Environmental Protection Agency (EPA)
Creating Resilient Water Utilities (CRWU) Initiative

Audrey Ramming | Natural Resources Specialist

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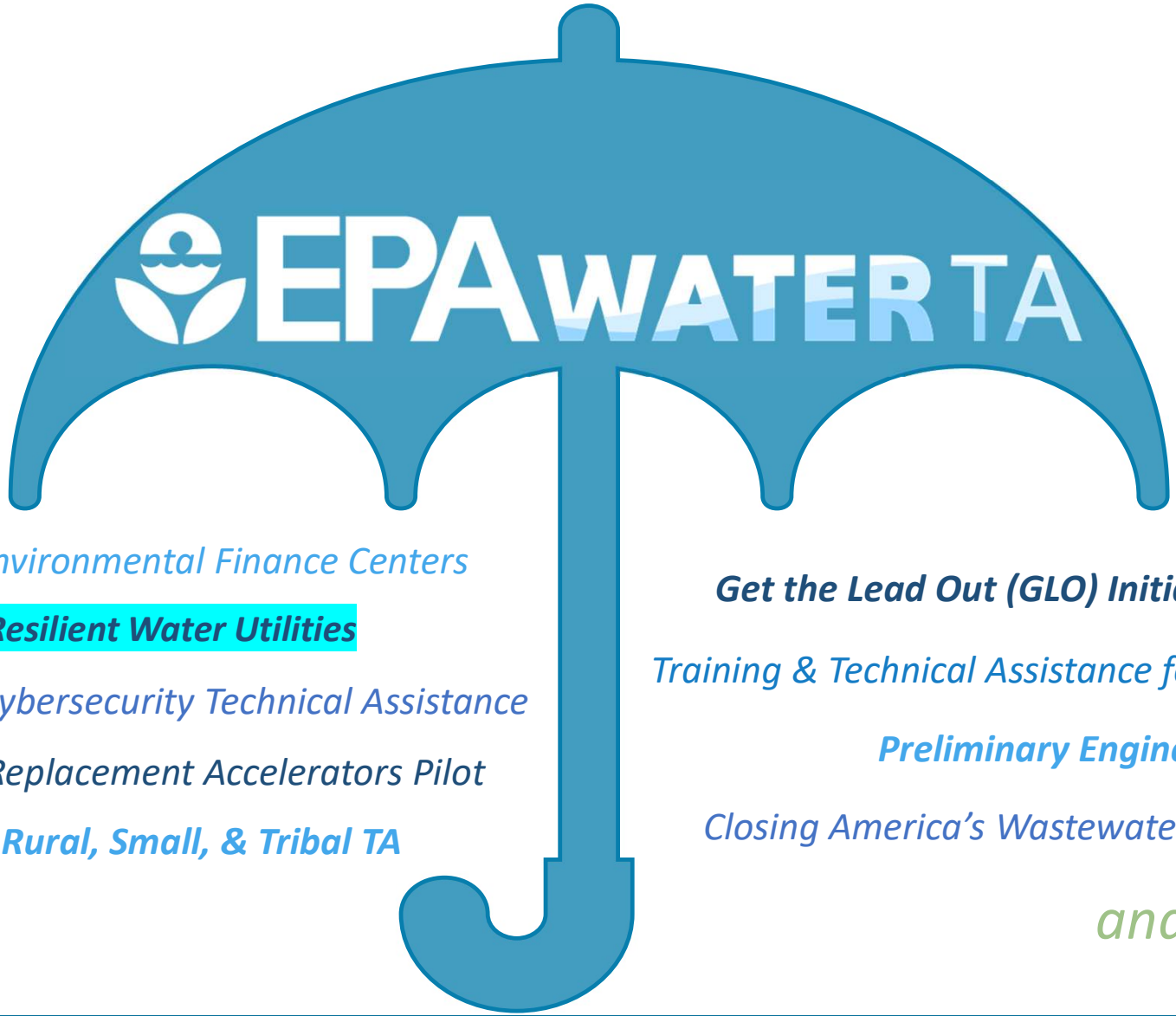
CRWU



Environmental Finance Centers

Creating Resilient Water Utilities

Cybersecurity Technical Assistance

Lead Service Line Replacement Accelerators Pilot

Clean Water Rural, Small, & Tribal TA

Get the Lead Out (GLO) Initiative

Training & Technical Assistance for Small Systems

Preliminary Engineering Support

Closing America's Wastewater Access Gap

and more!!!

Creating Resilient Water Utilities (CRWU): Our Mission

- Provide utilities with the **tools, training, and technical assistance** to increase resilience to climate change
- Promote a clear understanding of **climate science data** and potential **long-term adaptation options**
- Collaborate with utilities and partners to increase our reach and **improve our tools**
- **Improve resilience** in communities that bear disproportionate climate impact
- Non-regulatory

From Left to Right: Griggs Reservoir on Scioto River in OH; Water Replenishment District in Southern CA; Water Sanitation Area in Cincinnati, OH; Water Treatment Plant in San Diego, CA

CRWU Tools and Resources

ACCESS DATA

1. **Climate Data Maps**
2. Data Access Page
3. Environmental Justice Map

RISK ASSESSMENT APPLICATIONS

4. Resilient Strategies Guide
5. CREAT *

WEB RESOURCES

6. Adaptation Case Study Map
7. Training and Engagement Center
8. Climate Adaptation Funding

EPA

1

Inter

CREAT Climate Change Scenarios Projection Map

Creating Resilient Water Utilities EPA

Streamflow Projections Map

Creating Resilient Water Utilities EPA

Introduction | Historical Flow | Projected Average Flow | Projected Low Flow | Projected High Flow | Current Water Availability | Technical Details

EPA Snowpack Change in the Western United States

Storm Surge Inundation Map

Creating Resilient Water Utilities EPA

Introduction | Hurricane Frequency | Storm Surge Flooding | FEMA Flood Zones | Real-Time Advisories | Details

