Market Advisory Council

Advice

Packaging and Packaging Waste Regulation: Impacts of the package reuse targets for the EU, fisheries, aquaculture and fish processing industries

Brussels, 18 March 2025

1. Background

On 11 March 2020, the European Commission presented the Communication on "A new Circular Economy Action Plan for a cleaner and more competitive Europe"[1], which outlines the objective to make all packaging in the EU market reusable or recyclable in an economically viable manner by 2023. As part of this effort, the Commission committed to revisiting the Packaging and Packaging Waste Directive[2] to reduce excess packaging and waste.

The Council's conclusions of December 2020[3] endorsed the goals of the action plan, while, at the same time, noting that that hygiene and food safety standards have to be respected. On 10 February 2021, the European Parliament adopted a resolution on the New Circular Economy Action Plan[4], which urged the Commission to propose legislation that ensures that packaging is reusable or recyclable by 2030 without compromising food safety or hygiene.

On 30 November 2022, the Commission published the legislative proposal for a regulation on packaging and packaging waste (PPWR), imposing various targets on companies concerning reuse, recycling, and reduction of packaging. The proposal was considered by the co-legislators

[1] https://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1583933814386&uri=COM:2020:98:FIN
[2] European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste
[3] https://www.consilium.europa.eu/en/press/press-releases/2020/12/17/council-approves-conclusions-on-making-the-recovery-circular-and-green/
[4] https://www.europarl.europa.eu/doceo/document/TA-9-2021-0040_EN.html

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and, after a first agreement was reached by the Council and the Parliament in April 2024, a second reading took place via interinstitutional negotiations following the election of a new Parliament in June 2024, and the final agreement was reached on 4 December 2024. The Regulation was published in the Official Journal on 22 January 2025[5] and will be applicable from 12 August 2026.

The Market Advisory Council (MAC) welcomes the efforts to minimise plastic and packaging waste in the EU[6]. Nevertheless, the feasibility of these initiatives for the fisheries and aquaculture supply chain must be taken into account, including economic, social, environmental and food safety implications. Alternatives should aim at reducing the burden for fisheries and aquaculture supply chain, ensuring a reduction of plastic and packaging waste and avoiding the risk of leakage into nature, while, at the same time, safeguarding a level playing field with fishery and aquaculture products imported from third countries.

2. Relevance for the fisheries and aquaculture value chain

2.1. Sanitary and logistical aspects

In the fisheries and aquaculture value chain, packaging (fish boxes, auction crates, plastics films) is used for its specific properties (lightweight, strong resistance, insulation) that facilitate handling aquatic products, comply with sanitary requirements set by EU legislation, and limit logistical costs to ensure the sector's economic viability.

Expanded Polystyrene (EPS) boxes are extensively used in the fisheries and aquaculture sector due to their effectiveness in maintaining product freshness and quality. EPS boxes are specifically designed to provide optimal insulation and protection, these boxes ensure that fish products

[5] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ%3AL_202500040

[6] Following the organisation of a workshop on the matter, on 11 December 2020, the MAC adopted advice on "Plastics and the Seafood Supply Chain".

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remain at safe temperatures during transit. EPS's unique properties, including resistance to humidity, prevent the spread of bacteria, mould, and fungi, contributing to seafood safety and consumer health.

2.2. Environmental aspects

EPS boxes can present disadvantages or risks mainly connected with its recycling and risk of dispersion in nature, putting at risk marine biodiversity and the ocean's capacity to mitigate climate change effects.

According to data from 2017, EPS was one of the commonly found types of litter both on coastlines and among floating marine litter[7]. On average, at the global level, 23% and 17% of plastics found, respectively, on beaches and on surface waters were made of EPS[8]. In the case of the surface of the Mediterranean Sea, EPS was among the most common types of waste found[9].It is important to keep in mind that these studies are based on item counts rather than assessment of the weight of the plastic, so the estimated 70% of the marine litter that sinks into the floor is not considered[10]. According to CEN, "beach litter is not necessarily identical with marine plastic litter. Beach studies may not be representative of marine litter"[11]. Under a study of the Joint Research Centre, on behalf of the European Commission, only 68 EPS fish box items were found on European beaches, accounting for merely 0.02% of total recorded marine litter[12].

