



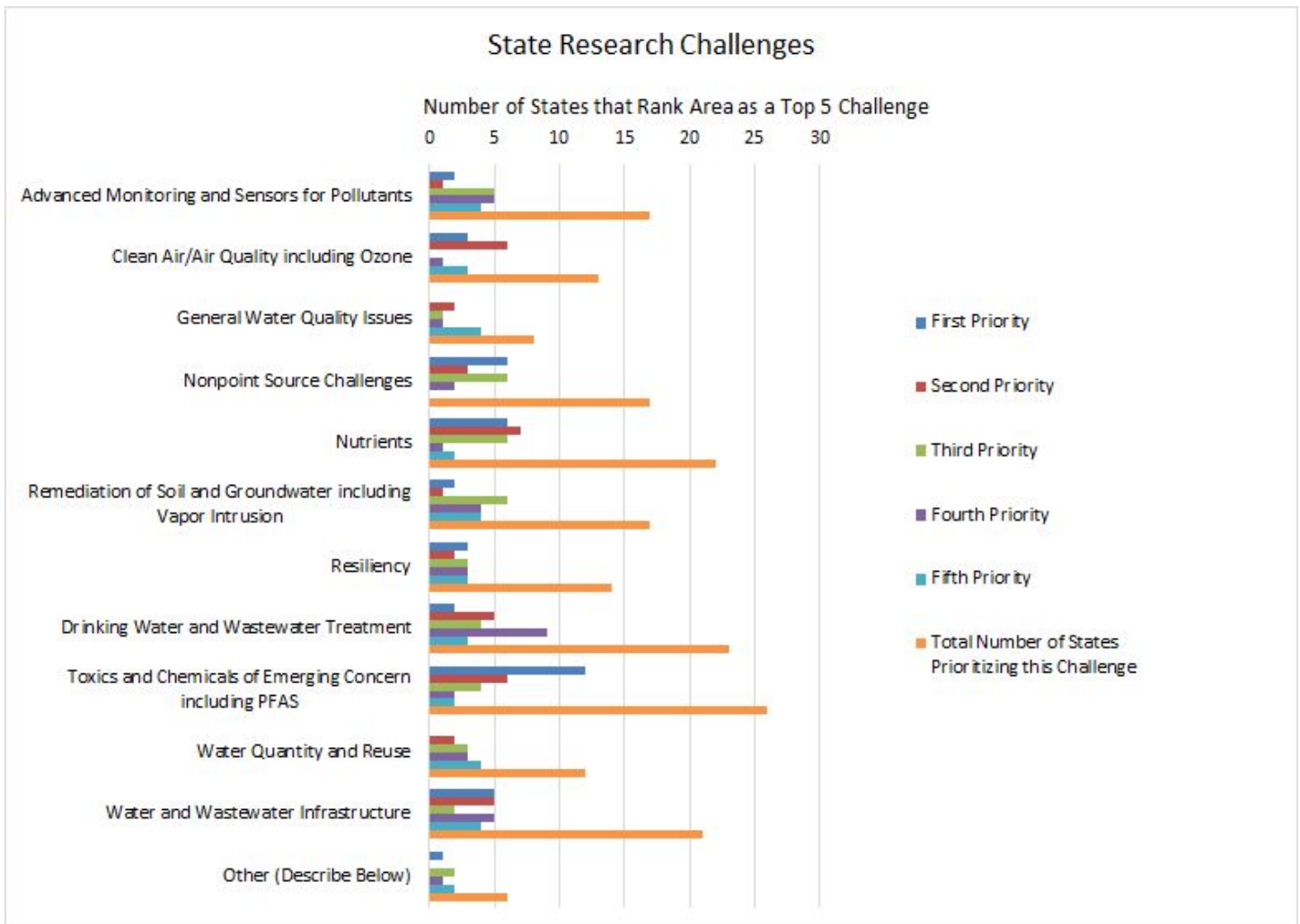
Results of 2018 Biennial Survey on State Environmental Research Needs

Overview

The Environmental Research of the States (ERIS) conducts a biennial survey of state environmental agency research needs. The results help the U.S. Environmental Protection Agency’s (EPA) Office of Research and Development (ORD) define future research and understand state issues. ERIS collected responses to its third biennial survey for approximately six months starting in August 2018. The responses are summarized below.

