Introducing the Water Research Quarterly: A Note from the Editor

I won’t usually take up space in the Quarterly with A Note from the Editor as the real estate of the Quarterly is too valuable. But, for our first edition, I’d like to give an introduction to this new internal publication.

The Water Research Quarterly (WRQ) was born from the desire of Water’s leadership to be kept current on the research and science activities taking place inside and outside of the Agency that may impact our own investigations, decisions, policy, or guidance. With that challenge in place, we evaluated mechanisms other research and science policy organizations use to get relevant and timely information to their stakeholders. We also reached out to ORD, USGS, Water Environment Research Foundation (WERF), Water Research Foundation (WaterRF, formerly AwwaRF), and National Science Foundation (NSF) to determine how to engage in information exchange and bring their efforts to light in the Quarterly. Working with Michael Fry, of the EPA Library, we set up a monthly literature search on all the journals Water program staff identified as being important to their projects.

Initially we were concerned we wouldn’t have enough content for a Quarterly. We were hugely mistaken. Project and product highlights as well as upcoming meetings and RfPs were offered by ORD’s National Program Directors and pulled from ORD and other Agency websites, skimmed from the above mentioned collaborators’ websites and newsletters, and from over 500 journal hits (just for the month of June). Our original concept was a one-page, double-sided, flyer. Such an abbreviated publication would

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Pharmaceutical Companies Provide EPA 100 Drugs to Help Predict Toxicity. In ongoing validation of ToxCast screening tool EPA will assess data for 100 drugs provided by several manufacturers. Go to Article or www.epa.gov/nce/toxcast


EPA and Other Federal Agencies Collaborate to Improve Chemical Screening. EPA is teaming with the National Toxicology Program, the National Chemical Genomics Center, and the Food and Drug Administration on the “Tox21 collaboration.” Go to Article or www.epa.gov/nce/tox21

From Collaborators

New Study Sheds Light on Possible Environmental Sources of NDMA. Study examines how consumer products may form harmful substances in wastewater. Go to News Release, Article, or pubs.acs.org/journal/esthag

CDC Reports Increase in Cryptosporidiosis. The number of reported cases of cryptosporidiosis increased 80% from 2006 to 2007 and then decreased 10% in 2008. Go to Report or www.cdc.gov/mmwr/mmwr_ss

Workshop Report on Managing Contaminants of Emerging Concerns in California. Workshop report by a consortium of nonprofits and universities; highlights strategies to address CECs in California. Go to Report or www.nwri-usa.org/CECs.htm


Breast Cancer and the Environment: The Scientific Evidence, Research Methodology, and Future Directions. The Institute of Medicine of the National Academies will examine evidence for environmental factors that may increase risk. Go to Report or www.iom.edu

Source, Fate and Transport of Endocrine Disruptors, Pharmaceuticals, and Personal Care Products in Drinking Water Sources in California. The National Water Research Institute study finds low levels of PPCPs in the drinking water sources that serve over 25 million southern Californians. Go to Report or www.nwri-usa.org/CECs.htm

Drinking Water Contaminants and Cancer. National Cancer Institute is studying health effects of high nitrate, chlorination byproduct, and arsenic levels in relation to risk of developing specific cancers. Go to Report or deeg.cancer.gov/oeeb/research

Antidepressants in Water Make Shrimp Suicidal. Authors found that exposure to antidepressant drugs makes shrimp more likely to place themselves in life-threatening situations. Go to News Release, Article, or Aquatic Toxicology

From the Journals

The Good, the Bad, and the Volatile: Can We Have Both Healthy Pools and Healthy People? LaKind, J.S., S.D. Richardson, and B.C. Blount, 2010. Environmental Science and Technology, 44(9), 3205-3210. Go to Article

Disease Susceptibility of Salmon Exposed to Polybrominated Diphenyl Ethers (PBDEs). Arkoosh, M., et al., 2010. *Aquatic Toxicology*, 98(1), 51-59. Go to Article


