

<b>EU public consultations.....</b>	<b>1</b>
EU consultation on sewage sludge	1
EU consultation on Urban Waste Water Treatment	1
EU consultations on agriculture policy (CAP)	2
<b>Covid.....</b>	<b>2</b>
UK sewage Covid detection research	2
<b>Policy .....</b>	<b>2</b>
Towards a White Paper on resource recovery from wastewaters	2
Water Framework Directive to be maintained	3
Global call for action on phosphorus	3
<b>ESPP member news .....</b>	<b>3</b>
Kemira to market Vivimag P-recovery technology	3
Nordrhein-Westfalen P-recycling plans	3
Wheatsheaf Group acquires Ostara	3
<b>Research and projects.....</b>	<b>4</b>
Phosphorus governance and regulation	4
P-recovery from lake Sediment	4
Fish bones as an Organic Farming fertiliser	4
Nitrogen emissions from livestock production	5
<b>Events.....</b>	<b>5</b>
IWA nutrient recovery conference	5
VDI Conference on sewage sludge treatment	5
Phosphorus chemistry webinar series	5
<b>Stay informed.....</b>	<b>5</b>
<b>ESPP members .....</b>	<b>6</b>

## EU public consultations

### EU consultation on sewage sludge

The European Commission has opened, **to 25<sup>th</sup> August 2020**, a public consultation on the ‘roadmap’ for re-evaluation of the EU Sewage Sludge Directive (86/278). This first consultation enables to input concerning the objectives of this re-evaluation, which will include a second, wide consultation on sewage sludge use in agriculture, announced for late 2020. The Commission’s proposed ‘Roadmap’ underlines that the Directive aims to encourage the use of sludge in agriculture, under safety conditions, and that nutrient recovery (citing phosphorus) should be a core objective, coherent with the EU Circular Economy Action Plan, Green Deal, Bioeconomy Strategy and Farm-to-Fork Strategy. The need to take into account “contaminants of emerging concern (e.g. organic chemicals such as pharmaceuticals, PAH and PFAS, cosmetics and microplastics)” is noted. This consultation enables to input to the definition of the Purpose and Scope of the sludge directive re-evaluation.

*EU public [consultation](#) open to 25th August 2020 “Sewage sludge use in farming – evaluation” (Roadmap). Input can be as a simple text statement (max 4000 characters) and/or upload of a document.*

### EU consultation on Urban Waste Water Treatment

The European Commission has opened, **to 8<sup>th</sup> September 2020**, a public consultation on the ‘roadmap’ for revision of the EU Urban Waste Water Treatment Directive (UWWTD 1991/271). The proposed roadmap identifies as key questions: storm water overflows, inadequate treatment of wastewater from agglomerations < 2 000 p.e. (the Directives currently specifies only that treatment for such small agglomerations should be “appropriate”), inadequate treatment and monitoring for individual homes (septic tanks), contaminants of emerging concern (CEC) including pharmaceuticals and micro-plastics, eutrophication, embedding in the “clean and circular economy” (sludge management, nutrient recovery, recovery of raw materials), energy recovery, waste water surveillance for pandemic monitoring. Proposed policy objectives emphasise the importance of sewage sludge: treatment / decontamination and “subsequent use as a fertiliser, including the option of “applying extended producer responsibility”. It is specified that economic analysis will include consistent application of the polluter pays principle.

*EU public [consultation](#) open to 8<sup>th</sup> September 2020 “Water pollution – EU rules on urban wastewater treatment (update”, Inception Impact Assessment “Revision of the Urban Waste Water Treatment Directive” (Roadmap). Input can be as a simple text statement (max 4000 characters) and/or upload of a document.*

## EU consultations on agriculture policy (CAP)

The European Commission has opened, to 22<sup>nd</sup> October 2020, three public consultations on the impacts of EU agriculture policy on water, on habitats / landscape / biodiversity and on sustainable management of soil. The objective is to assess the impacts of the CAP (Common Agricultural Policy), as per the 2013 reform, which includes the obligation for farmers (condition of subsidies) to respect mandatory rules ("cross-compliance"), including both statutory management requirements (SMR) and standards of good agricultural and environmental conditions (GAEC). Additionally, there exist voluntary agri-environment-climate measures (AECM) and subsidies for farmers in areas subject to natural constraints (Natura 2000, Water Framework Directive restrictions). The consultation consists of a public questionnaire asking whether respondents consider that the CAP contributes to different environmental objectives, questions on effectiveness or unintended consequences of CAP measures,

