EPA Office of Water
Recent Water Research
July-December 2016 No. 2016-2

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Protecting Aquatic Life and Human Health From Chemicals and Microbes in Water

From EPA

HYDRAULIC FRACTURING FOR OIL AND GAS: IMPACTS FROM THE HYDRAULIC FRACTURING WATER CYCLE ON DRINKING WATER RESOURCES - *EPA-600-R-16-236*

Final assessment of HF on quality or quantity of drinking water resources. Identifies factors that affect the frequency or severity of impacts.

Final Class VI Guidance Documents. EPA. Guidance to assist permit applicants and owners or operators over the course of Class VI projects.

Go to Report or www.epa.gov/uic/final-class-vi-guidance-documents

Cyanotoxins in Drinking Water Toolbox. EPA. Provides public water systems with ready-to-use, adaptable templates to aid in managing and communicating the risks of cyanotoxins in drinking water.

Go to Report or www.epa.gov/ground-water-and-drinking-water/cyanotoxins-drinking-water

EJ 2020 Action Agenda. EPA-300-B-1-6004. EPA's strategic plan for advancing environmental justice from the years 2016-2020.

Go to Report or www.epa.gov/environmentaljustice

Fourth Contaminant Candidate List (CCL 4). EPA. 81 FR 81099. 97 chemicals or chemical groups and 12 microbiological contaminants. Used to advance regulatory and UCMR program monitoring needs.

Go to Report

From Collaborators

HHS — Report on Carcinogens, 14th Edition. Dewey-Mattia, D., et al., 2016. U.S. Department of Health and Human Services. 248 agents, substances, mixtures, and exposure circumstances known or reasonably anticipated to cause cancer in humans.

Go to Report or www.ntp.niehs.nih.gov

USGS — Potential Corrosivity of Untreated Groundwater in the U.S. Belitz, K., et al., 2016. Scientific Investigations Report 2016-5092. Maps areas prone to elevated concentrations of metals in untreated household drinking water in all 50 states and DC.

Go to Report

CDC — Blood Lead Levels Among Children Aged <6 Years — Flint, Michigan, 2013–2016. Kennedy C., et al., 2016. *Morbidity and Mortality Weekly Report,* 65(25). In a sample of 9,442 tests, blood lead levels rose after switching to Flint water and returned to lower levels after returning to Detroit water.

Go to Article or www.cdc.gov/mmwr

Recent Water Research

CDC — Foodborne (1973–2013) and Waterborne (1971–2013) Disease Outbreaks — United States. Dewey-Mattia, D., et al., 2016. *Morbidity and Mortality Weekly Report,* 63(55), 79-83. Summarizes CDC data on waterborne disease outbreaks.

Go to Article or www.cdc.gov/mmwr

USGS — Perchlorate and Selected Metals in Water and Soil Within Mount Rushmore National Memorial, South Dakota, 2011–15. Hoogestraat, G.K. and B.L. Rowe, 2016. Scientific Investigations Report 2016-5030. Concentrations exceeded EPA's Interim Drinking Water Health Advisory of 15 µg/L.

Go to Report

USGS — Patterns of Diel Variation in Nitrate Concentrations in the Potomac River. Burns, D.A., et al., 2016. *Freshwater Science,* 35(4), 1117-1132. Quantifies seasonal variation in the magnitude and timing of diel NO_3– loss.

Go to Article or pubs.er.usgs.gov

USGS — Groundwater Quality in the Lake Champlain and Susquehanna River Basins, New York, 2014. Scott, T.M., et al., 2016. Open-File Report 2016–1153. 148 physiochemical properties and constituents including dissolved gases, major ions, nutrients, trace elements, pesticides, volatile organic compounds, radionuclides, and indicator bacteria.

Go to Report

WRF — Scoping Study to Review Contributions of Chromium to Drinking Water From Corrosion in Distribution System. Woods-Chabane, G.C., et al., 2016. Project Number: 4562. Provides basis for understanding corrosion as a source of chromium in the distribution system and an assessment of research needs.

