Water Europe
Technology & Innovation

ADDRESSING POLLUTANTS OF SURFACE AND GROUND WATER

Recognising the value of water starts with clean water bodies

October 2021

Water Europe (WE) is the voice and promoter of water-related innovation and RTD in Europe. WE are a membership-based multi-stakeholder organisation representing over 240 members from academia, industry, technology providers, water users, water service providers, civil society, and public authorities. WE activities and positions are guided by its Water Vision "The Value of Water: Towards a Future-Proof European Water-Smart Society".

ADDRESSING POLLUTANTS OF WATER FOR OUR ECONOMY, ENVIRONMENT AND SOCIETY

Water Europe Vision

Water Europe has set out a blueprint for a water-smart society in which the true value of water is recognised and realised, and all available water sources are managed in such a way that water scarcity and pollution of water are avoided, water and resource loops are largely closed to foster a circular economy and optimal resource efficiency, while the water system is resilient against the impact of climate change events.

Multiple Waters

Digital Water

Value in Water

Grey-Green Infrastructure

List of Pollutants affecting surface and ground waters

The Water Framework Directive aims to ensure that all surface water and groundwater bodies achieve "good status". Regarding chemical status, Article 16(2) of the WFD requires a list of Priority Substances (PS) to be established for surface waters. Paragraph (3) of that article lays down that the proposed list of PS should also identify Priority Hazardous Substances (PHS). The list of pollutants affecting surface- and groundwaters and the corresponding regulatory standards in the Priority Substances Directive (PSD) and Groundwater (GWD) must be reviewed.

Within this framework and despite improvements in legislation, governance and investment, European waters continue to face a wide range of significant pressures, including pollution, alterations to their surrounding physical landscape, water scarcity and floods with direct impact on the environment and biodiversity. To tackle these pressures, reduce substances in surface and groundwater bodies and move towards a Water-Smart-Society, WE has identified challenges in which immediate action would lead to substantial contribution to the achievement of the EU Strategic approach to Pharmaceuticals in the Environment, the EU Biodiversity Strategy for 2030, the Farm to Fork Strategy, the Zero Pollution Action Plan, the Chemicals Strategy for Sustainability and therewith the EU Green Deal.

Paired with the Industrial Emissions Directive, the Common Agriculture Policy and the Urban Wastewater Treatment Directive, this legislation supports a more rigorous implementation of the polluter pays principle and the precautionary principle particularly for diffuse and indirect pollution from urban, industrial and agriculture pollution.

38%

of surface waterbodies are under pressure caused by diffuse pollution

(source: EEA)

-83%

Freshwater species decline since 1970

(source: WWF)

1 ADAPT THE LIST OF POLLUTANTS TO THE NEW ENVIRONMENTAL CHALLENGES

Water Europe is highly concerned about the presence of pharmaceuticals, microplastics, pesticides, industrial chemicals, (heavy) metals and other substances in European surface and groundwater bodies. As a support of the objective to "protect the aquatic environment and human health from chemical pollution through achieving good surface water", Water Europe encourages the upgrade of the list of priority substances for surface and groundwater as follows to generate new economic, social & health and environmental benefits.

The new substances mentioned below are based on the political options included in the expert survey and must not be considered as a limit to further discussion and addition of new substances when it is technically and economically feasible. Particularly, only few compounds for industry are highlighted that does not reflect reality (e.g. mono- and polyaromatics to metals and inorganic materials).

SURFACE WATER

Two options for the inclusion of candidate substances into the list of Priority Substances (PS) are stated:

Option A lists the substances individually, whereas Option B outlines the inclusion of groups of substances.

Identification of the substances to include in the priority substances list

OPTION A

Group of substances	New substances	Explanation
Estrogenic substances	Estrone (E1)	Add estrogenic substances if not natural
	17-Beta estradiol (B2)	
	Ethinylestradiol (EE2)	
pharmaceuticals	Carbamazepine	At least these three pharmaceuticals. Carbamazepine is often detected; Diclofenac must be included due to the difficulty of treatment.
	Erythromycin	
	Diclofenac	
Pesticides/biocide		From all the substances listed[1], only the ones that are accepted for use or have been recently restricted should be included.
Industrial chemicals	PFAS[2]	The EQS should be defined as several mixtures
	Bisphenol A	
Metals		The significance of the anthropogenic contribution of metals, especially silver should first be evaluated before they are added into the list of PS.