EPA Wildfire Conditions & Risk Map for Water Utilities

Current Wildfires | Wildfire Trends | Wildfire Risk | Adapting to Impacts | Additional Resources

USA Current Wildfires - Current Incidents

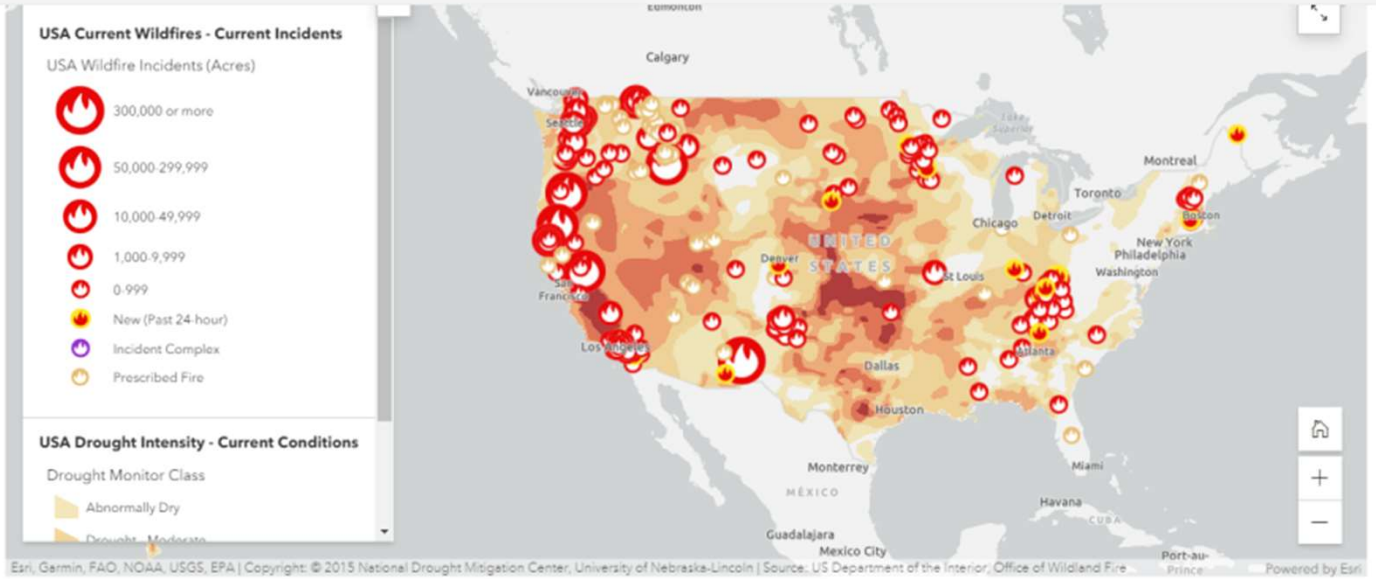
USA Wildfire Incidents (Acres)

- 300,000 or more
- 50,000-299,999
- 10,000-49,999
- 1,000-9,999
- 0-999
- New (Past 24 hour)
- Incident Complex
- Prescribed Fire

USA Drought Intensity - Current Conditions

Drought Monitor Class

- Abnormally Dry



Esri, Garmin, FAO, NOAA, USGS, EPA | Copyright: © 2015 National Drought Mitigation Center, University of Nebraska-Lincoln | Source: US Department of the Interior, Office of Wildland Fire

Powered by Esri

Data provided by the Integrated Reporting of Wildland-Fire Information (IRWIN), the National Interagency Fire Center (NIFC), and the US Drought Monitor.

https://www.epa.gov/cr
mate-and-weather-data

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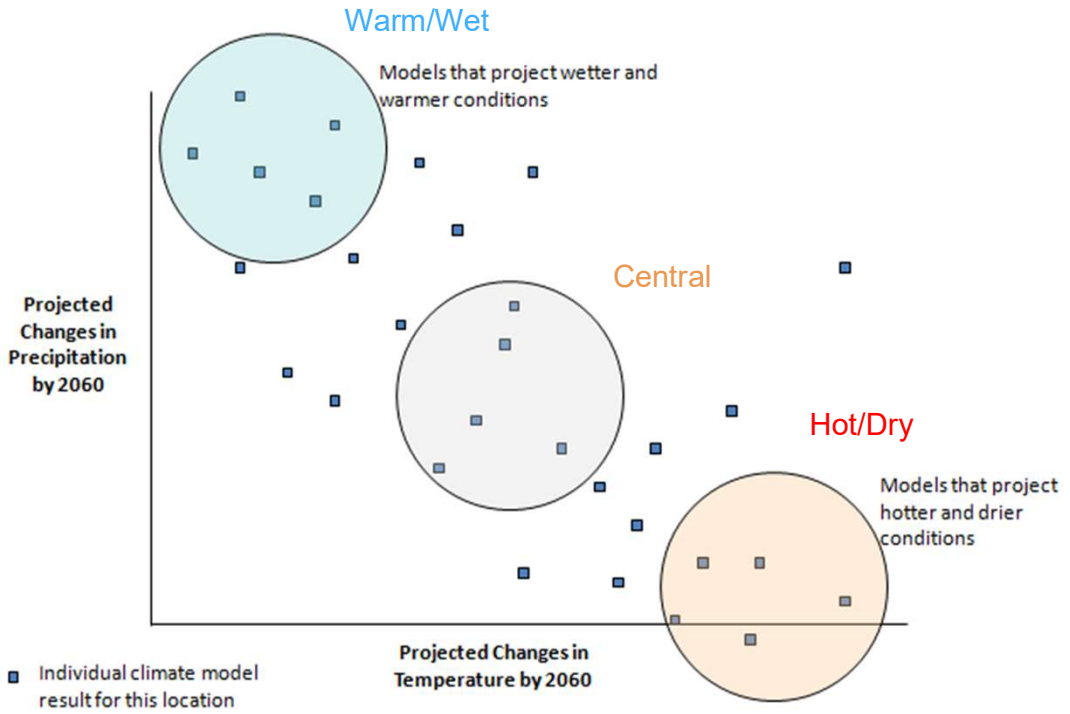
DATA MAPS