Go to Report or www.waterrf.org

AWWA & WRF — Managing Cyanotoxins in Drinking Water: A Technical Guidance Manual for Drinking Water Professionals. AWWA and WRF, 2016. Project Number: 4548b. Literature synthesis for utilities on cyanotoxins in drinking water and appropriate mitigation measures.

Go to Report or www.waterrf.org

From Journals

Governing Factors Affecting the Impacts of Silver Nanoparticles on Wastewater Treatment. Zhang, C., et al., 2016. *Science of the Total Environment,* 572, 852-873.

Go to Article

Wetland Shoreline Recession in the Mississippi River Delta From Petroleum Oiling and Cyclonic Storms. Rangoonwala, A., et al., 2016. *Geophysical Research Letters,* 43(22), 11652-11660.

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Salting the Earth: The Environmental Impact of Oil and Gas Wastewater Spills. Konkel, L., 2016. *Environmental Health Perspectives,* 124, A230-A235.

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The Deepwater Horizon Oil Spill and Physical Health Among Adult Women in Southern Louisiana: The Women and Their Children's Health (WaTCH) Study. Peres, L.C., et al., 2016. *Environmental Health Perspectives,* 124, 1208-1213.

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Reducing Emergency Department Visits for Acute Gastrointestinal Illnesses in North Carolina (USA) by Extending Community Water Service. DeFelice, N.B., et al., 2016. *Environmental Health Perspectives,* 124, 1583-1591.

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Recent Water Research

Nitrate From Drinking Water and Diet and Bladder Cancer Among Postmenopausal Women in Iowa. Jones, R.R., et al., 2016. *Environmental Health Perspectives,* 124(11), 1751-1758.

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Human Health Risk Assessment of Heavy Metals in Urban Stormwater. Ma, Y.K., et al., 2016. *Science of the Total Environment,* 557, 764-772.

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Emerging Contaminants in the Environment: Risk-Based Analysis for Better Management. Naidu, R., et al., 2016. *Chemosphere,* 154, 350-357.

Go to Article

Rapid Screening for Exposure to "Non-Target" Pharmaceuticals From Wastewater Effluents by Combining HRMS-Based Suspect Screening and Exposure Modeling. Singer, H.P., et al., 2016. *Environmental Science & Technology,* 50(13), 6698-6707.

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Evaluating the Effects of Full and Partial Lead Service Line Replacement on Lead Levels in Drinking Water. Trueman, B.F., et al., 2016. *Environmental Science & Technology,* 50(14), 7389-7396.

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PPCP Degradation by UV/Chlorine Treatment and Its Impact on DBP Formation Potential in Real Waters. Yang, X., et al., 2016. *Water Research,* 98, 309-318.

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Pharmaceuticals and the Environment (PiE): Evolution and Impact of the Published Literature Revealed by Bibliometric Analysis. Daughton, C.G., 2016. *Science of the Total Environment,* 562, 391-426.

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Evaluation of Exposure to Lead From Drinking Water in Large Buildings. Deshommes, E., et al., 2016. *Water Research*, 99, 46-55.

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Effects of Climate and Sewer Condition on Virus Transport to Groundwater. Gotkowitz, M.B., et al., 2016. *Environmental Science & Technology,* 50(16), 8497-8504.

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Indications of Transformation Products From Hydraulic Fracturing Additives in Shale-Gas Wastewater. Hoelzer, K., et al., 2016. *Environmental Science & Technology,* 50(15), 8036-8048.

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Long-Term Decreases in Phosphorus and Suspended Solids, but Not Nitrogen, in Six Upper Mississippi River Tributaries, 1991-2014. Kreiling, R.M. and J.N. Houser, 2016. *Environmental Monitoring and Assessment,* 188(8), 454.

