BlueEDU describes the situation in the aquaculture industry in Europe. Here we see that the number of Sea Lice is counted on a Norwegian farmed salmon.
Illustrative photo: John Birger Stav

- Too little knowledge within the fish farming industry

More knowledge and education in aquaculture is necessary in order to extract more food from the sea. There is also a great lack of textbooks and updated subjects for use in education, shows research.

There is a great lack of food worldwide.

By 2050 we will be over 9 billion people on Earth, according to the World Food Organization (WFO) calculations. The only way to significantly increase food production, without the use of large resources, is to exploit the sea even better.

Already more biomass is cultivated in aquaculture than is caught by wild fish in the ocean. But to grow efficiently, and in a gentle way, more knowledge and education is required in the field.

- "Producing fish meat is far less demanding than producing animal meat. But if the production is going to increase to the level needed, it is necessary to increase the knowledge among those who work in the blue economy", says Associate Professor John Birger Stav.

He works at the Department of General Studies at NTNU, and is project coordinator of the EU research project BlueEDU. (See fact box.)

Great lack of textbooks

The competence requirements for skilled workers in marine cage farming in 12 European countries have been mapped. Researchers notice that there is a great lack of textbooks and updated subjects for use in education.

The technical progress is fast, and a lot of the subject is out of date after just a few years.

The differences between countries are large. In Greece, which is the fourth largest producer country in Europe, the companies them selves must do all training. There is simply no offer of vocational education and training within aquaculture in the eastern Mediterranean area.

There are also major challenges in Norway: several hundreds of workers are lacking a national recognized qualification (certificate of employment within aquaculture).

The aquaculture industry is growing fast, while the number of positions available for students is limited. Of those who have been employed during the last six years, two out of three lack relevant education based up on a national recognized qualification.

In Norway there are 14 vocational schools, spread throughout the country, which offer apprenticeships. Half of the schools also offer training to those who already work in the industry, but lack a national recognized qualification (certificate). In Norway, students are participating in workplace training within the industry and learn a lot of the curriculum through their practice.
Illustrative photo: John Birger Stav

Cold and warm water farming

The research project has involved farming of salmon and trout in the cold waters of Northern Europe, as well as Sea Bass and Sea Bream in the warmer Mediterranean.

The project has mapped what is the company's need for competence in the future, and if the educational sector may deliver what fish farming companies actually demand.

- "We have been present at national and international meeting places. We have asked them about what they experience as important to the industry. The whole of Europe believes education is important, but for many it is not at the top of the priority list. They do not necessarily see the connection and linkage between disease fighting and education", Stav says.

BlueEDU started in December 2016.

Knowledge provides "happy salmon" and more money

Even though farming is done in different ways in the different countries, there are still basic common features:

It's about keeping the fish fresh and saturated.

- Despite growing demand, growth in the European aquaculture industry has stopped. This happens partly because the industry lacks employees with the correct knowledge and skills.

- Knowledge of technology, the biology of fish and the different farming processes, are necessary.

Many, even in Norway, make fatal mistakes for example by delousing of salmon. According to the Directorate of Fisheries, nearly 20 per cent of Norwegian farmed salmon died in 2016 partly due to delousing.

- "At Frøya in Trøndelag, they start resolving the fighting of the Sea Lice. The competing farms cooperate in order to synchronize their measures. The effect is that mortality has dropped down to two percent for the best facilities. It gives much greater profit and much better animal welfare", Stav points out.

- Knowledge and cooperation are keywords here. A culture must be created in such a way that breeders can cooperate and learn from each other. This we will recommend the EU to get into the training and education of skilled workers.

Testing innovative learning methods

Now when the survey data have been gathered, the plan is to set up a major European pilot project to test new innovative ways to offer vocational education and training.

The wish is that more countries start using similar curricula, teaching methods and technologies, as well as similar assessment solutions. This will allow professionals with an approved nationally recognized qualification, to automatically get their education accepted by companies in other countries. At the same time it will raise the standard of the vocational education and training.

- "The largest farming companies in Norway are positive to join a pilot. That are also Scottish Sea Farms and the Icelandic companies Arctic Fish and Arnarlax. We also hope that the Faroe Islands may join a partnership. Then the industry has created a good base where they may learn from each other and create common standards", says Stav.

John Birger Stav believes that increased knowledge is alpha and omega for the industry, and for food production in the EU in the future.

Fact box:

The BlueEDU project

- Overall objective: To identify the gap in skills within the European aquaculture industry, in order for the future workforce of aquaculture to have the knowledge and skills required for the sector to remain competitive.
- Why the BlueEDU research project: The EU has for many years invested significant sums to increase the production of food in the ocean. This includes both research and education and training measures. In spite of this, after Brexit, 70 percent of farmed fish produced in Europe will come from non-EU countries, namely Norway, Turkey and the United Kingdom.
- For example, farming in Greece has decreased from 140,000 annual tons to 100,000 tons annually, partly due to lack of capital following the financial crisis.
- These countries are involved in the research project: In the north: Norway, Iceland, Finland, Great Britain, Denmark and Ireland. In the south: Greece, Cyprus, Croatia, Italy, Spain and France.
- Read more at: www.blueedu.eu

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