#3 NEWSLETTER - SEPTEMBER 2023

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

Content

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

During the last months, our partners have presented the pilot cases at their workplaces. In the following news items, a short summary of each of the events is presented.

Norway produces large quantities of fish sludge that largely “disappears” into the sea. Researchers are now investigating how to better utilize this important resource in the future. NIBIO hosted a workshop in March on fish sludge at Fredrikstad Seafood at the mouth of the Glomma River. The workshop had about 50 participants. In addition to several researchers, representatives from both the aquaculture industry and the fertilizer industry participated. The workshop was part of the EU project SEA2LAND, which has been running since 2021.

FIND OUT MORE

Last 13th of April, our French partners, **CATAR CRITT AGRORESSOURCES** (Centre d'Application et de Traitement des AgroRessources) and **CAPA (Chambre d'Agriculture des Pyrénées-Atlantiques)** organized a half-day presentation in Tarbes about the Atlantic pilot, presenting concrete solutions for processing aquaculture and fishery by-products to produce biofertilizers.

FIND OUT MORE AND WATCH THE PILOT VIDEO

Our Italian partners presented last 12th May the Adriatic case, an event celebrated in Ancona, Italy. The workshop called “Sustainability and circular economy in seafood processing” was organized by **UNIVERSITÀ POLITECNICA DELLE MARCHE** in collaboration with **COPEMO** (SOCIETÀ COOPERATIVA PESCATORI MOLLUSCHICOLTORI).

FIND OUT MORE AND WATCH THE VIDEO OF THE EVENT

On May 16th the Cantabrian pilot was presented during the FOOD4FUTURE fair organised at the Bilbao Exhibition Center, Spain. The study aims to demonstrate the technical feasibility of producing fertilisers from different by-products of the fishing industry, using several technologies.

FIND OUT MORE AND WATCH THE PRESENTATION VIDEO

On May 25th, the **BETA Technology Center of the UVic-UCC** and the Maritime Network of Catalonia BlueNetCat co-organized a workshop in Vic, Spain, called “Challenges and opportunities for the sustainable management of marine by-products”, a workshop for co-creation of ideas to present the results of the Mediterranean pilot plan of the SEA2LAND project.

FIND OUT MORE

On July 8th, our Estonian partners organised the Baltic Sea pilot presentation. It was part of the Farmer's Day at The Centre of Estonian Rural Research and Knowledge (METK). First, **NUTRI** introduced itself and gave an overview of the SEA2LAND project. It was followed by a short presentation of bio-based fertilizers (BBFs) with a particular focus on the method and application of the Baltic Sea´s products.

FIND OUT MORE

sLCA methodology and standards applied to bio-based fertilizers from fisheries/aquaculture wastes

Fish and aquaculture production has constantly grown following demographic evolution. According to the FAO (FAO, 2022), the production of these sectors should reach 202 million tons in 2030, with aquaculture increasing its proportion to about half. Even if food/fish loss is not taken into account, a large quantity and diversity of wastes is generated such as fish sludges, bones, viscera and heads, mollusc shells …

Read the complete publication

Optimization of the autolysis of rainbow trout viscera for amino acid release using response surface methodology

Aquaculture has grown exponentially during the last decades, even overcoming traditional fishing in volume since 2012 (Iñarra et al, 2018). The rise of the production of fish involves the rise of fish by-products, that in case of being disposed could suppose an environmental risk. Fish viscera are part of the by-products used to produce fishmeal and are 10-18 % of the whole fish weight.

Production of biofertilizers from tuna cooking waters through membrane nanofiltration and enzymatic hydrolysis

Brine as side-stream is one of the main environmental problems in the wastewater generation in different food industry processes, as it is for the tuna canning sector. The treatment of brines is a universal challenge due to its operation complexity and cost issues. More than 70% of the tuna caught in the world is canned or otherwise prepared or preserved. Spain leads Europe's production of canned seafood with more than 343,000 tonnes of product weight produced, valued at €1.5 billion.

Read the complete publication

Hydrolysis and thermochemical technologies for the recovery of bio-based fertiliser from fishery waste

The growing demand for seafood consumption had led to the increase of the seafood production from 134.3 million tonnes in 2004 to 170.9 million tonnes in 2016 leading to an increase of the by-products volume, which can account for 30–70% of whole seafood after industrial processing. Biorefinery concept, based on circular economy model, is developed to recover bio-based fertilizer transforming such by-products into nutrients.

