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**Water Reuse
State & National Perspectives**

Wednesday, December 9, 2020
1:00 – 3:00 PM ET

The Water Environment Federation logo is located in the bottom right corner of the teal slide. It features the same white stylized 'W' symbol and text as seen in the first image.

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Today's Agenda

Moderator: Stephen Katz, SUEZ

1. Introduction and Overview on Reuse – Val Frenkel
2. US Government Programs Overview – Greg Fogel
3. EPA's Water Reuse Action Plan (WRAP) – Sharon Nappier
4. State Discussions
 - a. Oklahoma – Karen Steele
 - b. Florida – Lynn Spivey
 - c. California – Rob Beste
5. Panel and Q&A



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Our Next Speaker



**Val S. Frenkel, Ph.D., P.E.,
D.WRE.**
VP of Process Engineering

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GREELEY AND HANSEN



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Introduction to Water Reuse



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Water reuse experts will discuss the current status of water reuse at both a national and state levels. Overview of government programs, the anticipated role of the new administration in the implementation of water reuse, as well as the recently released EPA's National Water Reuse Action Plan (WRAP) will be discussed. Speakers representing different states will also review current state regulations, criteria for implementation, drivers specific their regions, and the anticipated influence of the WRAP. The webcast will conclude with a panel discussion focused on the future of water reuse across the country



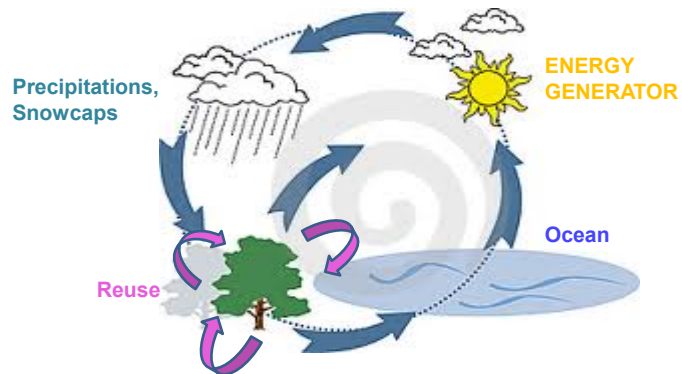
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Water Cycle



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Water Cycle = Natural Resource



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What is Water Reuse

EPA uses the terms “water reuse” and “water recycling” interchangeably and states that it is:

“Reusing treated wastewater for beneficial purposes such as agricultural and landscape irrigation, industrial processes, toilet flushing, and replenishing a ground water basin (referred to as ground water recharge).”

Who Regulates Water Reuse

- Water reclamation and reuse standards in the United States are the responsibility of state and local agencies - there are no federal regulations for reuse.
- The EPA 2012 updated Guidelines for Water Reuse states that “30 states [...] have adopted regulations and 15 states have guidelines or design standards that govern water reuse”.
- The WaterReuse Association lists 44 states with regulations and/or guidelines for water reuse.

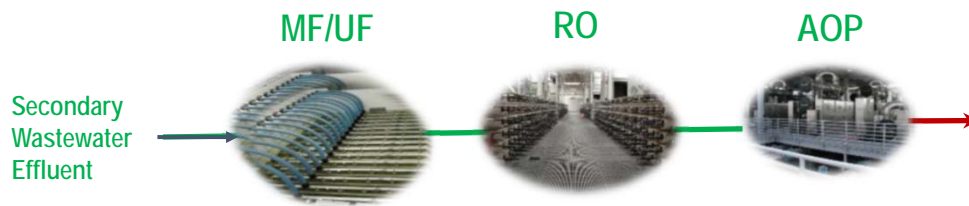
Types of Water Reuse

- Agricultural irrigation (seasonal)
- Landscape irrigation (seasonal)
- Industrial (continues)
- Non-potable urban (periodic)
- Recreational / Environmental uses (periodic)
- IPR - Indirect potable reuse through groundwater recharge or surface (continues)
- DPR - Direct potable reuse (continues)

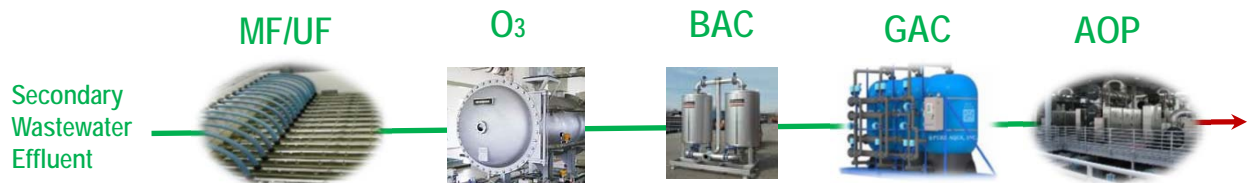


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IPR and DPR – Advanced Treatment RO Based

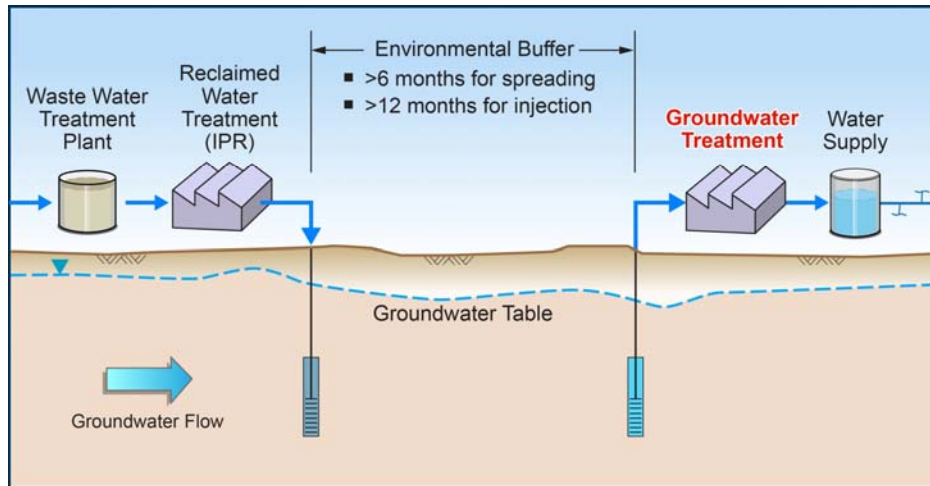


IPR and DPR – Advanced Treatment NOT - RO Based



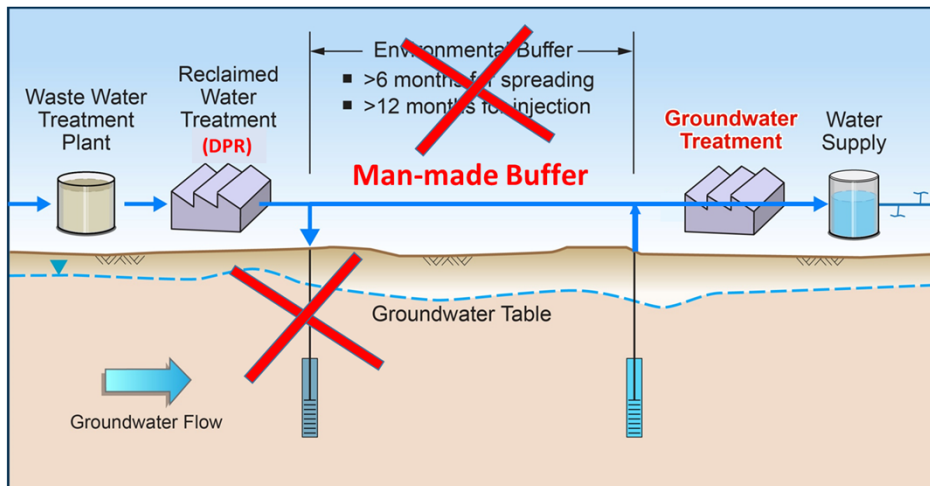
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IPR



