

Desalination; Who, What, When, and Where

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Bureau of Reclamation

Texas Desal 2018 – Austin, TX

Who...

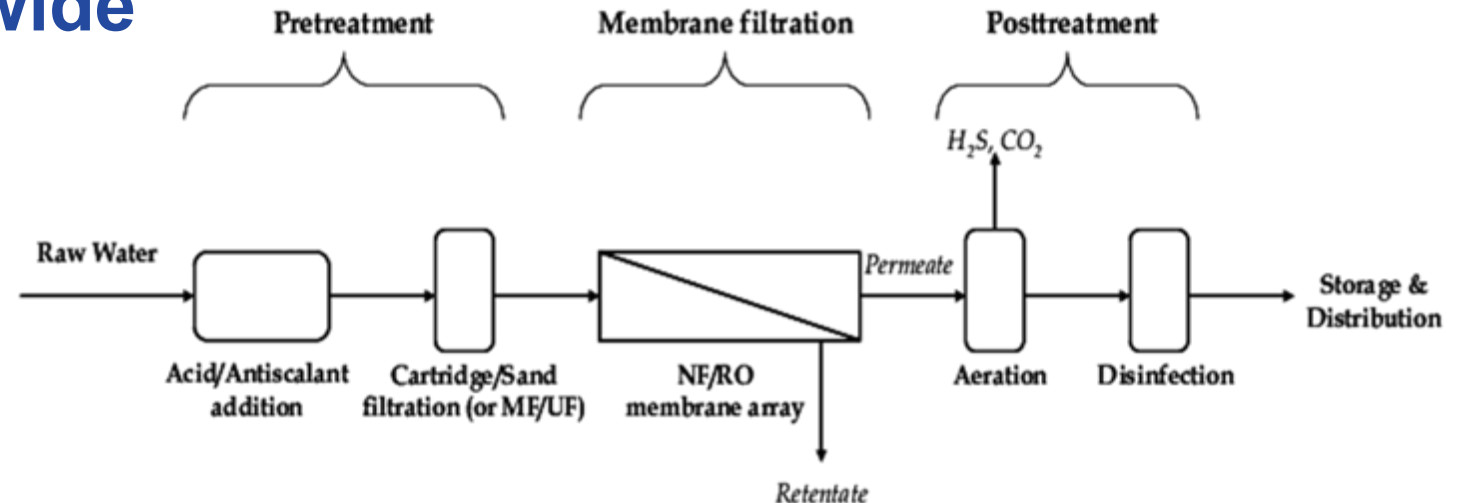
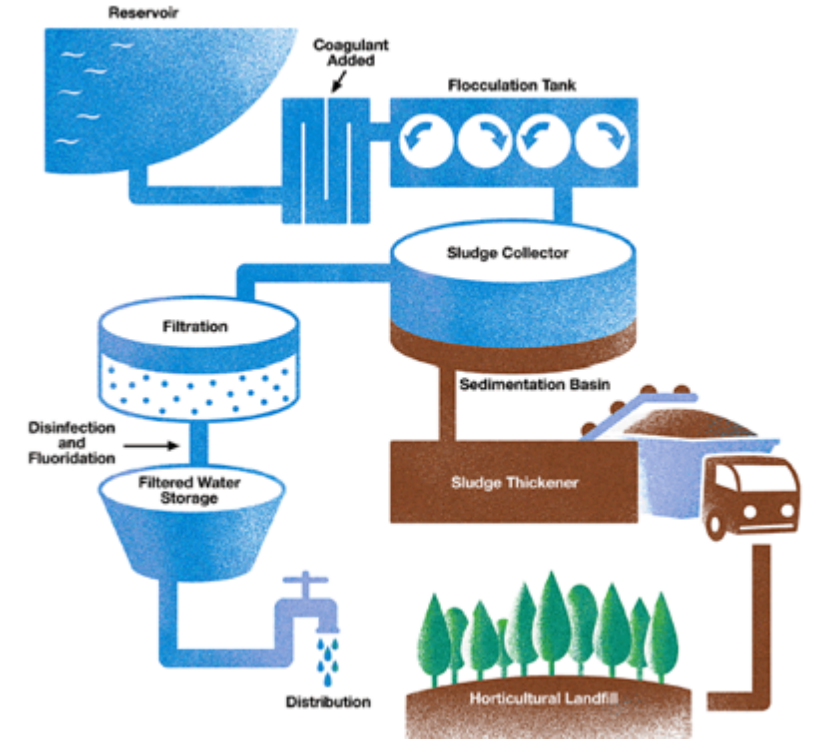
- **Bureau of Reclamation**

- Manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public
- Operate 338 reservoirs (140 million acre-ft)
- Provides 1 out of 5 Western farmers with irrigation water
- Second largest producer of hydropower
- Delivers 10 trillion gallons of water to more than 31 million people each year



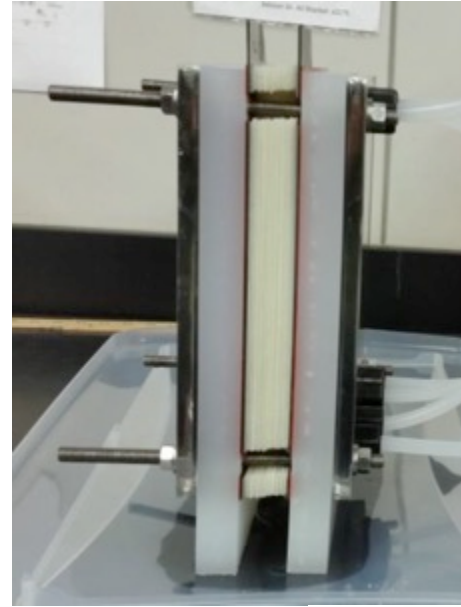
What...

- Water treatment is a broad field
- While the need for water for irrigated agriculture is greatest west of the 100th meridian, the need for high quality water for drinking and for industry is nationwide

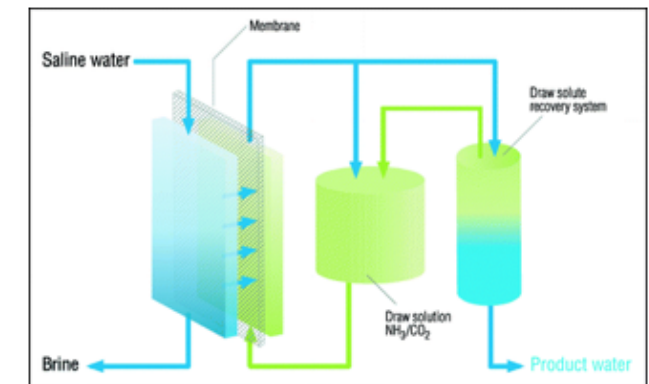
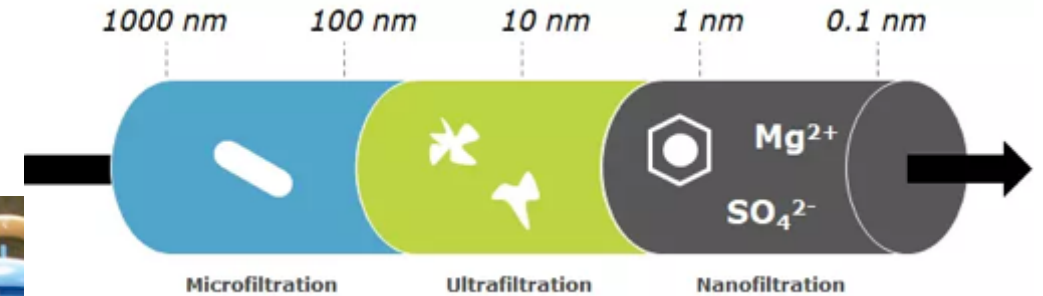
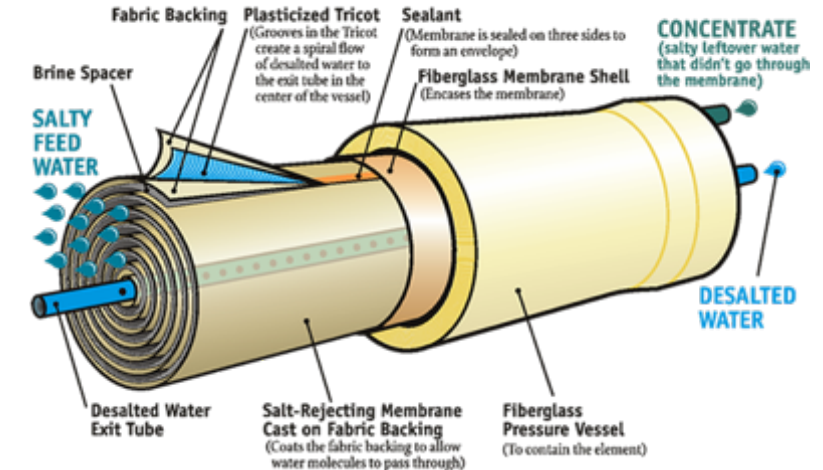


