



# Region 7's Regional Science Program

Iowa's Strategic Goal Planning Webinar  
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Regional Science Liaison  
May 24, 2022

# Regional Science Program: Overview

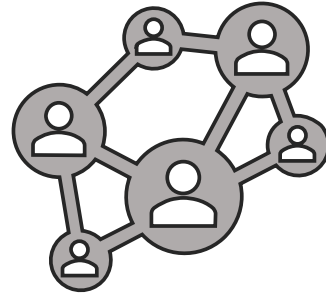


- Links Office of Research and Development (ORD) with EPA's Regional Offices
- Professional development opportunities for Regional scientists.
- Funding for collaborative research.
- Regional Science Council sponsored events and training.
- Regional Science Liaison (RSL) technical support to Regional Programs.

# Region 7's Science Program



ROAR & ROCS-Net



R7 Regional Science  
Council



Regional Science  
Priorities

# Regional Science Program: Research & Professional Development

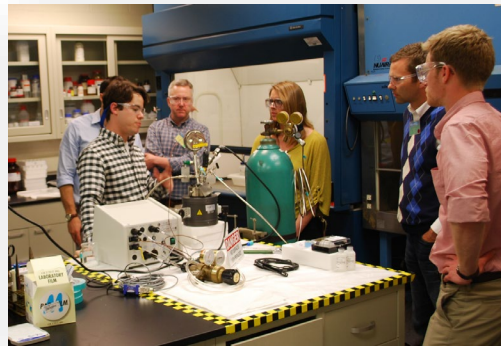
## ROAR – Regional/ORD Applied Research Program

- Address high priority near-term regional, state, tribal and strategic Agency research needs.



## ROCS-Net – Regional-ORD Community of Science Networking Program

- Visit an EPA research lab and evaluate a science issue with an ORD mentor.



*Visit an ORD Lab!*

*Collaborate on a  
Research Project!*



# Region 7 Science Council

## Introduction

R7 RSC is a collaborative and inclusive network of federal, state and tribal professionals with a purpose of sharing information and discussing current research efforts

## Purpose & Objectives

Discuss common problems, exchange ideas, identify research, and build scientific capacity for Region 7, States and Tribes.

## Membership Composition

Region 7: LSASD Div Dir, LSASD Dep Div Dir, OTA Dir, RSL and STL

States: At least one management level member from each R7 State.

Tribes: 2 Tribal Representatives

## Scope and Functions

- Quarterly Meetings
- Exchange data and provide technical assistance
- Gather state, tribal and regional input on technical and scientific needs
- Develop Science Priorities
- Facilitate engagement between ORD and each state and tribe within R7
- Report out on current research efforts, results and future research efforts
- Facilitate training and workshops

# Regional Science Council Contacts

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# Regional Science Priorities Overview

- What are the Regional Science Priorities?
- How were they developed?
- Who provided input?
- Why are the Science Priorities important?



