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RECLAMATION

Reclamation R&D Advanced Water Treatment Activities

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R&D Program Manager

Overview

- R&D Overview
- Desalination and Water Purification Research (external research)
- Prize Competitions
- Science and Technology Program (internal research)



Research & Development

Customers

- Reclamation facility and resource managers, customers, stakeholders, private sector, public

Programs

- Desalination & Water Purification
- Science & Technology (S&T)
- Open Water Data
- Reclamation GIS

Address Technical Challenges in:

- Developing water supplies
- Water infrastructure
- Power and energy
- Environmental issues in water management
- Water operations and planning

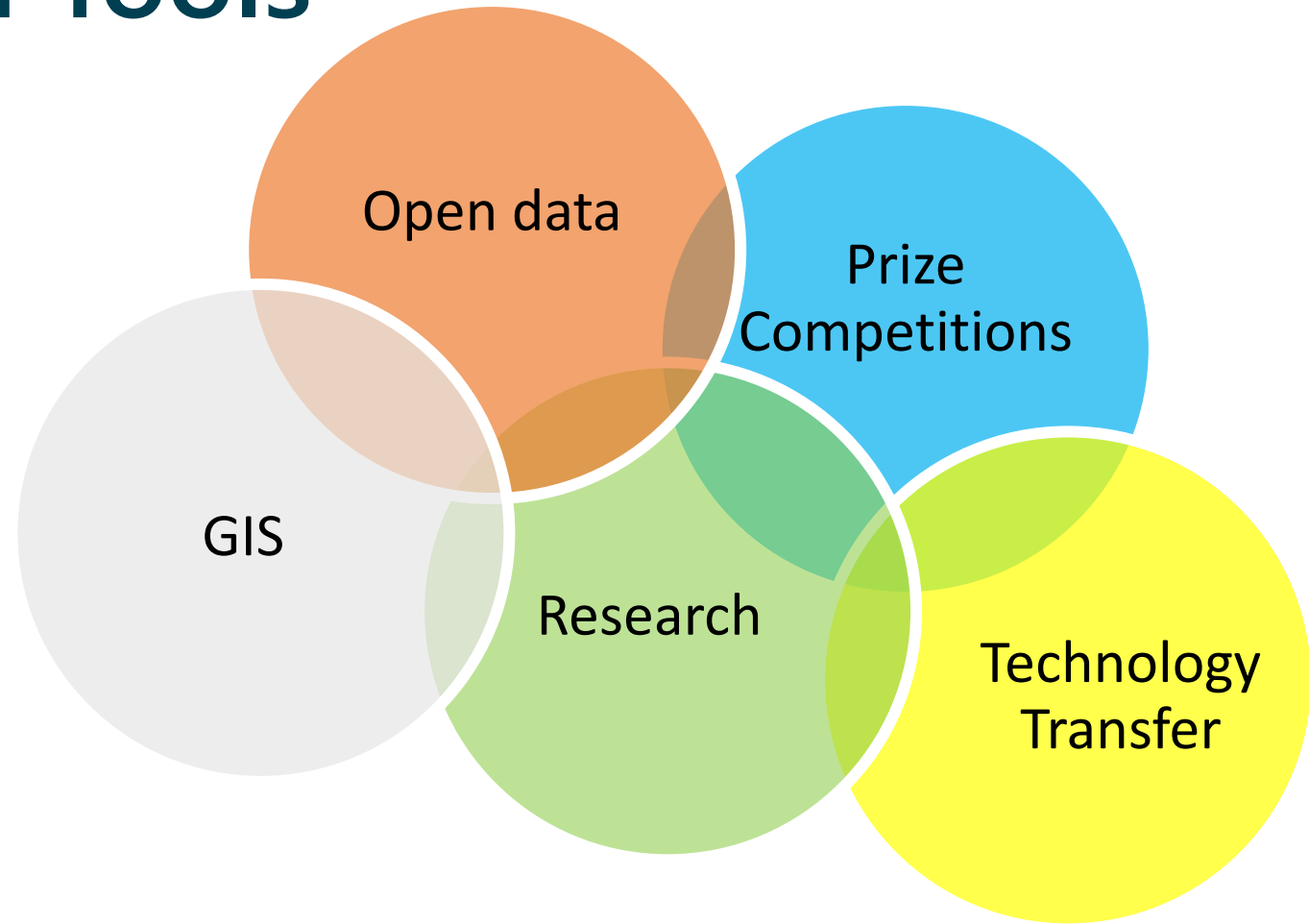


<https://www.usbr.gov/research/>



R&D Objectives and Tools

- Increased Water Deliveries
- More Hydropower Generation
- Reduced Maintenance Costs
- Improved Worker Safety
- Longer Infrastructure Life
- Improved Decision Making
- More Effective Environmental Compliance