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DPR



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Our Next Speaker



Greg Fogel
Policy Director



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Federal Programs to Support Water Reuse

- **Environmental Protection Agency**

- Clean Water State Revolving Fund (CWSRF)
- Drinking Water State Revolving Fund (DWSRF)
- Water Infrastructure Finance and Innovation Act (WIFIA)
- Programs authorized in AWIA 2018

- **U.S. Department of Agriculture**

- Conservation Innovation Grant Program
- Environmental Quality Incentives Program
- Rural Utility Service Loans and Grants

- **Bureau of Reclamation**

- Title XVI Water Reclamation and Reuse Program

- **U.S. Department of Energy**

- Water Security Grand Challenge

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Federal Programs to Support Water Reuse (Continued)

Clean Water SRF

- CWSRF has provided more than \$138 billion since 1987
- States have used CWSRF for reuse projects to varying degrees
- More than \$1.6 billion in financing for recycled water projects

WIFIA

- WIFIA has provided \$7.7 billion to facilitate \$16.6 billion in loan capital
- Huge leveraging potential
- At least 25 loans for recycled water projects since 2018

Title XVI

- Title XVI has provided over \$700 million since 1992, leveraging \$3 billion in non-federal funding
- Produced more than 400,000 acre-feet of drought-resistant water supply

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Congressional Action

Lame Duck

- Annual Appropriations
- Water Resources Development Act (?)

Next Year

- Western Water Programs
- Economic Stimulus / COVID Relief
- Infrastructure Package (?)

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The Biden Administration

- Signature Issues:
 - Climate Change
 - Environmental Justice and Equity
 - Clean Energy and Green Economy
- Water Reuse Action Plan (WRAP)
 - Prioritize the implementation and evolution of the WRAP

Contact:

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Policy Director
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Our Next Speaker



Sharon Nappier

National Program Leader for Water Reuse

Office of Water



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National Water Reuse Action Plan

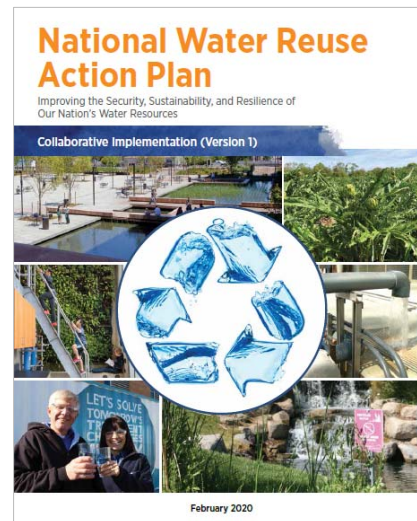
Improving the Security, Sustainability, and Resilience of our Nation's Water Resources



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Session Overview

- WRAP Overview
- WRAP Online Platform & Implementation Update
- Action Highlights
- Getting Involved
- Looking Ahead



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The Vision



Launch of the draft WRAP at the WaterReuse Symposium in San Diego on September 10, 2019 with federal representatives. Pictured, top row, left to right: Paul Jones (WaterReuse Association Representative), Aubrey Bettencourt (DoI), Tim Petty (DoI), Brenda Burman (BoR), Pat Sinicropi (WaterReuse Association). Pictured, bottom row, left to right: Ryan Fisher (ACoE), David Ross (EPA), Mary Neumayr (CEQ), William Northey (USDA), Daniel Simmons (DoE).

“ Our goal is to issue a[n]...Action Plan that includes clear commitments and accountability for actions that will further water reuse and help [ensure] the sustainability, security, and resilience of the nation’s water resources. Water quantity, supply, and quality decision-makers have historically worked through independent management regimes. Addressing future water resource challenges will require more holistic thinking that embraces the ‘convergence of water’ through more integrated action. ”

–David Ross, Assistant Administrator for Water,
U.S. EPA

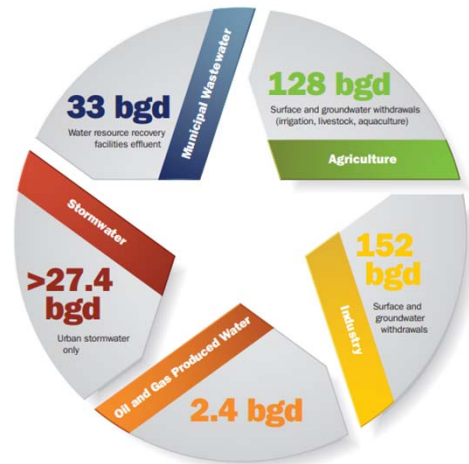
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Sources of Waters and Potential for Reuse

Clear potential to reclaim more of the nation's water

- Nearly 350 BGD from various sources of water discharged
- Over 280 BGD potentially available for reuse

* Estimates from draft Action Plan, page 6



Source: www.epa.gov/sites/production/files/2019-09/documents/water-reuse-action-plan-draft-2019.pdf. Figure Imagery by naihel/Shutterstock.com.

