

# CIRCULARSEAS

NEWSLETTER #5

## Defending the Oceans

*CircularSeas was the subject of several publications in the media.*

*"Polytechnic of Leiria prints green products in 3D from plastic collected from the sea." Jornal de Leiria*

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*"3D Printing turns plastic waste from the sea into ecological products." Agência Lusa*

*"An excellent international project to reduce the environmental impact on the ocean." Escola Azul*

*"CircularSeas: transforms sea plastic into ecological products" Lusa*

*"CircularSeas Project promotes the reduction of environmental impact on the oceans" Notícias do Mar*

*Leartiker will drive the recycling of fishing nets to manufacture price holders for the identification of fish using 3D technology.*

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*Sustainable development week and the handing over of objects to the Medico-Pedagogical Institute.*

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***I International Seminar on Plastic Recycling***

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## "CircularSeas Project defends the Oceans."

Plastic collected from the oceans origins green products

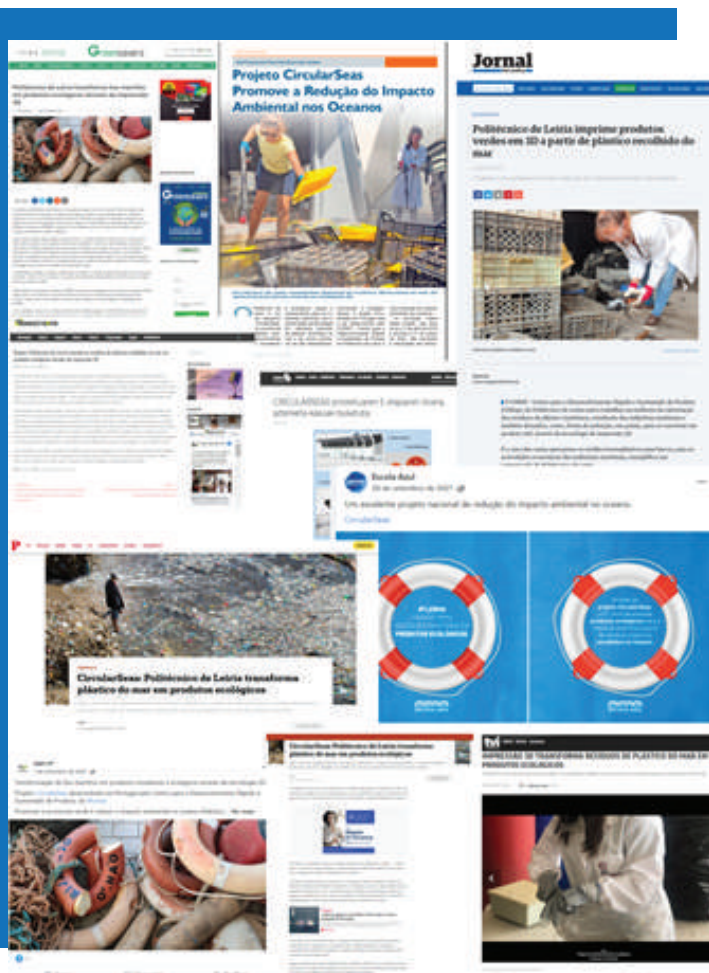


Figure 1 Screenshots of the publications.

Numerous studies are underway to value marine plastic waste, resulting from pollution on beaches and oceans, as well as from the sector's own industries, converting them into useful products for the maritime industries themselves, using 3D printing. In a process that involved the plastic collection, separation, selection and, washing of marine plastic, followed by its transformation into granulate, new green products will emerge. At the moment, 3D printing of useful parts in water sports is planned.

## Reducing the environmental impact on the oceans is the objective of the CircularSeas project – co-financed by the European Union

Several weeks of intense work for some of our committed researchers, were the subject of news from numerous newspapers and magazines, associations etc (Figure 1).

"Polytechnic of Leiria prints green products in 3D from plastic collected from the sea." *Jornal de Leiria*

"3D Printing turns plastic waste from the sea into ecological products." *Agência Lusa*

"An excellent international project to reduce the environmental impact on the ocean." *Escola Azul*

"Polytechnic of Leiria transforms marine litter into ecological products through 3D printing" *Greensavers*

"CircularSeas: Polytechnic of Leiria transforms sea plastic into ecological products" *Lusa*

"CircularSeas Project promotes the reduction of environmental impact on the oceans" *Notícias do Mar*

## Sustainable development week and the handing over of objects to the Medico-Pedagogical Institute (IMP Port-Neuf)

The CircularSeas project was presented during Sustainable Development Week at the Michel-Crépeau Media Library in June 2021 at La Rochelle (France). The CircularSeas team 3D-printed objects using recycled plastic from the oceans and handed them over to the Medico-Pedagogical Institute (IMP Port-Neuf) in September 2021, for helping the people with disabilities.

The initiative was highly appreciated by the Medico-Pedagogical Institute (IMP Port-Neuf).

They were interested to plan a visit of the L3i lab to know more about the projet and the 3D printing technologies that we have acquired and developed under CircularSeas project. A new collaboration for providing more useful objects (as per the needs) the Medico-Pedagogical Institute (IMP Port-Neuf) is in progress.