Bioaccumulation of Arsenic from Water and Sediment by a Deposit-Feeding Polychaete (*Arenicola marina*): A Biodynamic Modelling Approach. Casado-Martinez, M.C., et al., 2010. *Aquatic Toxicology*, 98(1), 34-43. Go to Article


Species-Specific Accumulation of Polybrominated Diphenyl Ether Flame Retardants in Birds of Prey from the Chesapeake Bay Region, USA. Chen, D., et al., 2010. Environmental Pollution, 158(5), 1883-1889.


Upcoming Meetings

Society of Environmental Toxicology and Chemistry (SETAC) North America 31st Annual Meeting. November 7-11, 2010 in Portland, OR. Go to portland.setac.org

American Public Health Association Meeting 138th Annual Meeting. Theme is Social Justice. November 6-10, 2010 in Denver, CO. Go to www.apha.org/meetings

30th International North American Lake Management Society Symposium. November 3-5, 2010 in Oklahoma City, OK. Go to Meeting Page or www.nalms.org

Water Quality Technology Conference. November 14-17, 2010 in Savannah, GA. Go to Meeting Page or www.awwa.org
Innovative and Affordable Tools and Technologies for Sustainable Public Health Protection

From EPA

Priorities of the Distribution System Research and Information Collection Partnership. EPA and WRF. Go to Report or www.epa.gov/safewater

Impact of Wet-Weather Peak Flow Blending on Disinfection and Treatment: A Case Study at Three Wastewater Treatment Plants. 2010. EPA/600/R-10/003. Go to Article or www.epa.gov/ednnrmrl


Climate Ready Water Utilities Toolbox. Searchable database for water utilities to identify climate change-related impacts and target resources. Go to Webpage or water.epa.gov/infrastructure


From Collaborators

WERF - Research Begins Under Multimillion-Dollar EPA Cooperative Agreement. Examining tools and procedures to cost-effectively improve wastewater infrastructure. Go to Article or www.werf.org


U.S. Army Corps of Engineers Launches Responses to Climate Change Website. Looks at climate change/variability and the need to reduce potential vulnerabilities of water resources and infrastructure. Go to www.corpsclimate.us


- Monochloramine Cometabolism: The Missing Link in Understanding Disinfectant Loss During Nitrification Episodes in Distribution Systems
- Water Utility Executive Leadership for the 21st Century
- Transformation of Amines to Nitrosamines in Activated Carbons: Implications for Nitrosamine Analysis and Water Purification
- A Comprehensive Field-Scale Distribution System Network Model Assessment and Analysis: Hydraulics and Water Quality
- Removal of Perfluorinated Compounds by Powdered Activated Carbon Blends, Superfine Powdered Activated Carbon, and Magnetic Anion Exchange Resins

Go to Article or www.waterresearchfoundation.org
WateReuse Research Foundation Announces Nine New Research Projects

- Cost of Over-Treating Reclaimed and Other Water
- Regulatory Workshop: Desalination Permitting
- Minimizing Impingement and/or Entrainment of Existing Intakes
- Role of Retention Time in the Environmental Buffer of Indirect Potable Reuse Projects
- Lower Energy Treatment Schemes for Water Reuse
- Bio-analytical Techniques to Assess the Potential Human Health Impacts of Reclaimed Water
- Implementing Reuse in New Development (Guide to Achieve LEED / Sustainability Goals)
- Selecting Salt, Metal, Radionuclide, and other Metal Recovery Strategies (Guide)

Go to Article or www.watereuse.org/foundation

Standard to Measure Water Use ‘Footprint’.
The International Organization of Standardization is working on a proposed global norm to allow companies to determine their usage of freshwater, or water ‘footprint.’

Go to Article or www.iso.org

From the Journals


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A Game Plan for Aging Water Infrastructure.

