

HIGHLIGHTS AND KEY DEVELOPMENTS

NOVAFOODIES REACHES M36: CONSOLIDATING RESULTS AND DRIVING FINAL IMPACT.

Author: IDENER (Project Coordinator)

As the NOVAFOODIES project officially reaches Month 36, IDENER is proud to reflect on the major milestones consolidated across our multi-actor initiative ("Demonstration of innovative functional food production systems based on a sustainable value chain of marine and freshwater raw materials for conscientious European consumers"). During our recent consortium meeting, representatives from all project beneficiaries gathered to review technical progress across all nine work packages, evaluate pilot-scale performance, and align strategic priorities for the final, impact-driven phase of the project.

A central outcome of the M36 milestone is the successful validation of upscaled technologies operating at TRL 6–7 across Europe, Israel, and China. Key technical achievements include the operation of pilot-scale Integrated Multi-Trophic Aquaculture (IMTA) systems across seven diverse geographical case studies; upscaled macroalgae recirculating aquaculture systems (RAS) yielding high-grade Ulva lacinulata biomass for eco-packaging; and high-density phototrophic and heterotrophic microalgae fermentations providing functional proteins and omega-3 fatty acids (DHA). Downstream processing innovations were also demonstrated, including energy-efficient microwave-assisted biomass freeze-drying, bacterial-enzymatic decomposition, and cascading biorefinery extractions to produce novel food prototypes and sustainable aquafeeds that mitigate environmental stress on conventional aquaculture operations and their surrounding habitats. These physical advancements are fully integrated with our digital infrastructure, featuring IoT-based environmental monitoring sensors, blockchain traceability protocols, and the NOVAFOODIES B2B Marketplace and Consumer Mobile App to ensure complete cold-chain transparency and trust.

These achievements underscore the strength of our interdisciplinary partnership; uniting universities, research institutes, innovative SMEs, large food industries, and non-profit organisations across 13 countries. Working in close synergy, the consortium has effectively addressed complex operational challenges, from severe weather impacts at marine sites to bio-process scaling, demonstrating the resilience and real-world applicability of a European multi-actor approach.

Looking ahead to the final extension period (extending through month 42), strategic planning is focused on maximizing market and policy impact. Priorities include finalizing comprehensive Life Cycle Assessments (LCA), Life Cycle Costing (LCC), and Social-LCA evaluations; advancing our Standardisation Roadmap for the European algae sector; executing targeted stakeholder co-creation workshops; and establishing robust business models and IP protection strategies for our Key Exploitable Results (KERs). Through these actions, NOVAFOODIES will deliver lasting contributions to the EU Green Deal and Farm to Fork objectives, paving the way for post-project commercial deployment.

CULTIVATION POTENTIAL OF SEAWEEDS IN THE SW IBERIAN PENINSULA

Author: CTAQUA (Erik Malta & Manuel Macías)

Marine macroalgae are emerging as one of the most versatile and sustainable biomass sources globally. Its potential spans sectors as diverse as human food, animal feed, agricultural biostimulants, the production of high-value-added biomolecules, and the development of new biomaterials.

Europe, at this moment over 95% of the biomass used still comes from harvests of wild populations. Contrastingly, Europe is also one of the largest importers of macroalgae-derived products in the world, reaching a net value of 554 million euros in 2016. Clearly, this situation is not sustainable on a long-term basis and strong efforts are required to stimulate commercially sound European seaweed cultivation.

Whereas most of the European seaweed cultivation industry focuses mainly on brown kelp algae, these are not feasible for the SW Iberian Peninsula due to the high temperatures. The area is however quite suitable for cultivation of smaller red and green macroalgae, such as Chondracanthus teedii (“European yuyo”, sister species of the alga that often accompanies the well-known Peruvian dish of ceviche), the agar producing Gracilaria spp. and versatile green algae as Codium and Ulva. The mild winter temperatures favour near year-round cultivation of these algae, both on land and at sea. Furthermore, the area is characterized by the existence of former salt extraction ponds, the so-called esteros, that provide ample opportunities cultivation.