5. Wildfire Conditions and Risk Map

EPA

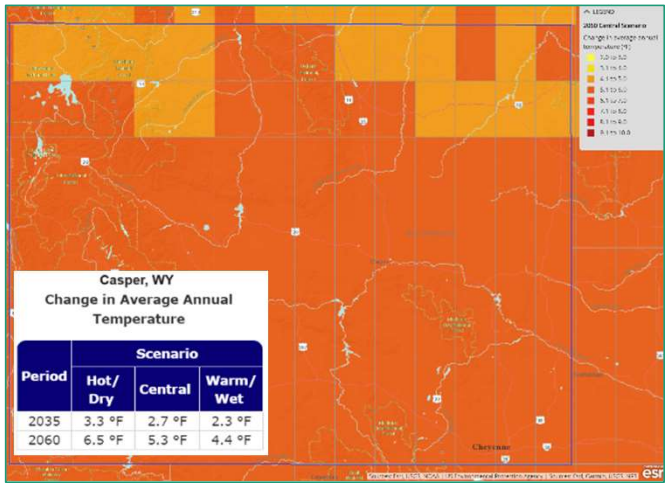
Climate Modeling – Future Climate Scenarios

- Climate model data can be difficult to interpret and work with
- CRWU's Climate Projection Maps, Data Access Page, and CREAT combines similarly behaving models to produce possible future climate scenarios
- Three possible scenarios help utilities frame potential climate vulnerabilities
- Increases confidence in likely outcomes

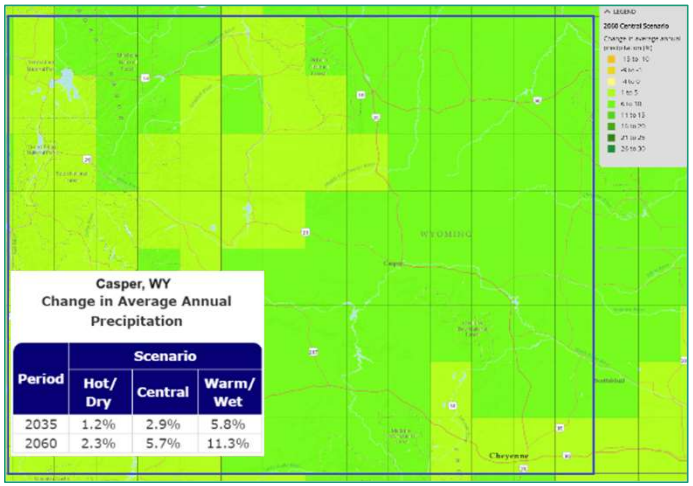


CLIMATE TRENDS FOR WYOMING

- **Temperature increases in all months**
  - More summer heatwaves
  - Warming winter minimums
- **Precipitation increases in most places**
  - Relatively minor increases
  - Some months become drier
  - More heavy precipitation
  - Less light precipitation
- **Droughts become longer and more variable**
- **Snowpack declining**
  - Warmer winters
  - More rain and rain-on-snow events
  - Peak occurring earlier
- **Storms become more frequent and intense**
  - Increase in heavy precipitation
  - Increased tornado risk
- **Wildfire frequency increases**
  - Acres burned also increasing
- **Increasing flood risk**
  - Shift to more winter rain
  - Earlier spring rain-on-snow
  - Storms with more precipitation
  - Rain-driven streamflow peaks are 2.5 times higher than snowmelt-driven peaks on average

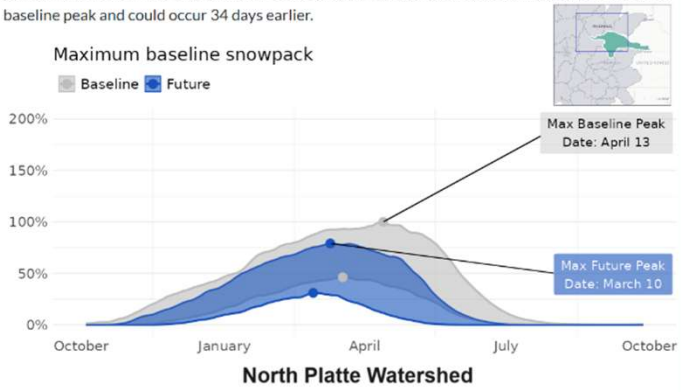


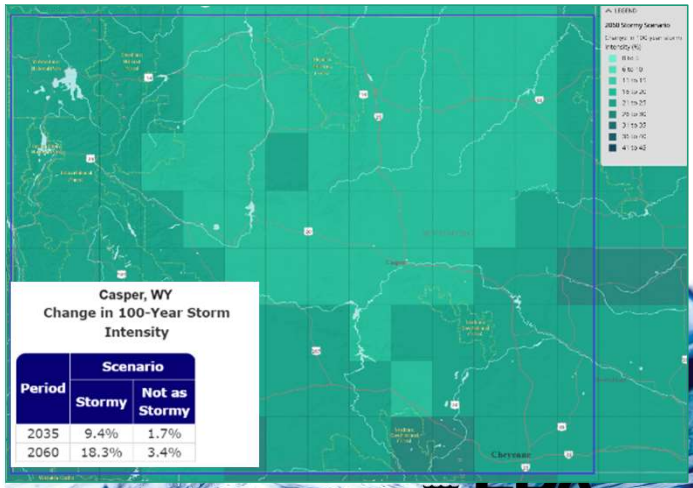
Period	Scenario		
	Hot/ Dry	Central	Warm/ Wet
2035	3.3 °F	2.7 °F	2.3 °F
2060	6.5 °F	5.3 °F	4.4 °F



