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

From EPA

IRIS Human Health Assessments: Recent Final and Peer Review Releases. Final Assessment: Chloroprene; Cis-1,2-dichloroethylene; Pentachlorophenol; 1,1,2,2-Tetrachloroethane; Trans-1,2-dichloroethylene; Hydrogen Cyanide and Cyanide Salts. External Peer Review: Urea; Chromium VI.

Go to www.epa.gov/IRIS


Go to Report or cfpub.epa.gov/si


Go to www.horizonpress.com/water-microbiology


Go to Report or cfpub.epa.gov/si


William Russo, USEPA ORD/NHEERL, russo.bill@epa.gov, 919-541-7869 or www.epa.gov/nheerl


Go to Report or www.epa.gov/nhsr

Bayer Agrees to Terminate All Uses of Aldicarb. Production end 2014, remaining uses end 2018.

Go to Article or www.epa.gov/pesticides

From Collaborators

Gulf Oil Spill - NSF Funds Research on Impacts to Florida Everglades. Awarded to study effects on seagrasses and mangrove forests.

Go to Article or www.nsf.gov

NAS-NRC - Review of the Federal Response to the Health Effects Associated with the Gulf of Mexico Oil Spill.

Go to Article or www.iom.edu
NSF Awards Grant to Study Effects of Oil and Dispersants on Louisiana Salt Marsh Ecosystem.
Go to Article or www.nsf.gov

CDC - Released Health Effects Data of Lead Exposure from Municipal Water Systems. Data shows no level of lead exposure considered safe, especially for children.
Go to Article or www.cdc.gov

ATSDR Releases Health Advisory to Prevent Hexavalent Chromium Exposure in Garfield, NJ. Recommends staying out of basements.
Go to Article or www.atsdr.cdc.gov

Ohio River Study Finds Drugs, Chemicals That Slip Through Waste Treatment. Chemicals and pharmaceuticals (antidepressants, veterinary hormones, cocaine) detected.
Go to Article or www.courier-journal.com

Identifying Hormonally Active Compounds, Pharmaceuticals, and Personal Care Product Ingredients of Health Concern. Health risk-based guidelines for emerging contaminants select the level most protective of human health.
Go to Report or www.watereuse.org

USGS - Elevated Nutrients in the Nation’s Streams and Groundwater–A Continuing Issue. Concentrations, key sources, potential effects on humans and aquatic life, and changes since the early 1990s.
Go to Report or www.usgs.gov

Go to Article or www.usgs.gov

Go to Report or www.waterrf.org

USGS Releases Study of Pharmaceuticals in Wastewater. Loads have been underestimated.
Go to Article or www.awwa.org

USGS - Many Urban Streams Harmful to Aquatic Life Following Winter Pavement Deicing.
Go to Article or www.usgs.gov

USFWS - Grassy Island Containment Evaluation is Underway. This diked disposal location evaluated to determine effectiveness of containment measures.
Go to Article or www.fws.gov

Workshop Summary: Antibiotic Resistance: Implications for Global Health and Novel Intervention Strategies. Lessening the impact of these superbugs.
Go to Report or www.iom.edu

Marine Scientists and Students Find Widespread Floating Plastic Debris in North Atlantic Ocean. Examined data collected for over 22 years.
Go to Article or www.nsf.gov

From the Journals


Nitrate May Feed Thyroid Disorders. Weinhold, B., 2010. Environmental Health Perspectives, 118(6), A242-A242. Women whose water contained >2.46 mg/L were 2.18 times more likely to have thyroid cancer than those whose water contained <0.36 mg/L. Go to Article


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A Review of Pesticide Exposure and Cancer Incidence in the Agricultural Health Study Cohort. Weichenthal, S., et al., 2010. Environmental Health Perspectives, 118(8), 1117-1125. Go to Article


Adverse Effects of Methyl-Mercury: Environmental Health Research Implications. Grandjean, P., et al., 2010. Environmental Health Perspectives, 118(8), 1137-1145. Go to Article

