

# Environmental Science Water Research & Technology

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## IN THIS ISSUE

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### Cover

See Hongtao Zhao,  
Xuyong Li et al.,  
pp. 3146–3157.  
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Technol.*, 2023, **9**, 3146.



### Inside cover

See Robert Furén et al.,  
pp. 3158–3173.  
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Technol.*, 2023, **9**, 3158.

## THEMED ISSUE ARTICLES

### EDITORIAL

3091

#### Urban stormwater management

Luca Vezzaro,\* Nathalie Gilbert, Lian Lundy,  
María Nariné Torres Cajiao and Kefeng Zhang

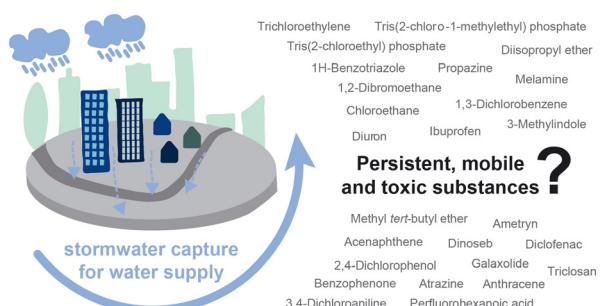


### FRT

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#### Urban stormwater capture for water supply: look out for persistent, mobile and toxic substances

Lena Mutzner,\* Kefeng Zhang, Richard G. Luthy,  
Hans Peter H. Arp and Stephanie Spahr\*



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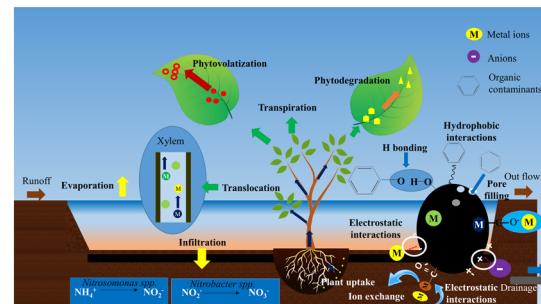


## CRITICAL REVIEWS

3103

**Biofilters and bioretention systems: the role of biochar in the blue-green city concept for stormwater management**

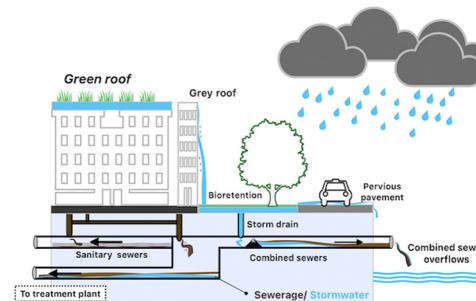
K. S. D. Premarathna, Jayanta Kumar Biswas, Manish Kumar, Sunita Varjani, Bede Mickan, Pau Luke Show, Sie Yon Lau, Luís A. B. Novo and Meththika Vithanage\*



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**Modeling the hydrological benefits of green roof systems: applications and future needs**

Zhaokai Dong, Daniel J. Bain, Kimberly A. Gray, Murat Akcakaya and Carla Ng\*

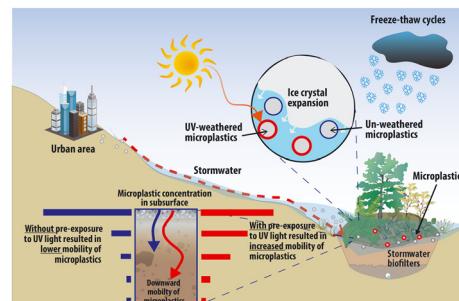


## COMMUNICATION

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**UV exposure to PET microplastics increases their downward mobility in stormwater biofilters undergoing freeze-thaw cycles**

Haley J. Gunther, Tonoy K. Das, Jamie Leonard, Vera S. Koutnik, Lea A. El Rassi, Zilong Tang and Sanjay K. Mohanty\*