Desalination & Water Purification Research

- Goal is to augment water supplies
- Reducing cost and environmental impact
- Increase innovation
- Two annual external funding opportunities



DWPR Research Funding Opportunity

Scope Develop innovative, cost-effective, and technologically efficient ways to desalinate and treat water

Eligible Applicants Individuals, Academic institutions, Profit organizations, State and local governments, Non-Profit organizations, Federally-funded R&D centers, Indian tribal governments and organizations

Cost-Share Required Non-Federal cost share of 50%
Not required (but encouraged) for academic institutions

Funding Levels Laboratory scale – up to \$250,000 federal funds (2-year projects)
Pilot scale – up to \$800,000 federal funds (3-year projects)

Timing Next funding opportunity release estimated for Fall 2023

Grants.gov search for DWPR ([example 2022 posting](#))



DWPR Pitch to Pilot Funding Opportunity

Scope

Solve water treatment industry challenges through innovative and disruptive technologies or processes

Eligible Applicants

Individuals, Academic institutions, Profit organizations, State and local governments, Non-Profit organizations, Federally-funded R&D centers, and Indian tribal governments and organizations

Cost-Share

Not required but encouraged

Funding Levels

Up to \$200,000 federal funds (18-month projects)

Timing

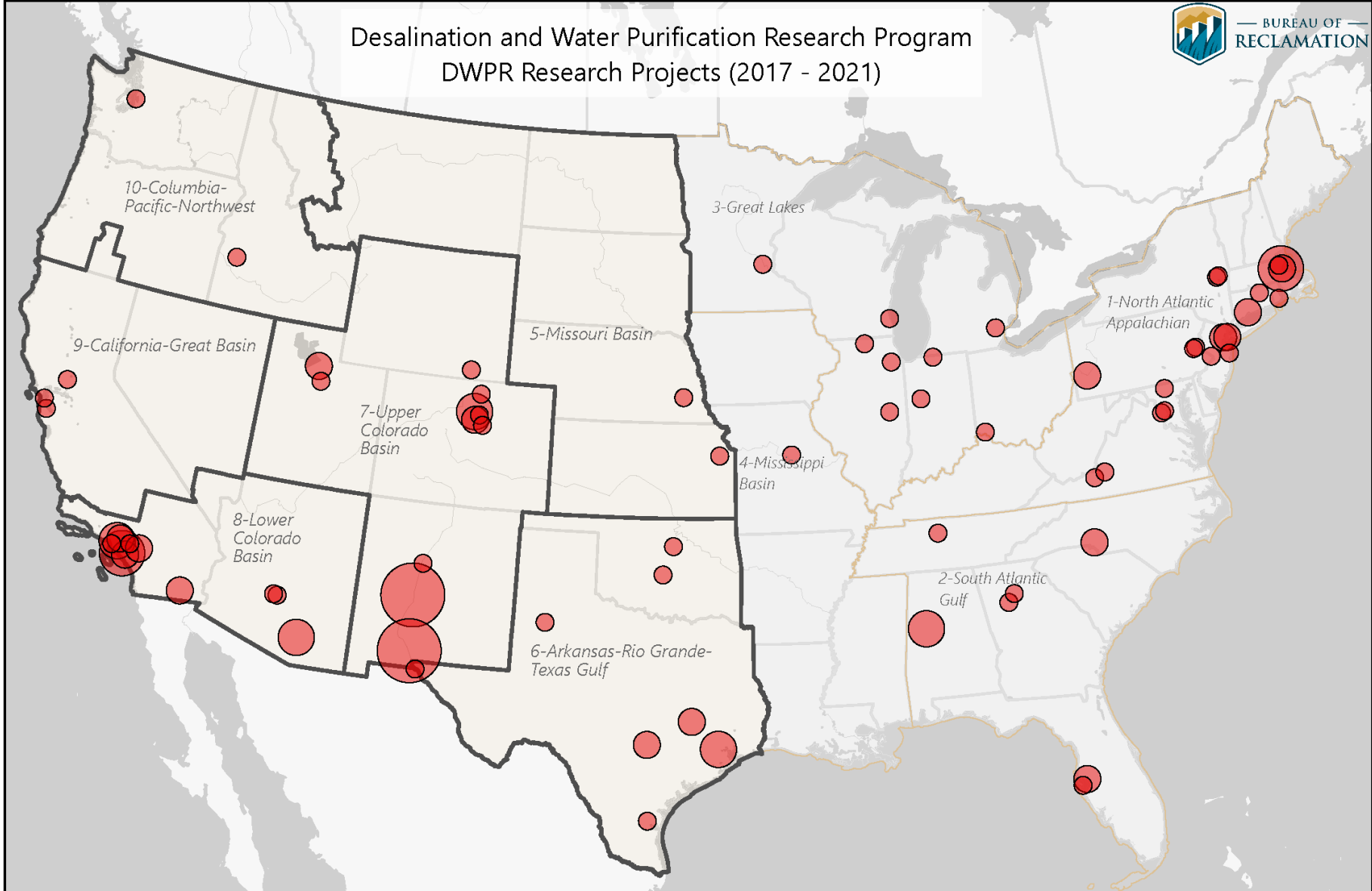
Next funding opportunity release estimated for Spring 2023

