

Inauguration of CEAC, a new shrimp-feed dedicated research facility



Guillaume Le Reste, CEO of Halieutica inaugurating the CEAC.

On March 16, **Halieutica** organised an opening ceremony for the new Centre for Experimentation on Aquafeeds in Crustaceans (CEAC) in Angers, France. The CEAC recently moved to this new premises in 2021, post Covid-19.

Halieutica is a French-based aquafeed service company created in 2018 to offer a wide range of services to additives, ingredients and feed producers interested in developing their aquaculture markets. The focus is on ingredients, formulation and manufacturing of aquafeeds.

During the recent Global Shrimp Forum in September, Guillaume Le Reste, CEO of Halieutica, explained the chronological process. "When Covid-19 was almost over, we worked through the registration process as a CRO (contract research organisation) for CEAC, according to French regulations on veterinary services. This then enabled us to promote our services. Basically, we work on three axes: digestibility, growth and behaviour. The latter is mainly videos of shrimp and using artificial intelligence to analyse stress and palatability. As shrimp do not have the chemicals to demonstrate the effects of stress, through videos, we have identified some behavioural characteristics that are clearly related to stress. This will help us develop reliable tools to predict stress and diseases."

Le Reste commented that 80 aquafeed professionals braved train strikes and motorway blockades to gather in Terra Botanica to inaugurate a new research platform dedicated to shrimp nutrition and feeding.

The occasion also included a half-day conference during which eight speakers from 6 companies discussed recent findings obtained in collaboration with Halieutica. This in-person event provided the opportunity to share new information on fish and shrimp nutrition.

The conference was divided into two parts. The first half discussed consulting activities focusing on feed formulation and feed manufacturing. Consulting is the DNA of Halieutica and still constitutes its main activity.

Formulating feeds

Pascal Trintignac, Aquaculture Advisor, SMIDAP for the Loire Region described a recent experiment on carp juveniles fed on locally produced raw materials, including insect meals. He underlined the interesting results obtained, especially from the perspective of setting up a regional pond fish production chain.

Bruno Duranthon, General manager, and Benoit Chesnais, Sales Executive

at A-Systems, presented ways the feed formulation software Allix can help nutritionists improve their feed sustainability through a multiple-step optimisation process. A specific focus was on the new online tools enabling formula sharing between Halieutica's consultants and the feed manufacturer they are working with. This tool facilitates data and knowledge sharing. It is also efficient when collaborators are not in the same time zone, as formulas are always accessible for modifications.

Post formulation is the feed processing step. Frédéric Mauny, Senior Technologist at SoLead Consulting, who specialises in feed mills, explained how to do it. He spoke on some activities with Halieutica to improve feed quality in different plants in Asia and Africa. The crucial link between nutrition and the technologist to manufacture a satisfying pellet was underlined.

Shrimp trials

The second half of the conference was dedicated to output from CEAC. The team from Nor-Feed, the French feed additive company, Pierre Chicoteau, CEO and Paul Engler shared the trust it had put into Halieutica when it launched the CEAC platform during the pandemic. Engler shared data gathered during a trial run at the centre. He focused on the impact of a product on water quality when fed to the shrimp. Apart from data related to animal growth, this new research facility also gave them access to a large number of water samples. Samples were analysed through different processes and gave Nor-Feed useful information to understand how some plant extracts can influence ammonia dynamics.

Charline Pichon, a PhD student from BCF Lifesciences, shared some fascinating findings on the influence of ambient conditions on shrimp feeding behaviour. She detailed three different experiments conducted in the CEAC facility. Her conclusions explained how environmental conditions influence animal behaviour and can alter shrimp growth and feed intake.



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The third presentation was on the influence of different oils on the quality of shrimp flesh. In a recent collaboration with Agrocampus, the team from Halieutica studied the kinetics of fatty acids accumulation in shrimp tissue. Margaux Le Gourrierec, Project Manager, detailed how fatty acids from different oils are stored in the muscle, where they can significantly modify the nutritional quality of the final product. This trial also provided interesting data on shrimp growth according to ingested oils.

The CEAC platform

This was established in 2020 during the pandemic-related confinement and the company needed a new activity to replace the business lost. "It is quite moving when we remember that Halieutica's first R&D station was located in our garage. With the progress we made, we knew that we definitely had to move to a new place. Helped by local investors, today, we have this CEAC," said Le Reste. "A temporary location was found in nearby Angers, France. It took a few months before the current location was identified and developed according to our needs."

A new tool

This new tool enables Halieutica to run different trials related to its core business - aquafeeds. The main room has 80 tanks and it is dedicated to run growth trials. It allows for many replicates and options for experimental plans. A major investment was made in behavioural studies. In the second room, data on feed intake, palatability and general shrimp behaviour are collected to understand their needs and requirements better. The last room is devoted to digestibility. "I am really a happy nutritionist with this tool. I can now test ingredients and feeds from every angle. It also helps our team to work on many different and innovative topics with diverse partners. It is very rewarding."

The CEAC is a research tool available to any company involved in the aquafeed business. Its main activity is to run trials for companies developing new products for the aquaculture market. "Everyone agrees that you can only



Margaux Le Gourrierec, Charline Pichon and Pascal Trintignac during the Q&A session

improve what you measure. Data collection is particularly complex in our business. This station is made to help companies in their R&D process by providing them with reliable and precise data," said Le Reste.

"This platform also allows Halieutica to perform trials to better understand the ingredients used in aquafeeds. This is not only the new ones such as insect meal, microbial biomasses or those derived from algae but also ingredients already in use and available in the market but with very poor documentation in technical and scientific literature. The goal of CEAC here is to produce and share knowledge with the aqua nutritionist community through articles and at conferences."

With this new centre, we are looking at European clients seeking to expand in the shrimp market in Asia or elsewhere but need data for marketing and registration. As a small-scale research facility, we can provide them with first-tier data, enabling them to position the product in Asia or Latin American markets. www.halieutica.net

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