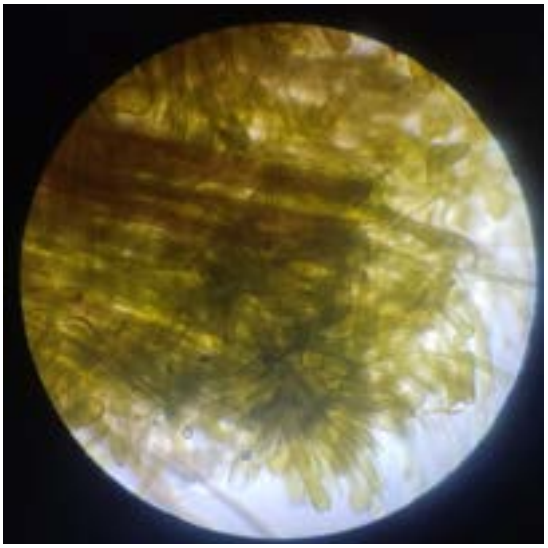
CTAQUA’s research activities in NOVAFOODIES focused on further development and upscaling of the cultivation potential of Chondracanthus, Codium and Ulva. Departing from an established culture on laboratory and small pilot scale, cultivation has been upscaled to outdoor tanks and esteros using both cages (Ulva) and longline cultivation (Chondracanthus and Codium).

As an example from our research, we would like to highlight our work on Codium. In previous projects, we developed a seeding method substituting lines from synthetic material by lines from natural, biodegradable material (hemp in this case), finishing at TRL 3-4. The work for NOVAFOODIES focused on testing this technique in a realistic working environment and creating the potential for upscaling. Deploying the seeded lines in the esteros systems, high initial growth rates were found. However, it was found that the lines were not able to support seaweed biomass when fronds got larger. To remedy this, thicker (30 mm) ropes were used with satisfying results.

Although more work is required to fully optimise cultivation, results indicate that these types of cultivation have great potential in the SW Iberian Peninsula. The use of existing aquaculture infrastructure, such as estuaries and marine mollusc nurseries, represents a commitment to the circular economy and productive diversification, integrating macroalgae cultivation with traditional activities such as salt extraction and extensive aquaculture.







FOSTERING CROSS-SECTORAL DIALOGUE: THE NOVAFOODIES WEBINAR SERIES “FROM SEA TO FORK”

Author: SPES GEIE

One of the most significant achievements of the NOVAFOODIES project has been its ability to bring together actors from across the food system to explore how innovation can contribute to a more sustainable, resilient and consumer-oriented future. Through the “From Sea to Fork” webinar series, the project created a unique platform for dialogue among researchers, aquaculture producers, food manufacturers, technology providers, policymakers and consumer-oriented organisations, fostering collaboration across sectors that share common sustainability goals.

Held between October 2024 and April 2026, the series included six events organised by SPES GEIE, NOVAFOODIES’ partner, covering different European countries. The first event was organised in Spain by FIAB on 24th October 2024. The second webinar was held online by ANIA (France) on December 10th 2024. The third took place in Italy, on 13th December 2024, organised by FEDERALIMENTARE in collaboration with ENEA (as external partner). The fourth was on 9th May 2025 and it was organised by FIPA (Portugal), in collaboration with HOLOSS. The fifth webinar, organised by SEVT (Greece) on 12th December 2025 was developed in collaboration with JOTIS. The last one was held online on 30th April 2026, organized by FEDERALIMENTARE in collaboration with LVA. Overall, they featured contributions from experts representing leading research and innovation organisations in national countries involved, such as ENEA and CNR (Italy); in addition, the multinational dimension of the initiative underlined the importance of European cooperation in addressing the challenges facing modern food systems.