# Regional Science Priorities Overview

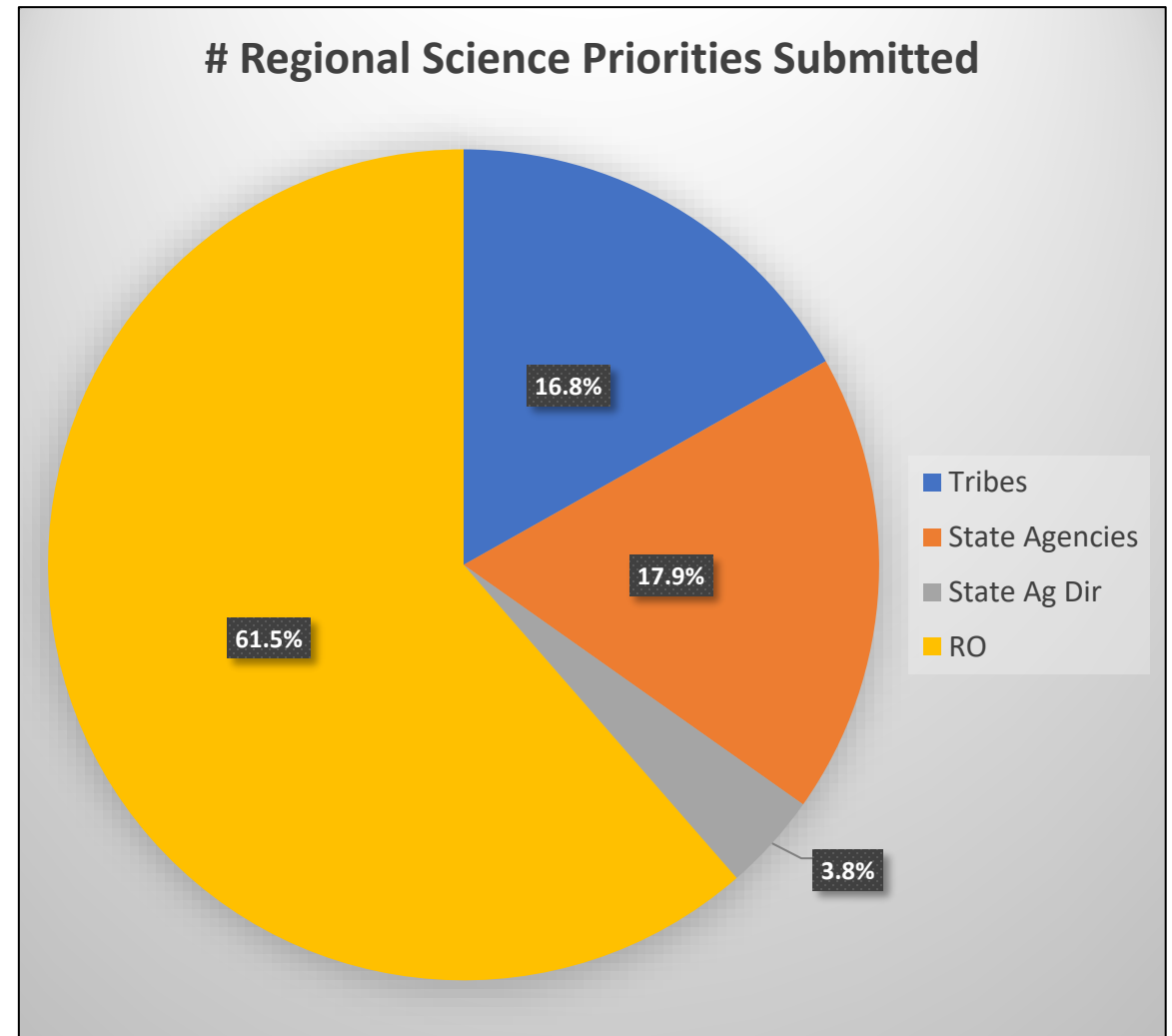
- Timeline changed from 2 yrs to 4 yrs
- FY18/FY19 & FY20/FY21
- Region 7 Divisions
- State Environmental Agencies: IA-KS-MO-NE
- 9 Tribes: RTOC
- State Ag Directors: IA-KS-MO-NE





# FY22-FY25 Science Needs Input

- Received 184 Regional Science Needs
- Regional Office = 113 (7 Divisions)
- Tribes = 31 (8 Tribes)
- State Agencies = 33 (4 States)
- State Ag Directors = 7 (4 States)



# Tribal Science Priorities FY22-FY25

1. Ag - Pesticide Drift
2. Nutrient Reduction Strategies
3. Ag - Erosion reduction
4. Radon-Movement & Mitigation
5. UST/AST Corrosion Issues
6. Air Sensors for Citizen Science
7. Sustainable Materials Management
8. Ag-CAFOs
9. PFAS



