FWFEU: Smart RAS & Aquaponics for Low-Carbon

Investment Project INPO-20222253

Project description

Digital-Twin-ready aquaponics/RAS pilot merging modelling with ML/Computer Vision to reduce losses, optimize resources and raise yield. A 40 m pilot de-risks replication in Portugal and Spain.

Project deploys Aquaculture 4.0 in SME-ready aquaponics/RAS: sensors, mathematical modelling and ML/Computer Vision to forecast water quality, biomass and weight dispersion, enabling faster decisions (feeding, grading, oxygenation) and preventing losses. We will validate a 40 m pilot and deliver a Digital-Twin-ready setup with BI dashboards, QA/QC and data contractsreducing discharge, energy/feed waste, and enabling scalable, low-carbon local production.

Juliana Gadelha

CEO & Founder Fresh Water Farms Europe

Juliana Gadelha is a Marine Biologist (PhD, Ecotoxicology) and EFSA-trained food risk assessor (EU-FORA), founder/CEO of Fresh Water Farms Europe. She has 15+ years across aquaculture R&D, food safety, and managemen [...]

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FRESH WATER FARMS EUROPE
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Country, Region

Portugal [Norte]

Portugal [Centro (PT)]

Spain [Galicia]

Switzerland

Start date

March 2026

Investment needed

EUR 8,000,000

Sector

Agriculture and rural development, forestry and bio-economy

Industry for SMEs & Mid-Caps

Funding Secured

Bootstrap

Expected Jobs created

14

Eligible Area

11 Agriculture and Fishery

15 Blue Economy

Economic rationale / Business Model

Cost structure: aquaponics/RAS units + greenhouse; instrumentation (sensors and vision); O&M and QA/QC; local distribution partnerships.
Revenues: (1) fish; (2) vegetables; (3) liquid biofertilizers/compost; (4) service contracts for modelling and continuous monitoring to farms; (5) seafood derivatives (e.g., fish oil/emulsion) in later phases.
Moat: proprietary RAS modelling combined with ML/Computer Vision workflows (including state-machine logic and non-invasive sizing), with BI dashboards across operationalstrategic layers and standardized templates enabling SME adoption; approach informed by CIIMARs work on intelligent fish farming and weight-dispersion prediction for seabass.

Project promoter

Fresh Water Farms Europe, Portugal

You can contact the project promoter regarding this project online, by using the contact form.

Financing details

Financing source: Public

Project financing secured: EUR 160,000 (2 %)

Self participation: EUR 160,000 (2 %)

Phase 1 (design & data validation, 0.15m): secured via bootstrap (self-participation: PM salary over 3 years, 145,530 1.82%). Phase 2 (40 m pilot, 0.6m): blended finance + advisory to deploy sensors/vision, integrate modelling/ML and run calibration/QA. Phase 3 (2.25m): first roll-out in PT/ES. Phase 4 (5.0m): multi-site scale-up. Total 8.0m; request blended finance + InvestEU Advisory for procurement, data contracts, KPIs and bankable roll-out.

Existing or potential bottlenecks for the realisation of the project / Potential risks

Competing with large producers; capex for standardization at SMEs.
Adoption barriers (skills, change management) and ERPs/BI integration.
Risks: Regulatory/label constraints (organic certification) and price volatility.
Mitigation: Off-the-shelf modular design; training for operators; data-sharing agreements with clients; quality/traceability KPIs; phased roll-out.

Project additional information

Key resources: water availability, grid capacity/renewables, seafood/veg supply chains, partnerships municipalities/schools, and alliances with R & d centers. Opportunities: coproducts (biofertilizer), B2B services (modelization/monitoring), CO reduction, Blue Economy integration programs.

Publication: 25/08/2022 | Last update: 12/02/2026