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Multimedia Screening of Contaminants of Emerging Concern (CECs) in Coastal Urban Watersheds in Southern California (USA). Maruya, K.A., et al., 2016. *Environmental Toxicology and Chemistry,* 35(8), 1986-1994.

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The Influence of Nitrogen and Phosphorus on Phytoplankton Growth and Assemblage Composition in Four Coastal, Southeastern USA Systems. Reed, M.L., et al., 2016. *Estuarine Coastal and Shelf Science,* 177, 71-82.

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Phenols, Flame Retardants and Phthalates in Water and Wastewater - A Global Problem. Ayanda, O.S., et al., 2016. *Water Science and Technology,* 74(5), 1025-1038.

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Optimal Water Resources Management and System Benefit for the Marcellus Shale-Gas Reservoir in Pennsylvania and West Virginia. Cheng, X., et al., 2016. *Journal of Hydrology,* 540, 412-422.

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Evaluating Contaminants of Emerging Concern as Tracers of Wastewater From Septic Systems. James, C.A., et al., 2016. *Water Research,* 101, 241-251.

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Water Quality Permitting: From End-of-Pipe to Operational Strategies. Meng, F.L., et al., 2016. *Water Research,* 101, 114-126.

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Stormwater Quality Review to Evaluate Treatment for Drinking Water Supply via Managed Aquifer Recharge. Page, D., et al., 2016. *Water Air and Soil Pollution,* 227(9).

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Quantifying Lead-Leaching Potential From Plumbing Exposed to Aggressive Waters. Pieper, K.J., et al., 2016. *Journal American Water Works Association,* 108(9), 100.

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Human Health Risk Assessment of Triclosan in Land-Applied Biosolids. Verslycke, T., et al., 2016. *Environmental Toxicology and Chemistry,* 35(9), 2358-2367.

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Markers of Anthropogenic Contamination: A Validated Method for Quantification of Pharmaceuticals, Illicit Drug Metabolites, Perfluorinated Compounds, and Plasticisers in Sewage Treatment Effluent and Rain Runoff. Wilkinson, J.L., et al., 2016. *Chemosphere,* 159, 638-646.

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Decadal-Scale Export of Nitrogen, Phosphorus, and Sediment From the Susquehanna River Basin, USA: Analysis and Synthesis of Temporal and Spatial Patterns. Zhang, Q., et al., 2016. *Science of the Total Environment,* 563, 1016-1029.

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Behaviour of Emerging Contaminants in Sewage Sludge After Anaerobic Digestion. Boix, C., et al., 2016. *Chemosphere,* 163, 296-304.

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Influence of Wastewater Treatment Plant Discharges on Microplastic Concentrations in Surface Water. Estahbanati, S. and N.L. Fahrenfeld, 2016. *Chemosphere,* 162, 277-284.

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Low-Cost Stand-Alone System for Real-Time Hydrological Monitoring. Islam, M.S., et al., 2016. *Environmental Engineering Science,* 33(12), 929-941.

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Microplastic Pollution is Widely Detected in U.S. Municipal Wastewater Treatment Plant Effluent. Mason, S.A., et al., 2016. *Environmental Pollution,* 218, 1045-1054.

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Monitoring-Based Framework to Detect and Manage Lead Water Service Lines. Deshommes, E., et al., 2016. *Journal American Water Works Association,* 108(11), 86.

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Occurrence and Seasonal Variations of 25 Pharmaceutical Residues in Wastewater and Drinking Water Treatment Plants. Kot-Wasik, A., et al., 2016. *Environmental Monitoring and Assessment,* 188(12), 661.

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Recent Water Research

On the Unexpected Reproductive Impacts of Metformin: A Need for Support and New Directions for the Evaluation of the Impacts of Pharmaceuticals in the Environment. Klaper, R.D., and N.J. Niemuth, 2016. *Chemosphere,* 165, 570-574.