# State Science Priorities FY22-FY25

## Waste Management

- Coal Combustion Residuals (CCR)
  - Risk based closure evaluations for CCR impoundments
  - Evaluation of conventional closure caps for CCR impoundments closure in place for reducing infiltration into and away from CCR units.
  - Evaluation of background ground water concentrations of CCR constituents in alluvial floodplains
  - Speciation of CCR constituents as compared to those same naturally occurring compounds in the environment
- Solid Waste
  - Evaluation of alternative cover systems including native grasses and forbs, shrubs and trees (including phytoremediation)
  - PFAS concentrations in leachate from Sanitary and Demolition Landfills
  - PFAS concentration in geomembrane and artificial turf cover systems, often used as alternative covers for landfills.
  - Evaluation and feasibility of using landfill borrow areas for native plant species establishment

# State Science Priorities FY22-FY25 (cont.)

## Remediation

- Continued work on PFAS in remediation sites

## Hazardous Waste

- Evaluation of classifying paint waste as a universal waste, under Federal regulation. Perhaps an evaluation of the Texas and Ohio classifications.

## Renewable Energy

- End-of-life management of renewable energy equipment (e.g. wind turbine blades, solar panels, lithium ion batteries, etc.)

# State Science Priorities FY22-FY25 (cont)

## Water

- E. coli holding times for ambient monitoring needs to be addressed
- Cost effective wastewater treatment technologies that address emerging contaminants (pharma, hormones, PFAS, etc.)
- HABs: routes of exposure, developing affordable monitoring methods, types, distribution/occurrence, developing guidance limits and action levels
- Ambient Water Quality: affordability of measuring contaminants (glyphosate, PFAS, selenium, microplastics, microcystins)
- Drinking Water contaminants (DBPs and PFAS)
- Groundwater: tracking GW nitrate contamination from CAFOs
- Remote sensing options for nutrients
- Study impact of CCR leaching into groundwater
- Exposure Studies & Health Effects
- Lead & Copper Rule Revision Implementation: Developing guidance and BPs for Lead Service Line inventories to be shared with public water systems

# State Ag Director Science Priorities FY22-FY25

## IOWA

HABs & Nutrients

Water quality wetlands (Nutrient Reduction)

## KANSAS

Identification of invasive species areas of infestation using remote sensing

## MISSOURI

Quantify the value of diff types of conservation practices specifically the financial value of such practices if used in env credit trading programs

The relative importance of cover crops compared to other nutrient reduction conservation practices

## NEBRASKA

Research to examine how more aggressive measures to prevent flooding might be used to minimize nutrient loading, flood damage, prevent property damage, and loss of life.

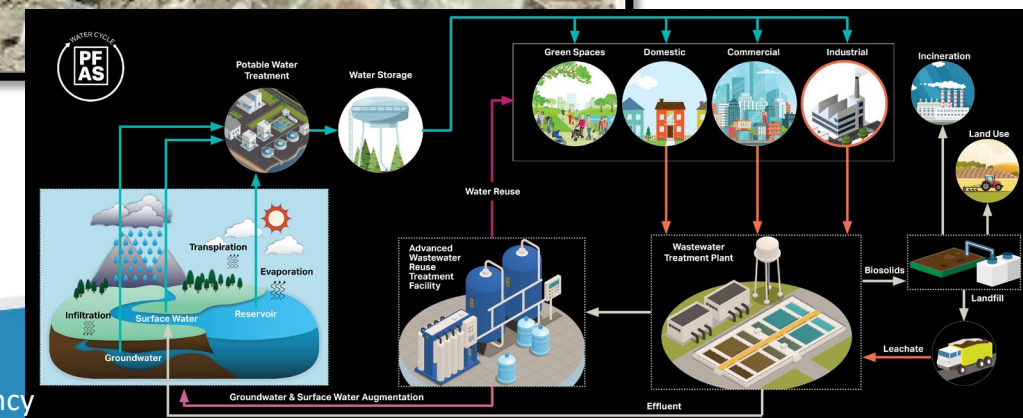
Examine the effect of sand deposits and debris (from floods) on the carrying capacity of NE rivers, and potential remediation solutions