Environmental Occurrence and Reproductive Effects of the Pharmaceutical Fluoxetine in Native Freshwater Mussels. Bringolf, R.B., et al., 2010. Environmental Toxicology and Chemistry, 29(6), 1311-1318. Go to Article

Triclosan Has Endocrine-Disrupting Effects in Male Western Mosquitofish, Gambusia affinis. Raut, S.A. and R.A. Angus, 2010. Environmental Toxicology and Chemistry, 29(6), 1287-1291. Go to Article

Biomonitoring Studies Should Be Used by Regulatory Agencies to Assess Human Exposure Levels and Safety of Bisphenol A. Vandenberg, L.N., et al., 2010. Environmental Health Perspectives, 118(8), 1051-1054. Go to Article

Fecundability and Serum PBDE Concentrations in Women. Goodman, J.E., et al., 2010. Environmental Health Perspectives, 118(8), A330-A330. Go to Article


Reproductive Responses in Fathead Minnow and Japanese Medaka Following Exposure to a Synthetic Progestin, Norethindrone. Paulos, P., et al., 2010. Aquatic Toxicology, 99(2), 256-262. Go to Article
A Role for Analytical Chemistry in Advancing Our Understanding of the Occurrence, Fate, and Effects of Corexit Oil Dispersants. Place, B., et al., 2010. Environmental Science & Technology, 44(16), 6016-6018.

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Three Common Metal Contaminants of Urban Runoff (Zn, Cu & Pb) Accumulate in Freshwater Biofilm and Modify Embedded Bacterial Communities. Ancion, P.Y., et al., 2010. Environmental Pollution, 158(8), 2738-2745.

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**Upcoming Meetings**

Disinfection 2011. April 10-12, 2011 in Cincinnati, OH.

Go to [www.wef.org/disinfection](http://www.wef.org/disinfection)


Go to [www.wef.org/ResidualsBiosolids](http://www.wef.org/ResidualsBiosolids)
From EPA

Arsenic Removal from Drinking Water by Iron Removal and Coagulation/Filtration at Two EPA Demonstration Sites: Sabin, MN and Felton, DE. 2010. EPA/600/R-10/033 and EPA/600/R-10/039.

Go to Report 1, Report 2, or www.epa.gov/nrmrl/pubs

Treating Contaminants of Emerging Concern: A Literature Review. Searchable database for technologies and their removal capabilities.

Go to Report or water.epa.gov/scitech


Go to Report or www.epa.gov/nrmrl


Go to Report or www.epa.gov/nrmrl/pubs


Tammy L Jones-Lepp, USEPA ORD/NERL/ESD, jones-lepp.tammy@epa.gov, 702-798-2144.


Go to Report or water.epa.gov/infrastructure


Go to Report or www.epa.gov/nhsrc/pubs.html


Go to Report or www.epa.gov/nrmrl/pubs


Go to www.horizonpress.com/water-microbiology

From Collaborators


Go to Report or nwri-usa.org

Removal and Fate of EDCs and Pharmaceuticals in Bank Filtration Systems. WRF Project #3136. Riverbank filtration effective in removing PPCPs, EDCs, and industrial chemicals.

Go to Report or www.waterrf.org

Biological Destruction of Perchlorate and Nitrate in Ion Exchange Concentrate. Addresses issues of biomass recovery, recycle, and scale-up.

Go to Report or www.wef.org
Contaminant Candidate List Viruses: Evaluation of Disinfection Efficacy.
Go to Report or www.waterf.org

Low-Cost Treatment Technologies for Small-Scale Water Reclamation Plants. For systems with flows of less than 1 mgd.
Go to Article or www.wateruse.org

Treating Algal Toxins Using Oxidation, Adsorption, and Membrane Technologies. WRF Project # 2839. Implementation and cost data.
Go to Report or www.waterf.org

Impacts of Lining Material on Water Quality. Lining materials used in distribution systems that may release compounds with potential health effects into drinking water.
Go to Report or www.wef.org

Monitoring for Microconstituents in an Advanced Wastewater Treatment Facility and Modeling Discharge of Reclaimed Water to Surface Canals for Indirect Potable Use.
Go to Report or www.desalination.biz