What...

- Technology
 - Reverse Osmosis
 - Nanofiltration
 - Ultrafiltration
 - Microfiltration
 - Electrodialysis
 - Electrodialysis reversal
 - Capacitive Deionization
 - Forward Osmosis
 - Membrane distillation
 - Ion-Exchange

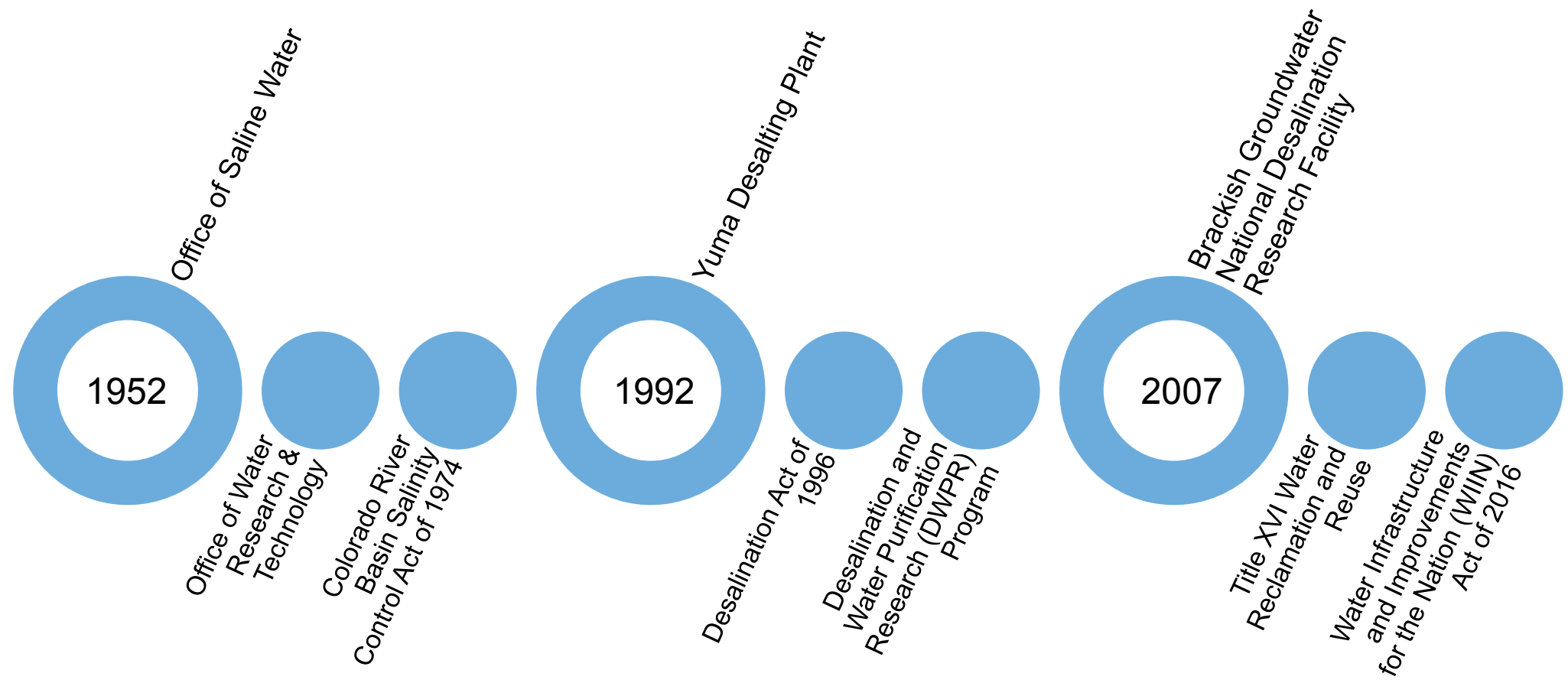


Reverse Osmosis Membrane Element inside a Pressure Vessel



Forward Osmosis (FO) Diagram

When...