*EU public consultations open to 22<sup>nd</sup> October 2020 on the impacts of the Common Agricultural Policy on [water](#), on habitats, landscapes and biodiversity, and on sustainable management of [soil](#).*

## Covid

### UK sewage Covid detection research

Research is underway in the UK and Spain to sample wastewater in several cities, to define how sewage sampling could establish an early-warning system for identifying Covid outbreaks. The Covid-19 virus does not readily spread through sewage, but non-infectious residues of the virus can be identified. These are released even by asymptomatic infected persons, possibly enabling identification of outbreaks a week earlier than by medical testing of the population. Methods to track virus traces in wastewater are very different from medical infection testing, and are not yet standardised. The research involves Northumbrian Water and other UK water companies, CEH, Newcastle University and other UK universities, the University of Santiago de Compostela, Spain, government agencies and health bodies. Six testing labs are already operational across the UK. In France, testing by the Paris public water company [suggests](#) that the virus may be starting to develop again in July following the end of lockdown. Monitoring of virus traces in sewage is also developing rapidly in the USA.

Efforts to monitor Covid using sewage sampling across Europe are being [coordinated](#) by the European Commission JRC (see call in ESPP eNews n° 45) and some 80 research organisations across Europe have [already responded](#) to this call.

*BBC News 2<sup>nd</sup> July 2020 and Newcastle University 2<sup>nd</sup> July 2020. CWEA webinar California 14<sup>th</sup> July 2020.*

## Policy

### Towards a White Paper on resource recovery from wastewaters

A web workshop organised by Water Europe (Resource Recovery Working Group), 26<sup>th</sup> June 2020, , moderated by **Pieter de Jong, Water Europe**, launched work on a white paper on addressing regulatory obstacles to resource and nutrient recycling from wastewaters, in particular End-of-Waste. Recovered materials obtaining national End-of-Waste status currently face considerable obstacles for transport, sale and use in other EU Member States. The heterogeneity of status between countries makes roll-out of recycling technologies problematic. **Mattia Pellegrini, European Commission DG Environment**, indicated that a study has been carried out (to be published shortly) inventorying national Best Practices for End-of-Waste, with the aim of spreading these. A stakeholder process is planned with JRC to take this forward in consultation with stakeholders. He further underlined the current public consultation on the EU Sewage Sludge Directive (86/278), [open to 28 August 2020](#) indicating that revision of this Directive could bring in circularity, for example by defining European End-of-Waste criteria for sewage sludge with defined quality and processing standards, in coherence with the EU Fertilising Products Regulation (which currently excludes sewage-sourced materials, although struvite and nutrients recovered from sewage sludge incineration ash should soon be admitted via STRUBIAS). Simplification of waste transport is also being considered, for example by removing the "prior consent" requirement for intra-EU waste transport for wastes respecting specified sectorial standards. **Aalke Lida de Jong, AquaMinerals** (The Netherlands) presented examples of the difficulties and complexities which pose obstacles to resources recycling from wastewater, citing examples of struvite and recovered cellulose. Concrete obstacles include fertiliser authorisation, End-of-Waste, transport, and permitting of industrial sites wishing to take in waste for recycling to replace virgin materials. **Carmen Mena Abela, European Commission EASME**, presented projects into resource recovery from wastewater funded under Horizon 2020, emphasising the policy recommendations from these projects (see ESPP eNews n°41 and see [here](#)). She noted that several major new projects on resource recycling from wastewater are now starting: [Ultimate](#), [Wider Uptake](#), [ReWaise](#), [B-WaterSmart](#), [Rewaise](#) and [Water-Mining](#). **Chris Thornton, ESPP**, underlined the opportunities of the EU Fertilising Products Regulation, the difficulties of REACH (art. 2(7)d which is important to facilitate recycling, but fails to structure dossier funding) and obstacles in the Animal Feed Regulation (767/2009) which excludes even pure and reprocessed materials from wastewater. **Martijn Bijmans and Francesco Fatone, Water Europe** invited further cooperation, with this workshop aiming to start the preparation of a stakeholder White Paper on addressing obstacles to resource recycling from wastewater.