Image source: <https://awwa.onlinelibrary.wiley.com/doi/abs/10.1002/awwa.1426>

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WRAP Guiding Principles

- Protect public health
- Protect the environment and ecosystem health
- Promote action based on leadership, partnership, and collaboration
- Build on past experiences
- Identify the most impactful actions
- Recognize distinct challenges posed by water reuse
- Consider water reuse in an integrated water resources management framework
- Defer to state (cooperative federalism) and local issues and considerations
- Commit to implementation through transparency and shared accountability
- Communicate effectively
- Apply adaptive management and governance



Source: www.epa.gov/sites/production/files/2019-09/documents/water-reuse-action-plan-draft-2019.pdf

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WRAP: Collaborative Implementation (Version 1)



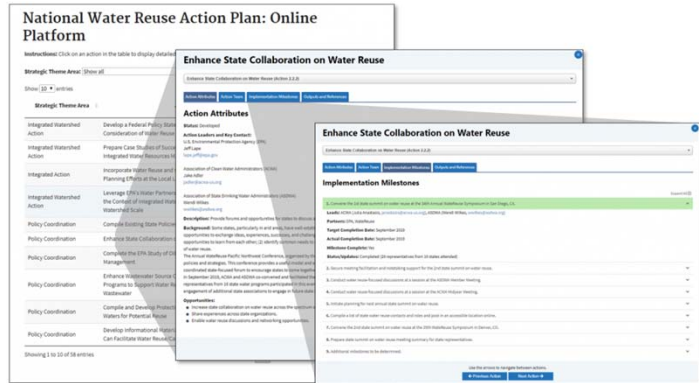
- Available in two forms:
 - Printed publication
 - Online Platform
- Key outcomes:
 - Includes 37 specific actions and over 200 implementation milestones
 - Actions led by nearly 30 different organizations and supported by more than 80 collaborating partners



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WRAP Online Platform

- Repository for all active actions
- Provides background and opportunities to be gained
- Identifies leaders, partners, interested collaborators
- Captures milestones and progress
- Helps form the pipeline of new actions and collaboration



<https://www.epa.gov/waterreuse/national-water-reuse-action-plan-online-platform>



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Strategic Themes

The WRAP features 11 strategic themes:

- 2.1 Integrated Watershed Action
- 2.2 Policy Coordination
- 2.3 Science and Specifications
- 2.4 Technology Development and Validation
- 2.5 Water Information Availability
- 2.6 Finance Support
- 2.7 Integrated Research
- 2.8 Outreach and Communications
- 2.9 Workforce Development
- 2.10 Metrics for Success
- 2.11 International Collaboration



Public landscapes throughout Northern California's City of Roseville are irrigated with recycled water.

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Action Highlights Summary

- **Policy Coordination:**
 - Enhance State Collaboration on Water Reuse (2.2.2)
 - Develop Informational Materials to Address how CWA NPDES Permits can Facilitate Water Reuse/Capture (2.2.6)
- **Science and Specifications**
 - Compile Existing Fit-for-Purpose Specifications (2.3.1)
 - Convene Experts to Address Opportunities and Challenges Related to Stormwater Capture and Use (2.3.3)
- **Workforce**
 - Support and Promote Opportunities for Creating a Skilled Workforce for Water Reuse Applications (2.9.2)

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Enhance State Collaboration

Action Team

Action Leaders and Key Contact

U.S. Environmental Protection Agency (EPA)
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Association of State Drinking Water Administrators (ASDWA)
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Partners

- Association of State and Territorial Health Officials (ASTHO)
 - Nicholas Porter nporter@astho.org
- The Environmental Council of the States (ECOS)
 - Layne Piper lpiper@ecos.org
- Ground Water Protection Council (GWPC)
 - Mike Paque mpaque@gwpc.org
- WaterReuse Association (WaterReuse)
 - Greg Fogel gfogel@waterreuse.org

Implementation Milestones

Expand All

1. Convene the 1st state summit on water reuse at the 34th Annual WaterReuse Symposium in San Diego, CA. ▼
2. Secure meeting facilitation and notetaking support for the 2nd state summit on water reuse. ▼
3. Conduct water reuse-focused discussions at a session at the ACWA Member Meeting. ▼
4. Conduct water reuse-focused discussions at a session at the ASDWA Midyear Meeting. ▼
5. Initiate planning for next annual state summit on water reuse. ▼
6. Compile a list of state water reuse contacts and roles and post in an accessible location online. ▼
7. Convene the 2nd state summit on water reuse at the 35th WaterReuse Symposium. ▼
8. Prepare state summit on water reuse meeting summary for state representatives. ▼
9. Additional milestones to be determined. ▼



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Develop Materials on how CWA NPDES Permits can Facilitate Reuse

Action Team

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Partners

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- National Municipal Stormwater Alliance (NMSA)
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- WaterReuse Association (WaterReuse)
 - Greg Fogel gfogel@waterreuse.org
- Water Environment Federation (WEF)
 - Claudio Ternieden cternieden@wef.org

Implementation Milestones

Expand All

1. Draft initial list of permitting issues/concerns related to water reuse. ▼
2. Identify two to three EPA, state, permittee, and other stakeholder workgroup representatives. ▼
3. Hold first workgroup call to identify key questions and case examples, and discuss form of Action output(s). ▼
4. Workgroup prepares first draft of key questions and initial answers. ▼
5. Workgroup develops draft output document. ▼
6. Final Action Output document completed and issued. ▼
7. Develop water reuse training module and pilot test in the NPDES Basic Permit Writers Training Course. ▼



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Compile Fit-for-Purpose Specifications

Action Team

Action Leaders and Key Contact

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Partners

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- Water Research Foundation (WRF)
 - Julie Minton jminton@waterf.org
- WaterReuse Association (WaterReuse)
 - Aliza Furneaux AFurneaux@waterreuse.org
- Wyoming Department of Health
 - Rich Cripe rich.cripe@wyo.gov

Implementation Milestones

Expand All

1. Coordinate with Action 2.2.1 (compilation of state policies) to ensure the state compilation methodology identifies and extracts fit-for-purpose specifications. ▼
2. Secure contractor support to facilitate the compilation design and execution. ▼
3. Assemble/convene representatives to collaborate on the design approach for the compilation, including combining the state compilation with identified federal and international specifications. ▼
4. Identify all documents needed and extract data. ▼
5. Evaluate available information on technical basis for existing fit-for-purpose specifications. ▼
6. Prepare interim product for review to ensure all sources have been considered in the compilation. ▼
7. Complete the compilation of fit-for-purpose specifications and make available in an online location. ▼



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Convene Experts on Stormwater Capture and Use

Action Team

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Partners

- Association of Clean Water Administrators (ACWA)
 - Jake Adler jadler@acwa-us.org
- Association of Metropolitan Water Agencies (AMWA)
 - Erica Brown brown@amwa.net

Implementation Milestones

Expand All

1. Secure third-party facilitation support for meeting planning, implementation, and report writing. ▼
2. Frame meeting concept and approach. ▼
3. Identify and invite participants (25 maximum). ▼
4. Query meeting participants to identify stormwater capture opportunities and challenges and summarize information for use at the meeting. ▼
5. Develop meeting agenda and roles of the participants. ▼
6. Develop "conversation starter" roles and strategies, and identify reading materials for meeting. ▼
7. Develop and distribute advance meeting materials. ▼
8. Host participants at Johnson Foundation at Wingspread in Racine, Wisconsin. ▼
9. Prepare draft meeting report (including recommendations for action). ▼
10. Prepare final meeting report (including recommendations for action). ▼
11. Issue final meeting report. ▼



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Creating a Skilled Workforce

Action Team

Action Leaders and Key Contact

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Water Environment Federation (WEF)
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Implementation Milestones


Expand All 

1. Issue draft America's Water Sector Workforce Initiative and ensure that water reuse goals and priorities are considered/incorporated. 