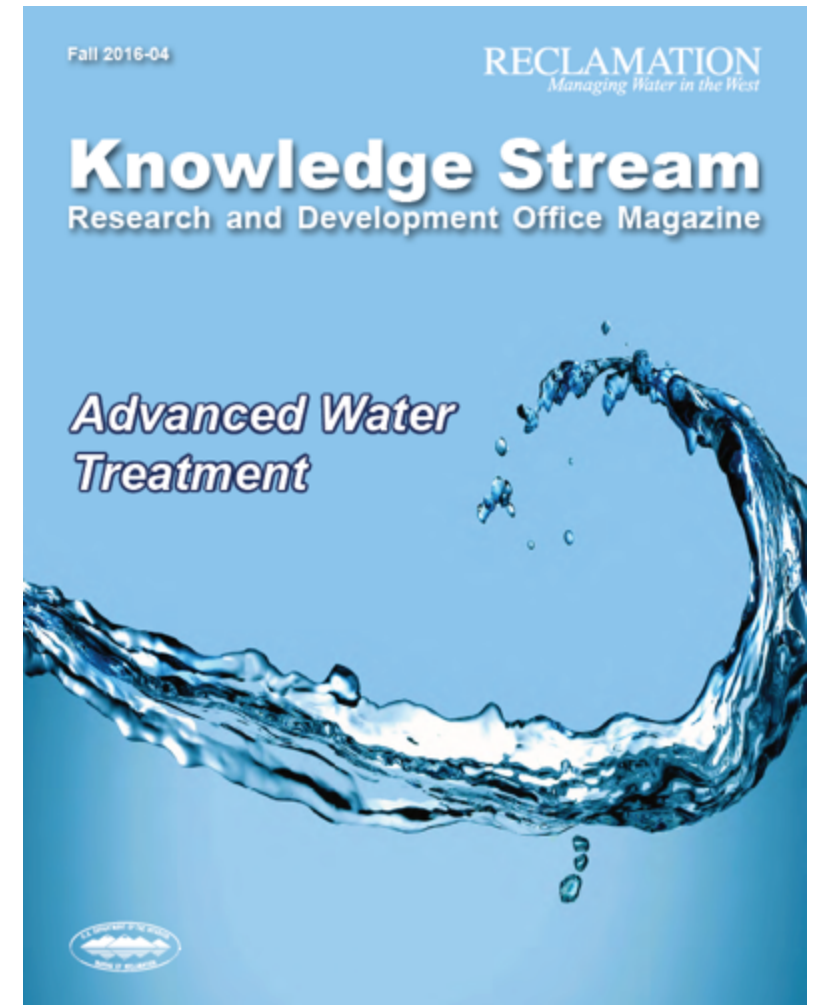


Where...

- **Yuma Desalination Facility**
 - Water Quality Improvement Center (WQIC)
- **Brackish Groundwater National Desalination Research Facility (BGNDRF)**
- **Reclamation Programs – fund research, planning, design, and construction projects**
 - 75% cost-share (some exceptions)
 - Ability to partner and utilize Reclamation's expertise
 - Access to completed research and water treatment expertise

Programs

- **Science & Technology**
 - Internal to Reclamation
 - Funds mostly applied research
 - Yearly call for proposals
 - Partnerships are key
 - Share of information
 - *Knowledge Stream Magazine*
 - *Final reports on website*



<https://www.usbr.gov/research/docs/ks/ks-2016-04.pdf>

Programs

- **Title XVI Water Reclamation and Reuse**
 - 17 western states and Hawaii
 - Funds for planning, design, and construction of water recycling and reuse projects
 - **Eligible Applicants**
 - Sponsors of water recycling projects that have a completed Title XVI Feasibility Study that Reclamation has reviewed and found to meet all requirements
 - Sponsors of water reclamation and reuse projects specifically authorized for funding under Title XVI of Public Law 102-575
 - **Next funding opportunity announcement around late 2018, early 2019**

