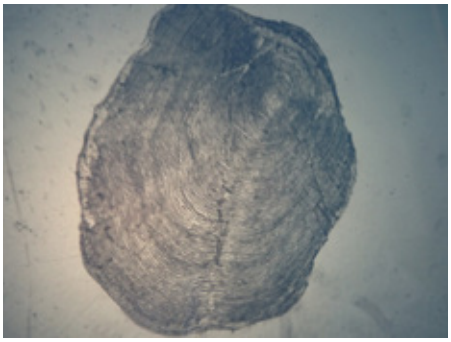
MOREFISH - research on improving freshwater aquaculture production management, resource efficiency and sustainability

Aquaculture is one of the fastest growing food sectors in Europe. Ireland is the seventh largest producer of aquaculture in terms of volume of high value fish species and exports of Irish aquaculture products support approximately 2,000 direct jobs in rural communities.

It is envisaged that Ireland's aquaculture production will be increased under Food Harvest 2020. With an expected increase in production, it is imperative that the environmental impacts on water quality be minimised and the overall performance of the current systems be evaluated. The majority of



A BROWN TROUT SCALE UNDERGOING AGE ANALYSIS TO ESTABLISH GROWTH RATES THROUGH BACK CALCULATING LENGTH FOR THE YEARS OF THE FISHES LIFE

Ireland's freshwater aquaculture occurs in rural communities where they provide a source of local employment, however, these activities face pressure from water quality issues and increasing regulatory control.

The MOREFISH project is a joint multidisciplinary aquaculture project between NUI Galway (NUIG) and Athlone Institute of Technology (AIT) that will significantly improve production management, resource efficiencies and sustainability at freshwater aquaculture sites.

MOREFISH, which is funded by the Department of Agriculture, Food and the Marine, aims to develop and test new innovative technologies and processes for use in freshwater aquaculture. The project, led by Dr Eoghan Clifford from the College of Engineering and Informatics at NUIG and Professor Neil Rowan from AIT's Bioscience Research Institute addresses critically important needs identified by the industry and various stakeholders, including, the potential use and benefits of improved technologies, such as, advanced aeration technologies, deployment of next-generation disinfection technologies; all of which contribute to waste minimisation and more efficient production management.

This multidisciplinary research project will position Ireland as a leading innovator for established and emerging problem solving for freshwater fish production. The overall aims are to enhance production efficiency and sustainability in Irish freshwater aquaculture, leading to increased competitiveness for the sector and reduced impact on the environment.

The industry has actively supported the project by providing full access to a number of sites around the country which allow for a comprehensive study of these Irish freshwater aquaculture systems. These farms utilise a diverse range of rearing environments from recirculating systems, to partially recirculating and flow through systems, which abstract water from lentic and lotic sources. Within these systems different farm layouts can be observed such as: pond, tanks and raceway systems.

As part of the work programme, the historical biological imprint of each site will be evaluated and then undergo an intensive sampling campaign to assess the performance of the farm in terms of production and waste management. From this sampling, real time solutions can be given that will improve efficiency and help improve the environmental performance of the farms sampled.

This project brings together a critical mass of engineering and scientific expertise from industry stakeholders and policy-makers, commercial operators and international experts who can respond directly to pressing issues identified through industry scoping.

The NUI Galway team of (Dr Richard Walsh, Mr Alan Kennedy, Mr Ronan Cooney) and the Athlone Institute of Technology team of (Dr Alexandre Tahar, Dr Andy Fogarty, Ms Sarah Naughton and Dr Siobhan Kavanagh), envisage that MOREFISH will provide real time impact for pressing challenges facing fish farmers that will ultimately help increase fish biomass yields, improve stock health and welfare, and reduce production costs and wastes.

For more information please visit the MOREFISH website www.MOREFISH.ie or follow us on Twitter @MOREFISHproject

Ronan Cooney, College of Engineering and Informatics, National University of Ireland Galway

A TYPICAL FLOW THROUGH EARTHEN POND SYSTEM