

Improvement and innovation of a BIO-secure Recirculating Aquaculture System for SHRIMP and additional biomass circular production



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Sustainability

The development of sustainable, productive and resilient farming systems is an obliged way to provide consumers with affordable, safe, traceable and healthy food, while minimizing pressure on ecosystems

The valorisation of underutilized resources (as the solid waste or the nutrient enriched effluent water) is an under-exploited resource that could provide by-products ensuring sustainability and circularity.

The improvement and innovation of land-based integrated multi-trophic aquaculture systems perfectly goes in this direction as it allows the production of high-quality seafood and by products and the reduction of waste and pollution.

Industrial innovation for shrimp culture

The outcomes of the project have a high potential industrial and commercial impact. The technology developed is immediately applicable to support a sustainable ecological and digital transition in aquaculture.

Stakeholders' engagement

The goal of BIORAS_SHRIMP is to facilitate growth and development of the aquaculture sector in participating countries. Knowledge and innovative technologies will be shared with a wide range of stakeholders, including farmers, researchers, policymakers, associations of consumers, and other end-users.

Capacity building opportunities

A specific work package of the project is dedicated to the organization of a training course based on the results achieved during the project lifetime. The course will describe the general management of the shrimp RAS, including the system for the effluent treatment, and the production of by-products and co-products. The potential utilisation and valorisation will be also included in the program.

The course will be open for attendance by farmers, technicians, students, representatives of aquaculture producers and NGOs.

BIORAS_SHRIMP Consortium Partners



BIORAS SHRIMP

Coordinator
 Università del Salento (IT) Project Coordinator (V. Zonno), Responsible Scientist (T. Verrì)

Duration Nov. 2022 - Dec. 2024

Website bioras-shrimp.eu

Total costs € 1.297.000,00

Grant € 936.000,00



Innovation

BIORAS_SHRIMP project aims to develop, improve and innovate a bio-secure land-based, sustainable RAS for the intensive culture of shrimp. The model will minimise waste, enhance productivity, and recover energy and nutrients by applying integrated biosystems principles, in the view of a circular economy process.

Objectives of BIORAS_SHRIMP

- To design an innovative, AI-based Recirculating Aquaculture System with improved technology and husbandry efficiency, for the intensive culture of shrimp
- To develop systems for the recovery of sludge and nutrients in the effluent in order to generate valuable co-products and side-products
- To implement and test the systems in Malta, Norway and Italy

Technology



Solutions



Recirculating Aquaculture Systems (RAS-In)

Increased shrimp density in safe and controlled environment with the ability to collect and treat the effluent



Artificial Intelligence, real time sensors and Internet of Things

Optimization of the system design and facilitation of daily operations and data collection.



Effluent treatment

Reduction of load of nutrients discharged



Biofloc

Production of a protein-rich live feed



Algae culture and Aquaponics

Integration of vegetal biomass in the production system