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Precipitation Dominates Interannual Variability of Riverine Nitrogen Loading Across the Continental United States. Sinha, E., and A.M. Michalak, 2016. *Environmental Science & Technology,* 50(23), 12874-12884.

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Presence of Thallium in the Environment: Sources of Contaminations, Distribution and Monitoring Methods. Karbowska, B., 2016. *Environmental Monitoring and Assessment,* 188(11), 640.

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Selected Pharmaceuticals Entering an Estuary: Concentrations, Temporal Trends, Partitioning, and Fluxes. Cantwell, M.G., D.R. Katz, J.C. Sullivan, K. Ho, R.M. Burgess, and M. Cashman, 2016. *Environmental Toxicology and Chemistry,* 35(11), 2665-2673.

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Do Waterbody Classifications Predict Water Quality? Barclay, J.R., et al., 2016. *Journal of Environmental Management,* 183, 1-12.

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A National Reconnaissance of Trace Organic Compounds (TOCs) in United States Lotic Ecosystems. Bernot, M.J., et al., 2016. *Science of the Total Environment,* 572, 422-433.

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Effects of Nanoparticles in Fresh Waters: Risks, Mechanisms and Interactions. Bundschuh, M., et al., 2016. *Freshwater Biology,* 61(12), 2185-2196.
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Water Age in the Columbia River Estuary. Karna, T. and A.M. Baptista, 2016. *Estuarine Coastal and Shelf Science,* 183, 249-259.

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Water Recreation and Illness Severity. DeFlorio-Barker, S., **T.J. Wade**, M. Turyk, and S. Dorevitch, 2016. *Journal of Water and Health,* 14(5), 713-726.

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Streambanks: A Net Source of Sediment and Phosphorus to Streams and Rivers. Fox, G.A., et al., 2016. *Journal of Environmental Management,* 181, 602-614.

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Water Quality Assessment and Apportionment of Pollution Sources Using APCS-MLR and PMF Receptor Modeling Techniques in Three Major Rivers of South Florida. Gholizadeh, M.H., et al., 2016. *Science of the Total Environment,* 566, 1552-1567.

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Detection of Hepatitis E Virus and Other Livestock-Related Pathogens in Iowa Streams. Givens, C.E., et al., 2016. *Science of the Total Environment,* 566, 1042-1051.

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Estimating the Potential Toxicity of Chemicals Associated With Hydraulic Fracturing Operations Using Quantitative Structure-Activity Relationship Modeling. Yost, E.E., J. Stanek, R.S. DeWoskin, and **L.D. Burgoon**, 2016. *Environmental Science & Technology,* 50(14), 7732-7742.

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Recent and Upcoming Meetings

RECENT:

2017 UIC Annual Conference. February 21-23, 2017 in Austin, TX.

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AWWA Sustainable Water Management Conference. March 19-22, 2017 in New Orleans, LA.

Go to Meeting Page or www.awwa.org

2017 Federal Water Issues Conference. March 20-22, 2017 in Washington, D.C.

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AMWA 2017 Water Policy Conference. March 26-29, 2017 in Washington D.C.

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UPCOMING:

Federal Policy Conference. April 19-20, 2017 in Washington, D.C.

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Water Summit 2017. May 17-18, 2017 in Milwaukee, WI.

Go to Meeting Page

AWWA ACE 17. June 11-14, 2017 in Philadelphia, PA.

Go to Meeting Page or www.awwa.org

Innovative and Affordable Tools and Technologies for Sustainable Public Health Protection

From EPA

Compliance Monitoring Data Portal. EPA. Enables drinking water utilities and laboratories to report data electronically to primacy agencies, decreasing overall reporting burden significantly.

Go to Report or www.epa.gov/ground-water-and-drinking-water/compliance-monitoring-data-portal

Technologies for *Legionella* Control in Premise Plumbing Systems: Scientific Literature Review. EPA-810-R-16-001. Non-regulatory technical information on *Legionella* control and treatment.