2. Issue America's Water Sector Workforce Initiative. 

3. Organize and coordinate a workforce development session at the 35th WaterReuse Symposium. 

4. Support state-level efforts underway related to developing training programs for advanced water treatment operations and water reuse applications (notably potable water reuse). 

5. Develop a strategy to expand operator training to support water reuse and other advanced water treatment operations nationwide. 



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Onboarding New Proposed Actions

- New proposed actions are introduced in the WRAP quarterly updates and Online Platform as frequently as once a quarter
- Four proposed actions were developed by potential action leaders this past quarter (July-September)
- Feedback on proposed actions sent through waterreuse@epa.gov will inform action development



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New Proposed Actions

- Engagement with Disadvantaged and Small Communities on Water Reuse
- Viral Pathogen and Surrogate Approaches for Assessing Treatment Performance in Water Reuse
- Implement and Manage the National Alliance for Water Innovation (NAWI) Energy-Water Desalination Hub
- Identify Monitoring Practices for Reuse Applications

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Communicating Progress

- Action Implementation
 - 121 implementation milestones out of 270 completed
 - More than 30 new milestones added since February
- Online Platform
 - Weekly updates on implementation progress
 - Nearly 700 total updates across 35 actions
- Regular Outreach and Engagement
 - Quarterly updates – next release: January
 - Action leader meetings
 - Ongoing discussions with federal, state, tribal, and local stakeholders
 - WRAP Action Activities and Highlights web page

Water Reuse

Water Reuse Home

Basic Information

Water Reuse Action Plan

WRAP Online Platform

Latest Quarterly Update

WRAP Activities and Highlights

Water Reuse Activities and Resources

State Resources

Federal and Non-governmental Resources

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What's Next for the WRAP: Looking Forward

● Action implementation and development

- Action teams focused on implementation of the 37 developed actions
- New actions onboarded quarterly

● Spring 2021 Update

- Highlight progress across the 37 active actions
- Demonstrate collective impact
- Showcase new actions



Breakout session at one of the WaterReuse expert convenings on water reuse during development of the draft Action Plan.

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Get Involved!

● Propose or provide input on a new proposed action

- Share your idea with EPA's Water Reuse Team
- Quarterly action onboarding

● Support an existing action

- Reach out to action leader(s) about possible roles

● Stay in the loop

- Follow action implementation progress in the WRAP Online Platform:
<https://www.epa.gov/waterreuse/national-water-reuse-action-plan-online-platform>
- Email waterreuse@epa.gov to join our listserv for periodic updates



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Thank you!

Sharon Nappier, National Program Leader for Water Reuse

EPA Office of Water

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<https://www.epa.gov/waterreuse/water-reuse-action-plan>

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Together, we can ensure the sustainability, security, and resilience of our nation's water resources.



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Karen Steele, PE

Water Quality Division

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Water Reuse in Oklahoma

December 9, 2020

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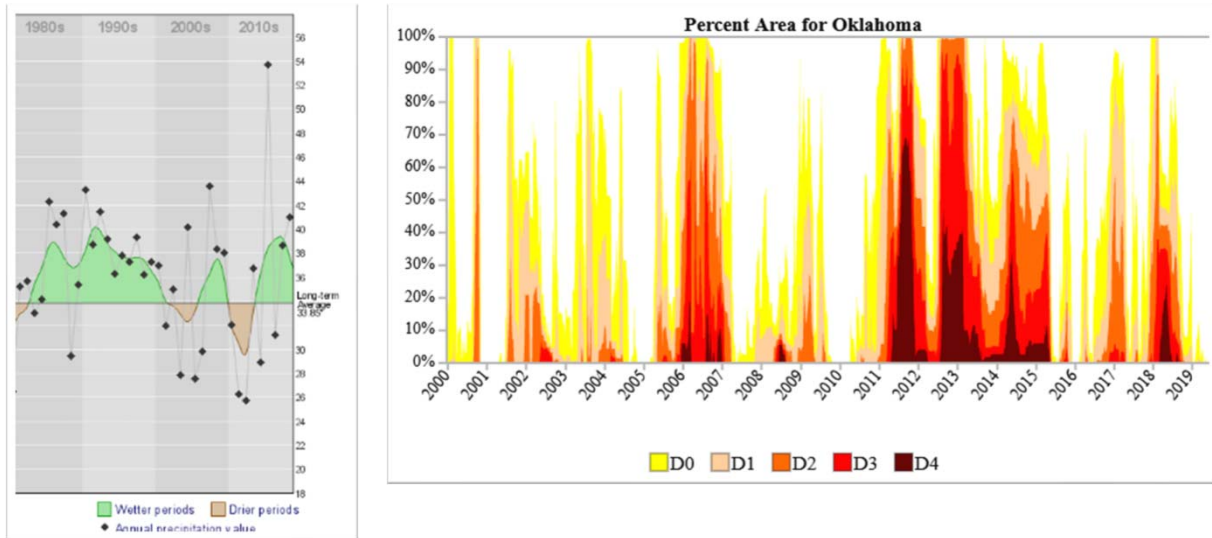
How it started

- Slow rate land application
 - Additional capacity for total retention lagoons and seasonal discharging lagoons



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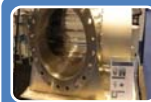
Drought as a Driver for Water Reuse



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Rules for Non-Potable Reuse

- Categories of Reclaimed Water
 - Determined by Treatment Levels
 - Each Category has allowed uses



Category 2: Mechanical Treatment with High Disinfection



Category 3: Mechanical Treatment with Disinfection



Category 4: Lagoon Treatment with Disinfection



Category 5: Lagoon treatment

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Rules for Non-Potable Reuse



Category 2

Public Access
Landscapes &
Unrestricted
Access Golf
Courses



Category 3

Cooling Towers
& New Restricted
Access Golf
Courses



Category 4

Soil Compaction
& Existing
Restricted
Access Golf
Courses



Category 5

Restricted
Access Irrigation
of Pasture and
Forage Crops

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Potable Reuse in Oklahoma

- Indirect Potable Reuse (IPR) for Surface Water Augmentation Regulations - 2018
 - Anti-degradation Policy updated - 2017
- Aquifer Storage and Recovery Regulations - 2018
- Direct Potable Reuse can be pursued on a case-by-case basis

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How it's going

- OPDES Permitted Non-Potable water reuse
- Regulations for IPR
- Pathway for DPR projects
- Continuing to build the Water Reuse Program

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Lynn Spivey, Plant City Florida



- Director of Utilities, City of Plant City, Florida
- President, WaterReuse Florida
- Chair, FL Potable Reuse Commission
- Florida Water Environment Association – Director at Large



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The Florida Potable Reuse Commission: One Water, SETTING THE STAGE FOR A SUSTAINABLE FUTURE

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Water Reuse Paradigm Shift



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Why Potable Reuse for Florida?

