

Concluding opinion of the FINEFISH hatchery managers:

“We have learned much about how to prevent malformations in fish, but further focus on causal factors are needed”

The following text is the result of personal interviews with the hatchery managers of the SMEs which participated in Finefish and have been summarised by Dr. Ingrid Lein

Introduction

FineFish was a Collective Research project; a specific type of European collaborative project that aimed to address problems that are common for an industrial sector. This means that the interests of the hatchery sector were the prime targets when conceiving and executing this project, and consequently, that the hatcheries were required to make significant contributions, both through practical work and through discussions and knowledge development within the project Consortium. The nine FineFish hatcheries are a heterogeneous group of companies, spread throughout seven countries and producing five different fish species between them. Despite these basic differences between the companies, the SME representatives have been an invaluable part of the project's work and achievements, not least in challenging the scientists to address the right issues, and to develop scientific results into practical recommendations that have an immediate effect in operational conditions.

In the following section, some comments and opinions are presented from four of the FineFish industry partners .

“Tinamenor”—Seabass and seabream hatchery

Grupo Tinamenor S.L. (Spain) is an integrated company producing sea bream and seabass in the installations located in the north of Spain and in the Canary Islands. Their motivation for becoming part of the FineFish project was to reduce the incidence of malformations in their production and thereby improve the overall economy of the company.

Carlos Mazorra is the RTD manager of Tinamenor in Pesues in Cantabria (northern Spain). He states that, like all producers of sea bass and sea bream, Tinamenor puts a lot of effort into sorting of juveniles at 1 gram size. Mazorra says that the cooperation between the industrial partners in Fine Fish has been important, but also very challenging due to long distances for travel/communication and very busy days ‘in the office’.

The most relevant results from FineFish for Tinamenor were those obtained within the field of nutrition. The results have been difficult to implement directly in the production scenario, but they have given the producers important information and knowledge that is useful in discussions with feed suppliers for recommendations on formulations.

Tinamenor encouraged all the relevant feed producers to join the Fine Fish Workshop in Gent in September 2009 so as to discuss the results and recommendations with the scientists involved in the project.

With regard to the benchmarking programme that has been developed in the project, Mazorra is awaiting the final outcome of the work done at the model farm and that, in any case, he feels that the benchmarking program need further development before it can work as a functional tool for commercial producers.

Mazorra further expresses the need for a stronger link between science and industry in aquaculture, for example in form of a technology centre where new methods or equipment can be tested before implementation at full scale. As a final conclusion, Mazorra says that although a lot of work has been done to solve the problems of malformations in farmed fish during the three year project period, there is still need for more focused research work to be done so as to eliminate this problem in European aquaculture.



Sorting juvenile fish with malformations

“Ferme Marine de Douhet”—Seabream hatchery

Ferme Marine de Douhet (FMD) (France) is a sea bream hatchery located on the island of Oleron on the west coast of France. FMD has been heavily involved in the development of the benchmarking system developed during FineFish and has been used extensively as a model farm in this part of the Fine Fish project.

The Hatchery Managers—their role in FINEFISH

Jean-Sébastien Bruant is the executive director of FMD and has represented the interests of the company during the FineFish project. In his opinion, the benchmarking system has a potential to be an exemplary future tool for monitoring and controlling hatchery production, but that more work is needed to reach the desired goal of providing a valid predictive and statistical tool for the producers.

Bruant states that he has found the cooperation with all participants of the Fine Fish project to be very fruitful, both from the industrial and RTD sectors, and that FMD is motivated for further cooperative work within the consortium. According to him, FMD has implemented knowledge from the Fine Fish project in their production protocols, especially those aspects concerned with larval nutrition. FMD were able to use the results directly, because they produce their own enrichment diets for the live feed.

During the project period, FMD has managed to reduce considerably the rejection of malformed fish at 1 gram individual size.

Bruant concludes that the philosophy of the Fine Fish project was good, but, similarly to Carlos Mazorra, he states that continued efforts are needed to fulfil the goal of low prevalence of malformations.

“Profunda”—cod hatchery

Profunda A.S. (Norway) is a hatchery producing Atlantic cod juveniles at Barstadvik on the west coast of Norway. The company decided to join the FineFish project because it wanted to reduce the prevalence of malformations in their production, which was very high, and to understand more about what causes malformations in farmed fish.

Helge Ressem, who is the manager of Profunda, says that their participation in the Fine Fish project has resulted in a new and wider focus on the effects of tank environment on protocols for cod production, in particular the need to control water current. This development came as a result of discussions with scientists and farmers involved in seabass and sea bream production, and realisation that the knowledge generated for these species was applicable also to cod.

During the project period, Profunda has focused on water circulation and aeration of incoming water, with the intention of achieving a calmer environment in the larval and juvenile tanks. Profunda made significant material investments in the hatchery to this purpose. As a result of this work, Profunda has managed to lower the incidence of lordosis considerably, resulting in much lower percentages of malformed juveniles.

With regard to the benchmarking program, Profunda agrees with FMD that this program has considerable future potential, but that further development is needed before it can become a useful tool for the industry. In agreement with other participants, Ressem has also found that the contact with the other companies and scientists has been fruitful, not only the formal meetings but also the informal discussions held around these. Ressem also found that all the visits to the different hatcheries were useful.

During the project period Profunda developed a close cooperation with Nofima and its personnel, and Ressem says that they were very lucky to have their national RTD institute located geographically close to them, and thinks that this contributed significantly to the success of the cooperation.

“Viviers de France”—trout hatchery

Viviers de France S.A. (VDF) (France) is a fully integrated fish farming company that produces rainbow trout in freshwater. VDF has several operational locations, mainly in the south-west of France in the Landes region.

Frédéric Cachelou is the President of Viviers de Sarrance and also works as a consultant for VDF. He says that VDF appreciated the construction of the FineFish project with eight different scientific institutes cooperating on the same topic and also the involvement of industry working on different fish species.

During the project period VDF became more focused on the effects of temperature during the early life stages on the development of malformations. They plan to implement this knowledge and develop their juvenile production, considering the knowledge about temperature effects. VDF has a long tradition for cooperation with the national RTD institutes INRA and Ifremer, who were within FineFish, and as the project developed, close cooperation was developed with Nofima, concerning the topics of temperature and disinfection.

VDF is not so optimistic with regard to the future of the benchmarking programme and its suitability for salmonid juvenile monitoring. Cachelou says that the applications of the programme might be better suited for the marine fish species reared in aquaculture and recommended that, in any case, the ranges and type of data that are used in monitoring should be revised in the future.