Results

Part 1: ERIS asked state environmental agency commissioners to rank the top five areas in which scientific research would help their state address challenges. Of the 38 responses, the most frequently identified challenges where additional scientific research is needed are toxics and emerging contaminants including PFAS; drinking water and wastewater treatment; water and wastewater infrastructure; and nutrients.



Part 2: To better understand the challenges, ERIS asked state contacts to describe their state’s challenges and what research would be helpful for each of the top five priority areas identified in Part 1. The following details about the state research needs were provided in the 15 responses to this portion of the survey.

Advanced Monitoring and Sensors for Pollutants
<ul style="list-style-type: none"> • <i>Water:</i> Increasing costs for ambient water quality monitoring; Addressing nutrients in surface waters; Remediating mine adit water containing high quantities of metals; Dealing with a lack of monitoring standards • <i>Air:</i> Increasing citizen use of air monitoring equipment; Monitoring ambient air quality especially during wildfires
Clean Air/Air Quality (including Ozone)
<ul style="list-style-type: none"> • Addressing nonattainment areas from vehicles • Dealing with ozone transport from other jurisdictions and reducing high ozone levels
General Water Quality Issues
<ul style="list-style-type: none"> • Addressing pathogen impairments • Identifying sources when developing TMDLs • Measuring changes in statewide water quality
Resiliency
<ul style="list-style-type: none"> • Planning for coastal resilience in response to climate change • Implementing floodplain regulations • Measuring impacts on infrastructure from flooding, permafrost, and coastal and riverine erosion
Nonpoint Sources
<ul style="list-style-type: none"> • Implementing TMDLs and control methods for phosphorus and nitrogen • Prioritizing watershed best management practices
Remediation of Soil and Groundwater including Vapor Intrusion
<ul style="list-style-type: none"> • Controlling releases and implementing cost-effective remediation of VOCs in difficult geologic and hydrogeologic conditions • Characterizing and cleaning up PFAS-contaminated media, and identifying treatment and disposal alternatives for PFAS • Assessing and addressing vapor intrusion including at small facilities that lack the resources to characterize and address releases • Dealing with in situ injection technologies
Nutrients
<ul style="list-style-type: none"> • Mitigating HABs and identifying recreational and other criteria for HABs • Controlling nonpoint sources through the implementation of TMDLs for phosphorus and nitrogen and implementing water quality-based effluent limits for phosphorus at wastewater treatment plants

- Controlling nutrients from agriculture, stormwater runoff, and poorly maintained/failing septic systems
- Reducing nitrate in drinking water and wastewater effluent discharged from small community wastewater treatment systems
- Understanding fate and transport of bioavailable phosphorus discharge from upstream wastewater treatment facilities
- Developing protective, effects-based numeric nutrient criteria for rivers and streams

Drinking Water and Wastewater Treatment

- Establishing standards and cost-effective treatments for PFAS and other emerging contaminants
- Maintaining small drinking water systems by addressing new ammonia criteria and future nutrient criteria
- Dealing with salt byproducts
- Minimizing the complexity of UV validation reports

Toxics and Emerging Contaminants

- Establishing regulatory standards and addressing standards' lack of consistency, changing risk values, uncertainty, etc. to compare monitoring results and take enforcement actions
- Overcoming a lack of information on health effects, analytical methods, and treatment for a number of emerging contaminants
- Dealing with contaminated surface water, groundwater, and drinking water including impacts to domestic water supply wells and waste site cleanup
- Figuring out the scope of contamination within a state
- Understanding the fate and transport of PFAS in soil and groundwater

Water Quantity and Reuse

- Dealing with drought
- Using oil- and gas-produced water for beneficial reuse
- Making consumption of treated wastewater socially acceptable
- Expanding reuse while still being protective of human health and the environment

Water and Wastewater Infrastructure

- Replacing aging infrastructure and minimizing replacement costs
- Dealing with issues like lead service lines and flood-resilient wastewater systems

Other

- Establishing effective approaches to control pollution from individual sources
- Identifying causes of bacteria-impaired waters

Ongoing

ERIS is working with ORD to respond to the state research challenges identified in the survey. ORD plans to incorporate these needs into its longer-term research programs and shorter-term technical support efforts. ERIS will continue to share best practices and tools with state agencies to help states protect human health and the environment.