

Linkages between the OceanWise Project and the European Green Deal

This brief provides an overview of the linkages between the OceanWise Project and the European Green Deal

Introduction

The INTERREG funded OceanWise project (2018-2021) will propose and test plausible options to reduce, reuse, recycle, recover Expanded Polystyrene (EPS) and Extruded Polystyrene (XPS) and develop alternative materials to achieve better environmental outcomes and reduce marine plastic litter in the European Atlantic. The outputs are well placed to provide input into the goals proposed by the EU Green Deal.

OceanWise will develop a set of long-term measures to reduce the impact of EPS and XPS products in the marine environment. This is based on resource-efficiency, participatory methods and circular economy principles with the aim of generating new and best practices in the use, manufacturing, recycling and uptake of EPS and XPS.

The aim of this brief is to highlight how OceanWise aligns and supports the fulfilment of the Green Deal's objectives with a particular emphasis on the circular economy and zero pollution ambitions in the context of EPS and XPS plastic products. A series of practical recommendations originating from the project's research and activities will be provided.

EU Green Deal

The European Green Deal adopted by the European Union (EU) in 2019 is a strategic new growth strategy incorporating sustainable development goals linked to the implementation of the United Nation's Agenda 2030. It aims to "transform the EU into a fair and prosperous society, with a modern, resource-efficient and competitive economy where there are no net emissions of greenhouse gases in 2050 and where economic growth is decoupled from resource use¹."

The EU establishes through the Green Deal that "achieving a climate neutral and circular economy requires the full mobilisation of industry¹." One of the main pillars of this strategy is the transition towards a Circular Economy which has been established in the EU's Circular Economy Action Plan² and by the EU Industrial Strategy³.

The Circular Economy Action Plan includes a sustainable products policy to support the circular design of all products by prioritising reducing and reusing materials before recycling them.

Actions will focus on resource-intensive sectors, including the plastics industry. The requirements set out in this action plan, will ensure that all packaging in the European market is reusable or recyclable by 2030, and will apply measures on single-use plastics (SUP) and support the implementation of the Single Use Plastics Directive⁴.

The plastic industry plays a central role in the actions set out by the Green Deal to achieve a clean and circular economy, preserving ecosystems and moving towards a zero-pollution environment. OceanWise articulates these actions set out by the Green Deal within its objectives of reducing marine plastic pollution, supporting the transition to a circular economy in the foamed polystyrene (EPS and XPS) industry through eco-design principles, improved waste management, and increasing recycling uptake.

OceanWise promotes new and more sustainable practices in sectors which use, produce, process, and recycle EPS and XPS, leaving it well placed to inform legislators in developing policy measures and interventions to support the implementation of the SUP and Waste Framework Directives while directly contributing to the Green Deal's ambitions.

Green Deal Action Areas

The European Commission identifies eight action areas under the Green Deal to achieve its goals as show in Figure 1.¹

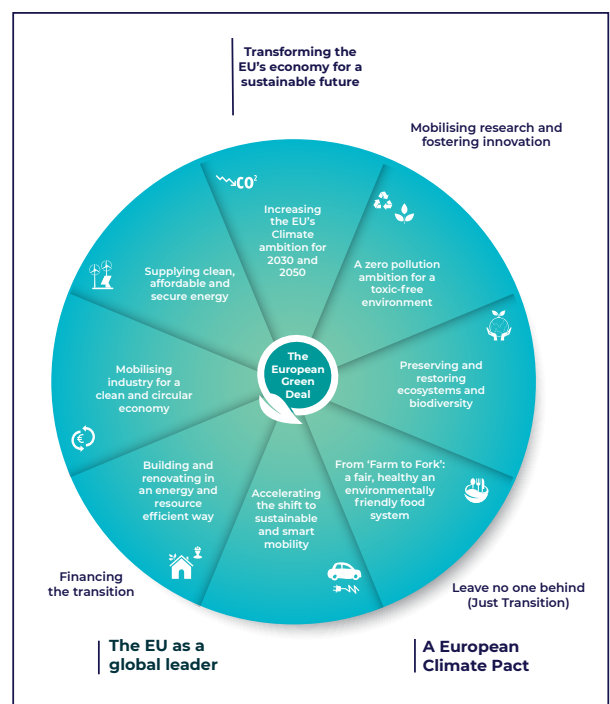


Figure 1: The Green Deal's eight action areas.

Linkages between OceanWise and the Green Deal

Linking OceanWise & the Green Deal

The OceanWise project intersects with a number of Green Deal objectives (see Figure 2).



Figure 2: The objectives of the European Green Deal.