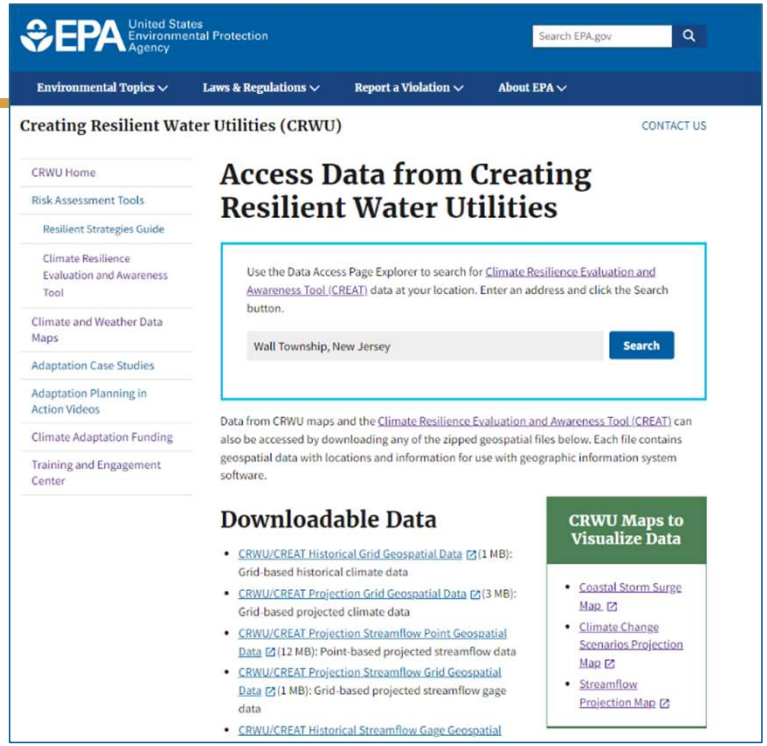
Period	Scenario		
	Hot/ Dry	Central	Warm/ Wet
2035	1.2%	2.9%	5.8%
2060	2.3%	5.7%	11.3%

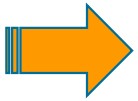
Snowpack is displayed as a seasonal time series of the ratio of snow-water equivalent (SWE) to the baseline peak SWE. The shaded ranges depict the range from 10th to 90th percentile for each time period in the North Platte watershed. Models project that the future peak SWE may be 79% of the baseline peak and could occur 34 days earlier.

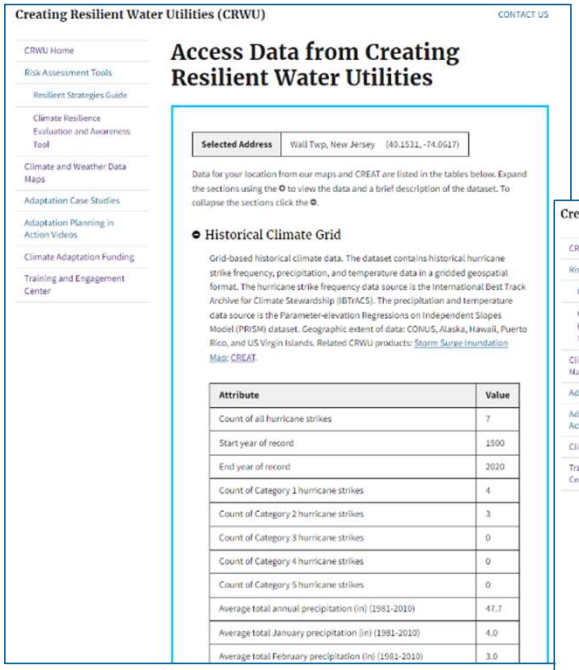


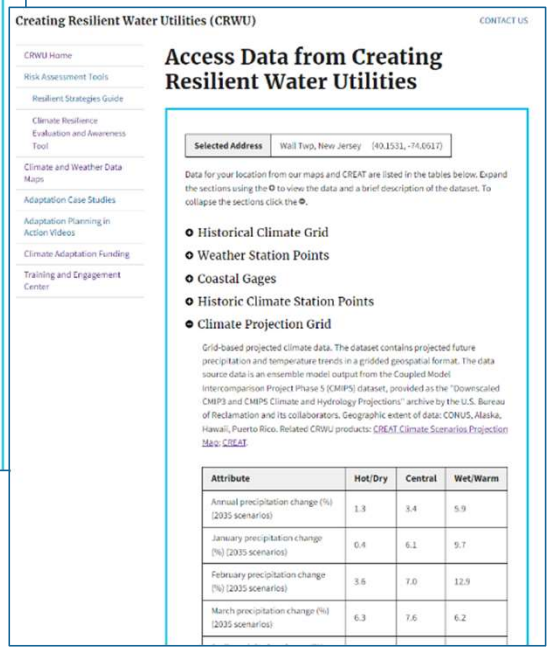


Period	Scenario	
	Stormy	Not as Stormy
2035	9.4%	1.7%
2060	18.3%	3.4%







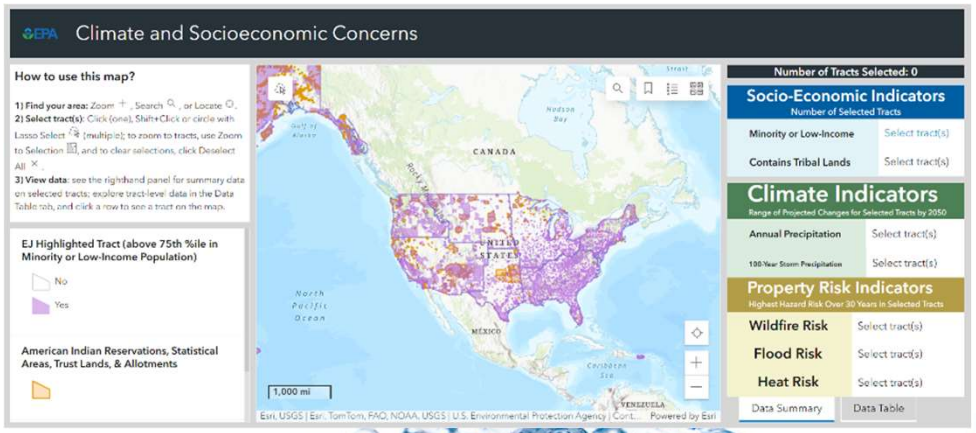


2 Data Access Page

Your **location data** from our Climate Data Maps and CREAT are listed in tables and available for download.

