Interreg Atlantic Area

Co-funded by the European Union

DigiATLA

Fortaleciendo las competencias digitales para una acuicultura de precisión: El proyecto DigiATLA

Building Digital Capacity for Innovation in Atlantic Aquaculture

Andreia Raposo

XX Congreso Nacional de Acuicultura - Vigo

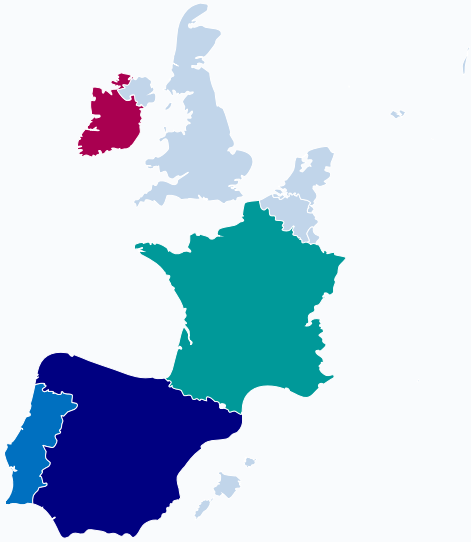
03/06/2026

Project Overview

7 partners from 4 countries

Project Overview

7 partners from 4 countries



3 — S²AQUA Laboratório Colaborativo Sustainable and Smart Aquaculture; sparos I&D nutrition in aquaculture; IPMA Instituto Português do Mar e da Atmosfera

1 — Universidad de Vigo

2 — INRAE; L'Institut agro Rennes Angers

1 — Ollscoil na Gaillimhe University of Galway

Project Objectives

Promote digital transformation in aquaculture

Promote sustainability through precision tools

Strengthen innovation and competitiveness

Support adaptation to climate change

Reduce regional disparities in digital capacity

Work Packages

WP1 – Development of innovative competence-based training

WP2 – Innovative strategies to improve aquaculture performance, in line with the European Green Deal

WP3 – Raising stakeholder awareness of Industry 4.0

Work Packages

WP1 – Development of innovative competence-based training

Multilingual training materials

- Data management
- Digital nutrition
- Environmental assessment

Moodle platform

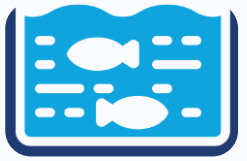
- Online repository
- Free access

Training sessions, webinars, workshops

- Dissemination through partners' communication channels

Work Packages

WP2 – Innovative strategies to improve aquaculture performance, in line with the European Green Deal



Conduct pilot trials

Apply acquired tools and concepts in a real-world context

Demonstrate the environmental and economic benefits of digital aquaculture practices

Work Packages

WP3 – Raising stakeholder awareness of Industry 4.0

Organize “Open Days”

Promote Industry 4.0 concepts in aquaculture

Disseminate results (SMEs, policy-makers, NGOs, academia)

