

Low Impact Aquaculture Production Systems

IRTA La Rapita (Spain) • 27-29 June 2023



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Objectives

Aquaculture products (freshwater and marine fish, bivalves, shrimps, etc.) are among the healthiest types of food. They are also among the most sustainable (low FCR, low carbon footprint and low use of freshwater) depending on how they are produced, as farming takes place in different habitats, in different production systems (from extensive to intensive), at different scales (from small-scale farms to multinational companies), and may involve the use of aquafeeds, chemicals and drugs, etc.

In recent decades, aquaculture production systems have evolved and incorporated new technologies (i.e. offshore cage farming, RAS) which have facilitated the growth of fish farming, moving away from natural sensitive locations. In parallel, there have been significant research efforts to develop more sustainable aquaculture production systems, such as IMAT (Integrated Multi-Trophic Aquaculture) or aquaponics, aiming to improve circularity and efficiency, reduce waste, and provide ecosystem services. However, these systems need to face some technical and economic constraints in order to develop successfully: i) balance inputs and nutrient fluxes at commercial/farm scale, ii) lower productivity than monocultures, iii) food safety issues, iv) regulatory aspects.

The NewTechAqua project has worked on the assessment of the relationships between different, new, on-growing inland systems and their environmental impact, also considering their economic performance. This information may guide farmers towards more efficient and sustainable aquaculture practices, as well as provide practical information and recommendations for the best inland aquaculture systems depending on local conditions (i.e. geographical location, water availability, land use). For this purpose, the project has tested and compared four inland farming systems differing in their level of technological development.

The workshop will present results and recommendations from the work implemented by NewTechAqua, as well as from other similar existing projects and industry initiatives, in the development of low impact aquaculture production systems. Concepts (types, system design, species, technical and financial viability) of aquaponics, IMTA, bioflocs, microalgae production will be reviewed. This information may guide aquaculture farmers towards more efficient, circular and sustainable aquaculture practices.



This project has received funding from the European Union's Horizon 2020 Programme under grant agreement No 862658.



Organisation

The workshop is jointly organized by the **International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM)**, through the **Mediterranean Agronomic Institute of Zaragoza (CIHEAM Zaragoza)**, the **Institute of Agrifood Research and Technology of Catalonia (IRTA)**, and the **EU H2020-funded project NewTechAqua** (New Technologies Tools and Strategies for a Sustainable, Resilient and Innovative European Aquaculture), grant agreement No 862658, whose main goal is to expand and diversify European aquaculture production of finfish, molluscs and microalgae by developing and validating technologically-advanced, resilient and sustainable applications.

The workshop will take place at IRTA La Ràpita, Tarragona (Spain), from 27 to 29 June 2023.

Admission

The workshop is designed for about 30 professionals of the aquaculture industry, technical advisors and researchers, aiming to share recent and applied knowledge on the topics covered in the workshop with NewTechAqua partners.

There are no registration fees for this workshop.

How to apply

If you would like to participate in this workshop, please send the following documents to CIHEAM Zaragoza fisheries@iamz.ciheam.org:

- A motivation letter explaining your professional relationship with the subject of the workshop, your reasons/interest for participating in this activity, and possible participation in NewTechAqua or other European projects.
- An updated curriculum vitae.

We encourage participants to contribute with a short communication (10 minutes) based on their research or professional work on a topic related to the subjects covered during the workshop. If you would like to submit a contribution, please provide some details in your letter of motivation.

Applications are open from 10 May to 26 May. The deadline may be extended if there are free places available.

Financial Support

A limited number of candidates from Mediterranean and other European countries may receive financial support covering accommodation and travel. Preference will be given to young researchers and applicants from Non-EU Mediterranean countries. If you wish to request financial support, state this in your motivation letter, justifying your need of financial aid.



PROVISIONAL PROGRAMME

Tuesday 27 June 2023

- 09:30–10:00. **Enric Gisbert** (IRTA). Workshop opening. Objectives and introduction of NewTechAqua Task 2.2 Eco-intensification of inland fish farming systems
- 09:30-10:00. **Roberto Pastres - online** (UNIVE). Main results and conclusions from NewTechAqua Subtask 2.2.1. Improving operating systems: eco-intensification of land-based seabass and seabream farms.
- 10:00-10:30. **Enric Gisbert** (IRTA). Main results and conclusions from NewTechAqua Subtask 2.2.2. Assessment of proper inland farming systems based on biological, economic and ecological footprint indexes.

Coffee break (10:30-11:00)

- 11:00-12:00. **German Merino** (UCN, Chile). Aquaponia I. Concepts and designs
- 12:00-13:00. **Dror Angel** (Uni. Haifa, Israel). Recent advances in IMTA concepts and designs

Lunch break (13:00-14:30)

- 14:30-16:30. Afternoon Session
 - Participants' contributions
 - Discussion

Wednesday 28 June 2023

- 09:00-10:00. **German Merino** (UCN, Chile). Aquaponia II. Case studies from Latin America (research, small scale and commercial)
- 10:00-10:30. Aquaponic farming case study (Speaker TBD)
- 10:30-11:00. Discussion

Coffee break (10:30-11:00)

- 11:00-11:45. **Victoria Fernández** (Uni. Murcia). Project AMPHIS (New farming opportunities and aquaculture diversification within IMTA systems in the Mediterranean Sea).
- 11:45-12:30. **Carlo Bibbiani** (Uni. Pisa, Italy). EU Prima Project SIMTAP (Self-sufficient integrated multi-trophic aquaponic systems for improving food production sustainability and brackish water use and recycling)
- 12:30-13:00. Discussion

Lunch break (13:00-14:30)

- 14:30-16:30. Afternoon Session
 - Participants' contributions
 - Discussion
- 16:30-17:30. Technical visit to IRTA facilities



Thursday 29 June 2023

- 09:00-10:30. **German Merino** (UCN, Chile) and **Ricard Carbó** (IRTA). Aquaponics hands-on exercise

Coffee break (10:30-11:00)

- 11:00-12:00. Closing remarks and discussion about R&D needs for the development of sustainable, low-impact aquaculture production systems

Visit to bivalve farms in Delta del Ebro and tasting (12:00-13:30)



Training Programme on Sustainable Aquaculture

Aquaculture is an increasing source of high-quality food, aimed to satisfy the increasing dietary demands of people. By 2030, 1 out of 6 people in the world will be aged 60 years or over, and world population will increase by a 30%. This implies an unprecedented challenge for the sector in order to be able to increase the production of health and nutritious food, while reducing the pressure on environmental resources. In this context, NewTechAqua project is organising a Training Programme to provide the necessary skills for a sustainable, resilient, and innovative European Aquaculture.

The Training Programme aims to contribute to the capacity building of European aquaculture sector by providing specialised training to aquaculture researchers, technical staff, and industry stakeholders. The know-how transfer and training are being implemented through four types of complementary activities:

- Advanced Courses
- Training Workshops
- E-learning modules
- Webinars Series

newtechaqua.eu/training