3 Environmental Justice StoryMap

- Online resource about environmental justice (EJ) and equity approaches in water sector climate adaptation
- Includes background information, data dashboard, case studies, and resources
- Used in CRWU technical assistance to bring EJ into the conversation



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4 Resilient Strategies Guide (RSG)

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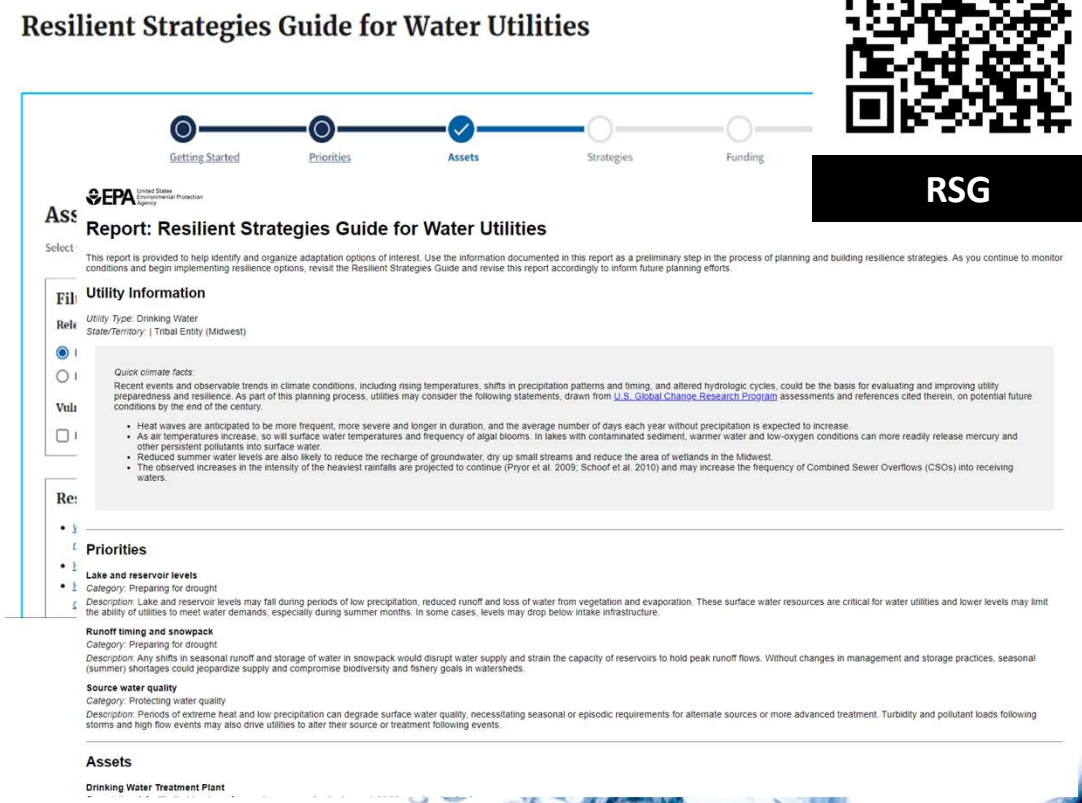
RSG

- **Free**, online application for reviewing resilience strategies used by water utilities
- Introduction to **adaptation planning** for those with limited experience
- Provides **strategies** based on location, priorities, and assets
- Provides **funding options** based on selected strategies
- **Final report** summarizes selected strategies to explore during adaptation planning
- Outputs can be imported into the Climate Resilience Evaluation and Awareness Tool (CREAT) to **start your assessment** of selected strategies



5 Climate Resilience Evaluation and Awareness Tool (CREAT)

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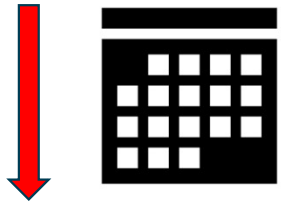
- **Module-based process** with clearly defined goals and reports
- Presents available climate data at the **regional and local levels**
- Multiple scenarios provided to help **capture uncertainty**
- **Assessment of current resilience** will help inform **adaptation planning**
- Results help utilities compare **risk reduction value** and **implementation costs**