Digital Tools in Training

Virtual Nutrition Lab

FEEDNETICS

LCA inventory with Means-InOut

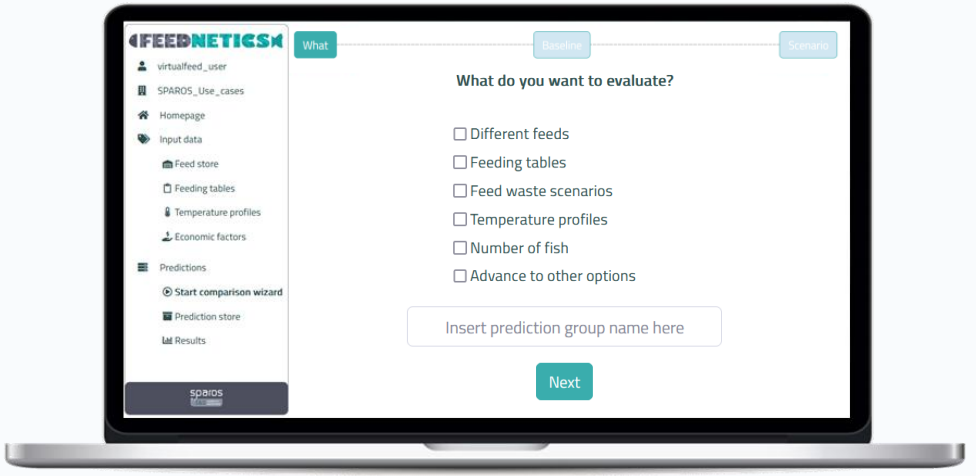
MEANS InOut

Digital Tools in Training

Virtual Nutrition Lab

FEEDNETICS

- Fish farming companies
- Aquafeed producers
- Academia

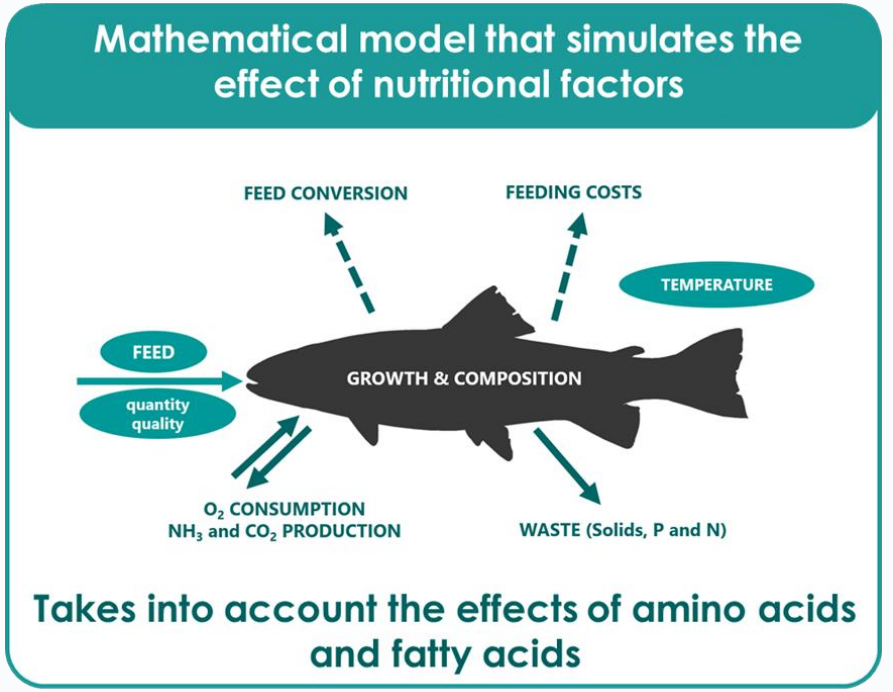


Digital Tools in Training

Virtual Nutrition Lab

FEEDNETICS

- **Compare different scenarios**
- **Trial planning, follow-up & Extrapolation**
- **Teaching Support**



Digital Tools in Training

Virtual Nutrition Lab

FEEDNETICS






	Gilthead seabream	European seabass	Meagre	Atlantic salmon	Rainbow trout	Nile tilapia
Body weight (g)	1 – 478	5 – 482	3 – 1160	1 – 6645	2 – 2080	1 – 559
Temperature (°C)	11 – 28	18 – 26	12 – 31	4 – 20	4 – 19	18 – 30
Rearing units (number)	203	175	147	291	224	207
Number of diets	87	118	118	250	107	163
Crude Protein (%)	37 – 58	37 – 56	41 – 64	29 – 54	26 – 58	23 – 46
Crude Fat (%)	9 – 23	10 – 31	10 – 27	10 – 47	6 – 31	3 – 15
Gross Energy (MJ/kg)	19 – 23	18 – 25	15 – 26	18 – 29	17 – 26	13 – 21
DP/DE	21 – 26	19 – 30	20 – 42	12 – 26	11 – 28	14 – 26

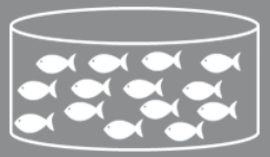
Digital Tools in Training

OBJECTIVE

Test four novel sustainable fish feed formulations in gilthead seabream, designed to facilitate aquaculture eco-intensification through increased circularity and resource utilization.