[7] https://www.fauna-flora.org/wp-content/uploads/2023/05/FFI_2020_Breaking-Down-Ocean-Polystyrene_Scoping-Report.pdf, https://www.nature.com/articles/s41893-021-00720-8
[8] https://www.sciencedirect.com/science/article/pii/S2666765723000029?via%3Dihub
[9] Chan H.H.S. et al., 2023. Variations in the spatial distribution of expanded polystyrene marine debris: are Asia's coastlines more affected? Environ Adv, 11: 100342. https://doi.org/10.1016/j.envadv.2023.100342
[10] https://www.imo.org/en/MediaCentre/HotTopics/Pages/marinelitter-default.aspx
[11] CEN EN:17615:2022 Plastics – Environmental Aspects – Vocabulary.
[12] technical_report_top_marine_litter_items_eur_29249_en_pdf (6).pdf

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According to a 2019 survey, in the Baltic Sea, the annual plastic leakage was estimated at 27,000, with 21,120 tonnes as macroplastics. Therefore, the impact represented 0.0017 to 0.017% of the regional EPS production. Despite its visibility on coastlines, EPS's true mass contribution to marine litter is minimal in comparison with heavier plastics that settle in less visible zones - beach litter monitoring indicates that EPS/XPX accounts for about 10% of the total sum of plastic beach litter items[13]. A review by Litterbase of over 1,400 studies shows that EPS makes up 6% of global beach litter by item count, translating to around 0.5% by weight globally—closely aligning with Baltic Sea data[14].

While EPS is a small contributor to marine litter by weight, its presence should not be ignored. Effective waste management and best practices help minimise pollution[15]. According to data from 2017, in Europe, only 25% of EPS was recycled in the EU (even though with significant variations across the Member States), while 30% was incinerated and the rest landfilled[16]. Fish EPS boxes, although 100% recyclable, mostly ended up in landfills (45 to 50% in Europe and 55 to 60% in Spain)[17]. Public data documented EPS recycling rates surpassing, in 2021, 35% in the EU[18], 80% in Norway[19], and 50% in the UK. Among EU Member States, the recycling rate was 60% in Denmark, 59% in the Netherlands, 56% in Austria, 52% in Ireland and in Belgium, and 83% in

[13] https://www.helcom.fi/wp-content/uploads/2019/10/Survey-of-polystyrene-foam-EPS-and-XPS-in-the-Baltic-Sea.pdf
[14] https://litterbase.awi.de/litter_graph
[15] https://mcusercontent.com/1c052cf520821c7ca40d49da6/files/728cc797-f122-45bf-a11d-dfd2e785d62e/MADE_OF_EPS_01.pdf
[16] European Circular Economy Stakeholder Platform: https://circulareconomy.europa.eu/platform/en/good-practices/overcoming-challenges-recycle-eps-fish-boxes-new-food-grade-packaging
[17] European Union, CICLOPLAST project, 2020. https://circulareconomy.europa.eu/platform/en/good-practices/overcoming-challenges-recycle-eps-fish-boxes-new-food-grade-packaging
[18] https://www.grontpunkt.no/innsamling/naeringsliv/eps
[19] Facts and figures - Grønt Punkt Norway

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Portugal[20], while France reached a 46% recyclability rate for fish boxes[21] (above the average recycling rate of 27% for household plastic packaging[22]). In Spain, the Life EPS-Sure Project demonstrated that EPS fish box waste can be recycled into food contact secondary raw material[23]. Additionally, there are also examples of efforts by operators of the supply chain to improve the recycling rates of EPS[24].