EPA

CRWU Tools' Data Updates

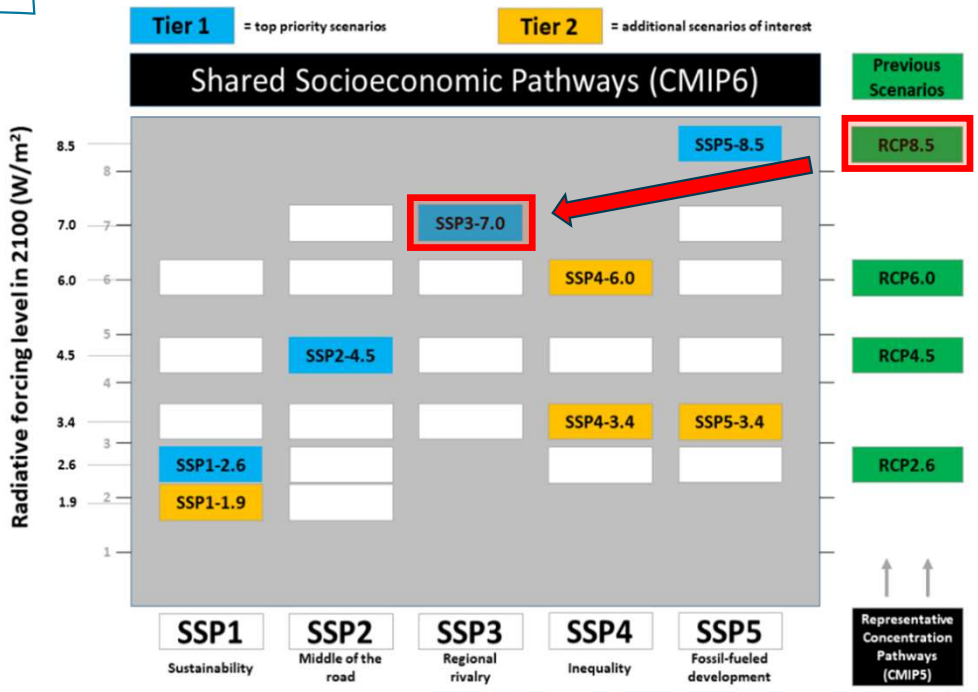
Updated projection horizon choices

2035 & 2060



2050 & 2090

CMIP6 model & scenarios



LOCA2 downscaling

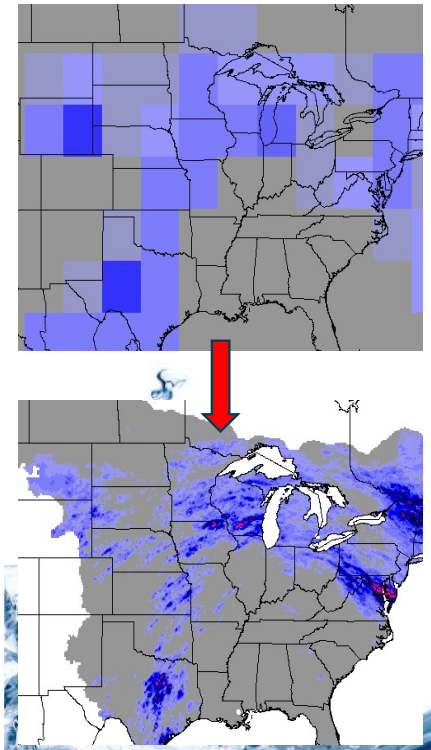


Image Credit: David Lorenz (UWis)

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6 CRWU'S Adaptation Case Studies Map for Water Utilities

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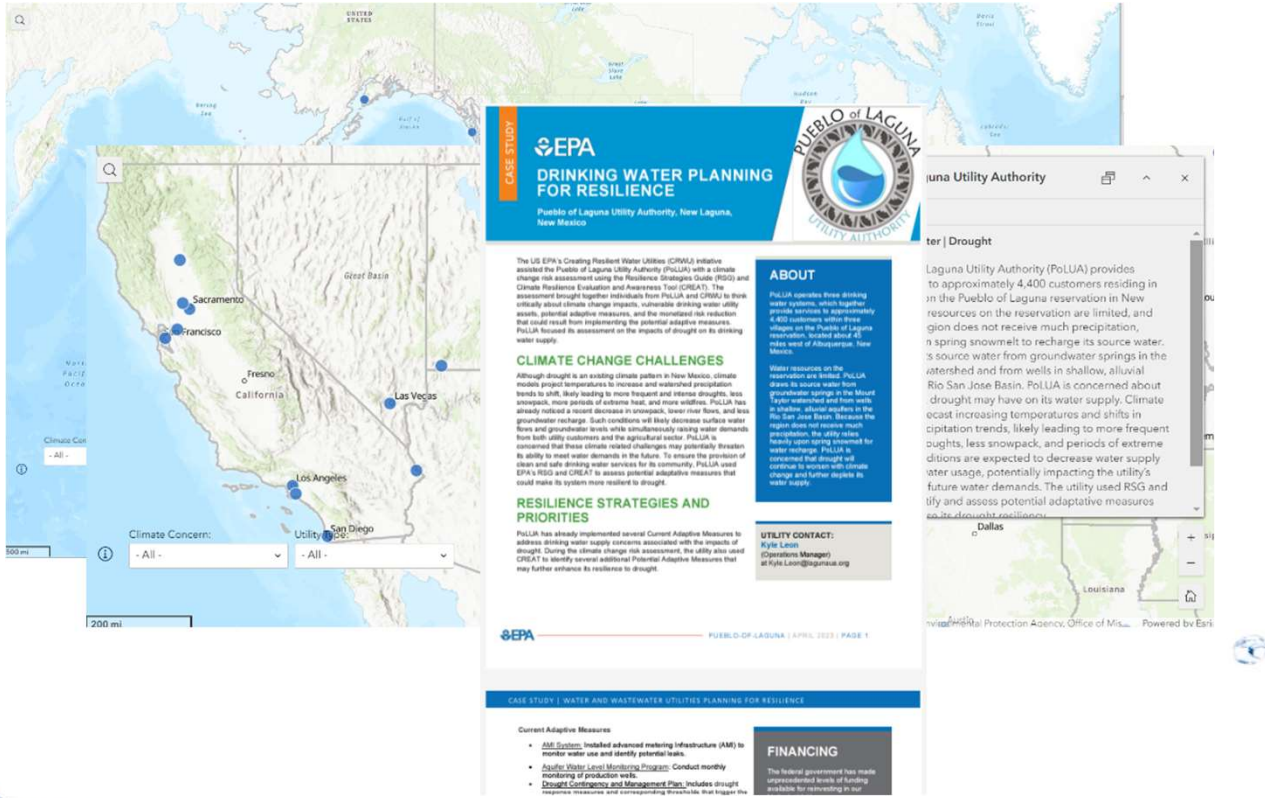
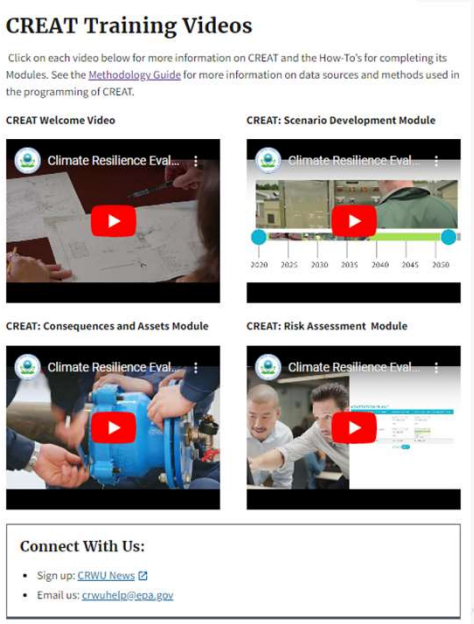
Case Studies