*Water Europe Resource Recovery Working Group*

## Water Framework Directive to be maintained

Media report that the European Commission has decided that the Water Framework Directive will not be revised. This follows the publication in December 2019 (ESPP eNews [n°39](#)) of a REFIT assessment of the Directive concluding that it is effective and that benefits outweigh costs. The Commission has declared that it will now focus on implementing and enforcing the Directive, which is a major challenge as all Member States are considerably behind the Directive's objectives of Good Quality Status in all surface and ground waters by 2027 at the latest. The Commission will specifically look at updating the Directive list of "Priority Substances" and at the daughter Groundwater Directive, and will integrate the Green Deal Zero Pollution Action Plan. The water industry (Eureau) has welcomed the decision, underlining the need to ensure coherence with legislation such as REACH and the Industrial Emissions Directive and the importance of the principles of the Water Framework Directive of prevention of pollution at source, and of ensuring polluter-pays and appropriate water pricing to justly finance implementation. Environmental organisations (EEB) equally welcomed the decision, underlining that to date less than half of the EU's surface waters are in Good Quality Status and that strong action must now be engaged, with appropriate funding, to ensure that quality objectives are ensured by 2027.

"European Commission decides not to revise the WFD" [Eureau](#) 24<sup>th</sup> June 2020. "EU water law will NOT be changed, confirms European Commission" [EEB](#) 23 June 2020.

## Global call for action on phosphorus

Over 500 scientists and experts have already signed the '[Our Phosphorus Future](#)' call for international action on phosphorus. Since the launch of this call at 3<sup>rd</sup> European Sustainable Phosphorus Conference, Helsinki, 2018, some 80 authors from around the world have been working together to identify key challenges and solutions to develop a roadmap to improve global phosphorus sustainability. The Our Phosphorus Future report (currently in proof-reading) and online communications tools and related videos will be released in Autumn 2020. Aims of this initiative include to develop and communicate scientific evidence to support phosphorus stewardship, coordinate with stakeholders and engage with UN-Environment and global governance.

Sign the "Call for International Action on Phosphorus" here: [www.opfglobal.com](http://www.opfglobal.com)

## ESPP member news

### Kemira to market Vivimag P-recovery technology

The global chemicals company, Kemira, an ESPP Member, has acquired the technology patent of the [Vivimag](#) phosphorus recycling process, which has been developed by a consortium of partners including Wetsus, TU Delft, Outotec and EIT RawMaterials. The process (see ESPP eNews [n°26](#)) uses iron salts to precipitate phosphorus from sewage, as widely practiced today (chemical P-removal). Iron(III) phosphate then reduces to iron(II) phosphate in the anaerobic conditions of sludge digesters. The iron(II) phosphate, vivianite, is non-soluble and paramagnetic, so can be separated and recovered using magnetic separators. The vivianite can then be separated into phosphorus using alkali (pH 12), for recycling to industrial or fertiliser applications, and iron, which can be recycled back for use in sewage phosphorus removal.

Kemira press release [22<sup>nd</sup> July 2020](#).

### Nordrhein-Westfalen P-recycling plans

The German Phosphorus Platform, DPP, is a partner in a project with the Nordrhein-Westfalen (NRW) Land of Germany to define how phosphorus will be recovered from sewage and recycled, as required by the German Sewage Sludge Ordinance (AbfKlärv, 27<sup>th</sup> September 2017). The project will prepare summary documents presenting around ten different processes for P-recovery from sewage sludge incineration ash. It will also analyse legal questions concerning the Ordinance obligations, in particular concerning the possibility of co-incineration of sewage sludge with other phosphorus-containing wastes followed by P-recovery from the resulting ashes, and also concerning P-recovery from imported sewage sludge. Power plant operators are looking at the possibility to incinerate sewage sludge with low-ash coal, then to recover phosphorus from the resulting combined ash. Currently, 90% of sewage sludge in the NRW Land is incinerated, with the remainder valorised to farmland. Agricultural use is expected to decrease, even though it remains legally possible under the Ordinance (depending on the sewage works size and sludge P content), because of tightening pressure on agricultural spreading due to implementation of the Nitrates Directive nutrient application limits (German manure ordinance Düngeverordnung DüV of 26<sup>th</sup> May 2017). Sewage sludge incineration capacity is expected to therefore be increased, and throughput to be increased by drying of sludge.

"Phosphorrückgewinnung in NRW" <https://www.deutsche-phosphor-plattform.de/project/phosphorueckgewinnung-in-nrw/>

### Wheatsheaf Group acquires Ostara

Wheatsheaf Group, the food and agriculture investment arm of the UK-based Grosvenor Estate, has acquired the world leader in struvite production technology for phosphorus recycling, Ostara (ESPP member). Wheatsheaf [states](#) as its objectives "a more holistic approach to improve yields, soil and nutrient efficiency and reduce waste ... Food production cycles must be improved at every stage and ... must be commercially viable" and places the Ostara acquisition in a "far-sighted perspective to deliver lasting commercial, social and environmental benefit". It is indicated that the acquisition will support Ostara's growing

international operations and accelerate development of Ostara's phosphorus recycling technologies (Pearl® nutrient recovery and Crystal Green® struvite fertiliser) by enabling strategic investment and access to expertise in Wheatsheaf food and agriculture portfolio companies. Monty Bayer, Executive Director of Wheatsheaf Group, said: "Ostara is a business of outstanding potential which is naturally positioned to offer solutions with significant end-user and environmental benefits in both the water management and crop nutrition environments".