Grants.gov search for DWPR ([example 2022 posting](#))



Desalination and Water Purification Research Program

DWPR Research Projects (2017 - 2021)

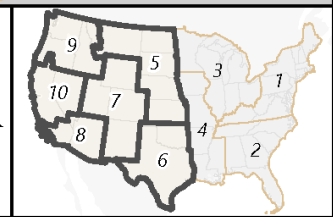


Research Projects (2017-2021)

	1		3		Reclamation - Interior Regions
	2		5		Non-Reclamation-Interior Regions
	3		6		States

Projects

0 400 Miles



Brackish Groundwater National Desalination Research Facility (BGNDRF) Information

- Alamogordo, NM
- BGNDRF Mission: Help companies, universities, and others get technology to scale
- 43-acre BGNDRF has:
 - 4 brackish wells ranging from 1,000-6,000 mg/L TDS
 - 3 evaporation ponds
 - 6 indoor test bays
 - 4 outdoor bays
 - Agriculture research areas
 - Equipment to use



S&T Prize Competitions

Crowd-sourcing solutions for complex technical challenges

- 34 competitions launched since FY 15, hundreds of winning solutions, over \$4m in prizes paid
- Recent Competitions
 - Streamflow Forecast Rodeo
 - Guardians of the Reservoir
 - Canal Safety
 - Water American's Crops
 - More Water Less Concentrate
 - Imperfection Detection
 - Snowcast Showdown



Prize Competitions – Water Treatment

- More Water Less Concentrate

- Sought innovative solutions for reducing the volume of concentrate generated from inland desalination systems
- Multi-phase competition culminating in technology demonstration testing at Reclamation's Water Quality Improvement Center at the Yuma Desalting Plant in the summer of 2022
- Winning team used batch reverse osmosis to demonstrate high recovery – additional testing ongoing

- Pathogen Monitoring Challenge

- 2018-2019 challenge seeking new pathogen monitoring techniques to advance water reuse
- Winning team funded through DWPR program for additional technology development work



S&T Internal Research

Annual, internal merit-based research funding opportunity

- Funds research related to the full scope of Reclamation's mission
- Guided by Innovation Strategy
- Needs updated annually in Innovation Strategy Implementation Plan
 - Regional Director Needs
 - Research Roadmaps
- Process
 - Call for proposals (April – May)
 - Technical reviews (June)
 - Program panel (July)
 - Reg flag review (August)
 - Concurrence brief (September)
 - Funding announcements (September / October)



FY 2023 Innovation Strategy Annual Implementation Plan

Science and Technology Program
Research and Development Office



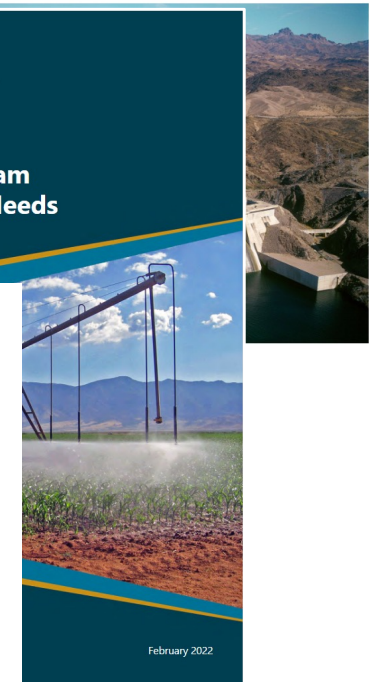
Science and Technology Program 2022–2025 Innovation Strategy