Protect, conserve and enhance the EU's natural capital

OceanWise was developed in direct coherence with OSPAR Action 49 which aims to “investigate the prevalence and impact of expanded polystyrene (EPS) in the marine environment, and engage with industry to make proposals for alternative materials and/or how to reduce its impacts.”⁵

The project aims to develop decision support tools, recommendations, guidelines, and measures in the OSPAR policy context to strategically align with the Marine Strategy Framework Directive (MSFD). The actions proposed by the project will contribute to developing long-term measures to reduce the impact of EPS and XPS in the North-East Atlantic Ocean, and will directly contribute to protecting, conserving, and enhancing the marine environment.

OceanWise outcomes are communicated to OSPAR Contracting Parties and the MSFD Technical Group on Marine Litter therefore contributing to the implementation of OSPAR and MSFD commitments.

Increase use of recycled materials to reduce demand of virgin resources

OceanWise identifies recycling barriers and opportunities and showcases successful recycling operations for EPS and XPS.

If EPS and XPS products are better managed and the recycling rate is increased, then the demand for virgin resources is reduced. This will minimize the demand for non-renewable resources and will lower the potential of waste items leaking into the marine environment. Additionally, the project is currently identifying and testing alternative materials that may replace EPS and/or XPS. This is being done through rigorous testing to identify products that could be made from more sustainable (renewable) alternatives. Where it is not feasible to replace EPS and XPS, there is a focus on recommending ways to increase recycling rates. These outputs align directly with the Green Deal's aim of finding more sustainable products and contributing to the waste reduction targets envisaged.

Require all packaging in the EU market to be reusable or make recycling economically viable by 2030

OceanWise has produced research on the state-of-the-art of recycling EPS and XPS⁶ and development of alternatives to contribute to a knowledge base that capitalises on the full recyclable properties of these types of polystyrene. EPS and XPS follow the packaging requirements set out by the Green Deal which is illustrated in the cases identified:

- The EPS Life Sure project
- The PolyStyrene Loop project is looking at how EPS contaminated with flame retardants can be recycled into new construction materials.
- OceanWise project deliverables will encourage businesses to develop the required recycling infrastructure to ensure that EPS and XPS waste is captured and recycled in compliance with measures to be set out by the Green Deal. Currys PC World (UK) has a recycling system in place in all its depots. White and other electronic goods are delivered directly to consumer homes and are stripped of their packaging, including EPS, then back-filled in the truck and taken back to the depot to be compacted into briquettes and sold to a recycler.

Markets for climate neutral and circular products will be developed under a new policy framework

OceanWise has two objectives which feed into the transition to a circular economy for the EPS and XPS sector; reviewing alternatives to EPS and XPS where possible and increasing the recycling rate of EPS and XPS materials that cannot be replaced. These objectives have been realised through the following deliverables:

- State-of-the-art analysis for alternatives to EPS and XPS products. For example, through “Mitigating EPS impact: Living Labs of Eco-Innovation”, our project partners are currently testing the commercial and technical viability of alternative products.
- Development of circular economy solutions for the foamed polystyrene sector through a circularity assessment tool-kit which includes:
 - i. **State of the Art on Circular and Sustainable Design Methodologies**
 - ii. **Circularity Assessment Methodologies for EPS and XPS Products and Applications**

The project activities also align with the requirements set out by the SUP Directive and Green Deal.



OceanWise hosted a hackathon in December 2020 in which participants developed initiatives to create innovative solutions to improve the recycling uptake and waste management of EPS and XPS.

Hosted by the OceanWise INTERREG Atlantic Area Project and organized by Design Factory Aveiro, this initiative challenged 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, an issue the OceanWise project has been focusing on in the past 3 years.

The Hackathon consisted of a 3-day event where the participants worked in shifts either at the Design Factory Aveiro or virtually, through ideation in the Miro platform.

Best Practices Identified

OceanWise activities and outputs highlight and support real life examples and good practices in partner countries, signalling to relevant industries on how to improve on their recycling rates and how this can be implemented. Ultimately striving to support the increased use of recycled material in new products in a practical way and to comply with the requirements that will be set out by the Green Deal.

UK

BILLINGSGATE FISHMARKET

Billingsgate is one of the largest fish markets in the UK and has been operating an on-site compacting system for several years. It is estimated that 900,000 EPS fish-boxes are compacted each year and sent on to mainland Europe to be recycled into new polystyrene products.