- 67% of Florida is Designated a Water Resource Caution Area
- Increasing Population and Water Demands: 2019 population 21.64 million, one of the fastest growing states; expected to be 33 million by 2050
- Locally Sourced Alternative Water Supply
- Helps to Achieve Sustainability – diversified water portfolio
- Protects Environment
- Improves Water Quality
- Supports Florida's Growing Economy

Water Environment Federation
the water quality people®

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Potable Reuse Commission Collaborative Effort

WATER REUSE
FLORIDA

Florida Water Environment Association
UTILITY COUNCIL
wef Member Association

American Water Works Association
Florida Section

Southwest Florida
Water Management District

ST. JOHNS RIVER
WATER MANAGEMENT DISTRICT

SOUTH FLORIDA WATER MANAGEMENT DISTRICT

FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION

THE
Water
Research
FOUNDATION

FFVA
FLORIDA FRUIT & VEGETABLE ASSOCIATION

The Nature
Conservancy

Florida
HEALTH

USE

AIF

Water Environment Federation
the water quality people®

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Potable Reuse Commission

Consensus based effort by water professionals and a **diverse stakeholder group** to identify and address technical, regulatory, and implementation barriers to potable reuse in Florida.

Develop a **framework** document for potable reuse implementation in Florida to **augment** future **water supply** and support **water quality** initiatives.



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Non Utility VIPS	Utility Representatives
<p>Agriculture Representative Kerry Kates Florida Fruit & Vegetable Association</p>	<p>WaterReuse Florida, Chair Lynn Spivey City of Plant City</p>
<p>Florida Department of Health Dean Bodager Bureau of Epidemiology Food & Waterborne Disease</p>	<p>WaterReuse Florida, VC Bart Weiss Hillsborough County Public Utilities</p>
<p>Environmental Representative Garrett Wallace The Nature Conservancy of Florida</p>	<p>Florida Section AWWA Utility Council, VC Brian Wheeler City of St. Cloud (previously TOHO Water Authority)</p>
<p>Florida Industries Representative Jim Spratt, Associated Industries of Florida</p>	<p>Florida Section AWWA Water Utility Council Chuck Weber, City of Tampa</p>
<p>Public Health/Medical State University Representative Dr. Donna Petersen Dean, College of Public Health at the University of South Florida</p>	<p>FWEA Utility Council, VC Paul Steinbrecher, JEA</p> <p>FWEA Utility Council, VC Ed Torres, City of Altamonte Springs</p>



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Potable Reuse Commission Overarching Goals

- ❖ Develop science-based recommendations
- ❖ Protect public health and the environment
- ❖ Provide a regulatory path for potable reuse projects in Florida

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Framework Development: An Open Process with Public Involvement



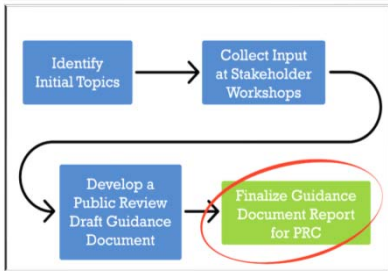
Publicly noticed 18 meetings in Florida
Administrative Register

Hosted three workshops which included more
than 30 organizations and more than 150
attendees

Process and progress highlighted in more
than 30 state and national presentations

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Potable Reuse Commission Process



PCR Framework guidance from Water Research Foundation

- Internationally recognized Non-profit research organization – credible and scientific
- Water Research Foundation has extensive experience in potable reuse technical/scientific research

WRF led 3 one-day interactive workshops

- Provided opportunities for stakeholders to present questions or concerns

Approach:

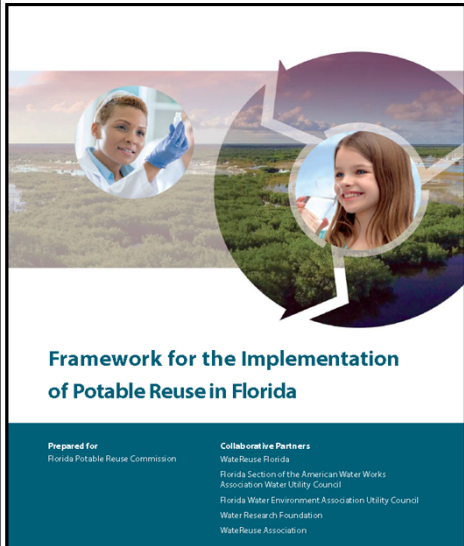
Workshop #1: Recommended a list of topics and options

Workshop #2: Summarized recommendations based on stakeholder input and current state-of-science

Workshop #3: Review comments on draft report recommendations



Florida Potable Reuse Framework



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Critical Component of the Florida Specific Guidance

Part 3 – Florida Potable Reuse Regulatory Framework

Chapter 9 – Overview of Regulatory Framework

Chapter 10 – Regulatory Changes the PRC Recommends to Promote Potable Reuse While Protecting Public Health and the Environment

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Summary of Proposed Regulatory Recommendations

Drinking Water Related Regulations

Include all potable reuse requirements in rules addressing drinking water by moving existing potable reuse specific requirements to drinking water related regulations

Include reclaimed water as a source water and address pathogen removal and inactivation requirements in reclaimed water for potable reuse

Address emerging constituents in potable reuse by employing **appropriate treatment technology** and adding the “representative emerging constituent protocol” to existing environmental monitoring requirements

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Summary of Proposed Regulatory Recommendations

Reclaimed Water Recharge

Review existing recharge rules in parallel with new rules for potable reuse for consistency

Industrial Pretreatment

Extend industrial pretreatment requirements to potable reuse

Require wastewater utility to develop source control program for sources identified as needed for drinking water production

"Off-Spec" Reclaimed Water

Address "off-spec" reclaimed water through alternative disposal, retreatment, or non-potable reuse

Summary of Proposed Regulatory Recommendations

Drinking Water Standards Compliance

Define in rule that compliance with drinking water quality standards is at the point where finished water from the DWTF is discharged to a potable distribution system

Water Use Permit for DPR

Ensure existing law that no new water use permit is needed for a DPR project and that existing WUPs are not adversely impacted as potable reuse statutes and rules are adopted

Summary of Proposed Regulatory Recommendations

Protecting Springs

- Ensure existing spring protections continue
- FDEP to clarify that the quality of reclaimed water intended for IPR projects which is released to springshed groundwater complies with surface water quality standards (may be necessary as other rules are amended)

Overall Review of Existing Regulations

- FDEP review of reclaimed water treatment, groundwater recharge, and potable water treatment, and updates regulations as necessary with input

Summary of Proposed Regulatory Recommendations

IPR Definition

Include groundwater recharge in IPR definition

Coordination MOU

DEP and WMDs to enter into MOU which allow for the coordinated review of all potable reuse permits if applicant requests

Incentivizing & Protecting Public Investment in Potable Reuse

Form working group to determine if changes are needed to existing law that would incentivize and protect public investments in potable reuse projects

