats and other required infrastructure support will be provided free by the industry partners and BIM.

Achievements / Spend

The effectiveness of piloted and non-piloted drone flights to identify jellyfish blooms has been investigated. The sea state and underwater visibility have been overcome by use of splashdrones. These can land in the water and view the underwater environment. These can then take off and view other areas. This system has enabled a reduced dependence on small vessels and multiple crew onboard spotting jellyfish. This has resulted in reduced health and safety issues with staff going to see and reduced the time spent on a damage mitigation strategy. There were insufficient blooms to deploy the drogues in order to track the jellyfish blooms but we have ascertained that the splash drone is highly capable of reducing hours spent on these tasks.

We tested the effectiveness of light:dark cycles with specific light colours and temperatures and tested them against ambient light dark cycles with natural sunlight. We deduced that longer light cycles with 6000k light resulted in increased FCR's, reduced growth rates and increased mortality.

We ran a workshop detailing best husbandry practices for lumpfish on Irish salmon sea sites. This included maximizing survival strategies to include lumpfish collection and disease identification. All salmon farming companies in Ireland availed of this training sending representatives from each of the sites where lumpfish were to be used. The companies were also supplied with a cleaner fish manual developed by Fish vet group in association with BIM.

The phytoplankton course was run as a result of complex gill disease in fish being grown at sea. This course contained theory and practical and involved the use of microscopic examination of phytoplankton in order to ascertain composition and abundance of algae thought to be harmful to salmon. The use of various collection techniques was also taught so that farms can obtain their own samples to enable them to make the appropriate animal husbandry decisions based on the most recent information collected.



SUMMARY OF SPEND:

There was a small underspend in 2018 mainly because of the cancellation of one meeting of the NFDG in March due to inclement weather. It had also been planned to commission two communication pieces but only one was completed during 2018.

Total Approved	
Total Eligible Expenditure	€135,000.00
Total Drawdown	€125,569.89
EU – 50%	€62,784.95
Exchequer – 50%	€62,784.95

Report: Geoffrey Robinson

Date: May 2020