Read the complete publication

products by twin-screw extrusion for the production of biobased fertilisers

For the Atlantic area, the project aims at producing BBF's from the by-products of the aquaculture domain using ThermoMechanoChemical (TMC) fractionation by twin-screw extrusion. TMC process is a continuous process, working at low liquid/solid ratios and able to provide a solid and a liquid fraction. Until now, the processes concerning extrusion/fish/fertilizer had been limited to the mixing of fish with vegetal raw materials by twin-screw extrusion for the production of pellets for the feed industry, the pretreatment of lignocellulosic raw materials with enzymes by twin-screw extrusion to initiate the enzymatic hydrolysis, the transformation of fish bones and heads by extrusion for the production of gelatins films, and the production of organic fertilizers by urea and derivatives.

Read the complete publication

Understanding the value of freshwater aquaculture and fish processing by-products through agroinnovative approach & technological solutions

Our partners **CAVIAR PIRINEA** and **BETA Technological Centre** presented a poster at **Aquaculture Europe 2022** as they participated in a by-products valorization session. As the project will contribute to independence and secure the supply of nutrients to European agricultural systems and will promote the production of large-scale fertilizers (from non-imported raw materials), based on the circular economy model to transform by-products into nutrients for crops. Particularly, some research partners are making available extended catalogue

Read the complete publication

During the last week of June, SEA2LAND partners met in Toulouse and celebrated the **6th Consortium Meeting,** where they explained their work done in the last months and presented their ideas for the development of the project in the coming months. During the two-day meeting, partners had the opportunity to learn about the results of the different tasks and they also visited **CATAR** facilities. The event allowed them to work collectively on the definition of future outcomes of the project.

READ THE PRESS RELEASE

HAVE A LOOK AT OTHER EVENTS WHERE SEA2LAND WILL BE OR HAS BEEN PRESENT:

After three successful editions, the European Sustainable Nutrient Initiative will be back on 20th September 2023 in Brussels. This year, 12 European-funded projects joined forces with the Biorefine Cluster Europe to give an insight into the most innovative solutions developed to create value-added products from nutrient recycling.

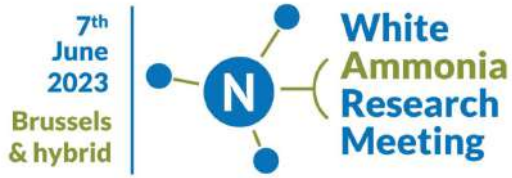
AQUACULTURE EUROPE (18-21 September)

AquaBioTech is going to be present at the world's most diverse farming practice in terms of number of species, farming methods, intensity level and environ-ments used. Taking place in the iconic Austrian capital, Vienna, AE2023 will be a perfect meeting place for this focus on diversification.

AQUANOR (22-24 August)

Our partner AquaBioTech presented SEA2LAND in their stand in one of the biggest exhibitions of Aquaculture in Europe and the biggest in Norway: AquaNor 2023, an international meeting place for the aquaculture industry.

Haizea Domínguez and Bruno Iñarra, from AZTI, presented the results of the project at the CHANIA 2023, 10th International Conference on Sustainable Solid Waste Management, celebrated in Greece.



WARM CONFERENCE (7 June)
Our partner Jan Landert (Research Institute of Organic Agriculture FiBL) presented SEA2LAND in a parallel session at the first White Ammonia and N-recovery Research Meeting (WARM) in Brussels. The session was called "N recovery from urine, manure, aquaculture" and the presentation from Landert was "Life cycle assessment of bio-based fertilizers from fisheries and aquaculture sidestreams".

ICHEAP CONFERENCE (21-24 May)
Between the 21st and 24th of May 2023, our partners from the INSTITUT NATIONAL POLYTECHNIQUE DE TOULOUSE presented SEA2LAND at the 16th International Conference on CHEMICAL AND PROCESS

FOOD4FUTURE (16-18 May)
One of the largest FoodTech events in Europe for food and beverage professionals. FOOD4FUTURE addresses topics ranging from food as science to alternative proteins, food waste and agricultural technology, Agritech.

SEAFOOD EXPO (23-25 April)
SEA2LAND was present at the Sea Food Expo 2023, thanks to our Italian partner COPEMO. The Seafood Expo Global is the largest trade event related to the seafood industry in the world, hosting major producers and connecting them with potential new buyers.

Discover more events on the website!

So far, SEA2LAND has published a total of **32 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.

The next SEA2LAND newsletter will be available in **February 2024.**
In the meantime, we will keep informing about the project development through our **social media** accounts and through the **project website**.

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