Sea lice could be eradicated by new treatment at salmon farms

A vaccine aims to protect fish and the environment in battle to beat threat to industry.

Rohese Devereux Taylor reports

A PIONEERING oral vaccine that will treat sea lice in farmed Atlantic salmon is in development after receiving a funding boost.

The new treatment, produced by a team of Scottish and international aquaculture experts, aims to help the industry tackle one of the biggest threats to the welfare of farmed Atlantic salmon, as well as eliminate environmental toxins.

Sea lice are a constant challenge for the global aquaculture industry. Some traditional chemical treatments also pose a threat to the environment.

The two-year project, supported with £260,000 funding, pre-dated through the Scottish Aquaculture Innovation Centre (SAIC) and backed by the industry, began in Italy, developing the treatment which can be delivered through fish feed with minimal disturbance.

The cost of sea lice in the Atlantic salmon production industry is estimated to exceed £10 million per year in Scotland.

Project partners include academics from the University of Strathclyde’s Institute of Aquaculture as well as industry specialists from the global fish feed producer Bionova, aquaculture companies Saifal and vaccinology experts Tetips Aquaculture. The consortium also draws upon the expertise of vaccinologists at the Morehouse Research Institute and academic fish immunologists from the University of Mexico in the United States.

Polly Douglas, aquaculture innovation manager at SAIC, said: “Addressing environmental and health challenges, including sea lice, is one of SAIC’s priority innovation areas and a crucial concern for the global aquaculture industry. The success of this project will demonstrate directly with the Scottish Government’s 10-year Farming Fish Health Framework, aiming to improve fish health, protect the marine environment, and ensure Scotland’s main food export grows sustainably.

“Collaborative research and development projects, such as this, harness the expertise of academia, industry partners and salmon producers, and set a major step forward to future sustainability of the industry.”

McDouglas said The Herald that, while vaccinations are used in the industry, usually for bacteria or viruses, the method is much less common for use against a complex parasite like sea lice.

The parasites are currently managed

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and controlled using a range of measures, including veterinary medicines, physical and biological tools for parasite removal, and optimised farm management practices. Despite existing research and protocols in place to control infections, success has sometimes been limited, with no commercial solutions currently available.

Veterinary medicines continue to be employed for control. However, sea lice are becoming increasingly resistant to treatment.

In the last 40 years a number of treatments have become available.

Previous dip vaccines were absorbed through the salmon’s gills, while hydro and thermal forms used water pressure and warmer water to treat the lice.

Ms Douglas said: “Sea lice are very tricky. They become resistant to treatment so it becomes less effective. Different strains have come and gone. There have been in-feed treatments before and bath treatments when fish are put into smaller areas and the sea lice treatment is put into the water.”

“Treatments can stress fish and we’re trying to reduce that. This new vaccine could reduce handling of the fish, and then be taken out of the water. It would be put into their feed and improve their welfare. We’re working away from chemical treatments as they have an impact on the wider environment.”

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