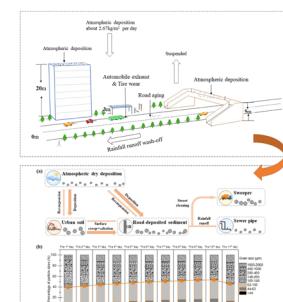


## PAPERS

3146

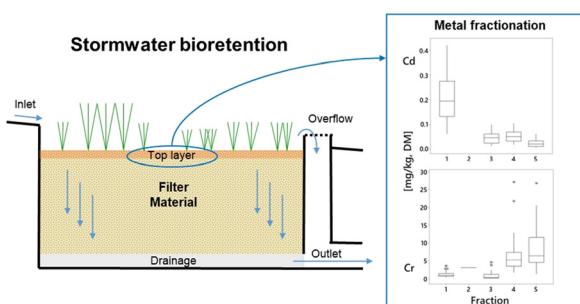
**Role of height and position in the vertical distribution pattern of urban surface-deposited sediments and associated heavy metals**

Hongtao Zhao,\* Tian Huang, Jingjun Su and Xuyong Li\*



## PAPERS

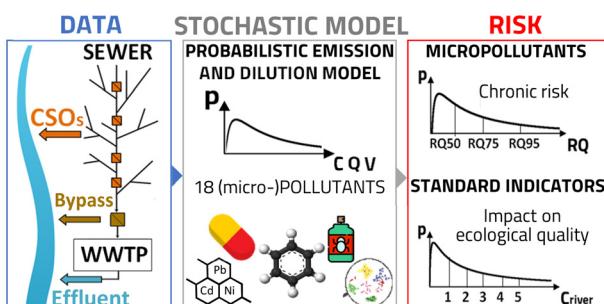
3158



## Concentration, distribution, and fractionation of metals in the filter material of 29 bioretention facilities: a field study

Robert Furén,\* Hélène Österlund, Ryan J. Winston, R. Andrew Tirpak, Jay D. Dorsey, Joseph Smith, Maria Viklander and Godecke-Tobias Blecken

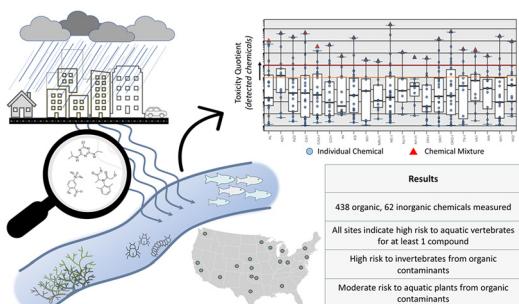
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## A stochastic approach for assessing the chronic environmental risk generated by wet-weather events from integrated urban wastewater systems

Jessica Ianes, Beatrice Cantoni, Enrico Ulisse Remigi, Fabio Polesel, Luca Vezzaro and Manuela Antonelli\*

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## Predicted aquatic exposure effects from a national urban stormwater study

Paul M. Bradley,\* Kristin M. Romanok, Kelly L. Smalling, Jason R. Masoner, Dana W. Kolpin and Stephanie E. Gordon

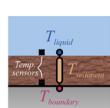
3200

### Heat transfer analysis and Temperature measurements

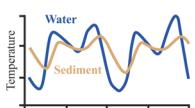


### Monitoring urban drainage sediment accumulation

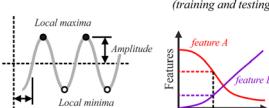
Conceptualization and lab-scale experiments



Liquid and sediment-bed temperature time series



Features characterization from daily patterns



## Towards urban drainage sediment accumulation monitoring using temperature sensors

Manuel Regueiro-Picallo,\* Jose Anta, Acacia Naves, Alejandro Figueroa and Jörg Rieckermann

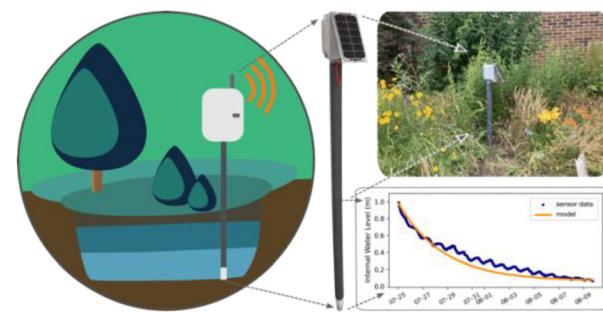


## PAPERS

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## Measuring city-scale green infrastructure drawdown dynamics using internet-connected sensors in Detroit

