

Advice

Per- and Polyfluoroalkyl Substances (PFAS)

Brussels, 24 March 2026

1. Background

Aquatic foods are an excellent source of protein and even more important source of other nutrients, being considered among the healthiest foods¹. Nevertheless, fishery and aquaculture products may contain contaminants, resulting from environmental pollution, that may impact human health.

As acknowledged by the European Commission², the full magnitude of and the serious consequences of widespread pollution from per- and polyfluoroalkyl substances (PFAS) and other persistent chemicals are only beginning to be understood.

As indicated in a recent report from DG ENV³, humans can be exposed to PFAS in several ways and at different stages of their life. This is because of the widespread use, which, combined with their persistence and mobility, leads to the presence of PFAS in drinking water, soil and biosolids, and water, especially near waste and manufacturing sites that produce or use PFAS. Human exposure to PFAS can occur from: drinking water contaminated with PFAS; eating certain foods that may be contaminated with PFAS, including fish; breathing air containing PFAS, swallowing

¹ [FAO. 2024. The State of World Fisheries and Aquaculture 2024 – Blue Transformation in action. Rome.](#) See also, [MAC Advice on “Health and Environmental Value of Seafood” \(8 October 2021\)](#)

² [European Commission, Mid-term review of the Zero Pollution Action Plan ‘Delivering clean air, ocean, freshwaters and soil’ \(29 January 2026\)](#)

³ [European Commission: Directorate-General for Environment, WSP, Ricardo and Trinomics, The cost of PFAS pollution for our society – Final report, Publications Office of the European Union, 2026](#)

contaminated dust; using products made with PFAS or that are packaged in materials containing PFAS; and working in occupations such as firefighting or chemicals manufacturing and processing.

According to the mentioned report, evidence suggests that several PFAS have the potential to cause harm to fish and crustaceans, which could damage ecosystem services through reduced survival, growth, and/or reproduction of organisms, leading to reductions in fish and aquaculture stocks. An additional cost may arise from the need to discard fish produce which exceeds the maximum limits in order to protect human health. Therefore, ecosystem service losses through damages to fish and aquaculture stocks could be having a significant cost to society.

In the EU, PFAS are generally regulated using a substance-by-substance approach. Under the REACH Regulation⁴, substances (or groups of substances) are regulated either through identification as a Substance of Very High Concern or through the restriction process. Under the CLP Legislation⁵, PFAS are regulated based on their harmonised classifications. The Water Framework Directive⁶ requires Member States to take measures to protect inland and coastal waters from pollution, which in turn help prevent marine pollution. With particular relevance for the supply chain of fishery and aquaculture products, in September 2025, the Council and the European Parliament reached a provisional agreement on the update to the priority substances in surface and ground waters⁷, adopted by the Council on 17 February 2026.

⁴ [Regulation \(EC\) No 1907/2006 of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals \(REACH\), establishing a European Chemicals Agency](#)

⁵ [Regulation \(EC\) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures](#)

⁶ [Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy](#)

⁷ <https://www.consilium.europa.eu/en/press/press-releases/2025/09/23/water-pollution-council-and-parliament-reach-provisional-deal-to-update-priority-substances-in-surface-and-ground-waters/>

Following a scientific opinion from EFSA reevaluating the risk to human health related to the presence of PFAS in food⁸, the European Commission established maximum levels for four PFAS in various foods of animal origin, including fish, meat, eggs, and offal⁹.

2. Fisheries and Aquaculture Supply Chain

As human exposure to PFAS can occur from eating food contaminated with PFAS, in the view of the MAC, the European Commission should take action to limit further PFAS pollution. Otherwise, the positive nutritional aspects of fishery and aquaculture products could be impacted, raising concerns among consumers, and economics risks for the supply chain¹⁰. Due to the dire consequences of the withdrawal of contaminated products, immediate action needs to be taken to ensure the protection of the compliant producers.

Operators of the fisheries and aquaculture supply chain have taken action, through robust monitoring and responsible sourcing, to address contamination due to PFAS. As an example, in the marine ingredients industry, industry partners have built an extensive database, profiling PFAS occurrence in marine ingredients across Europe, covering species origin, oceanographic regions, and raw material streams¹¹.