Go to Report or www.epa.gov/ground-water-and-drinking-water

From Collaborators

WE&RF — Potable Reuse Research Compilation: Synthesis of Findings. Mosher, J., et al., 2016. Project 15-01. Synthesizes key issues and findings on DPR to identify unknowns that may require further research.

Go to Report or www.nwri-usa.org

Using Graywater and Stormwater to Enhance Local Water Supplies: An Assessment of Risks, Costs, and Benefits. National Academies of Sciences, Engineering, and Medicine, 2016. Division on Earth and Life Studies; Water Science and Technology Board; Committee on the Beneficial Use of Graywater and Stormwater. Examines available quantities, treatment technologies, and regulatory barriers to graywater use.

Go to Report or www.nap.edu

WE&RF — Sustainability Evaluation of Nutrient Removal Technologies Using Comprehensive Life Cycle Assessment. Gu, A.Z., 2016. Project Number: NUTR5R14f. Provides a basis for utilities to communicate with regulatory agencies to ensure larger scale and overall net benefits to water quality.

Go to Report or www.werf.org

WE&RF — Monitoring for Reliability and Process Control of Potable Reuse Applications. Pepper, I.P., 2016. Project Number: Reuse-11-01. Monitoring and control of treatment and distribution systems in DPR.

Go to Report or www.werf.org

WRF — Pilot Testing Nitrate Treatment Processes With Minimal Brine Waste. Narasimhan, R. and A. Agrawal, 2016. Project Number: 4578. Emerging biological and electrochemical denitrification technologies to cost effectively treat nitrate in groundwater, reduce waste, and optimize brine recycling.

Go to Report or www.waterrf.org

WRF — North American Biofiltration Knowledge Base. Brown, J., et al., 2016. Project Number: 4459. Summarizes design, operation, and monitoring strategies and experiences. Examines mitigating negative impacts and solutions for improving initial design/operations of biofiltration facilities.

Go to Report or www.waterrf.org

WRF — Advanced Oxidation of Pharmaceuticals and Personal Care Products. Lawler, D.F. and L.E. Katz, 2016. Project Number: 4213. Strategy to assess treatment options to remove PhACs when background organic matter is present.

Go to Report or www.waterrf.org

Recent Water Research

From Journals

Integrative Advanced Oxidation and Biofiltration for Treating Pharmaceuticals in Wastewater. Lester, Y., et al., 2016. *Water Environment Research,* 88(11), 1985-1993.

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Cost Versus Life Cycle Assessment-Based Environmental Impact Optimization of Drinking Water Production Plants. Capitanescu, F., et al., 2016. *Journal of Environmental Management,* 177, 278-287.

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Chlorine/UV Process for Decomposition and Detoxification of Microcystin-LR. Zhang, X.R., et al., 2016. *Environmental Science & Technology,* 50(14), 7671-7678.

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Review of the Natural, Modified, and Synthetic Zeolites for Heavy Metals Removal From Wastewater. Zhao, Y.N., 2016. *Environmental Engineering Science,* 33(7), 443-454.

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Antibiotic Resistance Spread Potential in Urban Wastewater Effluents Disinfected by UV/H_2O_2 Process. Ferro, G., et al., 2016. *Science of the Total Environment,* 560, 29-35.

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The Influence of Design Parameters on Stormwater Pollutant Removal in Permeable Pavements. Huang, J., et al., 2016. *Water Air and Soil Pollution,* 227(9).

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N-Nitrosamines and Halogenated Disinfection Byproducts in U.S. Full Advanced Treatment Trains for Potable Reuse. Zeng, T., et al., 2016. *Water Research,* 101, 176-186.

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Analytical Techniques for Steroid Estrogens in Water Samples - A Review. Fang, T.Y., et al., 2016. *Chemosphere,* 165, 358-368.