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Nitrogen, Phosphorus, and Bacteria Tile and Groundwater Quality Following Direct Injection of Dewatered Municipal Biosolids into Soil.

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Upcoming Meetings

Go to [www.nwri-usa.org/RechargeSymposium.htm](http://www.nwri-usa.org/RechargeSymposium.htm)

**Water Quality Technology Conference.** November 14-17, 2010 in Savannah, GA.
Go to [Meeting Page](http://www.awwa.org) or [www.awwa.org](http://www.awwa.org)

Go to [www.wateruse.org/conferences/symposium/25](http://www.wateruse.org/conferences/symposium/25)

**American Water Summit 2010.** November 3-4, 2010 in Washington, DC.
Go to [www.americanwatersummit.com](http://www.americanwatersummit.com)

Go to [waterenergy2010.com](http://waterenergy2010.com)

Go to [www.wateruse.org/conferences/australia/10](http://www.wateruse.org/conferences/australia/10)
Ecological Systems Approach to Protect and Restore Sustainable Water Quality and Water Quantity on a Watershed Basis

From EPA

ORD-NCEA - CADDIS Updates. Changes and improvements include reorganization and new stressor models, case studies, and guidance.
Go to Report or caddis-review.tetratech-ffx.com

Go to Report or www.epa.gov/sab

Go to Report or www.epa.gov/sab

Stephen Jordan, Ph.D., NHEERL Gulf Ecology Division, jordan.steve@epa.gov, 850-934-9350.

Go to Article

Estuary Programs to Address Climate Change Issues. Nine projects, managed by seven estuary programs, to assess climate change vulnerabilities.
Go to Article or www.epa.gov/crc

Next Steps for Chesapeake Bay “Pollution Diet.” Watershed-wide nutrient limits for nitrogen (187.4 million lbs) and phosphorus (12.5 million lbs).
Go to Article or www.epa.gov/chesapeakebaytmdl

From Collaborators

NRC - Management and Effects of Coalbed Methane Development and Produced Water in the Western United States.
Go to Report or dels.nas.edu

NRC - Sustainable Water and Environmental Management in the California Bay-Delta. New committee formed.
Go to Report or dels.nas.edu/wstb

Colorado River Water Availability Study. Analysis of impacts of climate change on the local level.
Go to Report or www.cwcb.state.co.us

USGS - Aquatic Life Declines at Early Stages of Urban Development. Pollution-sensitive fish and insects decline in urban/suburban streams exposed to pollution levels historically considered to be protective.
Go to Article or www.usgs.gov

USGS - Responses of Benthic Macroinvertebrates to Urbanization in Nine Metropolitan Areas of the Conterminous United States. Third Interagency Conference on Research in the Watersheds.
Go to Article or www.usgs.gov

Go to Article or water.usgs.gov/nawqa/mercury

East Lake Wetland Interface Study. Understanding the interface between urban development and conservation values of the Wetland Nature Reserves.
Go to Article or www.csiro.au

Go to Article or www.usda.gov

U.S. Forest Service - Water, Climate Change, and Forests: Watershed Stewardship for a Changing Climate. Healthy watersheds, especially in forested areas, can sustain climate changes and keep ecosystems functioning.

Go to Report or www.fs.fed.us

Draft ETV Protocol for Ballast Water Treatment Technologies. Protocol from EPA's Environment Technology Verification Program that should reduce the risk of introducing aquatic invasive species.

Go to Report or www.nsf.org

Lake Superior, a Huge Natural Climate Change Gauge, Is Running a Fever. Data showed water temperatures in July to be 15 °F higher than normal; also showed diminishing winter ice cover.

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From the Journals


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Upcoming Meetings

Fifth National Conference on Coastal and Estuarine Habitat Restoration. November 13-17, 2010 in Galveston Island, Texas.