Go to Report or www.waterf.org/thefoundation

Decision Tool Helps Utilities Select Treatment Options. WRF Project #3115. Simultaneous Compliance Tool, online and updated with more information for small systems.
Go to Report or www.waterf.org

DOE - Awards $37 Million for Marine and Hydrokinetic Energy Technology Development. Ranging from concept studies to prototype testing to generate renewable energy from oceans and rivers.
Go to Article or www.energy.gov

From the Journals

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Upcoming Meetings

The Utility Management Conference 2011. February 8-11, 2011 in Denver, CO.
Go to www.wef.org/utilitymanagement

Ground Water Summit and Ground Water Protection Council Spring Meeting. May 1-5, 2011 in Baltimore, MD.
Go to www.ngwa.org/summit2011

Go to Meeting Page or www.nwri-usa.org

Go to Meeting Page or www.wateruse.org

Go to www.citiesalive.org

Go to www.conservationfund.org/GIC2011

2011 WateReuse California Annual Conference. March 20-22, 2011 in Dana Point, CA.
Go to Meeting Page or www.wateruse.org

15th Annual Water Reuse and Desalination Research Conference. May 16-17, 2011 in Las Vegas, NV.
Go to Meeting Page or www.wateruse.org

Go to www.watermatex2011.org
## Ecological Systems Approach to Protect and Restore Sustainable Water Quality and Water Quantity on a Watershed Basis

**From EPA**

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<tr>
<th>Title</th>
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<tr>
<td>EPA Great Lakes Restoration Initiative Grants Awarded Totaling $20 Million in New York State. Grants to 17 organizations.</td>
<td></td>
<td>Report or <a href="http://www.epa.gov/ocspp">www.epa.gov/ocspp</a></td>
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**From Collaborators**

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<tr>
<td>NSF Scientists Map Large Underwater Hydrocarbon Plume in Gulf from Oil Spill.</td>
<td>Detected plume at least 22 miles-long, 1.2 miles-wide, 650-feet-high, and 3,000 feet below the surface.</td>
<td>Report or <a href="http://www.nsf.gov">www.nsf.gov</a></td>
</tr>
<tr>
<td>USFWS Addresses Urgent Habitat Needs for Birds and Other Wildlife along the Gulf Coast. Working with partners on habitat conservation after gulf oil spill.</td>
<td></td>
<td>Report or <a href="http://www.fws.gov">www.fws.gov</a></td>
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<tr>
<td>Comparison of Three Biomass Sampling Techniques on Submersed Aquatic Plants in a Northern Tier Lake.</td>
<td></td>
<td>Report or <a href="http://el.erdc.usace.army.mil">el.erdc.usace.army.mil</a></td>
</tr>
<tr>
<td>NAS-NRC - Ocean Acidification: A National Strategy to Meet the Challenges of a Changing Ocean.</td>
<td></td>
<td>Report or <a href="http://books.nap.edu">books.nap.edu</a></td>
</tr>
</tbody>
</table>
Effects of Nutrients, Salinity, and pH on *Salvinia molesta* (Mitchell) Growth. Giant salvinia has invaded several southern, freshwater systems and formed floating mats up to 1 m thick. Temperature, nutrients, salinity, and pH may limit distribution and survival.

Go to Report or el.erdc.usace.army.mil

USACE - A New Nonmonetary Metric for Indicating Environmental Benefits from Ecosystem Restoration Projects. The Biodiversity Security Index measures value gained from securing native species from decline by providing natural ecosystem support.

Go to Report or el.erdc.usace.army.mil


Go to Report or el.erdc.usace.army.mil

NSF - Slowing Urban Sprawl and Adding Forests; Best Approach to Curb Floods and Help Rivers. Purdue University.

Go to Article or www.nsf.gov

NRDC - Climate Change, Water, and Risk: Current Water Demands Are Not Sustainable. One-third of all counties face higher risks of shortages by mid-century; more than 400 facing extremely high risks.

Go to Report or www.nrdc.org/globalwarming

Scientific Assessment of Hypoxia in U.S. Coastal Waters. Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health. Outlines steps that may help reverse this decades-long trend.