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Inactivation of Antibiotic Resistant Bacteria and Resistance Genes by Ozone: From Laboratory Experiments to Full-Scale Wastewater Treatment. Czekalski, N., et al., 2016. *Environmental Science & Technology,* 50(21), 11862-11871.

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Water Quantity and Quality Response of a Green Roof to Storm Events: Experimental and Monitoring Observations. Carpenter, C.M., et al., 2016. *Environmental Pollution,* 218, 664-672.

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Removal of Strontium From Drinking Water by Conventional Treatment and Lime Softening in Bench-Scale Studies. O'Donnell, A.J., **D.A. Lytle**, S. Harmon, K. Vu, H. Chait, and D.D. Dionysiou, 2016. *Water Research,* 103, 319-333.

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Recent and Upcoming Meetings

RECENT:

2016 WateReuse Potable Reuse Summit. October 17-18, 2016 in Oklahoma City, OK.

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UPCOMING:

2017 Industrial and Commercial Water Reuse Conference. May 22-23, 2017 in Atlanta, GA.

Go to Meeting Page or www.watereuse.org

11th IWA International Conference on Water Reclamation and Reuse. July 23-27, 2017 in Long Beach, CA.

Go to Meeting Page

Ecological Systems Approach to Protect and Restore Sustainable Water Quality and Water Quantity on a Watershed Basis

From EPA

Looking Forward: Priorities for Managing Freshwater Resources in a Changing Climate. National Action Plan Update. EPA, 2016. Water Resources and Climate Change Workgroup. Data, research, planning, training, and outreach ideas for improving response to climate change impacts on water resources.

Go to Report or acwi.gov/climate_wkg/

Climate Change Indicators in the United States. EPA-430-R-16-004. Presents 37 indicators and serves as a "go-to" resource for the public, scientists, analysts, decision-makers, and educators.

Go to Report or www.epa.gov/climate-indicators

Climate Change Impacts by State. EPA-430-F-16-003. A handy reference for state and local policymakers, businesses, and individuals who are looking to communicate impacts of climate change in a given state.

Go to Report or www.epa.gov/climate-impacts

Green Infrastructure and Climate Change: Collaborating to Improve Community Resiliency. EPA-832-R-16-004. Examines four cities' efforts to plan and incorporate green infrastructure.

Go to Report or www.epa.gov/green-infrastructure

From Collaborators

NOAA — THE CLIMATE EXPLORER - *NOAA, 2016*

Downloadable maps, graphs, and data tables for community leaders, business owners, municipal planners, and utility and resource managers on how environmental conditions may change.

USGS — Groundwater-Flow Model of the Northern High Plains Aquifer in Colorado, Kansas, Nebraska, South Dakota, and Wyoming. Peterson, S.M., et al., 2016. Scientific Investigations Report 2016-5153. A soil-water-balance model estimates recharge from precipitation and groundwater withdrawals for irrigation.

Go to Report

NOAA — BAMS State of the Climate in 2015 Report. Blunden, J. and D.S. Erndt (Eds.), 2016. *Bulletin of the American Meteorological Society,* 97(8). The 26th annual report catalogs new climate records and the continuation of several decade-long trends.

Go to Report or www.ncdc.noaa.gov

USGS — Estimating Natural Monthly Streamflows in California and the Likelihood of Anthropogenic Modification. Carlisle, D.M., et al., 2016. Open-File Report 2016–1189. Regional-scale models can reliably estimate natural flows in most California streams.

Go to Report

Report to the Council on Climate Preparedness and Resilience. National Drought Resilience Partnership, 2016. Report to the Council on Climate Preparedness and Resilience. National progress report on federal-level drought preparedness since 2009.

Go to Report or www.whitehouse.gov

Governors' Action Plan III for Healthy and Resilient Coasts. The Gulf of Mexico Alliance, 2016. Addresses six major issues: coastal resilience; data and monitoring; education and engagement; habitat resources; water resources; and wildlife and fisheries.

