FEBRUARY 2021, ISSUE 2

Made of EPS

A NEWSLETTER FROM

OCEAN WISE

Reducing EPS marine litter in the North East Atlantic

DGRM DIREÇÃO-GERAL DE RECURSOS NATURAIS, SEGURANÇA E SERVIÇOS MARÍTIMOS

Interreg Atlantic Area
European Regional Development Fund

EUROPEAN UNION

IN THIS ISSUE:

Let's talk about...

A danger in the Atlantic (still) looking for a solution

Thousands of fish boxes made of EPS / XPS, the most commercialized product in the Atlantic Area, are discarded per minute. And we all know that these are not positive statistics, when we talk about one of the major sources of marine litter. But the truth is that solutions to this problem is still insufficient, both in terms of efficiency and economic viability.

The OCEANWISE project prepared a report through which we can, for the first time, have a clear idea of the potential impact of this product on marine pollution and which management measures are advisable.
It's called "Essay on the commercialization chain for refrigerated fishery products packed in EPS / XPS, as well as their management cycle, processing and recovery of their waste within the European countries in the Atlantic Area. Assessment on usage of bioplastics as alternative to EPS / XPS materials". It's been produced by CETMAR experts, Julio Maroto, Esther Valiño, Laura García and Victoria Lago, as well as experts from Sociedade Ponto Verde (SPV), Paula Norte and Susana Ângelo, and Brian Walsh, from REPAK.

The reports warns: although there are biodegradable alternatives to EPS or XPS being introduced on the market, even these have to be treated under certain specifications, and risk adding polluting risk and failing to fulfill their mission. This is the case with BIOEPS boxes and can be biodegradable under different conditions, recalls the report: “marine safe, compostable or degradable in the soil”.

The report concludes that only one of the many companies that manufacture these boxes “attests to the biodegradation of water”. This “is fundamental in relation to marine litter because a compostable material can biodegrade under certain conditions, but not when it is discarded in natural or marine environments”. In addition, without composting facilities, this material can only be used as waste for energy and landfills, as “BIOEPS is not recoverable” and “the end of life of these materials is composting”.

New things means, in most cases, more challenges. And there is no exception here. The introduction of new materials and waste requires that segregation is adequate, the report recalls. Both citizens and companies “must be aware of the importance of sorting and learn to recognize plastics and bioplastics”.

“Bioplastics must be labeled differentiated” and “there is still no established standard” for the different colors used in BIOEPS boxes - some brown, others similar in color to EPS.

After a full analysis of the market and the science that has been developed to find solutions to this marine problem, the OCEANWISE report sets a series of conclusions, guidelines to prevent further mistakes and encourage new solutions.

- Using biodegradable bioplastics as raw material for manufacturing similar to EPS fish boxes does not seem to be a solution for the problem of EPS litter in the ocean. In many cases, alternative to EPS fish boxes launched in the market are made of compostable BIOEPS that will remain as a problem of marine litter once they reach the ocean.

- There are some marine-safe materials (biodegradable in marine environment) that could represent a baseline but they are not well established yet.

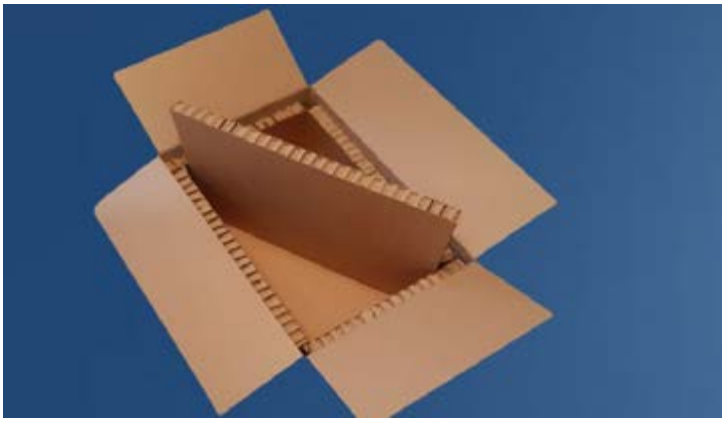
- Compostable bioplastics (the most used bioplastics) are in line to sustainability and circularity, but only when valorising them as compost. Dependency on composting plants is huge and biowaste management systems are not established yet.

- Biodegradable bioplastics are not recoverable. Composting is the only end-of-life for these materials (aside from WtE and landfills).

- Biodegradable plastics do not always contribute positively into the plastic littering situation, on the contrary:

- Additional containers, new EPR schemes strategies, labelling and awareness are some of the measures needed for establishing a new management system. There have been some pilot actions of implementation, but no real plans.

- Compost companies are not ready to manage big amount of BIOEPS boxes (or even biopackaging in general): a very good segregation at source is mandatory for this purpose because, as stated before, BIOEPS usually takes longer to compost than other compostable materials. Furthermore, there are no agronomical proof validating the advantages of using BIOEPS as a raw material for compost elaboration (in terms of nutrients and soil benefits), so there is no demand for this product.