[1] Substances listed: Nicosulfuron, Acetamiprid, Clothianidin, Imidacloprid, Thiacloprid, Thiamethoxam, Bifenthrin, Deltamethrin, Esfenvalerate, Permethrin, Glyphosate, Triclosan

[2] Short for: Per- and polyfluoroalkyl substances

OPTION B

Add estrogenic substances (if not natural), Neonicotinoids, Pyrethroids and PFAS as groups of substances to the WFD. Advantage over Option A is that it allows better addressing potential of environmental and health risks from emerging substances with comparable/similar properties, in line with the 'precautionary' and 'polluter pays' principles.

WHY

Which Benefits for including these substances in the list of priority substances?

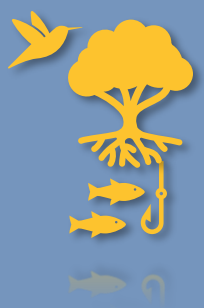
The inclusion of the candidate priority substances into the list of PS is estimated to have strong economic, social & health and environmental benefits, contributing to a Water-Smart Society in which soils are healthy and our biodiversity recovered.

Social & Health Benefits

… from reduced risk of water-related illnesses and premature deaths
… through improved well-being
… from increased potential employment because of a cleaner environment, healthy ecosystems

… from improved surface water quality
… from improved environment and human health protection
… to climate change through increased/ reduced energy use
… from reducing harmful effects of pharmaceutical and hormones on biodiversity and natural resources.

Environmental Benefits



Economic Benefits

… associated with availability of clean raw surface water
… through lower production and maintenance costs, reducing (pre-)treatment needs for drinking water
… from reduced energy costs and related process costs for wastewater treatment to tackle PS/PHS
… from increased quality of process water for agriculture and industry

SUPPORT MONITORING OF ESTROGENIC SUBSTANCES AND PHARMACEUTICALS THROUGH THE PROGRAM OF MEASURES (PoMs) IN THE RIVER BASIN MANAGEMENT PLANS (RBMPs)

We reiterate our support, of “controlling emissions of PS and ceasing/phasing out emissions, discharges, and losses of Particularly hazardous substances (PHS).” In the table below WE evaluates, if the program of measures (PoMs) in the river basin management plans (RBMPs) would be sufficient to help achieve good chemical surface water status regarding the substances/groups of substances listed.

Substances	Would PoMs be sufficient	Explanation
Estrogenic substances & Pharmaceuticals	Yes, if advanced treatments are part of PoMs	
Pesticides	No	PoMs do not regulate the use, so limited capabilities (only measures like crop-free-zones.
Triclosan	Might be	If wastewater treatment plant is effective PoM might be successful.
PFAS & Bisphenol	No	Only REACH restriction can help.

IDENTIFICATION OF 'OTHER POLLUTANTS'[3] TO INCLUDE AS PRIORITY SUBSTANCES (PS) FOR BETTER COHERENCE

Despite the possibility to confirm the substances in the table below as priority substances, WE remains available to discuss the opportunity to deselect these substances from the PS list with the objective to ensure coherence with other relevant legislation

Group of substances	Subtances	Explanation
Pesticides	Aldrin, dieldrin, endrin, isodrin, DDT	Probably a ubiquitous substance
Industrial chemicals	Tetrachloroethylene, trichloroethylene	

PARTICAL REVIEW OF THE EXISTING EQS'S

The quantitative monitoring of pollutants in surface water, needs to be reviewed for some substances. The EQS for Annual Average (AA) Concentration can be considered as reasonable for Chlorpyrifos, Diuron, Nonylphenols, Tributyltin. The Maximum Allowable Concentration (MAC) -EQS is necessary for pesticides, due to its use leading to peak events, excluding PAHs/Heptachlor. MAC-EQS are not useful for metals, industrial chemicals, dioxins and PBDEs[4] but rather be more efficiently monitored through AA-EQS.

GROUNDWATER

Water Europe is in favor of adding PFAS and the pharmaceuticals (Carbamazepine and Sulfamethoxazole) to the GWD Annexes in order to improve our environment and social benefits

Substances	Option of inclusion	Explanation
PFAS	Add 10 PFAS with a 'group of 10' standard (i.e. 'Sum of PFAS') to Annex I of the GWD but with a different ground water quality standard (GWQS).	There are methods to analyze them together[5].
Pharmaceuticals (Carbamazepine and Sulfamethoxazole)	Add all pharmaceuticals as a group to Annex II of the GWD, with MS deciding on Threshold Values (TV's).	MS can set TV's at ground water bodies (GWB), river basins or national levels where they pose a risk to groundwater bodies[6].