Next Steps

Publish the report – January 2020

Legislation – SB712 signed by Governor DeSantis on June 30th, went into effect July 1, 2020

Florida DEP - Announced Phase I & II Rule Revisions – Workshop January 14th, 2020

Technical Advisory Committee/Working Groups

- **PR Public Education and Outreach Workgroup**

PRC Currently working with Water Management District Communication team on first phase of FDEP Public Outreach/Education campaign (\$250K appropriation)

➤ **Implement regulatory recommendations collectively and through Technical Advisory Committees**

The PRC intends the regulatory recommendations in this framework to be undertaken collectively. Many of the recommendations in this report require action by the Florida Legislature and/or FDEP. Where it is recommended that FDEP adopt or modify rules, the PRC recommends **FDEP convene and lead one or more technical advisory committees (TACs) of a broad and diverse group of stakeholders to assist in the development of these regulations.** These TACs would include representatives from the wastewater utility industry, the water utility industry, the environmental community, the business community, the health community, the general public, and the agricultural community. By developing these regulations in this manner, FDEP can address multiple perspectives and develop rules that will protect the public health and environment.



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Next Steps

Incentivize and protect public investments in potable reuse

Potable reuse projects require significantly more planning and financial investment than other types of reuse projects. Utilities need certainty that the investment of their ratepayers' funds will be protected. **The PRC recommends that it, in coordination with FDEP and the water management districts, would facilitate the creation of a working group to examine CUP and WUP statutes and rules in the context of incentivizing and protecting investments in these long-term potable reuse projects. The working group should consist of diverse stakeholders, including but not limited to, PRC members, water management district and FDEP representatives, water and wastewater utilities representatives, agricultural organizations representatives, environmental organizations representatives, and other interested parties.**



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Next Steps

Continue public education and outreach

Public confidence, understanding, acceptance, and support are essential for the successful implementation of potable reuse projects. Achieving this public confidence, understanding and support requires extensive public education and outreach by the water industry, communities considering potable reuse, FDEP, and the water management districts.



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ONE WATER

The collage features several 'One Water' related items:

- Southwest Michigan:** Logo with three blue water droplets and the text 'onewater Keep it fresh. Keep it flowing.'
- New Jersey:** Logo for Little Rock Water Reclamation Authority with a circular arrow icon and the text 'LITTLE ROCK Water Reclamation Authority ONE WATER. ONE FUTURE.'
- Monterey:** Logo with a stylized water drop and the text 'Monterey One Water'.
- One Water LA:** Logo with a rainbow arc and the text 'One Water LA'.
- Informational Graphics:**
 - 'WHAT IS ONE WATER?' with a circular diagram showing interconnected water systems.
 - 'ADVANCING ONE WATER IN TEXAS' with a circular diagram and a map of Texas.
 - 'ONE WATER' with a city skyline graphic.
 - 'ALL WATER IS ONE WATER' with a circular diagram showing 'Rain/Stormwater', 'Groundwater', 'Wastewater', 'Recycled Water', and 'Drinking Water' as interconnected parts of a cycle.



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One Water Florida!



One Water Florida!

Recycled Water: Safely Supplying Florida's Future

Who is responsible for making sure water is safe to drink in Florida?

Highly trained and certified water treatment plant operators are responsible for maintaining safe, functioning water systems in Florida. The Florida Department of Environmental Protection (DEP) takes its responsibility seriously to ensure that water utilities provide safe, reliable drinking water to Floridians, including those using recycled water.

Do other states use recycled water to supplement their drinking water supply?

A variety of recycled water projects have been implemented from coast to coast in the United States, around the globe and even in space.

How You Can Learn More:

Visit [www.waterquality.org](#) for more information on the benefits of potable reuse and how it's being used to supplement the supply of drinking water around the United States and the world.

Recycled Water: Safely Supplying Florida's Future

One Water Florida

One Water Florida is an initiative to educate the public on the benefits of potable reuse as a necessary alternative water supply. Due to Florida's limited freshwater supply, the need to plan for and diversify alternative water sources is vital to meet projected water needs as well as respond to drought, protect the environment and ensure a robust economic future.

What is Potable Reuse?

Potable reuse refers to highly treated recycled water from various sources people can use for drinking, cooking or bathing.

Is Recycled Water Safe for People to Drink?

Yes. This type of recycled water uses proven technology to make the water safe. The water meets or is a higher quality than strict state and federal drinking water standards.

Recycled Water: Safely Supplying Florida's Future

How Does Recycled Water Help Our Environment?

Reusing water relieves pressure on Florida's water resources and ecosystems. The more water we recycle, the more water remains in our rivers and springs for the plants and wildlife that rely upon them such as fish, birds and the endangered manatee.


Why Should Recycled Water be Added to Florida's Water Supply?

Florida is growing at a record pace, with an estimated 1,000 people moving to the state daily. Floridians use nearly 6.4 billion gallons of water per day. Our aquifers, lakes and springs cannot keep up with our need for water. In fact, we need an additional 1 billion gallons of water per day by 2040. Our supply is not endless, expanding the use of recycled water is one way we can help ensure there is plenty of water to meet this demand.

How is Recycled Water Purified and Treated?

The advanced processes used to treat recycled water provide a safe, reliable and sustainable drinking water supply.


- First, recycled water, used for potable reuse, goes through multiple advanced pretreatment processes, aeration and nutrient removal.
- Next, the water receives additional filtration to remove microorganisms, including viruses, bacteria and other pollutants.
- The last steps include protection through advanced disinfection treatments such as ultraviolet light, ozone and peroxide.



Potable Reuse Commission

Helping plan for Florida's future water needs


[About the Commission](#)
[PRC Members](#)
[Meetings and Events](#)
[Other Helpful Information](#)
[Letters of Support](#)
[News](#)



The final **Potable Reuse Commission Report** is now complete and available for review. This report is the result of a two-year, extensive, consensus-based effort by water professionals and a diverse stakeholder group. I want to thank the PRC members and the many others that volunteered countless hours to create this framework to advance the safe implementation of potable reuse in Florida.

Framework for the Implementation of Potable Reuse in Florida


Lynn Spivey
PRC Chair




Potable reuse is an emerging alternative water supply option that can help to safely meet Florida's future water needs by providing resiliency during natural drought cycles for decades to come. The Potable Reuse Commission (PRC) will develop the framework for the implementation of potable reuse in Florida.