# Iowa's Science Priorities FY22-FY25

1. Need alternatives of E. coli holding times for ambient monitoring needs.

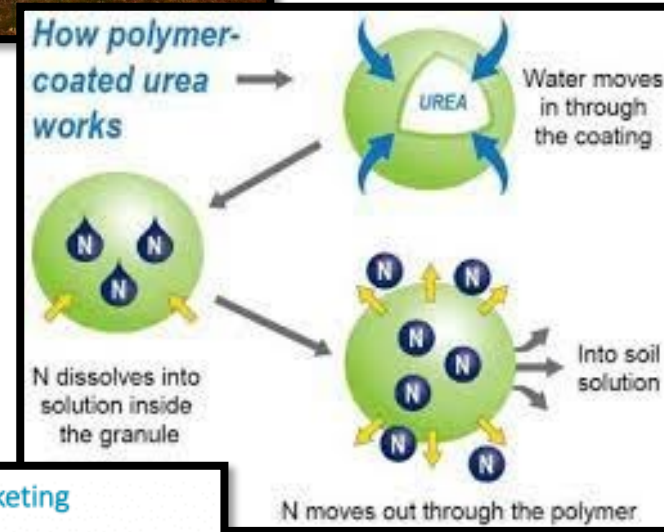
2. Cost effective wastewater treatment technologies that address emerging contaminants (pharma, hormones, PFAS, etc.)

3. End-of-life management of renewable energy equipment (e.g. wind turbine blades, solar panels, lithium ion batteries, etc.)



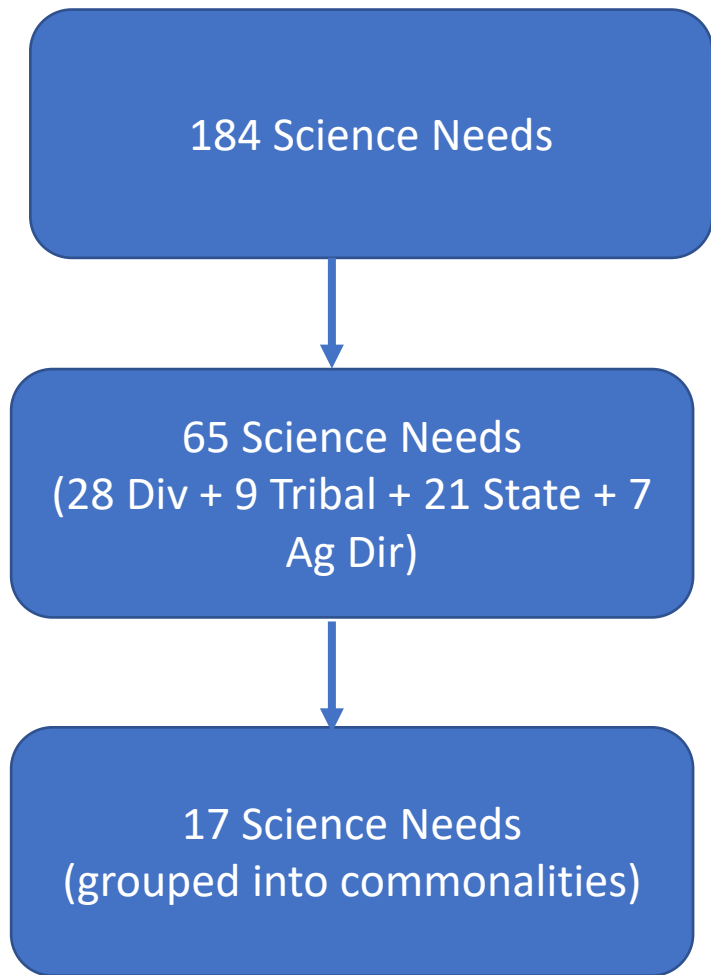
# LCRD's Science Priorities FY22-FY25

1. End-of-Life Infrastructure for decommissioned renewable energy equip
2. Illegal, unregulated waste disposal on Tribal Lands
3. Use of CBSM to empower communities to identify SMM objectives and engagement activities
4. Impact and Extent of Polymer Coatings on Slow-Release Fertilizers in the Environment





