



## VEGEAQUA

### VEGETARIAN FISH FARMING ?

Farmed fish are fed on marine products (fishmeal and fish oils) in particular. The development of global aquaculture, stagnating industrial fishery catches and competition with other uses for these products mean the composition of feed needs to be modified. As well as economic considerations, replacing marine-sourced ingredients with plant products is essential for the sustainable development of aquaculture.

These developments give rise to the question of whether it is possible and/or necessary to select those fish for breeding which are most likely to accept this change of diet, so as to make the fish-breeding and other sectors of the industry more competitive. The VEGEAQUA project was intended to respond to these questions for 4 major fish-farming species in the industry in France.

The work carried out during the project compared classification of a large number of families of each of the species (identified by genetic imprint) fed with current commercially available or wholly substituted feed (0% fish oil and 0% fishmeal) in 2 model species - sea bass and trout - or fed with mainly substituted feed (2% fish oil and 2% fishmeal) in sea bass, sea bream, trout and meagre under production conditions. Different breeding selection strategies were then simulated in relation to the percentage of substitution. The project demonstrated the possibility of breeding trout based wholly on substituted feed, which in this case improved breeding efficiency for early survival, growth and productivity, and based on partially substituted feed for marine fish. In each case, the interactions with fish flesh cut and yield performances remained very limited.

At the end of the project, the businesses have acquired scientific and technical elements not yet seen in other aquaculture species - salmon, tilapia, etc. The results make it possible to more clearly identify the conditions required for companies to see a return on their investment by introducing this new element into breeding programmes. The project accelerated development of expertise in the SYSAAF (French Fish and Poultry Farming Federation) breeding process - genealogical index and data-processing chains - and the launch of commercial breeding of meagre.

The work begun to create experimental lines and to acquire skills has helped secure a government-funded (ANR) project, Agreenfish, launched in March 2014. This project, concerned with developments further upstream, will look at increasing knowledge to explain improved trout-breeding efficiency based on substituted feed.

### Partners

#### Companies

Écloserie marine de Gravelines [[Project Developer](#)]  
Aquanord-Ichthus, Gravelines  
La Ferme Marine du Douhet, La Brée les bains  
Les Aquaculteurs bretons, Plouigneau

#### Research centers

Ifremer, Brest  
Ifremer, Montpellier  
INRA, Jouy-en-Josas, Rennes, Saint-Pée-sur-Nivelle et Sizun

#### Other partner

Syndicat des Sélectionneurs Avicoles et Aquacoles Français, Rennes

### Funders

- FEDER
- Fonds Unique Interministériel
- Conseil régional de Bretagne
- Conseil régional du Languedoc Roussillon
- Conseil régional du Nord-Pas-de Calais
- Conseil départemental du Finistère

### Labelisation

24/04/2009

### Overall budget

2 400 K€