For more information:


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Replenishing Groundwater Basins with Recycled Water in Los Angeles County

Rob Beste

SECURING OUR WATER FUTURE TODAY



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Importing Water to Southern California

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WRD SERVICE AREA

-  **Service Area = 420 Square Miles**
-  **43 Cities**
-  **Population > 4 Million**
-  **550,000 acre feet used per year**
-  **50% Groundwater from local water wells**
-  **50% Imported water**
-  **WRD supplements natural groundwater recharge**

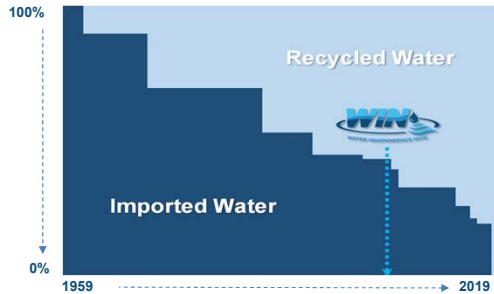
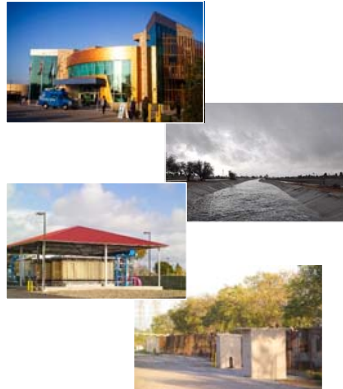
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60 YEARS OF SUSTAINABLE GROUNDWATER MANAGEMENT



WRD developed local sustainable and resilience of our groundwater supply through:

1. Increasing Production & Use of Recycled Water
2. Capturing & Conserving Additional Stormwater



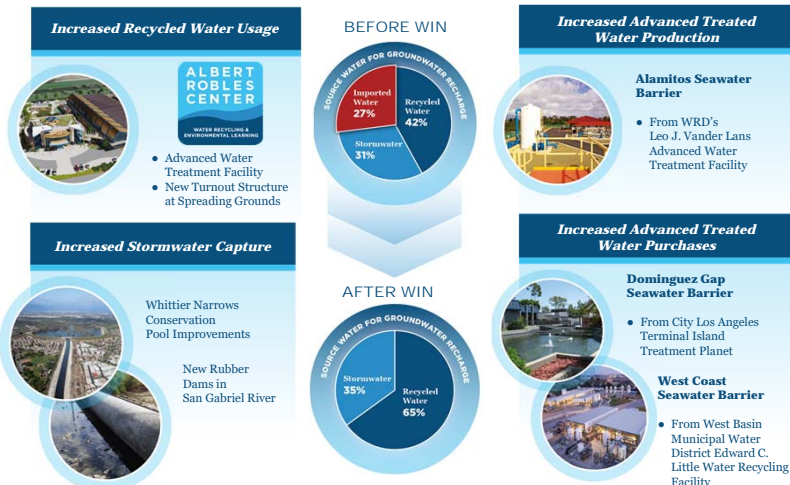
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WATER INDEPENDENCE NOW PROGRAM (WIN)



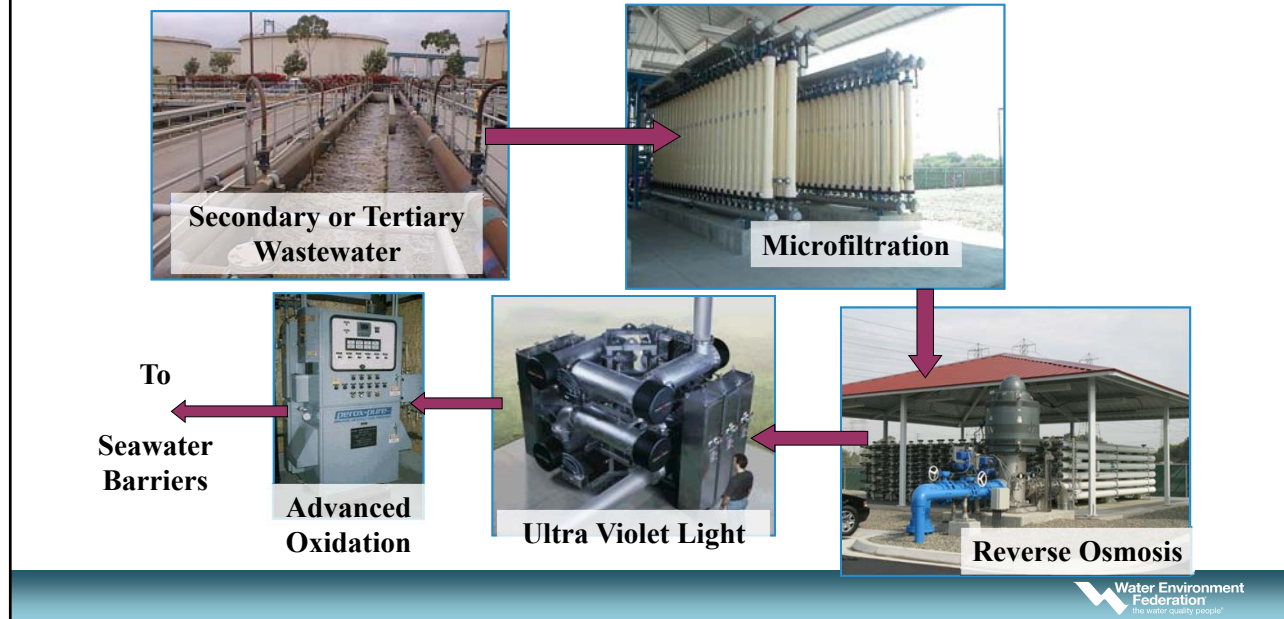
Collection of projects to eliminate remaining demand for imported water.

A key to developing independence from imported water is the development of local recycled water sources.



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Recycled Water to Replace Imported Water



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Benefits of Recycled Water for Recharge

- Local source of water compared to importing it from hundreds of miles.
- Reuse of a valuable resource.
- Extremely good water quality, both tertiary and advanced, when properly treated to comply with current regulations.
- Rate stabilization and reliability for groundwater producers.
- WRD has been using recycled water since 1962 for groundwater basin reliability. Continue to expand use.



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ALBERT ROBLES CENTER

- Built in the City of Pico Rivera
- Completed in 2019
- Produces 3.25 billion gallons of advanced treated water for groundwater replenishment
- State-of-the-art Environmental Education Center
- Cornerstone of WRD's Water Independence Now Initiative
- Created completely sustainable source of local water for groundwater recharge



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Generalized Process Flow Diagram for ARC



Treated Water to Spreading Grounds and/or Supplemental Recharge Wells (Injection Wells)



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FROM GROUNDWATER SUSTAINABILITY TO REGIONAL RESILIENCY



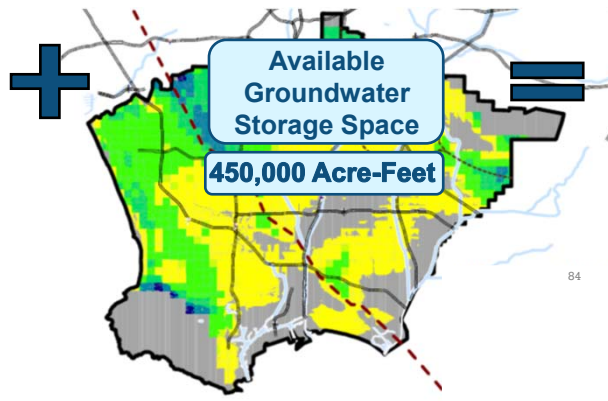
Groundwater augmentation & storage projects will be developed using local supplies to create regional water resiliency