Throughout the series, participants explored innovative approaches capable of strengthening the connection between aquaculture, food production and consumer trust. Presentations and discussions highlighted advances in sustainable aquaculture systems, algae and seaweed-based ingredients, circular bioeconomy solutions, functional foods and innovative processing technologies. These discussions demonstrated how scientific research and industrial innovation can work together to create new market opportunities while reducing environmental impacts and improving resource efficiency. A key theme emerging from all events was the need to develop more sustainable value chains through closer collaboration among stakeholders. Participants exchanged experiences and best practices related to sustainable sourcing, traceability, nutritional quality, innovation uptake and market deployment, demonstrating that the transition towards more sustainable food systems requires coordinated action across every stage of the value chain.

The webinar series highlighted the crucial role of transparency, scientific evidence and effective communication in strengthening consumer trust and market acceptance of novel marine-based foods, while simultaneously fostering cross-sectoral collaboration among industry, research, innovation and policy stakeholders to accelerate sustainable food innovation across Europe.

The event series “From Sea to Fork” collectively engaged approximately 500 participants, reflecting the relevance of the topics addressed and the increasing demand for opportunities to connect research, industry and society around a common sustainability agenda.

By fostering dialogue, strengthening networks and showcasing innovative solutions, the NOVAFOODIES “From Sea to Fork” webinar series has successfully contributed to building bridges between aquaculture, food production and consumers.



Image 1 - NOVAFOODIES "From Sea to Fork" in Spain.



Image 2 - NOVAFOODIES webinar "From Sea to Fork" joint organization of Italy and Austria.

NOVAFOODIES FINAL EVENT: SHOWCASING INNOVATION FOR SUSTAINABLE FOOD SYSTEMS

Author: IDENER (Project Coordinator)

The NOVAFOODIES consortium cordially invites stakeholders from across the seafood, aquaculture, food processing, and policy sectors to save the date for the upcoming NOVAFOODIES Final Conference and Innovation Showcase, scheduled for 20th and 21st in El Puerto de Santa María, Cádiz, and broadcast online as the project approaches its month 42 completion. Hosted in a hybrid format, combining an interactive in-person conference with a global online livestream, this landmark event will present the definitive results and technological breakthroughs achieved throughout our four-year EU Horizon Europe initiative.

Participants will gain direct insight into the project's key innovations across the blue food value chain. The event will feature technical presentations, live prototype demonstrations, and interactive exhibitions on upscaled Integrated Multi-Trophic Aquaculture (IMTA) layouts, novel micro- and macroalgae-enriched functional food products (such as algae-infused fresh pasta and dysphagia-friendly gel purees), sustainable aquafeed formulations displacing wild-caught fishmeal, microwave-assisted biomass drying techniques, and biodegradable eco-packaging solutions produced from seaweed. Furthermore, the showcase will feature our integrated digital tools, including IoT-based environmental monitoring devices, blockchain traceability protocols, and the NOVAFOODIES B2B Marketplace platform and Consumer App designed to bolster consumer confidence and supply chain transparency.

Beyond technical dissemination, the Final Event is designed to maximize engagement with key external actors. Dedicated round-table sessions will bring together sister EU Horizon projects and European research infrastructures to foster cross-sectoral clustering, knowledge exchange, and post-project synergies. Industry stakeholders, technology providers, seafood processors, and SMEs will explore B2B commercialization, licensing, and joint-venture opportunities surrounding NOVAFOODIES' Key Exploitable Results (KERs).

In parallel, policy-focused dialogues will connect decision-makers with actionable recommendations generated by the project, including our Standardisation Roadmap for the European algae sector, Social Inclusion and Gender Guidelines for aquaculture enterprises, and environmental product footprinting under the Product Environmental Footprint (PEF) framework. Join us to discover how NOVAFOODIES is shaping the future of sustainable, competitive, and climate-friendly aquatic food systems in Europe.

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EXPLORE OUR ZENODO COMUNITY

In three years, NOVAFOODIES has published numerous updates, accessible via the Zenodo community. These publications reflect the project's dedication to sustainable food production through innovative research. LINK



NOVAFOODIES PROJECT VIDEO

LINK



INNOVATIVE AQUACULTURE SYSTEMS VIDEO

LINK



NOVAFOODIES APP

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