Figure 2 CircularSeas team with the L3i lab with 3D printed objects

## 30th Annual National Science Festival in France

The CircularSeas project was presented at the National Science Festival ( 1 to 11 October 2021) at La Rochelle (France). Groups of students from schools in La Rochelle (France) (aged between 9 and 13 years) attended the presentation of the CircularSeas project. The main goal was to present the project and the 3D printing technologies that we have acquired and developed under CircularSeas project. Also, we focused on spreading awareness about the problem of ocean pollution and recycling solutions that we are developing under the CircularSeas project. The work was appreciated by students and their professors.



## Thematic meeting of the European CircularSeas project

Azaro Fundazioa and the Leartiker Technology Center organized the 10th of November the first thematic meeting (Thematic Workgroup) of the European project Circularseas. The meeting was held online and projects related to marine plastic waste were unified.

The session was divided into two parts. In the first part, the participants presented the objectives and results of their projects. The projects have been approached from different points of view: monitoring, search for new value chains and awareness of the sector and society. The second part revolved around the difficulties and opportunities found in the development of the projects. By way of reflection, they stressed that "the important thing was the origin of the waste, because much of what is found in the sea comes from land, so awareness is necessary."

It was a very interesting and productive day thanks to the contributions of the participants: Ecoalf & Aimplas; Cetmar; Sustainin; Zero Discharges Association; University of Alicante; Mon-dragon Unibertsitatea; and Leartiker and Azaro Fundazioa.

Circularseas is co-financed by the Interreg Atlantic Area Program through the European Regional Development Fund (ERDF) and aims to seek strategies aimed at the reuse of plastic waste related to the maritime industry.

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## Leartiker will drive the recycling of discarded polyamide fishing nets in the port of Ondarroa to manufacture price holders for the identification of fish in the country using 3D technology

The Leartiker technology centre in Markina-Xemein and Azaro Fundazioa, both members of the Basque Science, Technology and Innovation Network, continue to collaborate on the CIRCULARSEAS project, which enters its final year in 2022.

The 6th partners' meeting was held in mid-January, where the milestones established during the past six months and the steps to take over the next six months were reviewed. Consequently, the Business Portfolio Report will be published this February, which compiles the work developed through the regional workshops held at each hub, including the sustainable products identified in the five nodes and the business models that have been developed for each hub.

At the Ondarroa hub, discarded polyamide fishing nets have been identified as the waste most generated and with the greatest potential for reuse, aiming to close the circle through their recycling and use to manufacture price holders to identify the country's fish. A second development being carried out is the use of a biodegradable material in marine environments to prevent polluting plastic waste in the oceans.

Likewise, over the past few months Leartiker, as leader of the project's technological developments work package, together with the University of Vigo (UVI) and the University of La Rochelle (URL), have been working intensively on the development of an integrated 3D printing environment to create a user-friendly system to promote the adoption of 3D printing technology in the maritime industries. To this end, they are working on an application, which will guide the end-user through a simple step-by-step process of choosing the most suitable recycled material and its final printing with an automated parameter setting. Leartiker's role is focused on the pre-processing and recycling of waste from different hubs, ranging from fishing nets to packaging straps to oyster catchers, to develop materials suitable for the identified sustainable products.

Work on the planning of pilot plants at each hub is also ongoing, with a view to launching their implementation as soon as all the technological developments are completed.

Meanwhile, the project's networking and dissemination efforts have also made significant strides in recent months. On the one hand, in November Leartiker and Azaro held the first of three thematic meetings aimed at exchanging experiences, challenges and difficulties with similar projects being carried out in the field of marine waste. The first meeting focused on the sharing of seven projects at a national level, with the participation of Irene Díez Ruiz (ECOALF), Julio Maroto (CETMAR), Carlos León Perfecto (Sustainn), Rubén Rodríguez Alonso (Asociación Vertidos Cero), Carlos Sanz-Lázaro (University of Alicante) and Estibaliz Hernández Eleno (MIK). Several common points between the projects and synergies for future actions were identified during the meeting. The next meeting will be held in March and will open its focus to international projects.

## I International Seminar on Plastic Recycling

Six scientific publications were also produced in 2021 as part of the project. Leartiker, together with Blanca Lekube, head of the CircularSeas project, presented a poster at the I International Seminar on Plastics Recycling organised by Aimplas in Valencia on 1 and 2 December. The poster, produced in collaboration with Azaro, presented a summary of the diagnosis of the Ondarroa hub as well as the technological advances made so to date. The figure 3 show the poster presentation by Blanca Lebuque, from Leartiker (Spain) at the I International Seminar on Plastic Recycling.



Figure 3

Another publication of note is the first article published in the scientific journal (Applied Sciences) by the University of Vigo in collaboration with Leartiker, entitled "*User-oriented integrated service for 3D printing environments with recycled material from maritime plastic waste*".

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## Samsung Galaxy S22 uses plastic from discarded fishing nets

According to the BBC, Samsung is using polyamide resin made from recycled nylon fishing nets. The polyamide is used by Samsung to make the brackets which hold the volume and power keys in place.



The BBC says that discarded water bottles and CD cases are also being used to create components for the S22 models, which include the Galaxy S22, S22+ and S22 Ultra.

Samsung says that 640,000 tons of fishing nets that are abandoned and discarded every year, causing harm to marine life. The decision to recover some of these materials for application in its devices forms part of the firm's 'Galaxy for the Planet' initiative, which seeks to position the brand as a sustainable and environmentally responsible consumer option.

One of Samsung's pledges is to incorporate recycled materials into all of its products by 2025 – although it has not specified a target for the ratio of recycled:virgin materials it intends to use.

Nevertheless, Samsung is now one big fish in the sustainable plastics pond.

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