Press release [7<sup>th</sup> July 2020](#).

## Research and projects

### Phosphorus governance and regulation

A paper from the University of Rostock, Germany, analyses links between phosphorus governance and legislation in Europe, in particular the EU Common Agricultural Policy CAP (both as existing, and the Commission 2018 proposals for CAP revision, currently under discussion), soil and water law. The authors note that proposals in the CAP revision, if adopted, could significantly contribute to improving nutrient management and reducing nutrient losses, in particular the proposed FaST (Farm Sustainability Tool for Nutrients) and references to Water Framework Directive requirements to control diffuse phosphorus losses, but they note that this may depend considerably on Member State implementation and funding allocation. The authors underline the importance of the EU Nitrates and Water Framework Directives, both of which should prevent losses of nutrients from agriculture leading to eutrophication of surface waters or nitrate contamination of groundwaters, but underline that water quality is not achieving quality objectives in many countries and compliance with these Directives is widely failing. The authors recognise the importance of the new EU Fertilising Products Regulation and of circular economy policy in facilitating phosphorus recycling, and underline that this needs also to be brought into Organic Farming regulations. Recommendations to address regulatory failures include developing EU soil conservation legislation, introducing a mandatory link between arable land and livestock production and economic tools, such as "cap and trade" (e.g. emissions trading systems).

"Sustainable phosphorus management in European agricultural and environmental law", B. Garske, J. Stubenrauch, F. Ekardt, University of Rostock, RECIEL. 2020; 29:107–117. <https://doi.org/10.1111/reel.12318>

### P-recovery from lake Sediment

In Lake Kymijärvi, Finland, phosphorus recovery is tested from hypolimnetic water (that is, just above the surface of the lake bed sediments). The aim is to restore the eutrophied lake, by harvesting P naturally released from anoxic sediments, and to recycle this phosphorus. Water from the bottom of the lake is pumped through a filter then a wetland to remove suspended solids and nutrients. A 30 m<sup>3</sup> pilot filter system has been operated intermittently during the summers of 2018 and 2019 with different filter media. Sand and calcium carbonate both achieved >70% total P removal following oxygenation of inflowing water and precipitation of iron oxide bound P. Addition of quicklime (Ca(OH)) further improves retention by stimulating calcium phosphate precipitation. The resulting calcium phosphate could be recycled to land as a fertiliser, but heavy metals from the sediments, also trapped in the filter, may be an obstacle. A paper by the same authors at the University of Helsinki, looking at nearby Lake Vesijärvi, Finland, shows that phosphorus accumulated in sediments from inadequately treated sewage in the past is being released from deep sediment layers, due to mineralisation of organic matter and dissolution of iron – manganese oxides. The released phosphorus diffuses upwards through the sediment and into the lake water, with a flux comparable to current total P inflows to the lake. This could retard lake restoration to good water quality by decades. The work demonstrates the need for long term restoration strategies aimed at reducing lake water P concentrations.

"A new application of hypolimnetic withdrawal and treatment for lake restoration and nutrient recycling", S. Silvonen et al., Conference: Symposium for European Freshwater Sciences 11, [June 2019](#)

"Impacts of a deep reactive layer on sedimentary phosphorus dynamics in a boreal lake recovering from eutrophication", T. Jilbert et al., *Hydrobiologia* [2020](#)

### Fish bones as an Organic Farming fertiliser

The RESTOR project, Norway, has tested fish bones and algae fibres as fertilisers for Organic Agriculture. The fish bones came from a fish processing factory (mainly cod *Gadus morhua* and saithe *Pollachius virens*), after removal of fish oil and soluble proteins which go to aquaculture feed, ground and conserved in formic acid (resulting in hydrolysis). This is a waste material currently usually incinerated. The algae fibres were residuals after liquid fertiliser extraction from knotted wrack *Ascophyllum nodosum* seaweed (harvested from natural growth on the Norway coast). The fish bones are rich in N (mainly in ammonium form), P and Ca. The algae fibres contain K, Mg and S. The fish bones showed good fertiliser effectiveness, for both N and P, for leeks, oats and rye grass, in various pot and field tests, with yields up to +75% higher than for control (no fertiliser) and with the nutrients showing rapid plant availability. The algae fibres showed less first-season fertiliser effectiveness, and in some cases negative effects, but positive effects the year after application.

