

CIRCULARSEAS

NEWSLETTER #6



“Project Meeting n° 8 & Final Conference at Vigo University”

CircularSeas at Moldplas | 3D Additive Fair, Exposalão Batalha

CircularSeas Project was presented at Moldplas Fair | 3D Additive Fair, Exposalão Batalha, at the stand of IPLeiria-CDRSP and parallel to this event held a communication at the workshop CDRSP-Polytechnic of Leiria & 3D ADDITIVE.

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Leartiker and Leartibai Fundazioa organized a workshop

Leartiker Technology Centre and Leartibai Fundozioa regional development agency held a workshop in which they presented the results they had achieved to officials and representatives of the Basque government.

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Project Meeting n° 8 & Final Conference at Vigo University



On 30th November to 1st December, 15 researchers presentially and 2 via streaming, from 5 nodes of the Atlantic area Cork-Ireland, La Rochelle-France, Ondarroa- Spain, Vigo-Spain, and Peniche-Portugal gathered at ESCOLA TÉCNICA SUPERIOR DE ENXENEIROS INDUSTRIAIS (University of Vigo) for the last Project Meeting, on the first day, and for the Project Closing day, on the last day (final conference).

Here the partners discussed the last logistic and final details for the final conference on the next day. After that each partner made presentation on the work package that each one has in leadership, and showed to the audience the developments achieved, and the progress in terms of indicators of the different actions.

The project Closing day, was opened to all public by streaming on UVIGO platform. After a overall presentation of the CircularSeas by Blanca Lekube, the coordinator of the project. Blanca talked about how the idea for the project appeared, about the partners, the Diagnosis process, ant its outputs in terms of the main plastic litter in the maritime environment (which includes the maritime industries), by target industry.

She spoke also about the scientific outputs, technology transfer workshops, and about thematic work groups.

CIRCULARSEAS at 3D Additive fair, Exposalão, Batalha



CircularSeas Project was presented at Exposalão Batalha from November 9 to 12, 2022 for Moldplas 3D Additive fair, into the IPLeiria-CDRSP stand and at a communication panel of CDRSP- Polytechnic of Leiria & 3D ADDITIVE.

The CDRSP stand exhibited a set of solutions in terms of products, materials and additive processes for the areas of metals, polymers, ceramics, health and ecological transition. The communication panel and exhibition, provided communication about the CircularSeas project developed by Peniche node, through CDRSP-IPLeiria, and Know-how and technology transfer to industry, clusters, and entrepreneurs.

The technological developments developed by the Peniche node (through the Centre for Rapid and Sustainable Product Development – CDRSP is a research unit of the Polytechnic of Leiria). were focused on maritime industries in the form of nautical sports.

The exemplar project included the production of a thermoplastic mould using plastic material sourced from seagoing operations and recovery from the sea (specifically recovered plastic crate boxes). The moulds can be designed in the provision of components used for boats but also other related maritime devices more broadly. This case study focused on 3D printed moulds to be used in processes such as fibre glass layup for example in the production of a float. Added benefits of using additive manufacturing in this way provide a more cost-effective process for the customization of larger products for outdoor spaces, while also allowing the decentralized design and production of small volume moulds.

Leartiker and Leartibai Fundazioa held a workshop in which they presented the results they had achieved to officials and representatives of the Basque government

On 8 September, the Leartiker Technology Centre and the Leartibai Fundazioa regional development agency, both members of the Basque Science, Technology and Innovation Network, held a workshop in their headquarters in Markina-Xemein (Bizkaia), where they presented the technological developments, recommendations, challenges and opportunities identified over the course of the CircularSeas project to stakeholders of the Ondarroa Hub's maritime industry plastic waste management value chain (companies linked to the fishing industry, plastic waste management and the plastics industry) and to representatives of the Basque government.

The workshop was attended by Jon Anakabe, Director de Leartiker (project leader), Ainhoa Arrizubieta, Director of Leartibai Fundazioa (overseeing the Ondarroa Hub within the project), Amaia Barredo, the Basque government's Deputy Secretary for Environmental Sustainability and Leandro Azkue, the Basque government's Director of Fisheries and Aquaculture.

Recommendations, challenges and opportunities for the management of plastic waste from maritime industries.

Technological developments for waste management

The aim of this workshop was to reveal the technological developments achieved within the project to stakeholders of the Ondarroa Hub's maritime industry plastic waste management value chain (industry within the Port of Ondarroa and the associated industries), and to present the recommendations, challenges and opportunities identified in it to officials and representatives from the Basque government, with the goal of promoting the implementation of the circular economy within that Hub.

For this purpose, the project leader Blanca Lekube (Leartiker) was joined by Maria Txakartegi (Leartibai Fundazioa) and Diego Silva (project partner, University of Vigo), to provide a demonstration of the integrated 3D printing environment aimed at creating an easy-to-use system to promote the adoption of 3D printing technology in maritime industries. The partners presented the mobile application that they have developed. In a number of simple steps, it guides the end user through the process of choosing and then printing the most suitable recycled material with automated parameter setting.