- Composting companies cannot differentiate biodegradable plastics vs non biodegradable. They have to discard all plastic that may enter their facilities to avoid contamination of the final product.

In the field

Port Reception Facilities: Portugal went further

The change is being made slowly and surgically, all over the world. We write from Portugal, where Port Reception Facilities recently gained another dimension.

The EU directive has long been a major topic when it comes to marine sustainability. For decades the IMO [International Maritime Organization] has recognized it as crucial to make MARPOL [International Convention for the Prevention of Pollution from Ships created in 1973 and one of the most important international environmental conventions] implementation effective. Also, the Marine Environment Protection Committee (MEPC) has strongly encouraged Member States to provide adequate reception facilities. Basically, they function as port means for receiving waste from ships, to be made available by the managing entities of the ports to their users. A system associated with the correct management and forwarding of the waste to its final destination. It creates conditions for all ships to be able to deliver the waste in suitable means prior to their departure from the port, thus avoiding discharges into the marine environment.

Photo by GEORGE DESIPRIS from Pexels

The legal framework for this EU directive is not new. Ana Margarida Silva, Senior officer at the Infrastructure Unit at the Portuguese Directorate-General for Natural Resources, Safety and Maritime Services (DGRM), explains how it started to be built and what will change in Europe and, specifically, in Portugal.

“On November 27, 2000, the Directive 2000/59 / EC on port reception facilities for ship-generated waste and cargo residues was published. With this Directive, the obligation to comply with requirements foreseen in the MARPOL Convention regarding the delivery of waste in port facilities has been transposed into Union law. Recently, a new Directive was published in 2019 (Directive 2019/883 / EU, of the European Parliament and of the Council, of 17 April) which seconds the previous Directive 2000/59 / EC and reformulates important aspects for reconciling the good functioning of maritime transport with the protection of the marine environment.

Photo by Eva Elijas from Pexels

Directive 2019/883 / EU must be transposed by Member States by 28 June 2021 ”, she clarifies. But, in Portugal, we tried to go “a little further”.

Ana Margarida Silva was part of the team that implemented the transposition of Directive 2019/883 / EU into national law - through Decree-Law no. 102/2020, of 9 December. What this transposition adds is that “the managing entities of the ports will be obliged to keep their port basins and other areas of their jurisdiction clean from litter”, as well as “being obliged to collect and send the associated disposable expanded polystyrene from fishing activity to their final destination”.

Therefore, fishing ports will have to provide densification units, “or another suitable system”, for the collection and management of this polystyrene. This obliges them to be “equipped with compaction systems or, if it is not possible, the existence of a compactor in the fishing port, there must be a place for temporary storage of polystyrene residues collected in that port, with the objective of their subsequent compaction and forwarding to recovery circuits”. Time to remember what we wrote in the previous newsletter about compacting and collecting EPS or XPS. Check it out.

The ocean calls for alternatives and a winner emerged

We have already said it: although EPS is one of the most polluting sources of marine litter, there are still few and ineffective solutions to replace it in the fishing industry. The solution is to continue enforcing recycling opportunities and searching for alternatives, in a constant trial-and-error process that, although slow, say experts in the field, will be worth it when the solution is found.

It was with this in mind that the OCEANWISE project and Sociedade Ponto Verde promoted the OCEAN'S CALLING contest, which promised to award 25 thousand euros in a project or idea that would develop an alternative, better use or better recycling of EPS or XPS packaging. Applications took place between October 2019 and February 2020, open to individual entrepreneurs or teams and tart-ups, public or private companies, designers, universities, public or private institutions, associations or non-governmental organizations, or other entities. In September last year, we found out who would open up the champagne.

The company Storopack, one of the main packaging manufacturers in the world, was the big winner, with the presentation of the Seaclic project. Basically, it is a packaging box that comes from renewable resources and that, after being used and composted, returns to being a renewable resource.

As for the characteristics, namely in the lightness of the material, Seaclic boxes are equivalent to EPS. Just like the design, not changing transport habits.

Anthony Mahe is the technical manager of the Seaclic project and states that the importance of this award is to validate your strategic choices “in terms of best material for material to preserve the food and the environment”. Among 17 applications “from different types of entities, from three of the five countries participating in the OCEANWISE project”, this “project stood out for being an efficient and alternative solution to conventional EPS packaging”, says Ana Trigo Morais, CEO of the Ponto Verde Society (SPV).

However, says Anthony Mahe, “the material is only compostable in industrial conditions, preferably in a special device (Tarra, Oklin) to obtain the compost after only 24 hours”. And the CEO of SPV recalls that this contest and the respective prize is also a way of “generating recommendations to identify and disseminate best practices and initiatives, related to the use, production, recycling and capture of EPS / XPS after its use”. Also, to encourage the improvement of a product that is entering the market. As is the case with the winner, who is currently looking for a costumer (supermarket).

The message to be taken from the initiative is, above all, that “it is essential to continue to warn about the daily impact of our actions on the marine environment and remember its importance for human life”, concludes Ana Trigo Morais.