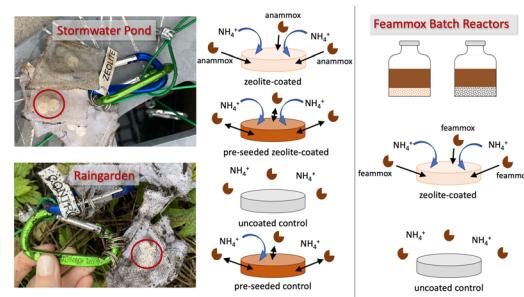
Brooke E. Mason,\* Jacquelyn Schmidt and Branko Kerkez



3227

## Stormwater applications of zeolite-coated biofilm carriers for ammonium removal with possible applications to PFAS biotransformation

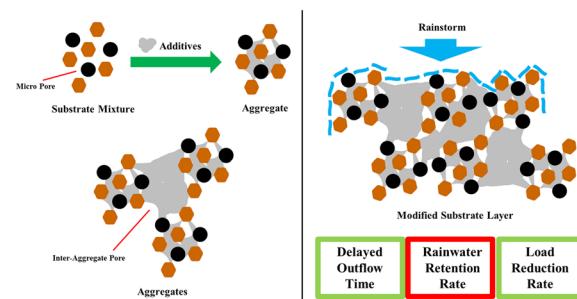
Anndee L. Huff Chester,\* Noah Gallagher, Shan Huang, Peter R. Jaffé and Paige J. Novak\*



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## Comparison of rainwater management performance of modified extensive green roof substrate layer with different additives in rainstorm events

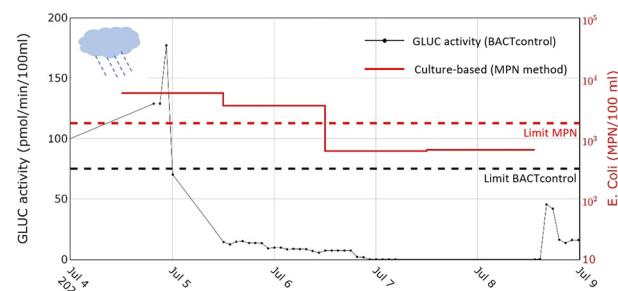
Yiming Fei, Chen Xu, Shujiang Miao, Dafang Fu and Junyu Zhang\*



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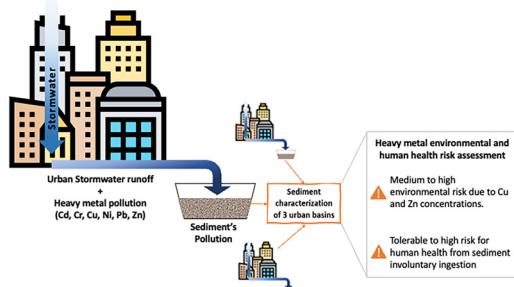
## The potential of near real-time monitoring of $\beta$ -D-glucuronidase activity to establish effective warning systems in urban recreational waters

Konstantinos F. Makris,\* Bas Hoefijzers, Laura Seelen, Remy Schilperoort and Jeroen G. Langeveld



## PAPERS

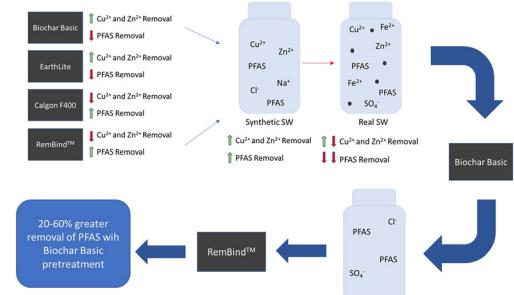
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## Urban stormwater sediment risk assessment from drainage structures in Bogotá, Colombia

María Alejandra Pimiento,\* Verónica Duque and Andres Torres

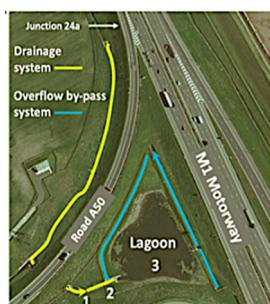
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## Evaluation of sorbents and matrix effects for treating heavy metals and per- and polyfluoroalkyl substances as co-contaminants in stormwater

Bethany A. Parker, Casey A. Kanałos, Tyler S. Radniecki, Staci L. Massey Simonich and Jennifer A. Field\*

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## Metal distribution in first flush in highway runoff of one of the busiest motorway junctions in the UK