NORSOK [project](#) "Marine rest raw materials for fertilizers to organic agriculture (RESTOR)" and summary of results in "Harvesting our fertilisers from the sea – an approach to close the nutrient gaps in organic farming", A-K Løes et al., OWC 2020 [Paper](#) Submission 2020.

## Nitrogen emissions from livestock production

A study by authors from FAO, EU JRC, The World Bank and several R&D institutes shows that livestock production emits some 65 million tonnes of nitrogen per year to the environment, of which nearly half (29 MtN/y) to surface and ground waters and the remainder to the atmosphere (mainly ammonia 26 MtN/y, plus NO<sub>x</sub> and N<sub>2</sub>O). This is around 40% of anthropogenic nitrogen emissions to water, and 60% of ammonia emissions to air. Nearly all these emissions come from animal feed and fodder production and from manure management. Ruminants (mainly cattle, for beef and dairy) account for 70% of total emissions. The study identifies possible key areas for action, including: improving fertiliser management in Asia and North America (to make better use of manure), moving away from concentration of livestock production and geographical separation from fodder crop production in Europe, North America and Asia (again to enable better recycling of manure). However, it also concludes that reductions in livestock consumption and production will be necessary in parts of the world, in order to respect planetary boundaries for nitrogen, noting that this should be targeted to maintain diversified livestock production where it is integrated into nutrition and food systems.

"Nitrogen emissions along global livestock supply chains", A. Uwizeye et al., *Nature Food* 1, pp. 437–446 (2020)

## Events

### IWA nutrient recovery conference

The IWA Nutrient Removal and Recovery (NRR) virtual conference [www.iwa-nrr.org](http://www.iwa-nrr.org) online 1-3 September 2020, registration (early bird to end July) 63 – 273 €. Organised by Aalto University, Helsinki Region Environmental Services HSY and the [IWA Nutrient Removal and Recovery Specialist Group](#). Will address removal and recovery of phosphorus, nitrogen, carbon in municipal wastewater, groundwater, natural waters, pulp and paper sector and others. The previous IWA-NRR conference was in [Brisbane, Australia, in 2018](#)

### VDI Conference on sewage sludge treatment

The annual VDI (German Association of Engineers) [conference on sewage sludge](#), **16-17 September 2020, Hamburg, Germany** (VDI-Fachkonferenz Klärschlammbehandlung), will look at implementation of the German phosphorus recycling ordonnance, in particular possibilities for sludge incineration in either smaller or large centralised installations, and routes for recovery of phosphorus, nitrogen and other materials from sewage. The Conference includes a site visit to Hamburg's sewage sludge mono-incineration plant on 15th September Conference in German.

[www.vdi-wissensforum.de/06K0006020](http://www.vdi-wissensforum.de/06K0006020)

### Phosphorus chemistry webinar series

A **bi-weekly series of scientific webinars on phosphorus chemistry** is running from May into August, with 20 or 40 minute presentations from phosphorus chemistry scientists or young researchers, followed by discussion. Subjects already scheduled include phosphorus-carbonyl chemistry, phosphorus heterocycles, synthesis of phosphiranes, phosphorus redox catalysis, phosphaborenes, black phosphorus ...

*The P-Chemistry Webinar series is moderated by Christian Hering-Junghans (LIKAT, Rostock) and supported by AG P-Chemie" (phosphorus interest group) of the [GdCh](#) (Gesellschaft Deutscher Chemiker - Society of German Chemists). Schedule of webinars here:*  
<https://phosphorus-chemistry.weebly.com/schedule.html>

## Stay informed

SCOPE newsletter: [www.phosphorusplatform.eu/SCOPENewsletter](http://www.phosphorusplatform.eu/SCOPENewsletter)

eNews newsletter: [www.phosphorusplatform.eu/eNewshome](http://www.phosphorusplatform.eu/eNewshome)

If you do not already receive SCOPE and eNews (same emailing list), subscribe at [www.phosphorusplatform.eu/subscribe](http://www.phosphorusplatform.eu/subscribe)

LinkedIn group: <https://www.linkedin.com/company/european-sustainablephosphorus-platform/>

Twitter: [@phosphorusfacts](#)

Slideshare presentations: [www.slideshare.net/NutrientPlatform](http://www.slideshare.net/NutrientPlatform)

## ESPP members

