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SEA2LAND



#4 NEWSLETTER - OCTOBER 2024

Stay up to date on the latest news about the SEA2LAND project, a 4-year collaborative Innovation Action (IA) funded by the EU in the frame of the Horizon 2020 programme

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SEA2LAND aims to provide solutions to help overcome challenges related to food production, climate change and waste reuse.

Based on the circular economy model, the project promotes the production of large-scale fertilisers in the EU from own raw materials. This solution is expected to reduce the soil nutrient imbalance in Europe.

[More info about the project](#)



The SEA2LAND **map visor** can be a very **useful tool** for advisory services to delimit the areas most in need of fertilization as well as to determine the specific fertilizers needed in each area. Moreover, fertilizer producers can focus on the areas most in need and the nutrients most needed in each area, while politicians can use this type of mapping to define action measures in specific areas. It is a **live tool** that can be modified by authorised personnel if any improvements or errors are identified.

[Discover the Map Visor](#)



If you are a **farmer or a member of the fish industry**, we invite you to participate in an exciting **survey** that aims to gather your valuable opinions and insights regarding biobased fertilizers made from your own raw materials. As key stakeholders in both agriculture and the fish industry, your perspectives are crucial in shaping the future of sustainable farming practices. By participating in this survey, you can share your experiences, opinions, and suggestions, allowing us to gain valuable insights into the viability and acceptance of biobased fertilizers in the farming and fish industries.

Here are the links for the survey available in several languages:

[English](#)

[Spanish](#)

Share the survey!

SEA2LAND DEMONSTRATION PILOTS



Baltic Sea pilot develops bokashi fermentation technology, which is currently available for home users, into a community scale biowaste recycling solution.

[LEARN MORE](#)



For the Atlantic area, the project aims to produce biobased fertilizers from by-products of the aquaculture domain using ThermoMechanoChemical (TMC) fractionation by twin-screw extrusion.

[LEARN MORE](#)



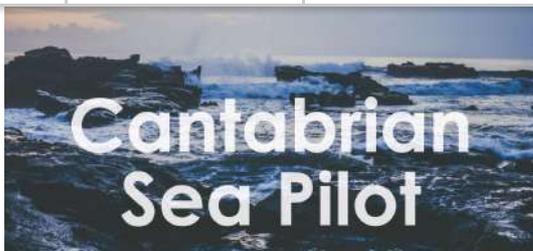
In Norway, they have tested dried fish sludge and mixed products of fish sludge and other substances allowed in organic agriculture in pot experiments and on broccoli in a field experiment.

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Adriatic Sea Pilot aims to optimise the valorisation process of various by-products from seafood processing industries of the port of Ancona (Italy).

[LEARN MORE](#)



through the various weather seasons to check the variability of the raw materials that are intended to be used to generate the final products.

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The Mediterranean case has been studying potential valorization pathways for marine aquaculture sludge using a biodrying process.

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Comparison of amino acid release between enzymatic hydrolysis and acid autolysis of rainbow trout viscera

Fish protein hydrolysates were obtained from cultured rainbow trout (*Oncorhynchus mykiss*) viscera using commercial and endogenous enzymes. Two methods were employed for hydrolysis: acid autolysis (also known as silage) at room temperature for 10 days in acidic conditions, until total solubilisation, and enzymatic hydrolysis using Alcalase 2.4 LFG, Protana Prime, and the endogenous enzymes in the viscera. The effectiveness of both methods in releasing free amino acids (FAA) was assessed.

[Read the complete publication](#)

From pilot to industrial scale fractionation of fish by-products by twinscrew extrusion for the production of biobased fertilisers

extrusion is a versatile and compact process that works at low liquid/solid ratios and is able to provide simultaneously solid and liquid fractions [3]. The use of TMC process for fertilizers production is an innovative approach that enables the recovery of products with an agronomic value and of lipids to reach a ZEROwaste process.

[Read the complete publication](#)

Bio-based fertilisers for the food of the future – from fishery waste to growing organic broccoli in the year 2095

An Ecotron experiment to assess the efficiency and the environmental impact of innovative bio-based fertilisers under reference and future meteorological conditions. In the framework of this experiment, the smoothed mean of historical climate data of the period 1981 to 2017 was chosen as a control environment that provides the optimal conditions for the plants and fertilisers to reach their maximum potential. These conditions are compared to a simulated future climate of the year 2095,

[Read the complete publication](#)

Review

Crop production has become a priority issue in recent years because of the exponential growth of the world's population and the need to find substitutes for chemical fertilizers. The latter is under the spotlight in order to achieve a more sustainable approach in a cost-effective way. Biostimulants have gained attention as an alternative to chemical fertilizers. Although they are not considered fertilizers as inputs of nutrients, they stimulate plants' nutrition and tolerance to stress, among other characteristics. In the literature, amino acid-based biostimulants have been found to be effective. This review focuses on the effectiveness of biostimulants, their presence in the global market, and their production with fish by-products as a source, using enzymatic hydrolysis and autolysis, with a particular focus on fish viscera, their possibilities in the agricultural sector, and their availability in Europe for possible opportunities. Fish viscera protein hydrolysates for biostimulant production seem a feasible alternative to fishmeal production in Europe, especially in areas located far from fishmeal plants.

[Read the complete publication](#)



So far, SEA2LAND has published a total of **63 Practice Abstracts** that are already available on the [project website](#). These are short summaries that describe practice information and recommendations that can be used by the end-users in their daily practice.