2.3. New legal provisions

The PPWR, specifically Article 29, foresees reusability requirements, which cover transport packaging made of expanded polystyrene (EPS) fish boxes. Under the Regulation, 40% of transport packaging, including boxes, must be part of a reuse system by 2030, increasing to 70% by 2040 within the UE territory. From 1 January 2030, economic operators using transport or sales packaging to deliver products to another economic operator within the same Member State shall ensure that such packaging is reusable within a re-use system. Therefore, insulated boxes in direct contact with food will be under the scope. Additionally, the Regulation requires an open system for reuse across economic actors, supported by traceability (QR-code-based) and reverse logistics for hygienic cleaning, among other reporting and cost-benefit analysis obligations.

In the past years, operators of the fisheries and aquaculture chain have engaged in the pursuit of sustainable alternatives to packaging as well as improvements to recycling and reuse.

[20] https://eumeps.eu/images/newsroom/publications/the-eps-industry-s-journey-towards-circularity-progress-report-final.pdf

[21] https://www.franceagrimer.fr/content/download/73041/document/rapport%20FAM%20PSE%20VF%202%20.pdf

[22] https://www.citeo.com/le-mag/les-chiffres-du-recyclage-en-france

[23] https://webgate.ec.europa.eu/life/publicWebsite/project/LIFE16-ENV-ES-000258/expanded-polystyrene-sustainable-recycling-from-eps-waste-to-food-contact-ps-final-market

[24] As an example of an initiative in France: https://www.elipso.org/projet-crea-styr/.

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Nevertheless, due to the organisation of the sector and the stringent sanitary requirements, the transition remains complex, and the reuse actually remains limited to a restricted scope.

At the same time, the PPWR does not take into consideration that 69% of the supply of fisheries and aquaculture products comes from third countries[25] and has no requirements and provisions for the economic operators.

Under the new regulation, the operators using the packaging will be responsible for the reusability within a re-use system. In the view of the MAC, there should also be a responsibility for the manufacturers of the EPS boxes in facilitating the reuse and the corresponding system, as such systems are currently not in place.

3. Reuse targets

3.1. Operational and economic challenges

The implementation of reuse loops will require new logistical chains for cleaning and recovering the packaging. This will represent additional costs for the value chain[26], which will be particularly significant in an already fragmented industry. The cost of using reusable packaging will require an initial higher investment than for single-use packaging and will, therefore, require financial support, especially for small-scale producers. In a particularly difficult economic context where margins have significantly decreased (e.g., reduction of supply in fish auctions, rising costs of energy, competition with third countries), transitioning to a more expensive solution might not be feasible.

In particular, the use of single-use EPS fish boxes has become intrinsically linked to the business model of fish processing companies, thus contributing to their competitiveness. The EU's fishery

[25] EUMOFA: the EU Seafood Market, 2024 edition

[26] According to "The potential impact of reusable packaging", McKinsey's Materials Practice (2022), transport costs are 125-130% higher due to the necessity of backhauling empty boxes to fish slaughterhouses.

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production is marked by a wide variety of products (both in species and sizes) and inconsistent supplies, meaning that intermediaries must constantly adapt to the products they trade. Due to their light weight, insulation property, and range of formats, rigid EPS fish boxes can accommodate these logistical issues. At the same time, reusable boxes made of hard HDPE plastic are already used, wherever feasible, mainly at a local scale, by fishers in several fisheries in the EU and Mediterranean, even though their use is limited by the reduced insulation and heavier weight when compared to EPS boxes. In addition to reducing the use of plastics - as reusable boxes can be used many times – reusable boxes can offer increased packaging traceability, using chips and QR codes, to ensure proper sanitisation and management of the returned box output, especially in the case of national trade.

As the EU's fisheries and aquaculture value chain is strongly linked to international trade, when comparing the supply of raw material from EU production vs from third countries as well as sourcing from a parent company vs sourcing from an independent company, difficulties in the implementation of the reuse loops are expected.

