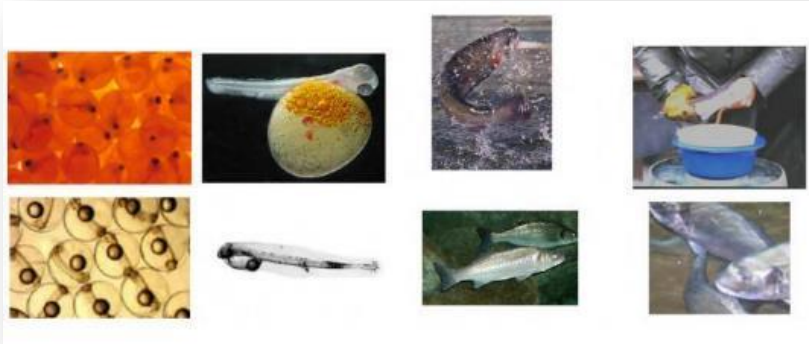




**ARRAINA aims at developing sustainable aquafeeds with low levels of FM & FO using alternative plant protein and lipid sources and analysing the consequences**



## Studies on five major species of fish with different biological cycles

**Improved knowledge on nutrient requirements**

**Novel nutrient delivery vectors**

**Long-term trials with low FM/FO feeds**

**Ensure growth, physiological well-being, health of fish**

**Ensure nutritional value, quality and food safety**

**Prepare fish for the future ?**



## Knowledge

**Consolidated nutrient requirement database**

**Confer flexibility in choice of feedstuffs**

**Assess Products / Animal : Predictive tools / Biomarkers**



***Prepare the fish for the future : Nutritional programming?***

## Practice

**consortium of 10 RTD & 11 industry / SMEs**

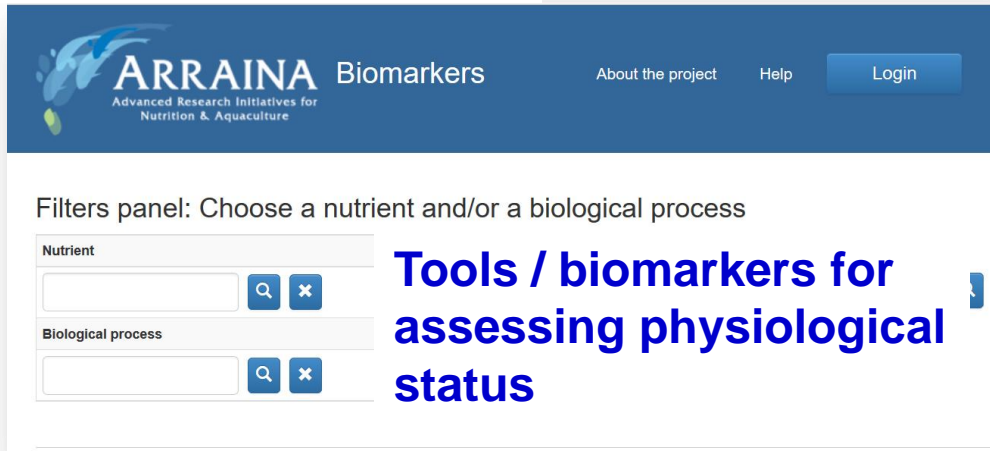
**feed companies, producers, environment, certification**

**Societal issues: CFP, ensure sustainable seafood production, environment**

**Strengthen skills and competence towards sustainable Blue Growth**

**Training courses, booklets, innovation workshops**





ARRAINA Biomarkers  
Advanced Research Initiatives for  
Nutrition & Aquaculture

About the project Help Login

Filters panel: Choose a nutrient and/or a biological process

Nutrient

Biological process

**Tools / biomarkers for  
assessing physiological  
status**



**wastEst** – a modeling tool to compare the  
environmental impact of different fish  
feed formulations

**Outputs to industry /  
sector**

**Specific Micronutrient  
mix for Novel feeds**

**Web-based tool to  
assess environmental  
impacts of feeds**

**Validated through a  
“Proof of Concept”  
challenge**

**Stand # 6**