Unused Local Water Supplies

Recycled Water



Stormwater

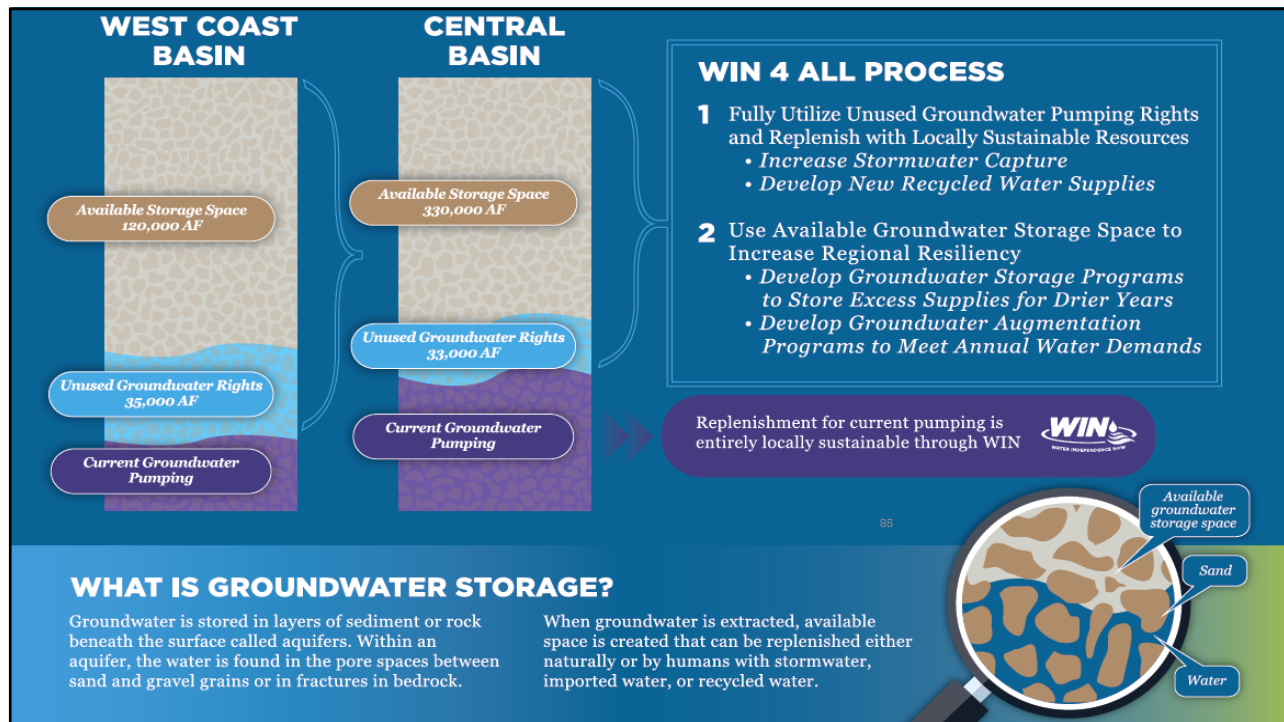


Increased Reliance on Sustainable Groundwater

- ✓ Offset potable water demands from other supplies
- ✓ Storage provides resiliency during dry years

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CURRENT WIN 4 ALL RECYCLED WATER PROGRAMS

- Regional Brackish Water Reclamation Program
- LVL Augmentation Program
- WRD/LADWP Joint LA Basin Master Plan
- MWD Regional Recycling Project



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Regional Brackish Water Reclamation Program

A Collaborative Regional Effort to Remediate a Brackish Groundwater Plume in the West Coast Basin

- ✓ Enables pumpers to utilize unused pumping rights
- ✓ Provides a new, locally sustainable potable water supply
- ✓ Program replenishment provides a beneficial use of available recycled water sources
- ✓ Remediation enables use of available groundwater storage space (120,000 Acre-Feet)
- ✓ Have approved USBR Title 16 Feasibility Study
- ✓ 2021 work will include Enviro Review & Piloting
- ✓ Total Program Cost = ~\$250 million

ESTIMATED BRACKISH PLUME TOTAL VOLUME
= 600,000 acre-feet
(20,000,000,000 gallons)

2017 Saline Plume Concentrations for the Silverado Aquifer
mg/l = milligrams per liter

- 250 - 500 mg/l
- 500 - 1,000 mg/l
- 1,000 - 3,000 mg/l
- 3,000 - 5,000 mg/l
- > 5,000 mg/l

West Coast Basin Barrier Project

Feasibility Study Being Completed by WRD & 7 Stakeholder Agencies

Los Angeles
Department of Water & Power
City of Long Beach
Golden State Water Company

Water Environment Federation
the water quality people®

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LVL Storage & Augmentation Program

A Groundwater Augmentation Program Utilizing Recycled Water Supplies from Los Coyotes WRP & Treatment Capacity at LVL

- ✓ WRD has an allocation of 10,000 AFY of tertiary water at LCWRP
- ✓ Water would be advanced treated at LVL & injected into new inland injection wells
- ✓ WRD does not need this water for replenishment, so we're working with pumpers to develop a storage and augmentation program
 - ✓ Currently working with LADWP & LBWD
- ✓ 2021 work will include construction of the first injection well at LVL to use currently available flows & planning the Program in the Master Plan effort
- ✓ Total Program Cost (over next 3-5 years) = ~\$100 million



Los Coyotes Water Reclamation Plant
Sanitation Districts of LA County

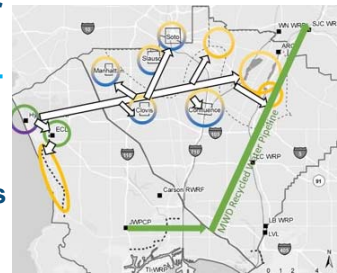


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WRD/LADWP Joint LA Basin Replenishment & Extraction Master Plan

A Planning Effort to Utilize Recycled Water for Storage & Augmentation in Both Basins

- ✓ LADWP has 170,000 AFY of recycled water available at Hyperion Water Reclamation Plant
- ✓ WRD has a 10,000 AFY allocation of tertiary water at Los Coyotes WRP
- ✓ Master Plan is a joint (50/50 cost share) effort between WRD & LADWP to evaluate replenishment & extraction of those supplies in the basins for storage & augmentation
- ✓ 2021 work will include groundwater modeling, hydraulic analysis for LVL flows, test plans for pilot wells, and development of potential Program structures
- ✓ Total Plan Cost = \$3 million (WRD responsibility is \$1.5M)



Hyperion to LA Forebay & RBWP Recharge



LCWRP to LVL for Injection



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Thank You!

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Lakewood, CA 90712


www.WRD.org



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Questions?

Thank you for joining us!



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