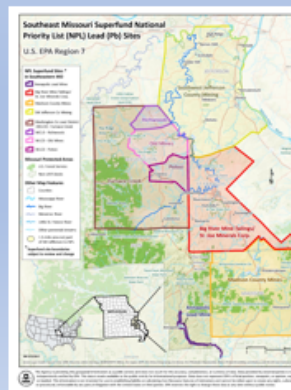
# 7 for 7 Science Priorities



## EPA Region 7's Top Regional Science Priorities FY22 – FY25

*The Cross Cutting Issues of Technical Support, Environmental Justice, Climate Change, and Reuse are included in each science priority.*

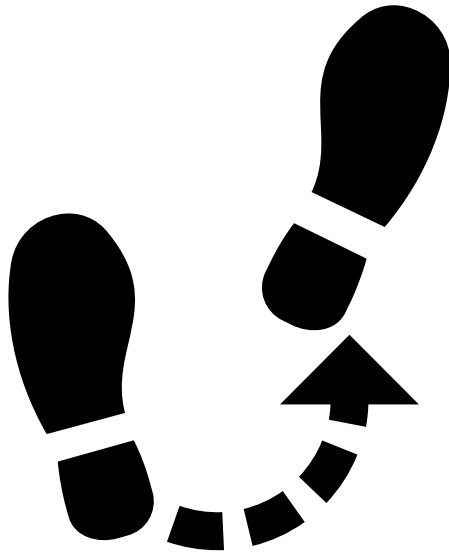
1. Study impacts of emerging contaminants.
2. Using social science research to assist communities with climate and resiliency planning.
3. Evaluate/address climate impacts of HABS & Nutrients on water resources.
4. Develop remote sensing techniques to measure burn areas/impacts on downwind communities.
5. Identify preventive and mitigating approaches for community resiliency.
6. Develop real-time measurement methodologies to characterize EtO emissions.
7. Develop technologies to expedite large-scale, complex mining/mineral processing site remediation.



#R7StrengthThroughScience

# Region 7 Science Priorities Applications

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- Regional/ORD Applied Research (ROAR) Program
- Regional-ORD Community of Science Networking (ROCS-Net) Program: develop science issues & meet with ORD
- ORD's Strategic Research Action Plan FY23 – FY26
- Regional research projects and partnerships between ORD, Region 7, and the States/Tribes