In the view of Oceana and WWF, due to the risk of leakage into the sea, no EPS should be used onboard at sea, and more research and innovation effort, including through financial support, so that reusable options are made available, to meet food safety, logistical and environmental sustainability standards. EPS boxes should be replaced with recycled/recyclable XPS (in closed loop) or biodegradable alternatives for international trade, and reuse should be promoted for trade in the national markets.

In the view of APROMAR, FEAP, HAPO, and UMF, the approach described above would go against the aims of the PPWR and would not be feasible, as many countries are banning single-us XPS plastic for food service due to its environmental pollution from packaging waste. These members highlight that "transport packaging" and "sales packaging" have distinct purposes,

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characteristics, and applications within logistics, as the former must ensure higher protection, food safety, and durability. EPS is defined only as primary packaging or transport packaging which is used in air, road, sea, trail transport – in practice, this requires alignment with various certifications[27], standards[28], and regulations.

Additionally, as the fishery and aquaculture sector is a highly manual activity, when adopting reusable alternatives and new solutions, attention should be paid on the effects for workers welfare and working conditions[29].

3.2. Sanitary issues

The introduction of reuse alternatives will require companies to invest in new facilities for the cleaning of the boxes. The boxes must be cleaned with high pressure and high temperature, while using detergents and water. Companies will have to take on new responsibilities, particularly in inspecting the condition of the reused packaging and conducting tests to ensure the sanitary safety of this packaging. Hygiene standards may be guaranteed by sanitation machines in markets.

It will be difficult to effectively check the effectiveness of the cleaning process on received boxes. In case of incorrect results from the cleaning, operators will need to keep a significant amount of spare boxes. Different washing equipment to wash different boxes will be required, particularly accounting for the material in contact with food.

[27] For example, from the Global Food Safety Initiative (GFSI).
[28] As examples, ISO standards 22000 for food safety, 14001 for environmental management, 9001 for quality management, 22005 for traceability within the food chain, 45001 for occupational health and safety food safety certifications, and the BRC Food Safety Standard.
[29] UMF is currently undertaking a study on the transition from EPS to reusable plastic boxes in all the steps of the French fishing industry, with a focus on workers welfare and working conditions. More information can be found here: https://marketac.eu/wp-content/uploads/2025/01/FFP-Etude-dimpacts-CPR-Concertation-Mareyage-Vf.pdf

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As the transport of dirty packaging alongside clean packaging is currently impossible, the implementation of reuse loops will require significant logistical adjustments, representing substantial additional costs for the industry.

As visibility is lacking on the concerns that may arise due to the use of packaging that have undergone multiple rotations, a harmonised approach should be sought in the implementation by national authorities.

The fisheries and aquaculture supply operates in a very tight manner and must ensure that fish remains at the melting ice temperature, as required by Annex VIII of Regulation (EC) No. 853/2004. Despite significant efforts to improve the thermal insulation of reusable boxes, their insulation performance remains insufficient. The use of reusable boxes will therefore complicate compliance with the EU's sanitary requirements.

3.3. Need to increase the collection of environmental data

A life cycle analysis by InFo Kunststoff e.V. compared EPS to paper[30]. The study quantified the energy use, global warming potential, air pollution and water pollution associated with 1 cubic meter of packaging. EPS packaging has lower energy consumption, acidification and CO2 emissions than the paper counterpart. It demonstrates significantly lower water pollution.

A couple of initiatives exist on the transition to alternative solutions, such as the WWF project "Re-thinking Fish Boxes"[31], which conclude that there is no one size fits all solution, meaning that alternative fish boxes should be specific to each type of fishery and market.