Nevertheless, in the view of the MAC, PFAS pollution should be addressed and regulated at its source, rather than managed through downstream restrictions. The industry that produces PFAS is the main industry that can reduce the future concentrations of PFAS in the environment, for example through collaboration with waste management facilities. As Food Business Operators are at the end of this chain, they have very limited scope to address the actual concentration of PFAS in the environment. The pursuance of downstream measures, instead of regulating

⁸ [EFSA scientific opinion on risk to human health related to the presence of perfluoroalkyl substances in food \(2020\)](#)

⁹ [Commission Regulation \(EU\) 2023/915 of 25 April 2023 on maximum levels for certain contaminants in food](#)

¹⁰ [EEB, 'Forever Chemicals' poisoning Europe's waters and fish: The tip of the PFAS iceberg \(2025\)](#)

¹¹ <https://maring.org/news-events/mid-submits-pfas-data-to-efsa/>

contamination at source, risks unfairly penalising compliant operators of the fisheries and aquaculture value chain.

The toxicokinetic relationships in fish and other aquatic organisms remain poorly understood. The degree to which PFAS are absorbed, distributed, metabolised, and excreted varies between species and depends strongly on the compound's chain length and functional group. Presently, there is no robust quantitative framework for predicting PFAS bioaccumulation in fish under commercial aquaculture conditions¹².

In the view of the MAC, additional research should be undertaken on the lifespan of PFAS and on the variation of PFAS concentration across aquatic species. To better understand food safety risks, research should be undertaken on the consumption patterns of EU consumers, particularly on the intake of PFAS through fishery and aquaculture products.

Furthermore, in the view of the MAC, it would be relevant to establish a dedicated fund, financed by the industry responsible for the production, use, or emission of PFAs, in accordance with the "polluter pays principle", to support the costs associated with the monitoring of PFAS contamination in fishery and aquaculture products across the supply chain. This mechanism could contribute to financing monitoring programmes undertaken by operators, such as first buyers and fish processors. It could also support independent testing and surveillance coordinated at the EU-level, including through the competent authorities or agencies, such as the European Food Safety Authority, thereby ensuring harmonised monitoring while avoiding disproportionate financial burdens on seafood supply chain operators who are not responsible for PFAS emissions. The fund could also provide compensation mechanisms in cases where

¹² [James Hinchcliffe, Forever chemicals under the microscope: How Europe's fishmeal industry is confronting PFAS, Aquafeed Vol 18 Issue 1 January 2026](#)

contamination leads to market disruptions, product withdrawals, or the closure of fishing grounds or aquaculture facilities affecting seafood supply.

3. Recommendations

The MAC considers that, in the context of potential contamination from PFAS in fishery and aquaculture products, the European Commission should:

- a) Take action to limit pollution at source, including through EU-wide PFAS restrictions, collaboration with waste management facilities, the upholding of all the environmental objectives of the Water Framework Directive and its enforcement, and the swift adoption of the updated quality standards for surface and groundwater;
- b) Undertake further research on the lifespan of PFAS, variation of PFAS concentration across aquatic species, PFAS contamination flows from land to sea, impacts on food production and food security, human exposure to PFAS (particularly due to contaminated food), consumption patterns, and overall impacts on consumer trust;
- c) Promote harmonised monitoring, and data sharing between regulators and operators;
- d) Following sufficient monitoring data and risk assessments, request a scientific opinion from EFSA on the maximum levels for feed;
- e) When relevant, as a risk management tool, encourage Member States to provide consumption advice linked to fishing areas with high PFAS concentration;
- f) In case further regulatory maximum limits are proposed, ensure that these are species-specific, reflecting the distinct toxicokinetic pathways and accumulation potentials across aquatic organisms, to avoid disproportionate restrictions on certain sectors without improving food safety outcomes;
- g) Consider the establishment of a dedicated fund, financed by the industries responsible for the production, use, or emission of PFAS, in accordance with the “polluter pays



principle”, to support the costs associated with the monitoring of PFAS contamination in fishery and aquaculture products across the supply chain.