Research and Development Office



U.S. Department of the Interior

January 2022



February 2022

February 2022



S&T Internal Research

- S&T Research FY 2022

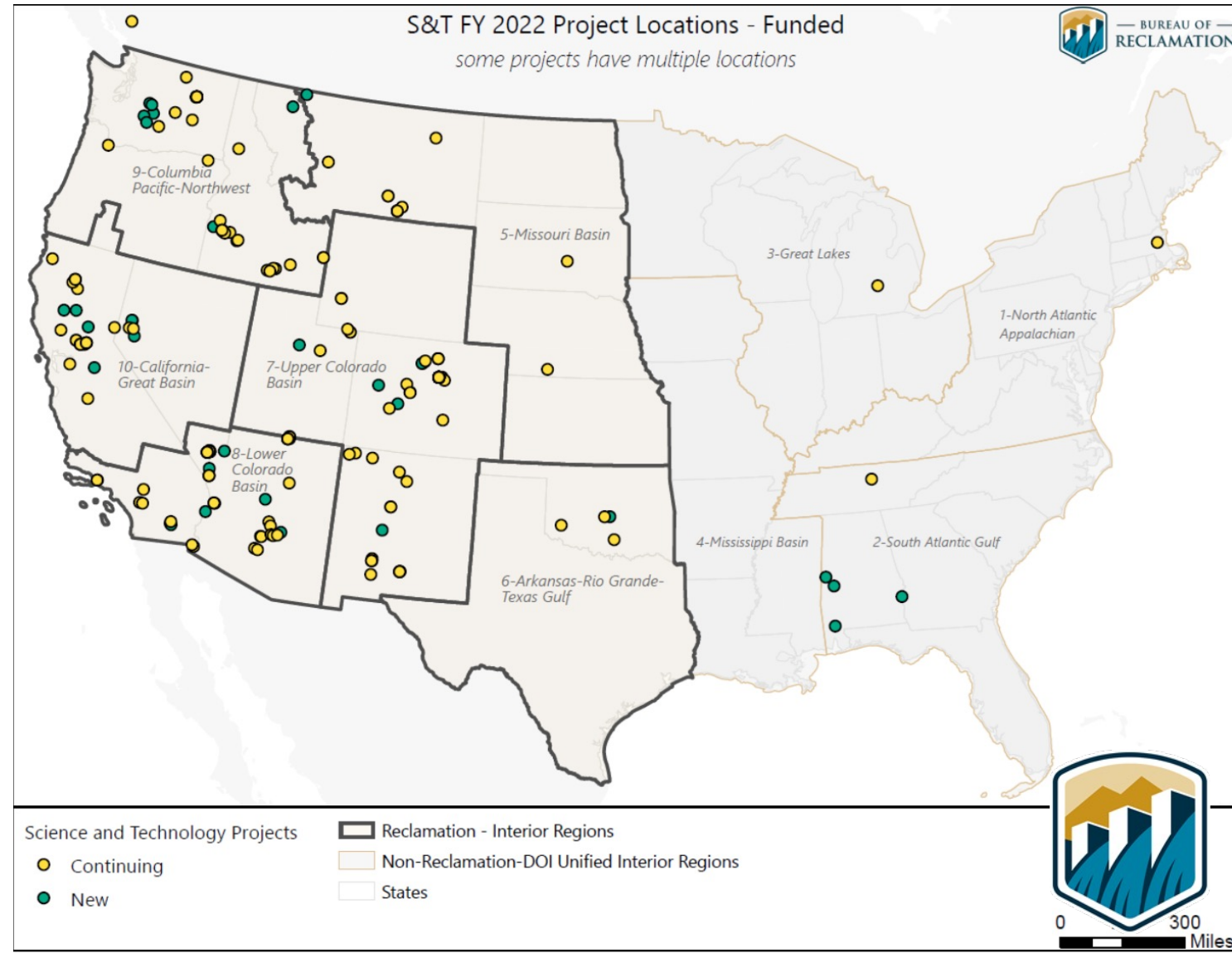
- 202 Active Projects
- 121 Different Research Leads
- 44 Completed projects

- Partnerships

- Enlist external experts and resources
- Partner in-kind contributions exceed 1:1

- Technology transfer with industry

- 6 MTAs
- 2 CRADAs
- 2 patent license agreements



Thank You



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