Partners met in Norway for the 8th Consortium Meeting

The **8th Consortium Meeting of the SEA2LAND** project was held in **Ås, Norway**. More than 40 participants, representing research organisations from by-products, valorisation, technologies and agronomy; industry from fish/aquaculture sectors, fertiliser sector, and technology sector met during the 11th and 12th of June 2024 at **NIBIO's** (Norwegian Institute of Bioeconomy Research) facilities.

During the two-day meeting, partners had the chance to visit an NMBU centre (Norwegian University of Life Sciences) where they research aquaculture. The facility uses recirculated freshwater (RAS), has fish tanks or feeding experiments and laboratories for studies of fish behaviour, eggs and fry, water chemistry and dissection. After that, they also visited a plant producing biogas from fish sludge. To finish the trip, the SEA2LAND partner **Grønn Gjødssel**, a producer of organic fertilisers, opened its doors and organized a visit to its company.

[LINK TO THE ARTICLE](#)



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8th Consortium Meeting 11-12 June 2024 in Norway

HAVE A LOOK AT OTHER EVENTS WHERE SEA2LAND HAS
BEEN PRESENTED



SEA2LAND at SIDISA 2024 in Palermo

(1-4 October)

[Università Politecnica delle Marche \(UNIVPM\)](#) participated in the [XII International Symposium on Environmental Engineering \(SIDISA 2024\)](#), held in Palermo, Italy. The conference, renowned for gathering global experts in environmental engineering, provided a valuable platform for discussing innovative solutions to pressing environmental challenges.



SEA2LAND at the Sustainability in Food Production – Biocircularity webinar

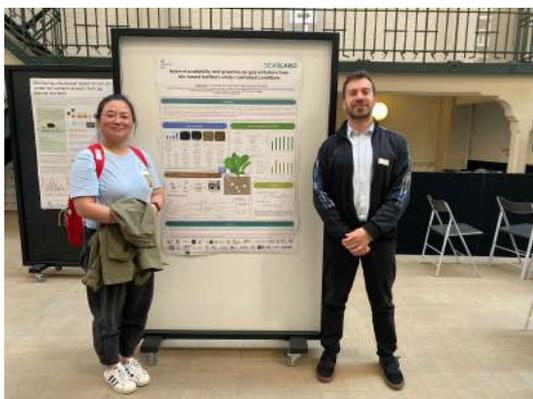
(1 October)

Members from one of our partner entities presented the project [SEA2LAND](#) at the Sustainability in Food Production – Biocircularity webinar. The event, which was aimed at a Portuguese speaking audience, focused on presenting innovative approaches to achieve a sustainable food production system.



(25-26 September)

AZTI presented SEA2LAND at the [International Fisheries and Aquaculture Conference](#) organized by Eurofish International Organisation in cooperation with the Spanish Ministry of Agriculture.



ESNI CONFERENCE

(18-19 September)

Our partners Çağrı Akyol, Jingsi Zhang and Erik Meers, from the University of Ghent (UGENT) were at the [ESNI Conference 2024](#), celebrated during the 18th and 19th of September. The Biorefine Cluster Europe organizes this event that has taken place at Les Ateliers des Tanneurs, in Brussels.



XLII SICA

(9-11 September)

Our partner Marta Dell'Orto, from Università degli Studi di Milano, participated in the [XLII SICA \(Società Italiana di Chimica Agraria\) Conference](#), which took place in Alghero (Sardegna, Italy). She submitted an abstract and prepared a poster presenting the data on the use of shell wastes as liming agents in soil.



Norwegian Agriculture Minister visits Grønn Gjødsel

(9 August)

Sea2Land partner Grønn Gjødsel received a visit from Norway's Minister of Agriculture and Food, at their plant in Østfold, Norway. [During the visit](#), they toured the facility where they produce organic and organic-mineral mixed fertilizers.



The [N Workshop was held in Aarhus, Denmark](#) with the topic “Resolving the Global Nitrogen Dilemma – Opportunities and Challenges”, hosted by the Aarhus University. One of our Norwegian partners, Bente Foreid, from NIBIO, participated in the event and presented this abstract about fish sludge as fertiliser.



Barcelona Seafood Expo (23-25 April)

Co.Pe.Mo.’s stand presented the SEA2LAND project [at the Barcelona Seafood Expo 2024](#), the largest trade event related to the seafood industry in the world, hosting major producers and connecting them with potential new buyers. The 2024 conference program featured more than 20 educational sessions, presented by top seafood industry experts.



NERM EVENT (16-17 April)

The SEA2LAND project was present at the [NERM conference \(Nutrients in Europe Research Meeting\)](#), held in Brussels and organised by the ESPP (European Sustainable Phosphorus Platform) and the sister projects funded under the RUR-08 topic (LEX4BIO, FERTIMANURE, SEA2LAND, RUSTICA and WALNUT).



Baltic Sea Workshop “Valorization of bio-waste from fisheries and agriculture. Economic profitability and market potential” (20 March)

The Estonian University of Life Sciences and Nutriloop in cooperation with the Ministry of Regional Affairs and Agriculture organized a [seminar on March 20 in the hall of the](#)

present the properties and production potential of bacterial fertilizers made on the basis of biowaste and to open up the possibilities and economic profitability of using the fermentation residue.

Discover more events on the website!

The next SEA2LAND newsletter will be available in **January 2025**. In the meantime, we will keep informing about the project development through our **social media** accounts and the **project website**.

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