Those present were also able to view the plastic waste recovery process that has been carried out in the project's different hubs, including innovations such as a stable and controlled extrusion process designed to obtain plastic that is suitable for being turned into a filament, and a thermal camera printer adapted to recycled materials.

To conclude the section on technological results, the Vigo Hub's use case was also presented, looking at 3D printing on board fishing and recreational boats, focused on the need to print spare parts on the high seas.

The final part of the workshop was focused on analysing the Ondarroa Hub's maritime industry waste management value chain.

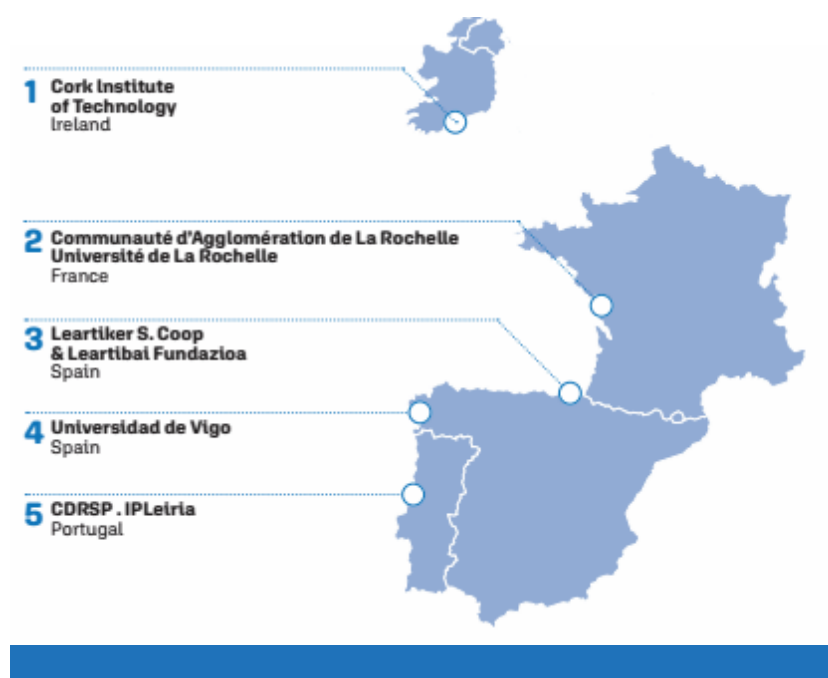
Although the amount of waste that is generated is not constant or uniform, making it difficult to predict quantities for recovery purposes, the industry linked to fishing and aquaculture in the Ondarroa Hub is starting to introduce sustainable materials and product end-of-life management.

Waste management in ports still has a long way to go and there are many improvements that can be made to turn the linear value chain into a circular one: optimising the sorting and management of waste in ports and creating ways to reuse that waste there. Most of the recovery options available are beyond our borders, where transport also brings financial and bureaucratic costs. However, local recycling companies like Birziplastic are working closely with Leartiker to implement that circular value chain for maritime waste in the Basque Country. It is essential to find ways to extend good practices to all types of plastic waste and, to that end, today we reflected on the challenges and opportunities present in the region, to effectively and practically close the cycle of plastic waste generation and management, by combining fishing sector and Circular Economy strategies.





Pilot Tests developed by 3D printing, as part of the CIRCULARSEAS European Project



The CircularSeas node partners, developed accordingly to the following target fields

1. CIT: Maritime mechatronics (ROVs and maritime platforms),
2. ULR+CdA-LR: Auxiliary equipment for shellfish farming,
3. Leartiker+Azaro: Auxiliary fisheries,
4. UVI: On board manufacturing for ship repairs and
5. CDRSP-IPLeiria: Nautical sports parts; a target green component or product produced by additive manufacturing.

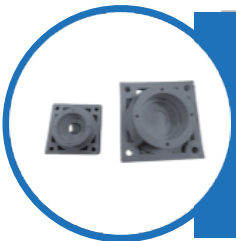
The following scheme schematizes the pilot test implementation, manufactured by the 5 nodes.

Pilot Tests developed by 3D printing, as part of the CIRCULARSEAS European Project



Ondarroa node

- Price Tags for the Fisheries
- Recycling at a large scale carried out by Leartibai& Birziplastic
- Filament 3D printed and app ready
- Green product trial at local fisheries Pako arrandegi



Vigo node

- Bearing Carrier & Cap
- Recycling at a large scale carried out by Leartibai
- Filament 3D printed and app ready
- Green product trial in conveyor belts TBD



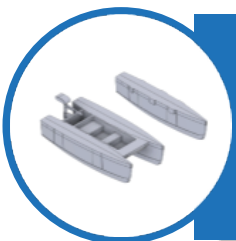
La Rochelle node

- Fins for the surfboards
- Recycling at a large scale carried out by Leartibai
- Filament 3D printed and app ready
- Green product trial at UWL-Surfboards



Cork Node node

- Nylon wheel bearings
- Recycling at a large scale carried out by Birziplastic
- Filament second version, 3D powder, app ready
- Green product trial at Goodfish processing facilities



CDRSP-IPleiria node

- Float for a Catamaran
- Recycling at a large scale carried out by IPLeiria
- Pellets extruded at CDRSP, app ready
- Green product trial at Scales Oceans