Four questions to

Teresa Franqueira

Teresa Franqueira is a professor and researcher at the Department of Communication and Art at the University of Aveiro, Portugal, and was elected, in past December, the international coordinator of the network for social innovation and sustainability of the DESIS (Design for Social Innovation and Sustainability).

She argues that, without design, sustainability is difficult to achieve. For this very reason, she accepted the challenge of organizing the first Hackathon hosted by the OCEANWISE project at Design Factory Aveiro (DFA). The hackathon challenged over 40 participants to create innovative solutions to solve problems linked to the worrying source of foamed polystyrene products (EPS and XPS) marine litter in the Atlantic Ocean.

We went to meet her and took four questions with us.

You recently assumed the coordination of the international network of DESIS, which promotes sustainable changes based on design. What strength can design give to sustainable creation?

Design plays a fundamental role in the design of sustainable solutions. There are studies that state that 70 to 80% of the environmental impact of products is defined in the initial design phase and are the design decisions, from the type of materials to disposal at the end of the life cycle, through the interaction and emotional relationship that users, which determine future behavior. In addition

to products, design plays a decisive role in the creation of product-service systems, in which it is possible to reduce the idea of ownership and move on to the concept of usufruct and sharing, reducing the ecological footprint. If we think about service design or design for social innovation, we can see the importance of design in creating new, more sustainable behaviors.

The first Hackathon, in December last year. You were there. How important can it be to unite students and professionals in the field of design for marine sustainability?

Design Factory Aveiro was responsible for organizing the 1st Hackathon and my participation was in that role. Design's contribution is extremely important for the development of products and services and for the approach and awareness of sustainability. The creation of teams of university students and professionals to jointly develop proposals and tools that contribute to solving the problem of marine litter, guided by Design methodologies and with the support of expert mentors, proved to be the right option and with results useful and interesting for the proposed problem. Students have a more uncompromised view and professionals have more pragmatic views regarding the problem and possible solutions and it is through the combination of these two views that the most creative and innovative proposals often appear. There is a bidirectional learning process that allows you to think of less common and usual strategies.

What are the most interesting solutions that came out of this meeting?

Two very interesting solutions have emerged, focused on consumer awareness and responsibility. One of them more linked to schools and the educational issue and raising awareness among children, which implies experiences and upcycling of waste and garbage, and another with a recycling service to be implemented in retail companies, to raise the awareness of an adult audience that does department stores.

From the point of view of the solutions that have been created internationally to reduce the impact of EPS and XPS on marine sustainability, and having Teresa a position that looks at what is going on abroad: what project would you highlight in terms of design?

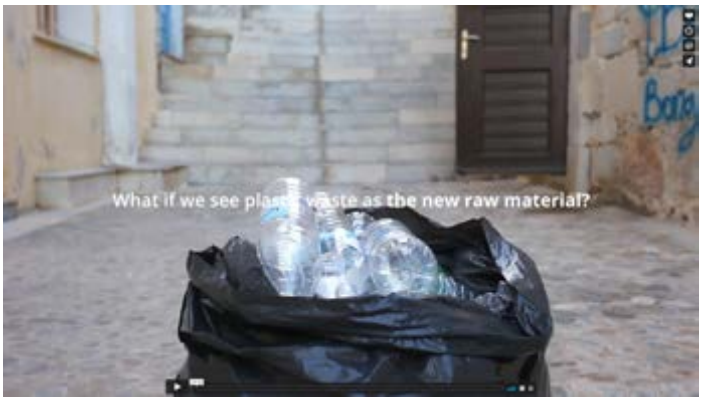
There are many initiatives and projects in this area of great quality at national level, mainly in the footwear area. Internationally there are interesting cases in the area of furniture and packaging. I leave some exemples.

From water bottles to furniture, find out the best examples Teresa Franqueira gives from the best solutions:

https://www.wallpaper.com/lifestyle/sustainable-design-innovation-for-clean-plastic-free-oceans-2018

https://vimeo.com/171463805

https://www.facebook.com/zouriveganshoes/posts/497476317448155/



WRITTEN BY: CATARINA REIS – OCEANWISE PROJECT

The OceanWise project is co-financed by the European Regional Development Fund through the Interreg Atlantic Area Programme

LEAD PARTNER

DGRM – DIREÇÃO-GERAL DE RECURSOS NATURAIS, SEGURANÇA E SERVIÇOS MARÍTIMOS

PARTNERS

FCT – Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa

CETMAR – Centro Tecnológico del Mar

Cefas

An Roinn Tithíochta, Pleanála agus Rialtais Áitiúil – Department of Housing, Planning and Local Government

Cedre

BIM – Ireland's Seafood Development Agency

sociedade pontoverde

Sustainn

UBS – Université Bretagne Sud

MaREI

REPAK – Business funding recycling

Seabird

ASSOCIATED PARTNER

OSPAR COMMISSION – Protecting and conserving the North-East Atlantic and its resources

FEBRUARY 2021, ISSUE 2

WWW.OCEANWISE-PROJECT.EU