Go to www.estuaries.org/conference

TMDL 2010: Watershed Management to Improve Water Quality. American Society of Agricultural and Biological Engineers, November 14-17, 2010 in Baltimore, MD.

Go to www.asabe.org/meetings/tmdl2010


Go to www.wateruse.org/conferences/australia/10


Go to Meeting Page or www.epa.gov/nerl

National NPS Monitoring Conference. November 16-18, 2010 in Milwaukee, WI.

Go to npsmonitoring.tetratech-ffx.com
This 2010 report summarizes the outcome of meetings between ORD representatives and the SAB held on November 9-10, 2009 and April 5-6, 2010. The SAB concluded that ORD’s current research and suggested strategic directions generally support ORD’s key priorities.

The SAB had several recommendations. First, they recommended that ORD cultivate a systems approach in its research and provide leadership and support for transdisciplinary research teams. Because a systems approach emphasizes a holistic understanding of environmental problems, research teams need to cross disciplines. There are examples of such integrated research within ORD; the SAB suggests that this approach be implemented throughout ORD.

The SAB also recommended that ORD systematically strengthen its partnerships with states and tribes to gain their input and to develop interagency research projects. Investments in green chemistry, green engineering, and environmental justice were also encouraged. The SAB also recommends that ORD incorporate social and behavioral sciences into its work, noting that many strategies for addressing environmental problems have social and behavioral components.

Go to Report or www.epa.gov/sab

Other Products from ORD

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

Detecting and Characterizing Engineered Nanomaterials: A Key Tool for Environmentally Responsible Nanotechnology. Heithmar, H.M., Article

Emerging Environmental Contaminants and Solid Phase Microextraction: Janusz Pawliszyn's Legacy in the Environmental Arena. Richardson, S.D., Article

Impact of Environmental Conditions (pH, Ionic Strength, and Electrolyte Type) on the Surface Charge and Aggregation of Silver Nanoparticles Suspensions. El Badawy, A.M., et al., Article

Innovative and Affordable Tools and Technologies for Sustainable Public Health Protection


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

Segmentation and Object-Oriented Classification of Wetlands in a Karst Florida Landscape Using Multi-Season Landsat-7 ETM+ Imagery. Charles Lane, Ph.D., USEPA ORD/NERL/EERD/ERB, lane.charles@epa.gov, 513-569-7854.

Spatial and Temporal Heterogeneity in Water Chemistry Variables Within Isolated Wetlands of Florida, USA, and Relationships with Macroinvertebrate and Diatom Communities. Charles Lane, Ph.D., USEPA ORD/NERL/EERD/ERB, lane.charles@epa.gov, 513-569-7854.

Alternative Futures Analysis of Farmington Bay Wetlands in the Great Salt Lake Ecosystem. Sumner, R., et al., 2010.EPA/600/R-10/032 Report

Lead in Lake Michigan and Green Bay Surficial Sediments. Pfeiffer, E.L., and R. Rossmann Article
EPA Small Business Innovative Research (SBIR) Grants

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

- Inexpensive, Rapid and Comprehensive Virulence and Marker Gene (VMG) Analyzer for Waterborne Pathogens. AquaBioChip, LLC.

- Reagentless Field-Usable Fixed-Site and Portable Analyzer for Trihalomethane (THM) Concentrations in Drinking Water. KWJ Engineering, Inc.

- Rapid Concentration of Viruses from Water. Scientific Methods, Inc.

Innovative and Affordable Tools and Technologies for Sustainable Public Health Protection

- Antimicrobial-Coated Granular Filter Media for Drinking Water Treatment. Coating Systems Laboratories, Inc.


EPA Science to Achieve Results (STAR) Grants

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


- Effects-Based Cumulative Risk Assessment in a Low-Income Urban Community near a Superfund Site. Harvard School of Public Health, Channing Laboratory.

- Transport and Transformation of Natural and Synthetic Steroid Hormones at Beef Cattle and Dairy Concentrated Animal Feeding Operations (CAFOs). University of California - Berkeley, University of California - Davis, University of Nevada - Reno.