Go to Report or www.gulfofmexicoalliance.org

Recent Water Research

NOAA — Guide for Considering Climate Change in Coastal Conservation. NOAA, 2016. A six-step approach for incorporating climate change into new or existing conservation plans.

Go to Report or www.coast.noaa.gov

From Journals

Evaluation of Leaf Removal as a Means to Reduce Nutrient Concentrations and Loads in Urban Stormwater. Selbig, W.R., 2016. *Science of the Total Environment,* 571, 124-133. A municipal program demonstrated significant reductions in stormwater nutrients.

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Implementation and Evaluation of a Monthly Water Balance Model over the US on an 800m Grid. Hostetler, S.W. and J.R. Alder 2016. *Water Resources Research,* 52(12), 9600–9620. Evaluates first-order, climate-driven hydrologic change on monthly time scale across the CONUS.

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Saltmarsh Plant Responses to Eutrophication. Johnson, D.S., et al., 2016. *Ecological Applications,* 26(8), 2649-2661.

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Quantity of Flowback and Produced Waters From Unconventional Oil and Gas Exploration. Kondash, A.J., et al., 2016. *Science of the Total Environment,* 574(1), 314-321.

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The Future Intensification of Hourly Precipitation Extremes. Prein, A.F., et al., 2016. *Nature Climate Change Letters,* 7, 48-52.

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Plastic Debris in 29 Great Lakes Tributaries: Relations to Watershed Attributes and Hydrology. Baldwin, A.K., et al., 2016. *Environmental Science and Technology,* 50(19), 10377-10385.

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Hydrologic Impacts of Municipal Wastewater Irrigation to a Temperate Forest Watershed. Birch, A.L., et al., 2016. *Journal of Environmental Quality,* 45(4), 1303-1312.

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A Review of Flood-Related Storage and Remobilization of Heavy Metal Pollutants in River Systems. Ciszewski, D. and T.M. Grygar, 2016. *Water Air and Soil Pollution,* 227(7).

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DBP Control in an Expanding Regional Water Supply System. Clark, T.F., 2016. *Journal American Water Works Association,* 108(7), 43-47.

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Effect of Variable Annual Precipitation and Nutrient Input on Nitrogen and Phosphorus Transport From Two Midwestern Agricultural Watersheds. Kalkhoff, S.J., et al., 2016. *Science of the Total Environment,* 559, 53-62.

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Endocrine Disrupting Activities of Surface Water Associated With a West Virginia Oil and Gas Industry Wastewater Disposal Site. Kassotis, C.D., et al., 2016. *Science of the Total Environment,* 557, 901-910.

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A Tiered, Integrated Biological and Chemical Monitoring Framework for Contaminants of Emerging Concern in Aquatic Ecosystems. Maruya, K.A., et al., 2016. *Integrated Environmental Assessment and Management,* 12(3), 540-547.

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Total Value of Phosphorus Recovery. Mayer, B.K., et al., 2016. *Environmental Science & Technology,* 50(13), 6606-6620.

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Using Ecosystem Services to Represent the Environment in Hydro-Economic Models. Momblanch, A., et al., 2016. *Journal of Hydrology,* 538, 293-303.

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Urban Trees Reduce Nutrient Leaching to Groundwater. Nidzgorski, D.A. and S.E. Hobbie, 2016. *Ecological Applications,* 26(5), 1566-1580.

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Developing Ecological Scenarios for the Prospective Aquatic Risk Assessment of Pesticides. Rico, A., et al., 2016. *Integrated Environmental Assessment and Management,* 12(3), 510-521.

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Biodegradation of Dispersed Macondo Crude Oil by Indigenous Gulf of Mexico Microbial Communities. Wang, J., et al., 2016. *Science of the Total Environment,* 557, 453-468.