INPUT DATA

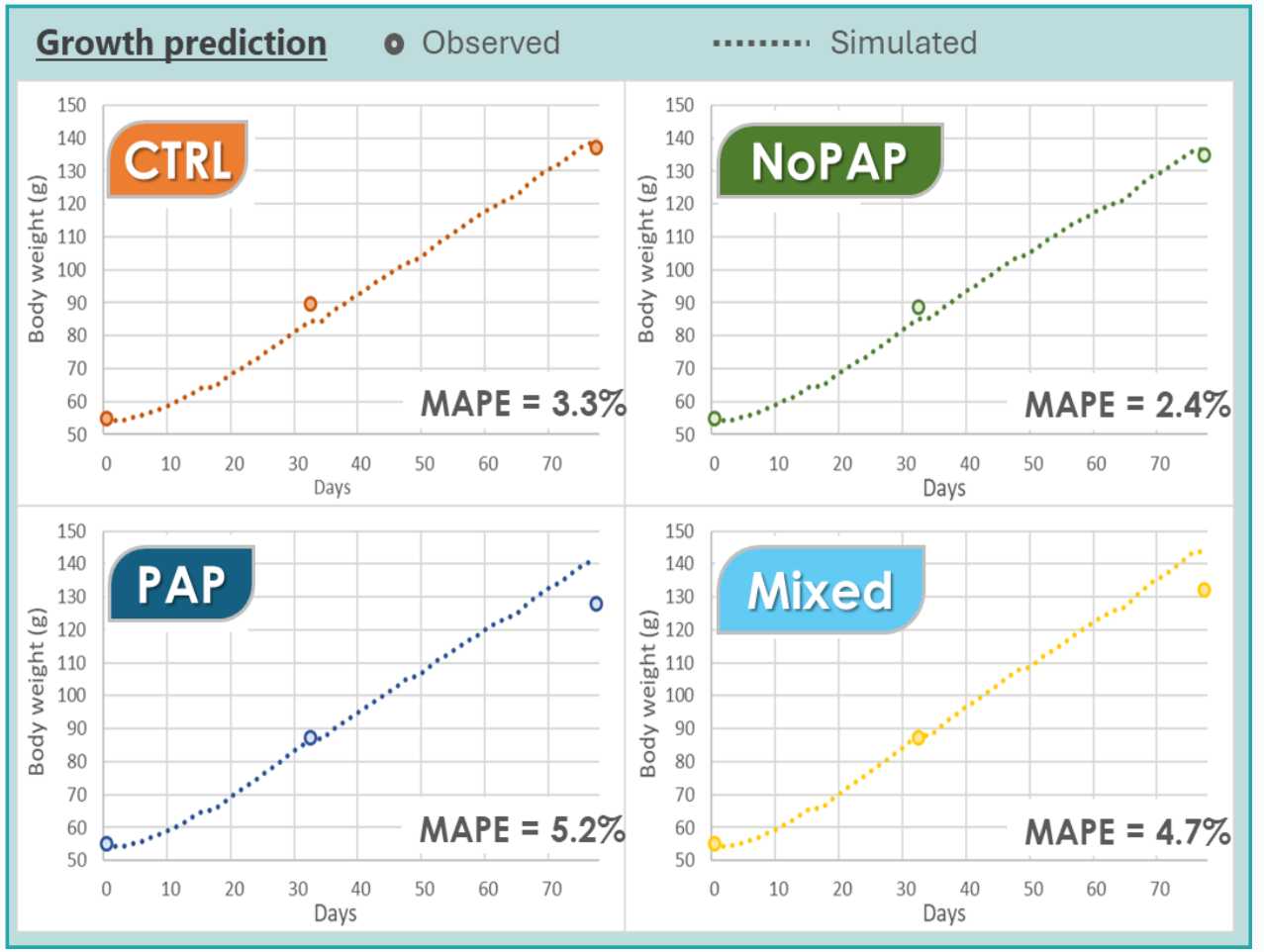
Production conditions



Initial weight = **55 g**
Initial nr. of fish = **1 000 000**
Average temperature = **23°C**

Feeding regime - *Ad libitum*

- ***Ctrl*** - *Standard commercial*
- ***PAP*** - *Rich in Processed land Animal Proteins*
- ***NoPAP*** - *FM/FO reduction Insect, micro, macroalgae, VPCs*
- ***Mixed*** - *FM reduction, PAPs, Insect, micro, macroalgae, VPCs.*



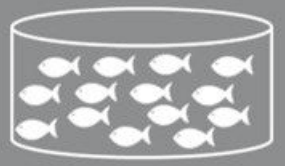
Digital Tools in Training

OBJECTIVE

Compare the performance of two commercial RAS feeds used by the salmon farming industry during the freshwater stage, considering a target smolt weight of 250g, at a 1 million smolt hatchery.

INPUT DATA

Production conditions



Initial weight = **40 g**
Initial nr. of fish = **1 000 000**
Mortality rate = **0.25 % per month**
Feed waste = **0 %**
Average temperature = **12ºC**

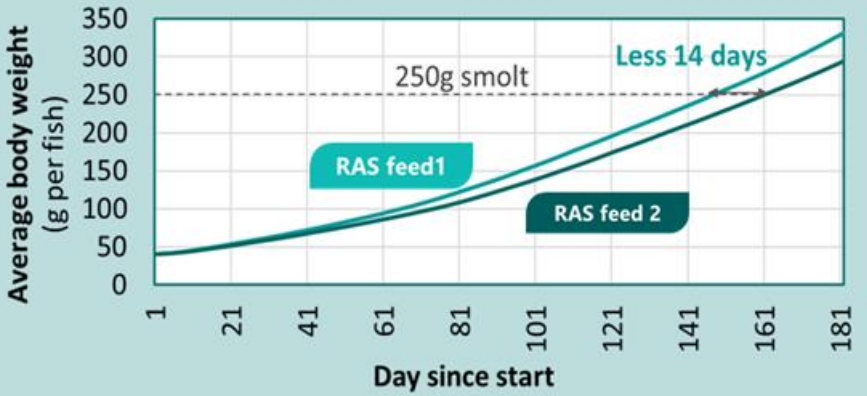
Feeding regime

- 2 similar commercial RAS feeds (Feed1 with higher lipid and energy content).
- Ration based on the feeding tables per feed (fitfeedingtables.com)