- Use of Biomarkers and Physiologically Based Pharmacokinetic (PBPK) Modeling in Risk Analysis for Developmental Effects of Chlorpyrifos. Clark University, Columbia University.

- Bioavailability and Fates of CdSe and TiO₂ Nanoparticles in Eukaryotes and Bacteria. University of California - Santa Barbara, McGill University.

- Development of a PBPK Model for Interpreting Biomonitoring Data on Carbaryl and Other N-Methyl-Carbamates. The Hamner Institutes.

- Aquatic Toxicity of Carbon-Based Nanomaterials at Sediment-Water Interfaces. University of Missouri - Columbia, Columbia Environmental Research Center, USGS.

- An Integrated Computational Framework for the Interpretation of Organophosphorus Pesticide Biomarkers. Colorado State University, Mississippi State University - Main Campus.
Introducing the Water Research Quarterly
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not do justice to the amount of quality information that could be made available to OW. We changed the format to target 2-double-sided pages for each Water program priority theme identified in April 2010 for Pete Silva (AA-Water) and Paul Anastas (AA-ORD): Protecting Aquatic Life and Human Health from Chemicals and Microbes in Water, Innovative and Affordable Tools and Technologies for Sustainable Public Health Protection, and Ecological Systems Approach to Protect and Restore Sustainable Water Quality and Water Quantity on a Watershed Basis. We will also include, as needed, some special “appendices,” such as “Other Products from ORD,” and listings of recent grants. So, some editions will be larger than others and there certainly will be some edition-to-edition adjustments. Even with the longer format, much was left on the “cutting room floor”.

To optimize the content, the inaugural format that you will see in the Quarterly is a bold “headline or title,” sometimes followed by a brief sentence introducing the findings, and then an electronic link to the complete document or more detailed information. For some works-in-progress from ORD, only a contact name may be available. We have tried to use the “words” of the original source both for the accuracy and integrity of the material. This may result in the occasional entry that gives you pause, such as “Antidepressants in water make shrimp suicidal,” but this was “the headline” that announced a new paper about pharmaceutical effects on aquatic biota. And it may lighten up the weight of the content! 😊

I certainly hope you will find at least one, if not many, items of interest in this and future Quarterlies. We are anxious for your feedback. Does the format and content work for you? Let us know.

Thanks,
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Ecotoxicology of Underivatized Fullerenes (C60) in Fish. University of Tennessee - Knoxville.

Determination of Aggregate and Cumulative Exposures of Perfluorinated Compounds Consistent with Biomarkers of the Compounds Using Simulation Modeling of Exposure and Pharmacokinetics. The LifeLine Group, Inc., Center for Human Health Assessment CIIT Centers for Health Research, University of Ottawa’s Institute for Population Health.

CYP-Specific PBPK/PD Models to Interpret Biomarkers for Organophosphate Pesticides. State University of New York - Buffalo.

The Fate and Effects of Nanosized Metal Particles along a Simulated Terrestrial Food Chain Investigated Using Genomic and Microscopic Techniques. University of Georgia.


Transport/Fate/Ecological Effects of Steroids from Poultry Litter & Evaluations of Existing/Novel Management Strategies. Wye Research and Education Center, Maryland Department of Natural Resources, School of Medicine at the University of Maryland, Virginia Institute of Marine Science.

Fate of Hormones in Waste from Concentrated Broiler Feeding Operations. University of Georgia, USDA-Agriculture Researce Service.

Innovative and Affordable Tools and Technologies for Sustainable Public Health Protection


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

Enhancing Ecosystem Services in a High Risk Agroecosystem of the Interior Pacific Northwest in the Face of Climate Change and Land Use Intensification. Oregon State University.

http://water.epa.gov/scitech/swguidance/standards/strategy/strategy_index.cfm