3. The other pollutants originate from the dangerous substances directive (76/464/EEC) and therefore are included in the EQSD (2008/105/EC, as amended by 2013/39/EU).
4. Polybrominated diphenyl ethers
5. https://www.iso.org/standard/71338.html; https://www.epa.gov/pfas/pfas-laws-and-regulations; https://www.mass.gov/files/documents/2019/12/27/PFAS%20TSD%202019-12-26%20FINAL.pdf
6. In ground water, as in surface water, attention must be paid to mixtures of chemicals and pharmaceuticals.

2 COMPLEMENTARY OPTIONS TO REINFORCE THE BENEFITS TOWARD A WATER-SMART SOCIETY

In our objective to achieve a Water-Smart Society, Water Europe has listed complementary options to maximise synergies and benefits for our environment, society and economy.

EVALUATING THE USE OF EU GUIDANCE DOCUMENTS IN MEMBER STATES

To enable an effective implementation of the current legislations, available guidance documents concerning the WFD, GWD, EQSD are constantly produced. These documents, are used by MS primarily to extract knowledge on monitoring, reporting and EQS, but should also be used for best practices, analytical methods, and management standardization they provide.

However, MS would benefit from guidance documents on innovative methods, on the monitoring of substances in the voluntary groundwater watch list and the GWD Annexes and on standardization of data collection processes and reporting formats, which are currently not offered at the European level.

ACHIEVING DATA MANAGEMENT, TRANSPARENCY AND UTILISATION IN EU WATERS

Digitalization is a major leverage regarding the efficiency of current monitoring practices and creates potential for innovative solutions to achieve a Water-Smart-Society.

Data collection and reporting methods must be standardized to improve comparability of data. Binding standards for data collection and reporting of obligatory parameters should be determined, and guidelines for those parameters that are voluntary. National databases and consequently an EU level database should be updated in a standardised format at a regular basis.

FOSTER PUBLIC AND PRIVATE FINANCIAL INVESTMENT

The financial sector holds central importance for a coherent strategy to reduce pollutants in surface and ground waters, by supporting the development and deployment of innovative solutions towards a Water-Smart-Society. Clean ground and surface water bodies lead also to financial benefits. The treatment of the polluted water is more expensive than the treatment of the less polluted water.

SHARE RECOMMENDATIONS OF RBSP SETTING OF THRESHOLDS & REPORTING ACROSS MS

The sharing of best practices and recommendations of River basin specific pollutant (RBSP) settings of thresholds and reporting across the MS[7] are essential for a holistic approach. A recommended range for thresholds for reference RBSPs under the EQSD should be provided. The provision of quality assurance and quality control measures for the reporting of RBSPs might be efficient as well.

ESTABLISH HOLISTIC APPROACH TOWARDS THE REDUCTION OF POLLUTION IN WATER BODIES

To avoid counterproductive measures and foster synergies, a holistic approach to reduce pollutants in water bodies should be taken. Particularly in the case of groundwater, there is strong interaction with soil and the need to reach good soils protection policy as mentioned by the EU Parliament[8]. Moreover, tacking the pollution at source would contribute to less polluted water bodies, saving financial and non-financial resources on their treatment.

FOSTER EFFECTIVE IMPLEMENTATION OF THE MONITORING OF POLLUTING SUBSTANCES

Although an update of the list must consider a closer alignment to scientific developments and economic feasibility, WE does not agree with the option raised in the Fitness Check supporting a “swifter update of the list of pollutants of EU-wide concern, with closer alignment to scientific developments, economic feasibility like the bi-yearly cycle of regularly updating the watch-list monitoring data.” It will introduce uncertainty if the substances that we need to monitor change every two years due to the complexity for the member states to implement this legislation.

7. MS need to identify pollutants in surface waters of regional and local importance listed under Annex VIII WFD. EQS are then set for these river basin specific pollutants (RBSP) by each MS in the context of the WFD

8. EP Resolution on soil protection (2021/2548(RSP), 22 Avril 2021.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