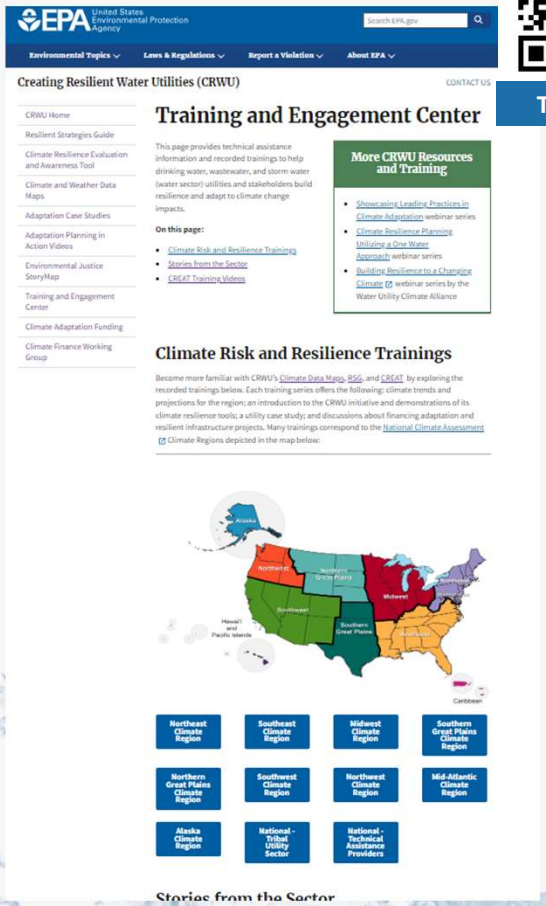


- **Connect** with peer utilities, **share** experiences, and **learn** best practices
- **~ 70** CREAT success stories available
- Regular updates with new utilities
- Highlights case studies surrounding certain themes, such as environmental justice, which change quarterly

7 CRWU Training & Engagement Center

- Watch recorded regional webinars for water sector stakeholders across **9 climate regions** within the U.S.
- Get detailed instruction on **CREAT** and its Modules
- View **utility climate resilience and adaptation videos** for water systems in some U.S. communities.





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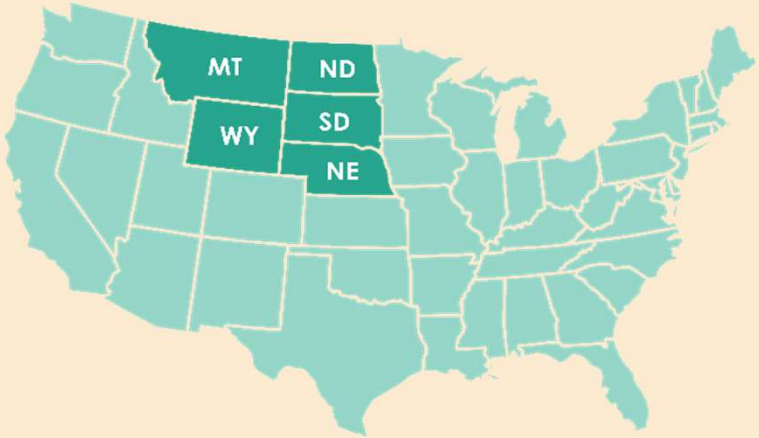
TRAINING

Upcoming CRWU Climate Resilience Training for YOU!

Climate Resilience Training for the Northern Great Plains Water Sector

Webinar Series: November 19 & 21 (9:30am – 12pm MST)

Great Northern Plains climate region, according to the National Climate Assessment



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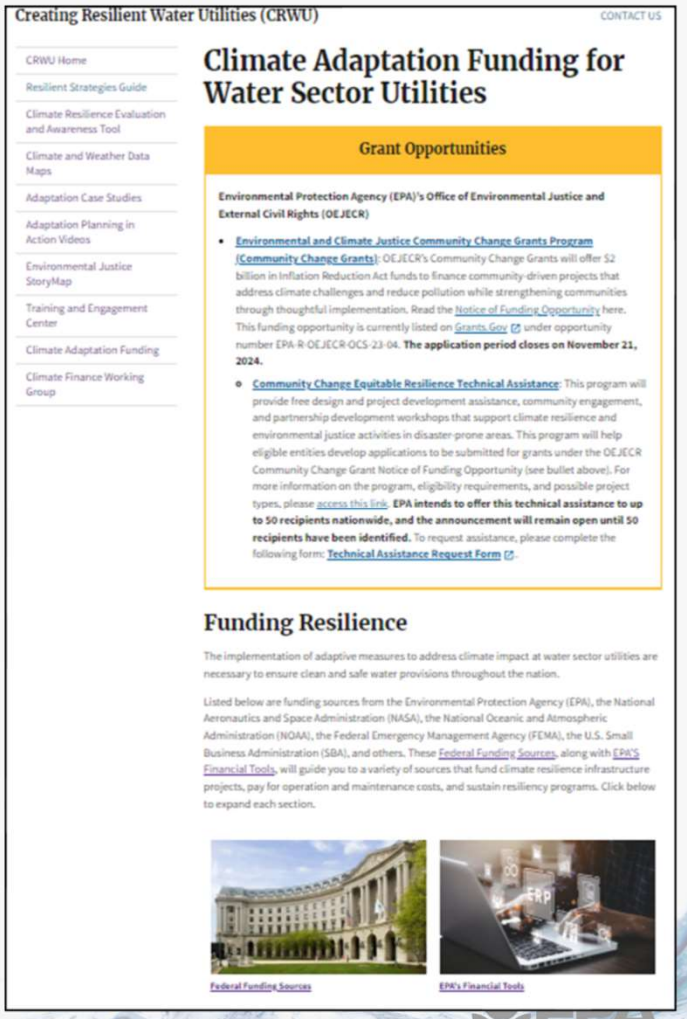
Photos from FY23 Tribal Workshops