Programs

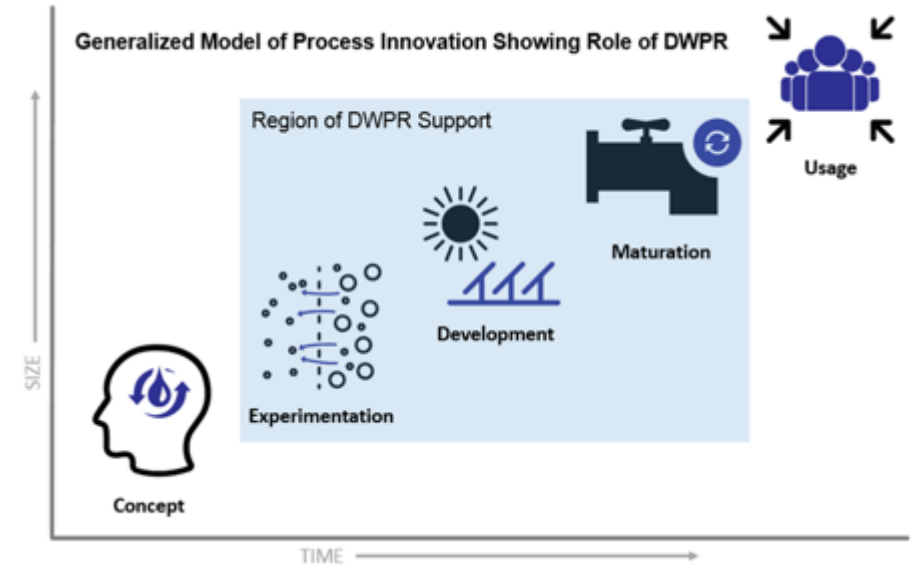
- **WaterSMART Desalination Construction Projects under WIIN Act**
 - 17 western states and Hawaii
 - Funds for construction of desalination projects (seawater and brackish)
 - **Eligible Applicants**
 - States, Departments of a State, subdivisions of a state, or a public agency organized pursuant to a State law

Programs

- **Water Prize Competition Center**
 - Desalination Prize – partnership with USAID in 2015
 - More Water, Less Concentrate, Stage 1 – 2017
 - Arsenic Sensor, Stage 1 – 2017
 - Pathogen Monitoring, Stage 1 – 2018
- Additional prizes being worked on for 2019 launch
 - Concentrate



Programs



- **Desalination and Water Purification Research (DWPR) Program**
 - **Eligible Applicants**
 - Nationwide
 - Individuals, institutions of higher education, profit organizations, state and local governmental entities, non-profit organizations, federally-funded research and development centers, US-Mexico binational research foundations and interuniversity research programs, and Indian tribal governments and organizations
 - **Develop innovative, cost-effective, and technologically efficient ways to desalinate and purify water**

Opportunities

www.grants.gov



- **Desalination and Water Purification Research (DWPR) Program**
 - **Funding Opportunity Announcement for FY2019**
 - Laboratory Scale: \$150,000 for 18 month study
 - Pilot Scale: \$400,000 for 2 year study
 - **Posting on grants.gov Coming SOON!**
 - BOR-DO-19-F001

Programs website links

Reclamation Program	Website	Contact
Desalination and Water Purification Research (DWPR)	www.usbr.gov/research/dwpr	Yuliana Porras-Mendoza, yporrasmendoza@usbr.gov
Title XVI Water Reclamation and Reuse	www.usbr.gov/watersmart/title	Amanda Erath, aerath@usbr.gov
WaterSMART Desalination Construction Projects	www.usbr.gov/watersmart/desaliantion	Amanda Erath, aerath@usbr.gov
Water Prize Competition Center	www.usbr.gov/research/challenges	Andrew Tiffenbach, atiffenbach@usbr.gov
Science & Technology	www.usbr.gov/research/st	Collins Balcombe, cbalcombe@usbr.gov

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RECLAMATION
Managing Water in the West