

A Preview of What's In This Issue

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First National-Scale Reconnaissance of Neonicotinoid Insecticides in United States Streams

Neonicotinoid insecticides were present in a little more than half of the streams sampled across the United States, according to a new U.S. Geological Survey (USGS) study. This is the first national-scale study of the presence of neonicotinoids in urban and agricultural land-use settings across the Nation.



Groundwater Quality in Principal Aquifers of the United States, 1991–2010

A new USGS report summarizes the major findings of national and regional assessments of groundwater quality in 40 principal aquifers across the United States. Increasing demands are being placed on this vital natural resource. Awareness of contaminant occurrence and the factors that control contaminant concentrations allow resource managers to ensure the availability and sustainability of safe, available drinking water.



Long-Term Study Finds Endocrine Disrupting Chemicals in Urban Waterways

USGS scientists determined that endocrine disrupting chemicals (EDCs) were present in wastewater treatment plant effluent, streams, and fish tissue in urban waterways in the Great Lakes and upper Mississippi River Regions. This study indicated that wastewater discharges can be long-term sources for EDCs that are not removed completely during the wastewater treatment process, and once introduced into streams, the EDCs were found tens of kilometers downstream from effluent sources.



Personal Care Products, Pharmaceuticals, and Hormones Move from Septic Systems to Local Groundwater

Pharmaceuticals, hormones, personal care products, and other contaminants of concern associated with everyday household activities were found in shallow groundwater near two septic system networks in New York and New England. Factors influencing chemical movement to shallow groundwater include population served by the septic system, site conditions such as soil permeability, and the chemical properties.



Assessing Environmental Chemical Mixtures in United States Streams

A collaborative study between the USGS and the U.S. Environmental Protection Agency is looking at possible environmental effects of chemical mixtures introduced into streams from a variety of human activities and contaminant sources. Water samples collected from 38 streams spanning 24 States and Puerto Rico are undergoing comprehensive chemical and biological characterization, including analysis for over 700 dissolved organic and inorganic chemicals.



Environmental Contaminants and Beak Deformities in Alaskan Chickadees

Beak abnormalities have been seen in black-capped chickadees in Alaska since the late 1990s. A recent study by the USGS provides some of the first environmental contaminant data on this species but leaves unanswered questions as to the cause of the beak abnormalities in this region. The data resulted from testing for a broad suite of inorganic and organic contaminants in the tissues of affected and unaffected adult chickadees, their nestlings, and their eggs.



Federal and State Partnerships Advance Understanding of Contaminants in a Human-Health Context

Partnerships between the USGS and the Minnesota Department of Health enhance the State's ability to evaluate potential human-health risks from emerging contaminants of concern (CECs). The CECs include chemicals in products we use and consume in our daily lives such as human-use and veterinary pharmaceuticals, fragrances, surfactants, plastic components, and fire retardants.



Pesticides, Flame Retardants, and Mercury in Tissues from Columbia Basin Pacific Lamprey

Pesticides, flame retardants, and mercury were present in Pacific lampreys at levels that may be contributing to the overall decline of this species in the Columbia River Basin. These findings are based on the study by the USGS and the Columbia River Inter-Tribal Fish Commission that produced the largest available dataset of contaminants measured in lamprey tissues and lamprey habitats.



Potential Exposure to Bacteria and Viruses Weeks after Swine Manure Spill

Following a large swine manure spill that contaminated a nearby stream, USGS scientists applied molecular techniques to detect bacteria and viruses with the potential to cause human or swine disease in the stream water and bed sediment. These microbial contaminants were detected as far as 4 kilometers from the spill.



Public Perception Impedes Prevention of Arsenic Exposure

One of the biggest challenges in preventing arsenic exposure from drinking water may be public perception, according to a recent special section of "Science of the Total Environment." The special section consists of 13 papers that report on a new understanding of the chemistry and geology of arsenic that is present in groundwater used for drinking water in several regions of the United States.



Microbiology and Chemistry of Waters Produced from Hydraulic Fracking—A Case Study

A new USGS study provides information about microbiology and contaminants associated with produced waters from 13 hydraulically fractured shale gas wells in north-central Pennsylvania. Volatile organic compounds and microbial characteristics varied among sites. Questions remain about the factors contributing to the differences among wells and how microbial activity influences organic contaminant degradation in produced waters.



New Online Tool Tracks Water Quality in the Nation's Rivers and Streams

A new data tool that provides graphical summaries of nutrient and sediment concentrations in rivers and streams is now available online. This new USGS online tool allows users to track nutrient and sediment loads and streamflow information from more than 100 river and stream sites across the Nation.



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