Julia Zakharova,\* Hamid Pouran and Andrew Wheatley

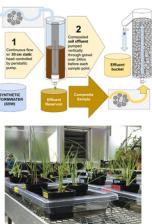
3302

## Stormwater Subsurface Gravel Wetlands

2-year field study



Lab studies



Results:

- ✓ Peak flow & volume reductions
- ✗ Poor P removal driven by P export from soil layer
- ✗ Negligible impacts on chloride transport
- ✗ Cl<sup>-</sup> suppression of growth for 1 of 2 plant species tested

## Stormwater subsurface gravel wetland hydraulics, phosphorus retention, and chloride dynamics in cold climates

Eric D. Roy,\* Andres O. Torizzo, Marcos L. Kubow, Nisha C. Nadkarni, Thomas M. Adler, Madeline F. Yandow, Finn A. Bondeson, Adrian R. H. Wiegman and Donna M. Rizzo



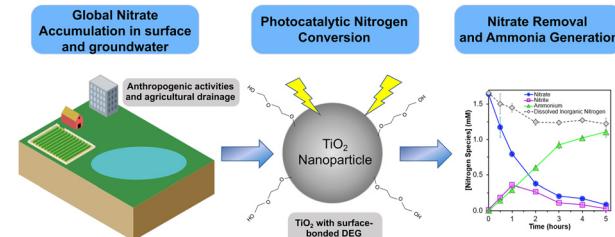
## REGULAR ARTICLES

## COMMUNICATION

3318

**Photochemical conversion of nitrate to ammonium ions by a newly developed photo-reductive titanium dioxide catalyst: implications on nitrogen recovery**

Andrew Sanchez, Zuyang Ye, Yadong Yin and Haizhou Liu\*

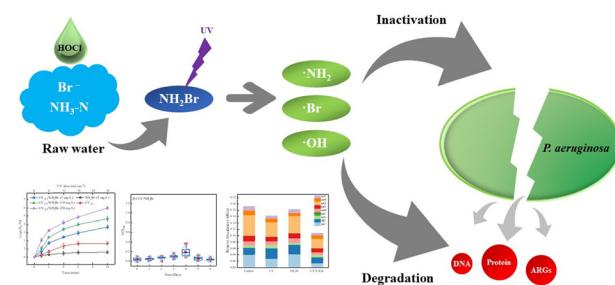


## PAPERS

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**Unveiling a potential disinfection process in ultraviolet treatment of bromine-containing water: inactivation of *P. aeruginosa* in a UV/NH2Br system**

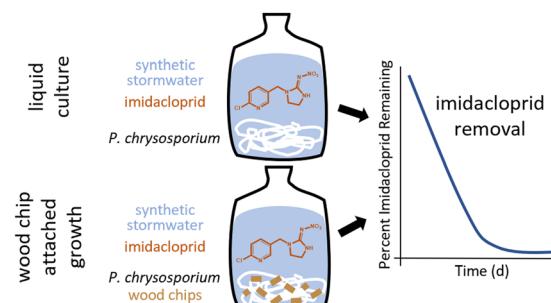
Shumin Zhu, Jingxuan Yang, Yangtao Wu, Da Sheng,\* Lingjun Bu and Shiqing Zhou



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**Degradation of imidacloprid by *Phanerochaete chrysosporium* on wood chips for stormwater treatment**

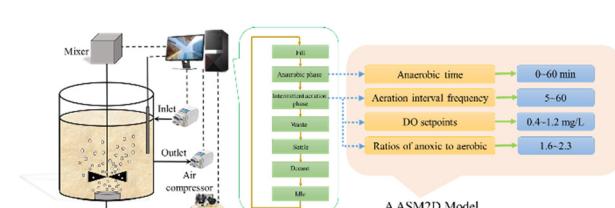
Leah M. M. Weaver, Nancy Lee Alexander, Marc A. Cubeta, Detlef R. U. Knappe and Tarek N. Aziz\*



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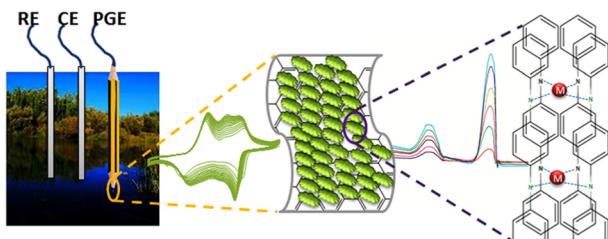
**Functional guild dynamics in a single-sludge shortcut nitrogen and phosphorus removal reactor: a modeling study**