# Regional Science Program @ Region 7



11 Active Projects Total

8 RARE

1 RSTIP

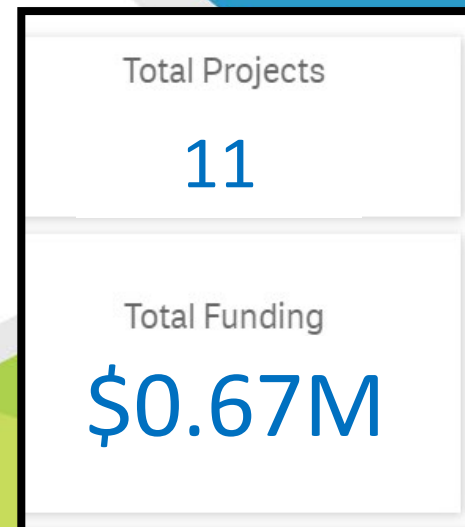
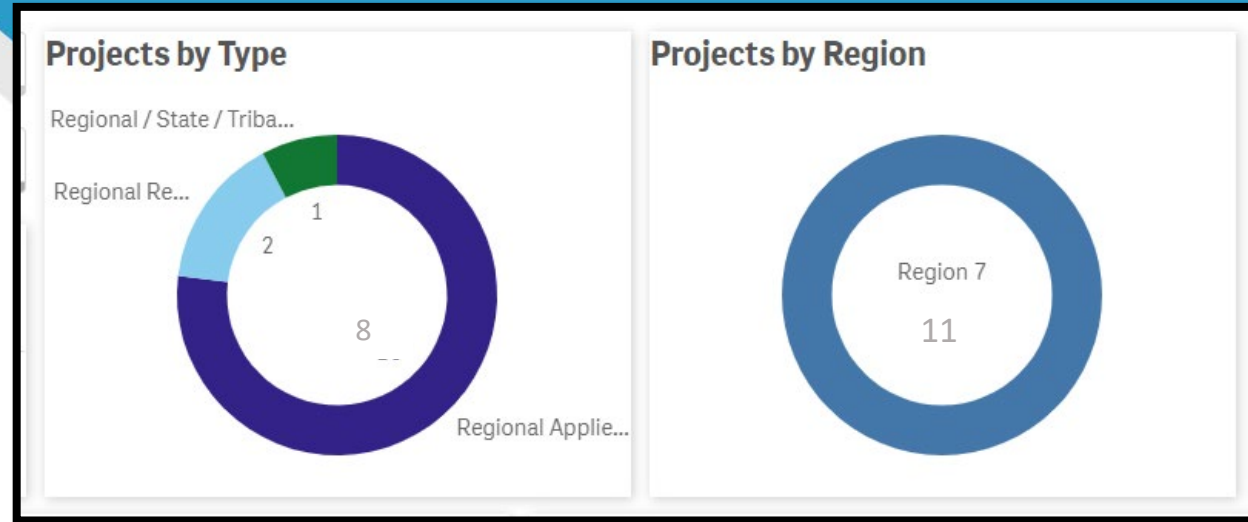
2 R2P2

Funding Dollars

RARE = \$605,000

RSTIP = \$61,000

R2P2 = \$3,227



# Regional Research Addressing the Regional Science Priorities

## Air Quality

- RARE 2142: *Grassland Smoke Emission Measurement Supporting Multi-Modeling Framework Simulation of Rangeland Burning Practices for the Kansas Flint Hills – Phase II*
- RARE 2232: *Characterization of EtO Emissions Downwind of a Chemical Facility Using Innovative Realtime Measurement Technologies*
- R2P2 2293: *Method Development-Equipment Familiarization and Development of Real Time Ethylene Oxide (EtO) Analyzer Deployment Parameters*
- R2P2 2525: *Method Development-Ethylene Oxide Measurement Technology Research (Quality Assurance and Data Exploration Tool Development)*

## Microplastics

- RARE 2232: *Assessing Microplastics as an Emerging Pollutant in Freshwater Urban Watersheds*

## Stream Monitoring

- RSTIP 2449: *Method Development- Evaluating the Effectiveness of Passive Sampling Techniques for Conducting Probabilistic Stream Monitoring*

# Regional Research Addressing the Regional Science Priorities

## Harmful Algal Blooms

- RARE 2039: *The Relationship Between Cyanobacterial Abundance and Toxin Concentrations: Can Analytical Methodologies of Cyanobacteria Populations Measurements be Used to Predict the Potential Cyanotoxin Exposure? – Phase I*
- RARE 2139: *The Relationship Between Cyanobacterial Abundance and Toxin Concentrations: Can Analytical Methodologies of Cyanobacteria Populations Measurements be Used to Predict the Potential Cyanotoxin Exposure? – Phase II*
- RARE 2234: *Harmful Algal Blooms in Urban Environments*
- RARE 2236: *CHEAP (Cyanobacteria HAB Evaluation and Prediction)*

## Nutrient Reduction

- RARE 2135: *Solution-Based Ecosystem Service Assessment of Managed Agricultural Landscapes of the Upper Midwest USA – Phase II*



## Contact Info

R7 Science Liaison

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