Go to Report or www.whitehouse.gov

NSF - Tile Drainage Directly Related to Nitrate Loss. Heavily tile-drained areas are found to be largest source of nitrate in the Gulf of Mexico.

Go to Article or www.nsf.gov

USFWS - Service Awards More Than $4.7 Million for Fish and Wildlife Restoration in the Great Lakes Basin.

Go to Article or www.fws.gov


Go to Article or www.bae.ncsu.edu

NSF - Insecticides From Genetically Modified Corn Present in Adjacent Midwest Streams.

Go to Article or www.nsf.gov

Warming Ocean Temperatures Causing Massive Coral Bleaching in South Asia. About 80% of coral species in the Aceh province of Indonesia have died since May; ocean temperatures 4°C above average.

Go to Article or www.cesi.org


Go to stateofthecoast.noaa.gov

Initial Application of a Landscape Evolution Model to a Louisiana Wetland. Feasibility of transferring a model developed for the Florida Everglades to Davis Pond, LA.

Go to Report or el.erdc.usace.army.mil

Aluminum Sulfate Application to Improve Under-Water Light Condition for Native Submersed Macrophyte Restoration: Alum to Phosphorus Binding Ratio Considerations.

Go to Report or el.erdc.usace.army.mil

WERF - Sustainable Water Resources Management Volume 3: Case Studies on New Water Paradigm.

Go to Report or www.werf.org

NOAA - Second Warmest July and Warmest Year-to-Date Global Temperature on Record.

Go to Article or www.noaa.gov


Go to Report or www.waterboards.ca.gov/waterrights
Exchangeable Phosphorus Pools and Equilibrium Characteristics for River Sediment as a Function of Particle Size. For use in SWWRP-NSM parameters to simulate adsorption and desorption in river systems.

A Method to Identify Estuarine Macroinvertebrate Pollution Indicator Species in the Virginian Biogeographic Province. Pelletier, M.C., et al., 2010. Ecological Indicators, 10(5), 1037-1048.


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**Linking Traits to Species Diversity and Community Structure in Phytoplankton.**
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### Upcoming Meetings

Go to icosse11.org

**Nutrient Recovery and Management 2011.** January 9-12, 2011 in Miami, FL.
Go to www.wef.org/nutrient

**Impaired Waters Symposium 2011: Spanning the Water Quality Continuum – From Standards to TMDLs.** January 12-13, 2011 in Miami, FL.
Go to www.wef.org/ImpairedWaters

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### Other Products from ORD

**Sustainable Chesapeake: A Collaborative Approach to Urban Stormwater Management.** Requests research proposals on how to influence behavior to prevent pollution in Chesapeake Bay; specifically to identify collaborative (i.e., multi-entity) approaches to reduce urban stormwater inputs.
Go to Article or www.epa.gov/ncer

**Modeling Workshop Covered Thresholds in Stressors and Coral Reef Condition.** Experts examined sustainable delivery of coral reef ecosystem services. Models will aim to assist in setting thresholds and to establish a context for economic quantification.
Susan Yee, USEPA ORD/GED, yee.susan@epa.gov, 850-934-9397.

**Interagency Working Group on Ocean Acidification Formed Under Joint Subcommittee for Ocean Science and Technology.**
William Fisher, USEPA ORD/GED, fisher.william@epa.gov, 850-934-9394.

**Coral Reef Management Decision Tool.** Will be posted to ESRP Web site for linking ecological and socioeconomic factors for coral reefs. Populated with a coral library, legislative atlas, and management options.
William Fisher, USEPA ORD/GED, fisher.william@epa.gov, 850-934-9394.

**MIMES Model for Estimating the Impacts of Decisions and Human Stressors on Coral Reef Ecosystem Services.** To be completed to assist with coral reef management decision options.
William Fisher, USEPA ORD/GED, fisher.william@epa.gov, 850-934-9394.

**Two Case Studies on Delivery of Coral Reef Ecosystem Services Linked to Watershed and Land-Use Activities.** To be used as guidance for future development and conservation decisions.
William Fisher, USEPA ORD/GED, fisher.william@epa.gov, 850-934-9394.