Quan Yuan, Zhen Jia, Paul Roots, Fabrizio Sabba and George Wells\*



## PAPERS

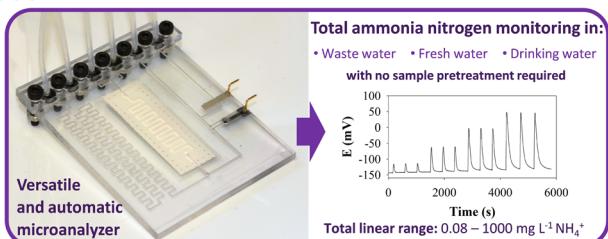
3355



**Simultaneous determination of Cd and Pb in the environment using a pencil graphite electrode modified with polyaniline/graphene oxide nanocomposite**

Sima Pourbeyram,\* Soghra Fathalipour, Bahaaldin Rashidzadeh, Hananeh Firuzmand and Behnaz Rahimi

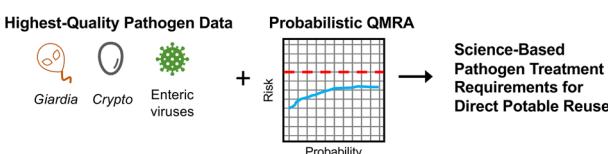
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**Highly versatile and automated total ammonia nitrogen compact analyzer suitable for different types of water samples**

Antonio Calvo-López, Julián Alonso-Chamarro and Mar Puyol\*

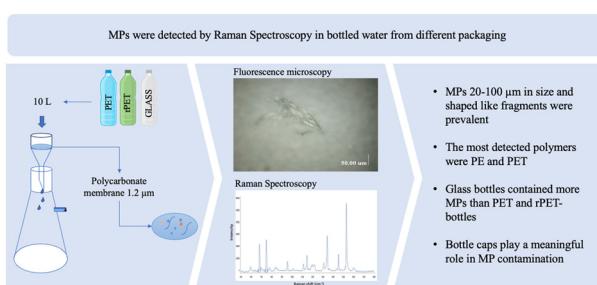
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**Science-based pathogen treatment requirements for direct potable reuse**

Brian M. Pecson,\* Anya Kaufmann,\* Daniel Gerrity, Charles N. Haas, Edmund Seto, Nicholas J. Ashbolt, Theresa Slifko, Emily Darby and Adam Olivier

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**Characterization of microplastics in water bottled in different packaging by Raman spectroscopy**

Isabella Gambino, Cosimino Malitestra, Francesco Bagordo, Tiziana Grassi, Alessandra Panico,\* Silvia Fraissinet, Antonella De Donno and Giuseppe Egidio De Benedetto

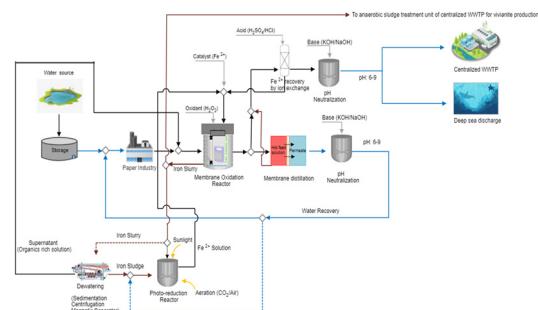


## PAPERS

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## Eco-sustainable paper wastewater management by water-resource recovery and concentrate minimization using a membrane oxidation reactor and membrane distillation system

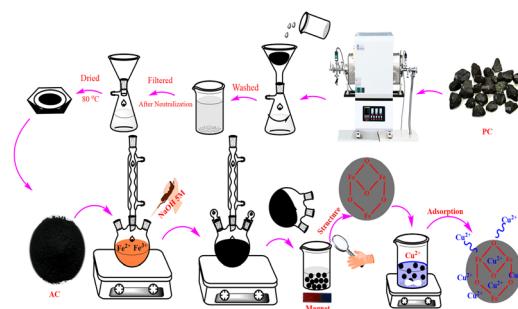
Esra Can Dogan,\* Elif Durna Pişkin, Ali Oguzhan Narci, Berna Kiril Mert, Sevgi Topcu Yakın, Tugba Nur Demirözü, Mine Selin Atasoy and Coskun Aydiner\*