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Uptake of Antibiotics From Irrigation Water by Plants. Azanu, D., et al., 2016. *Chemosphere,* 157, 107-114.

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Source-Based Modeling of Urban Stormwater Quality Response to the Selected Scenarios Combining Future Changes in Climate and Socio-Economic Factors. Borris, M., et al., 2016. *Environmental Management,* 58(2), 223-237.

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Modeling the Relative Importance of Nutrient and Carbon Loads, Boundary Fluxes, and Sediment Fluxes on Gulf of Mexico Hypoxia. Feist, T.J., **J.J. Pauer**, W. Melendez, **J.C. Lehrter**, P.A. DePetro, **K.R. Rygwelski**, D.S. Ko, and **R.G. Kreis Jr.**, 2016. *Environmental Science & Technology,* 50(16), 8713-8721.

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Microplastic Contamination in the San Francisco Bay, California, USA. Sutton, R., et al., 2016. *Marine Pollution Bulletin,* 109(1), 230-235.

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Uptake and Distribution of Minerals and Heavy Metals in Commonly Grown Leafy Vegetable Species Irrigated With Sewage Water. Anwar, S., et al., 2016. *Environmental Monitoring and Assessment,* 188(9).

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A Review and Evaluation of the Impacts of Climate Change on Geogenic Arsenic in Groundwater From Fractured Bedrock Aquifers. Bondu, R., et al., 2016. *Water Air and Soil Pollution,* 227(9).

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Placing Ecosystem Services at the Heart of Urban Water Systems Management. Garcia, X., et al., 2016. *Science of the Total Environment,* 563, 1078-1085.

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Chloride Sources in Urban and Rural Headwater Catchments, Central New York. Gutchess, K., et al., 2016. *Science of the Total Environment,* 565, 462-472.

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Tidal-Fluvial and Estuarine Processes in the Lower Columbia River: II. Water Level Models, Floodplain Wetland Inundation, and System Zones. Jay, D.A., et al., 2016. *Estuaries and Coasts,* 39(5), 1299-1324.

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Conjunctive Management of Surface and Groundwater Resources Under Projected Future Climate Change Scenarios. Mani, A., et al., 2016. *Journal of Hydrology,* 540, 397-411.

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Watershed-Scale Impacts of Stormwater Green Infrastructure on Hydrology, Nutrient Fluxes, and Combined Sewer Overflows in the Mid-Atlantic Region. Pennino, M.J., et al., 2016. *Science of the Total Environment,* 565, 1044-1053.

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Managing the Increasing Water Footprint of Hydraulic Fracturing in the Bakken Play, United States. Scanlon, B.R., et al., 2016. *Environmental Science & Technology,* 50(18), 10273-10281.

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Impact of Conservation Land Management Practices on Soil Microbial Function in an Agricultural Watershed. Tyler, H.L., et al., 2016. *Journal of Soil and Water Conservation,* 71(5), 396-403.

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Assessing the Relation of USDA Conservation Expenditures to Suspended Sediment Reductions in an Iowa Watershed. Villarini, G., et al., 2016. *Journal of Environmental Management,* 180, 375-383.

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Recent Accelerated Warming of the Laurentian Great Lakes: Physical Drivers. Zhong, Y.F., et al., 2016. *Limnology and Oceanography,* 61(5), 1762-1786.

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An Evaluation of Methods for Estimating Decadal Stream Loads. Lee, C.J., et al., 2016. *Journal of Hydrology,* 542, 185-203.

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Recent and Upcoming Meetings

RECENT:

GWPC Annual Forum. September 11-14, 2016 in Orlando, FL.

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SETAC North America 37th Annual Meeting. November 6-10, 2016 in Orlando, FL.

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WEF Midyear Meeting. January 25-28, 2017 in Coral Gables, Florida.

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UPCOMING:

One Water Summit 2017. June 27-29, 2017 in New Orleans, LA.

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