[30] https://globaleps.org/wp-content/uploads/2024/04/gesa-fishbox-life-cycle.pdf
[31] WWF Italy Brief, "Innovative and sustainable packaging solutions to reduce marine litter analysis of fish boxes alternatives to disposable virgin polystyrene", January 2024.
https://www.wwfmmi.org/what_we_do/plastic/tackling_marine_pollution_from_eps_fish_boxes/

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It is necessary to support scientific research based on the eco-innovation tool Life Cycle-Assessment (LCA) certified by third parties in accordance with the International Standards Organisation (ISO), essentially eliminating the risk of plastic pollution by improving the re-use and closed-loop[32] recycling of XPS and EPS boxes, while, at the same time, maintaining the competitiveness of the operator concerned. The available studies have not been conclusive and widely depend on the number of rotations. Due to the specific sanitary constraints, in the case of the fisheries and aquaculture value chain, the number of possible rotations for the reusable packaging might be further limited.

The environmental reasoning will depend significantly on the structure of the reuse chains, namely on the distance of the companies from the cleaning facilities or storage locations for the boxes. In some cases, the environmental impact of reusable boxes may be different than that of single use boxes, and should be evaluated.

The cleaning of reusable boxes also requires a constant supply of water. In a context where access to water could become increasingly restricted, especially during drought periods, the resilience of these cleaning loops could be questioned.

4. Recommendations

4.1. By consensus

The MAC believes that, in the upcoming implementation of the PPWR, including potential development of implementing and delegated acts, the European Commission should:

a) Ensure collaboration across the relevant Commission services (i.e., DG ENV, DG MARE, DG SANTE) to understand the implications and address the challenges associated with the

[32] "Closed loop" also means that recycled materials (content) are being used to create new packaging. Legally, XPS packaging cannot go back to XPS packaging without chemical recycling, which is not legally allowed.

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legislation for the fisheries and aquaculture value chain, including on food safety, environmental impacts, sanitation, and costs;

b) Given the scope of the regulation, applicable only within the EU, and the high percentage of fresh aquatic products imported into the EU, assess the extent to which it creates an uneven playing field for EU actors compared to non-EU actors, including a quantification of its impact on competitiveness, while also identifying potential measures to mitigate any disadvantages faced by EU fisheries and aquaculture value chain businesses;

c) Provide more clarity on the legal definition of "boxes", especially in the context of cold-chain logistics;

d) In the context of reuse targets, take into account that mandated reuse of boxes could increase the environmental footprint of fishery and aquaculture products due to the use of detergents, especially in the context of small-scale operators, which illustrates the need to invest in greener sanitation technologies and standardised sanitation regulations and protocols at EU level – action should be taken to improve energy and water efficiency and to create an effective multiple reuse system;

e) In the context of reuse targets, evaluate how the mandatory reuse of boxes would affect the environmental footprint of fishery and aquaculture products, including through the undertaking of a study on how the different stakeholders of the fisheries and aquaculture will be affected, covering both the environmental footprint and production and operational costs, and the objective of maintaining a level playing field with imported fishery and aquaculture products, while also studying available alternatives to EPS boxes and the necessary investments to further develop alternatives;

f) Closely monitor the ability of each Member State to reach compliance with the specificities of the new legislation, especially to meet the environmental aspects of the sanitary requirements to prepare the material for secondary use / recycling;

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g) In the context of the reuse loops, provide more clarity on the expected recording and traceability requirements, including monitoring, enforcement, and controls;
h) Promote the research and uptake of environmentally friendly and economically viable alternative food-contacting materials based on the LCA eco-innovation tool;
i) Given the fact that the EPS is 100% recyclable, assess the introduction of further measures to gradually increase the recycle rate of the EPS boxes to reach 100% in all countries to tackle and eliminate plastic pollution originated from fish boxes.

4.2. By majority

The majority of the membership of the MAC believes that the European Commission should also:

a) Assess the practical feasibility of the reuse targets for all kinds of stakeholders, and eventually assist SMEs in the implementation of the new legal framework – this could, following appropriate justification and solid substantiation, potentially lead to a delegated act, including requests of exemptions for fish boxes (particularly accounting that thermal control transportation packaging needs to be kept below 5 degrees Celsius), as foreseen in point 18 of Article 29 of the PPWR.

Among the membership, Oceana and WWF dissented from the recommendation above.

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