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## Performance improvement of pyrolytic coke by surface modification for the adsorption of copper(II) ions from wastewater

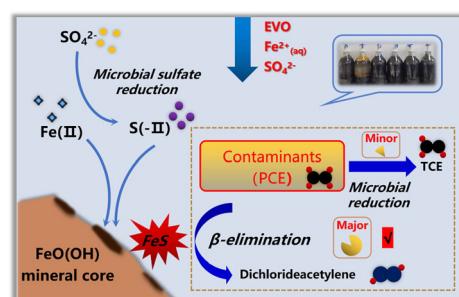
Behrad Barzegar, Seyed Jamaleddin Peighambardoust,\* Hassan Aghdasinia\* and Rauf Foroutan



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## Effect of enhanced biogeochemical transformation of tetrachloroethylene by EVO-FeSO<sub>4</sub> and its transport characteristics in aquifers

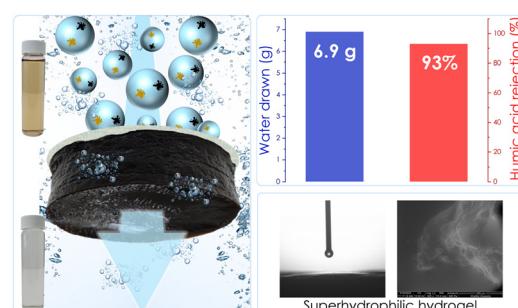
Chen Sun, Minglu Sun, Xue Liang, Yanyang Mo and Jun Dong\*

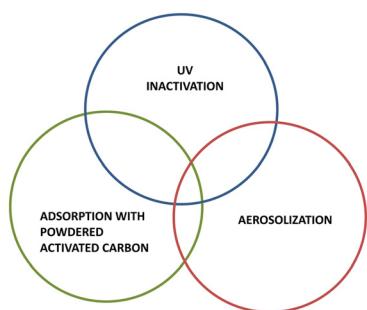


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## Graphene oxide/alginate/polyacrylate hydrogels as a draw agent for osmosis water purification

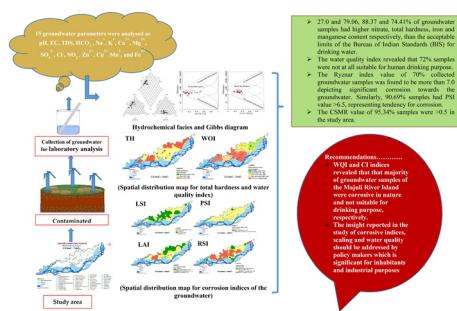
Adetunji Alabi and Linda Zou\*





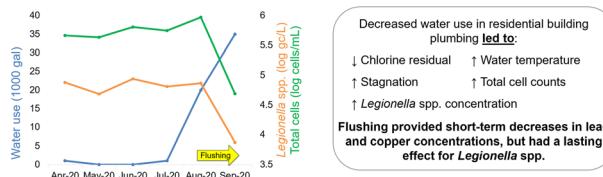
## Characterizing *Bacillus globigii* as a *Bacillus anthracis* surrogate for wastewater treatment studies and bioaerosol emissions

Leigh Durden, Kyle Eckhoff, Adam C. Burdsall, Sungmin Youn, Cindy Andújar-Gonzalez, Lubna Abu-Niaaj, Matthew Magnuson and Willie F. Harper Jr.\*



## Assessment of the hydrogeochemistry of shallow water aquifers using corrosion indices and geospatial techniques in the regions of the Brahmaputra river basin, India

Gulshan Kumar Sharma,\* Roomesh Kumar Jena, Pravash Chandra Moharana, Prasenjit Ray, Shakir Ali, Krishna Kumar Mourya and Bachaspati Das



## Water quality during extended stagnation and flushing in a college residential hall

Danielle M. Angert, Christian Ley, Kyungyeon Ra, Yoorae Noh, Nadezhda Zyaykina, Elizabeth Montagnino, Ruth Wei, Andrew J. Whelton and Caitlin R. Proctor\*

