

EMERGING WATER CHALLENGES

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Regional Economic Area Partnership
Annual Conference
May 21, 2015



EPA Region 7 Water Focus Areas

- Nutrients/Water Quality
- Wastewater
- Drinking Water
- Watersheds & Wetlands
- Infrastructure Resilience
- Enforcement
- Tribal Programs





Nutrients

- Kansas was the 1st state in Region 7 to develop a nutrient reduction plan (2004). Nutrients remain a problem in Kansas; algal blooms occur in some waters during the summer months.
- Excess nutrients in waters is a problem throughout the US.
- Many Sources
- Much work has been done, more to do.

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Why are we talking about Harmful Algal Blooms?

- The prevalence and duration of HABs in freshwater is rapidly expanding in the U.S. and worldwide.
- Some algal blooms can produce toxins at levels that may be of concern for human health and ecological impact.
- HABs have caused economic losses to the fishing and recreation industries while increasing costs for managing and treating potable water supplies.



EPA Health Advisory Summary May 6, 2015

10-Day Health Advisory Recommended Values: Microcystins and cylindrospermopsin
Exposure Pathway: oral ingestion of drinking water

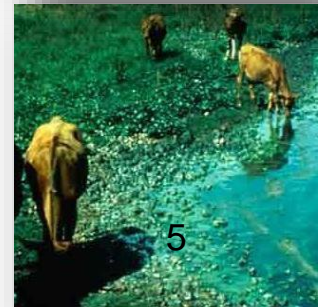
chemical	10-day advisory	
	Bottle-fed infants and pre-school children	School-age children and adults
microcystins	0.3 µg/L	1.6 µg/L
cylindrospermopsin	0.7 µg/L	3 µg/L

For those systems who choose to do so, having these two values provides an opportunity to take actions to reduce exposure in finished drinking water by refining treatment processes to minimize public health risks and evaluating source water.



What are the challenges?

- How do environmental factors (e.g. concentrations of nutrients) and climate change affect bloom formation and toxin production?
- It is unclear how often toxin-producing blooms occur in drinking water supplies.
- Many research gaps on which conventional drinking water treatment configurations sufficiently reduce toxin concentrations to protect public health.
- Control of point and non-point source nutrient pollution.





Asset Management: Improving Management of Utility Resources

- Hillsboro, KS – Effective use of staff time on work orders. Utilizing one of the emergency preparedness tools called CREAT.
- Mound Ridge, KS – Initial work with asset management has reduced duplication of inventory → better inventory control.
- Kansas City, KS (BPU) – Better knowledge and tracking of asset maintenance schedules has reduced overtime hours.

http://www.epa.gov/ogwdw/smallsystems/pdfs/guide_smallsystems_assetmanagement_bestpractices.pdf





Integrated Planning

- Work with states and municipalities to support appropriate considerations and scheduling of priority work. EPA provides assistance and guidance to develop plans and has awarded assistance grants to communities.
- Nov. 2014 “Financial Capability Assessment Framework for Municipal Clean Water Act Requirements”
- Examples:
 - Lawrence Kansas
 - Springfield Missouri





Small Community Challenge: Lagoons

- Lagoons are most viable WW Treatment alternative, especially for small communities.
- In Kansas, for instance, about 85% of municipal facilities are lagoons, and on average, these lagoons provide service to about 450 people.
- EPA (HQ and R7) with Kansas exploring the option of a variance from the new ammonia criteria for qualifying lagoon facilities



Wet Weather

- The municipal (MS4) stormwater program is designed to be a process of iterative improvement, where a municipality designs their own pollution reduction program around a standard framework (the 6 minimum measures) and evaluates what's working and what can be improved
- Municipalities have flexibility for continual improvement of their stormwater program.
- In addition to encouraging the better protections in MS4 permits as they are reissued by the states, EPA has been promoting the benefits of using Green Infrastructure BMPs (Best Management Practices) to meet these challenges of continual improvement.



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316(b): New Cooling Water Intake Rule

- Requires Biological and Engineering Studies.
- Applications/Draft Permits Reviewed by FWS.
- Requires studies to assess the number of fish and other aquatic organisms taken in with the millions of gallons taken into power plants.
- FWS will be reviewing these studies and permitting decisions to see that Endangered Species are protected.





Water Infrastructure Finance and Innovation Act of 2014 (WIFIA)

- Eligible entities are private organizations, including corporations, and any governmental organizations including tribes.
- Eligible projects include wastewater and drinking water projects plus a wide range of wetlands, stormwater and waterways type projects.
- Most projects \$20 million or more; 15% set aside for \$5 million or more projects.
- The assistance shall be no more than 49% of the project cost although exceptions to this cap are allowed.
- The loan must be repaid from taxes, user fees or some dedicated revenue source.
- The loan can be repaid over a 35 year period.
- All of the iron and steel products must be made in America.

Water Infrastructure and Resiliency Finance Center (Emerging)

- Part of the Build America Investment Initiative
- EPA Office of Water
- Communities across the country face the challenge of aging and inadequate water infrastructure.
- Explore innovative financial tools, public-private partnership opportunities and non-traditional finance concepts to better leverage existing federal funding programs.



Too Much-Too Little Water

- Changing patterns of precipitation
- Earlier snowmelt
- More extreme weather events
- Increased drought
- Sea level rise and storm surges
- Coastal impacts and ocean acidification
- Warmer water temperatures



Infrastructure Vision

- Resilient and adaptable drinking water, wastewater and stormwater utilities ...
 - Smart investment decisions to improve sustainability of infrastructure and operations, and the communities served.
 - Reduce greenhouse gas emissions through greater energy efficiency.



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Infrastructure Key Goals

- 1) Sustainable Design
- 2) Integrated Water Resources Management





Climate Resilience Evaluation and Awareness Tool (CREAT)

Assists water utilities in conducting climate change risk assessments and analyzes adaptation strategies



Too Much-Too Little Water and Water Programs

- WaterSense®/Water Conservation
- Promote and Use Available Tools
<http://water.epa.gov/scitech/climatechange/resources-and-tools.cfm>
- SRF Projects-Infrastructure
- Green Infrastructure-Stormwater as a Resource



EPA Water & Climate Tools (Examples)

Flood Resilience: A Basic Guide for Water and Waste Water Utilities

EPA's Flood Resilience Guide is your one-stop resource to know your flooding threat and identify practical mitigation options to protect your critical assets.

→ <http://water.epa.gov/infrastructure/watersecurity/emmerplan/upload/epa817b14006.pdf>

Enhancing Sustainable Communities With Green Infrastructure: A Guide To Help Communities Better Manage Stormwater While Achieving Other Environmental, Public Health, Social, And Economic Benefits

This guide aims to help local governments, water utilities, nonprofit organizations, neighborhood groups, and other stakeholders integrate green infrastructure strategies into plans that can transform their communities.

→ <http://www.epa.gov/smartgrowth/green-infrastructure.html>

Being Prepared for Climate Change: A Workbook for Developing Risk-Based Adaptation Plans

This workbook helps users to create a vulnerability assessment and identify adaptation actions to address their vulnerabilities. The Workbook will assist organizations that manage environmental resources to prepare a broad, risk-based vulnerability assessment and adaptation plan.

→ http://www2.epa.gov/sites/production/files/2014-09/documents/being_prepared_workbook_508.pdf



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