8 Climate Adaptation Funding

- Points to a variety of sources that fund climate resilience infrastructure projects, pay for operation and maintenance costs, and sustain resiliency programs:
  - Lists **Federal Funding Sources**
  - Lists **Financial Tools**
  - Calls out relevant and timely **Grant Opportunities**



Creating Resilient Water Utilities (CRWU)

CONTACT US

CRWU Home
Resilient Strategies Guide
Climate Resilience Evaluation and Awareness Tool
Climate and Weather Data Maps
Adaptation Case Studies
Adaptation Planning in Action Videos
Environmental Justice StoryMap
Training and Engagement Center
Climate Adaptation Funding
Climate Finance Working Group

Climate Adaptation Funding for Water Sector Utilities

Grant Opportunities

Environmental Protection Agency (EPA)'s Office of Environmental Justice and External Civil Rights (OEJECR)

- **Environmental and Climate Justice Community Change Grants Program (Community Change Grants)**: OEJECR's Community Change Grants will offer $2 billion in Inflation Reduction Act funds to finance community-driven projects that address climate challenges and reduce pollution while strengthening communities through thoughtful implementation. Read the Notice of Funding Opportunity here. This funding opportunity is currently listed on Grants.Gov under opportunity number EPA-R-OEJECR-OCS-23-04. **The application period closes on November 21, 2024.**
  - **Community Change Equitable Resilience Technical Assistance**: This program will provide free design and project development assistance, community engagement, and partnership development workshops that support climate resilience and environmental justice activities in disaster-prone areas. This program will help eligible entities develop applications to be submitted for grants under the OEJECR Community Change Grant Notice of Funding Opportunity (see bullet above). For more information on the program, eligibility requirements, and possible project types, please access this link. **EPA intends to offer this technical assistance to up to 50 recipients nationwide, and the announcement will remain open until 50 recipients have been identified.** To request assistance, please complete the following form: **Technical Assistance Request Form**.

Funding Resilience

The implementation of adaptive measures to address climate impact at water sector utilities are necessary to ensure clean and safe water provisions throughout the nation.

Listed below are funding sources from the Environmental Protection Agency (EPA), the National Aeronautics and Space Administration (NASA), the National Oceanic and Atmospheric Administration (NOAA), the Federal Emergency Management Agency (FEMA), the U.S. Small Business Administration (SBA), and others. These Federal Funding Sources, along with EPA'S Financial Tools, will guide you to a variety of sources that fund climate resilience infrastructure projects, pay for operation and maintenance costs, and sustain resiliency programs. Click below to expand each section.

Federal Funding Sources

EPA's Financial Tools

CRWU Tools and Resources

ACCESS DATA

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These Tools and Resources inform CRWU's Technical Assistance Process…

WEB RESOURCES

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EPA

CRWU Technical Assistance Program for Drinking Water, Wastewater, and Stormwater Utilities *(feat. CREAT)*

Assessment #: Last year: 21; This year: 35; Next year: 45+

TA Process:

- 2-4 months (~35-40 hours)
- Series of Virtual Working Sessions to walk through tools
- Potential for On-Site visit
- Utilities are typically asked to designate a lead staff member to serve as a point-of-contact, other members may include hydrology modelers, engineers, treatment plant managers
- Deliverables: CREAT Assessment Report, Adaptation Plans, Case Study

Coordination:

- Within EPA's larger WaterTA network
  - National and Regional Environmental Finance Centers
  - Funding Coordination
    - Clean Water & Drinking Water SRFs (States and HQ)
    - EPA's WIFIA
    - FEMA's BRIC Program
    - USDA's Rural Development Program

EPA

TOWN OF HARTVILLE WATER SYSTEM; HARTVILLE, WYOMING

Fast Facts:

- Combined System, drinking water services for 64 customers
- Average .0075 MGD
- Vulnerable Financial Condition
- Reliant on groundwater sources
- Two aging pump houses in operation, located 4.5 miles from storage tanks in town

Climate Concerns:

- Drought (reduced groundwater recharge), wildfires, and reduced snowpack

Potential Adaptive Measures:

- Establish Back-up Power at the pump houses
- Construct second transmission line from pump houses to Hartville for redundancy

LARAMIE PUBLIC WORKS DEPARTMENT; LARAMIE, WYOMING

Fast Facts:

- Combined System; drinking water services for **36,000** customers
- Average **4 MGD**, up to 11 MGD during summertime peaks
- Sources include the **Big Laramie River** and **Casper Aquifer**
- 3 major wellfields
- 3 groundwater treatment facilities, 1 surface treatment plant
- Storage Tanks: Two 3.5M gal, One 8.5M gal, Two 1M gal

Climate Concerns:

- **Drought** (reduced groundwater recharge), temperature changes, reduced snowpack, wildfires, and natural disasters, like wind events

Potential Adaptive Measures:

- Construction of an additional 1M gallon storage tank
- Establishing back-up power in all areas of the system

EPA








INTERESTED IN FREE TECHNICAL ASSISTANCE FROM EPA CRWU?

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EPA

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Sign Up for CRWU Newsletter

Email: crwuhelp@epa.gov

CRWU website: www.epa.gov/crwu