PORTUGAL

BEWISYNBRA

BEWiSynbra offers plastic foam packaging solutions and insulation systems for buildings in Europe. Over the past three years, the Portuguese branch has held meetings with OceanWise members and co-developed the idea of improving recycling of EPS fish-boxes in Portuguese ports. By installing EPS eco-points, BEWi centralizes the collection of EPS fish-box waste to optimize transport. To further optimize this process, BEWi delivers vertical compactors to some fish ports to crush fish-boxes and transport them efficiently. Through their innovative recycling process, EPS and XPS waste is transformed into polystyrene beads that can be used in multiple applications.

IRELAND

WASTEMATTERS

WasteMatters is a mobile EPS fish-box compacting company in Ireland offering on site compacting services to fish processors. Trucks equipped with an EPS compactor go to fish-processing companies and process thousands of fish-boxes per visit to then export the briquettes to mainland Europe to be recycled and processed into new products such as insulation boards, garden furniture and coat hangers. With the support of BIM, WasteMatters and the Marine Institute set up a recycling pilot through which 3000 EPS fish boxes were recycled during the year of operation.

SPAIN

EPS LIFE SURE

Development of an innovative methodology and set of technological solutions to manage EPS fish-box waste and transform it into recycled material for food contact applications such as yogurt cartons and milk bottles. It covers the waste management cycle from collection, washing, and processing. It will also provide a detailed plan so the model can be replicated across Europe.

Better regulation guidelines & supporting tools address sustainability and innovation issues.

OceanWise research proposes recommendations and guidelines for working towards sustainability in the foamed polystyrene plastic sector (EPS and XPS) through circular economy principles, waste management and recycling interventions. Research indicates that policies to manage EPS and XPS products, in the absence of a specific EU Directive, are designed and implemented at local and regional levels but rarely at national level⁷. This results in uneven recycling rates across European Economic Area Member States. For instance, project research to date estimates that the recycling rate for EPS in Denmark is 17%, while in Norway it is 70%.

A key objective of OceanWise is to develop recommendations that could be included in future directives and therefore cascade down to the national level. Making recycling economically viable needs sufficient scale and a common approach by European Member States, which could help provide the economies of scale required to develop more EPS and XPS recycling infrastructure. Shared learning and cooperation between countries links directly to the Green Deal aim of developing a 'sustainable products' policy based on a common methodology and principles. Under this aim, the design of all products will have to include an end-of-life management strategy, and in instances where waste cannot be avoided, the economic value must be recovered.

All EU policies should contribute to preserving and restoring Europe's natural capital

The OceanWise project outputs are in direct coherence with the Waste Framework Directive and SUP Directive within the scope of marine plastic litter prevention also covered by the MSFD. The Green Deal ambition to review both existing legislation and ensure future policies are better informed is a timely one. Part B of the 'Directive on the reduction of the impact of certain plastic products on the environment' (Directive (EU) 2019/904) clearly states that food containers made of EPS, which are used to contain food which is intended for immediate consumption, shall be restricted from being placed on the market starting in 2021. However, the Directive is not explicit in relation to items made from XPS, even though XPS food packaging is also found in OSPAR beach litter surveys and is used in food contact industries.


The OceanWise project, which reports on both materials, will help to drive discussion and consideration of the treatment of XPS food packaging under this Directive.


OCEAN'S CALLING

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As part of the OceanWise project, Sociedade Ponto Verde held a contest to award €20,000 to a single project or idea that promoted, raised awareness, or developed solutions aimed at best practices in the use, production, collection and recycling of EPS or XPS packaging or alternative packaging. A particular emphasis was placed on the end-of-life impact of packaging on the environment broadly, and the marine environment in particular.

The SEAclic Boxes from Storopack are an ideal solution for companies who ship fish and other fresh foods, and come in two varieties. The SEAclic Box Cycled is made from Styropor® Cycled™ by BASF – an EPS raw material that is manufactured using the innovative ChemCycling™ process in which mixed and contaminated plastics are recycled. The SEAclic Box Bio Based is made from a new and compostable plastic that is certified in accordance with EN 13432 and comprises a very high share of renewable raw materials. One key benefit of this organic version is that it can be industrially composted together with food waste, without the need for prior cleaning.





SEAclic Box

Recommendations

1. Encourage the adoption of circular business models within the building sector to increase the uptake of recycled EPS and XPS and reduce the demand on virgin resources
2. Integrate waste management regulation at a national level focusing on EPS and XPS waste to increase recycling rates across Member States
3. Promote investment in recycling infrastructure for EPS and XPS through the Sustainable Investment Plan to be implemented through the Green Deal
4. Promote the use of eco-design ,circular design methodologies and a life-cycle approach within the EPS and XPS sector considering alternative materials, measures and improvements identified by Oceanwise

References

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Partners



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