	RAS feed1		RAS feed 2	
	3 mm	4.5 mm	3 mm	4.5 mm
Proximal composition				
Digestible protein (%)	42.3	40.5	43.7	40.0
Digestible lipids (%)	26.6	28.5	24.2	26.1
Digestible energy (MJ/kg)	21.9	22.1	21.5	21.6
DP/DE (g/MJ)	19.3	18.3	20.3	18.5
Digestible phosphorus (%)	0.84	0.84	1.05	0.84
Ash (%)	9.1	10.3	7.8	7.2
Fiber (%)	0.8	0.9	0.8	0.9
Amino acid profile	Default salmon feed			
Fatty acid profile	Default salmon feed			
Feed cost	The same for both feeds			

Growth prediction

- RAS feed 1 allows fish to reach the target smolt weight (250g) 14 days earlier.



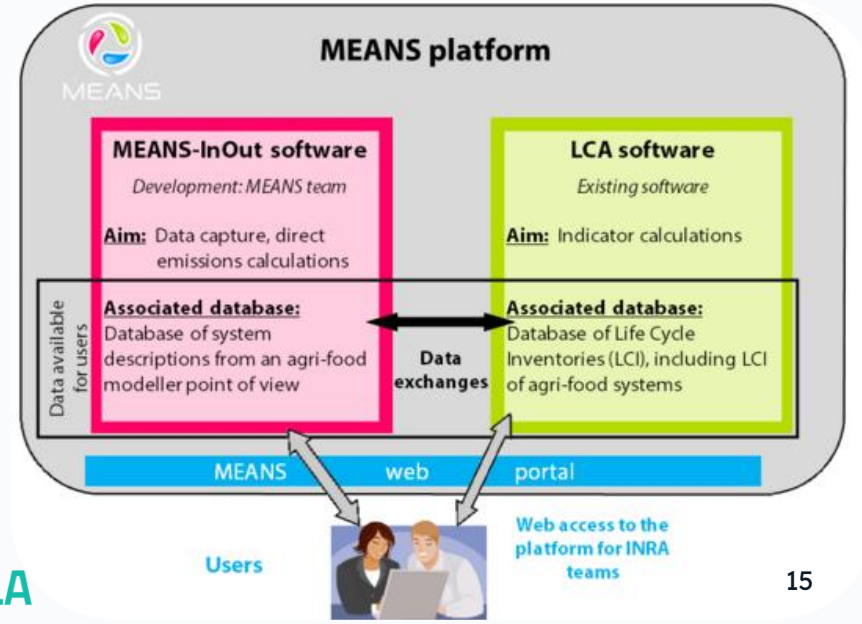
Performance at 250g

	RAS feed1	RAS feed 2
Days in production	148	162
Growth rate (% BW per day)	1.25	1.14
FCR	0.79	0.86
Economic conversion ratio (€ feed/kg biomass gain)	1.41	1.52
Cumulative feeding (ton)	165	179
Total N waste (kg N/ton biomass gain)	28	33
Total P waste (kg P/ton biomass gain)	3.1	4.3
Savings on feeding (€ per ton of fish produced)	**110**	

Digital Tools in Training

LCA inventory with Means-InOut

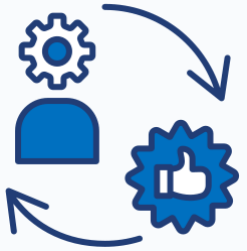
- Describe production systems and their associated metadata
- Document methodological choices
- Calculate flows of pollutants related to and resources used by the production systems



MEANS-InOut software allows users to assess systems of crop (arable crops, greenhouse crops, meadows) and animal production (fish, poultry, pig, beef, milk,etc.) with LCA.

Digital Tools in Training

- Support students and trainees in understanding fundamental concepts of fish nutrition
- Make teaching more practical and interactive



- Greater contact with digital tools (Industry 4.0)
- Practical learning in precision nutrition
- Preparation for real-world challenges in the aquaculture industry

Interreg Atlantic Area | Co-funded by the European Union | DigiATLA

digiatla.project

digiatla-project

andreiaraposo@sparos.pt

Thank you!