



Advancing Potable Reuse in the San Diego Region: Opportunities, Public Acceptance and Regulatory Challenges

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Opportunities

Major Challenges to Water Supply Reliability



**Population and
Economic Growth**



SWP Reliability

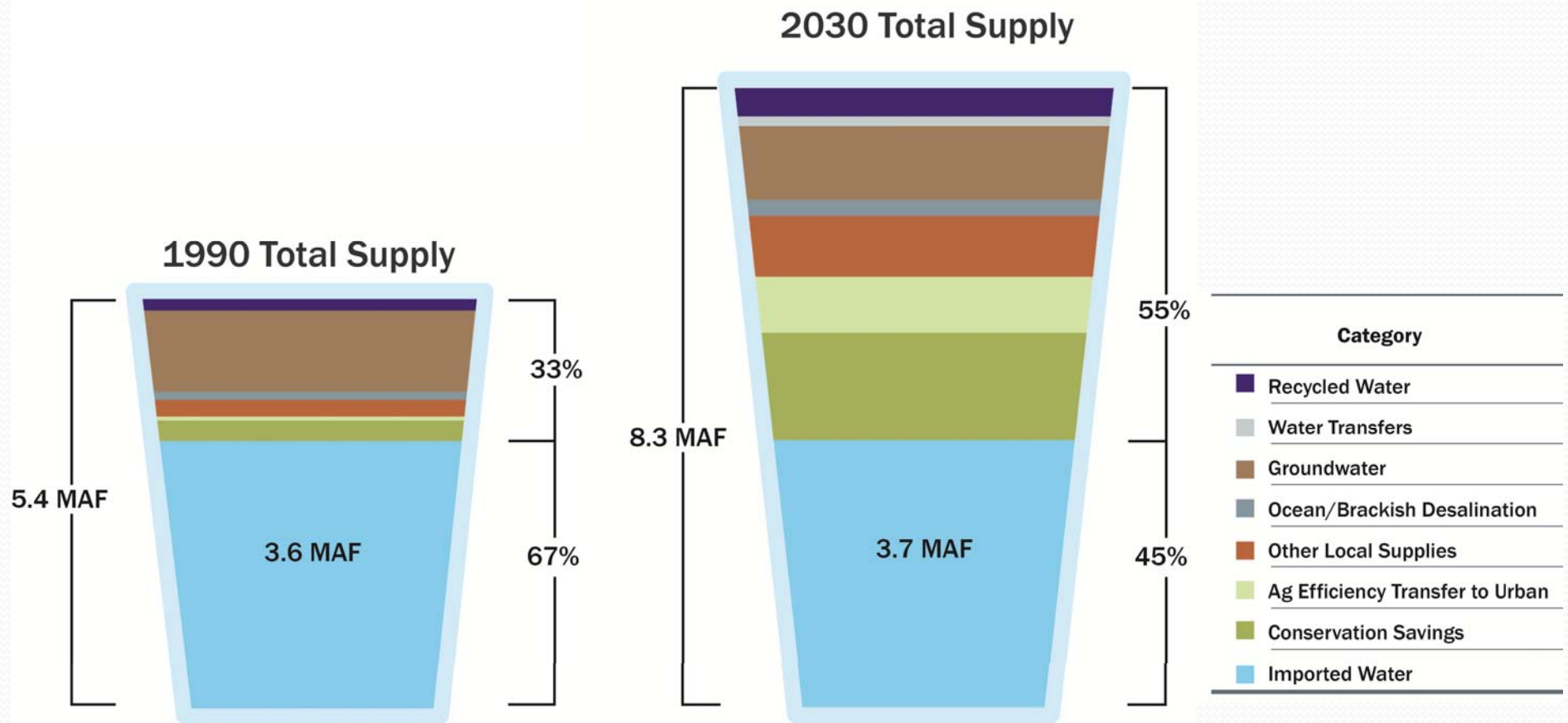


**Recurring
Droughts**



Climate Change

Diversifying Supplies to Improve Long-Term Reliability



CALIFORNIA URBAN WATER AGENCIES

Source: California Urban Water Agencies' Water Supply Reliability Report.
August 2012 (2010 Urban Water Management Plan Data)

Reduced Ocean Discharge

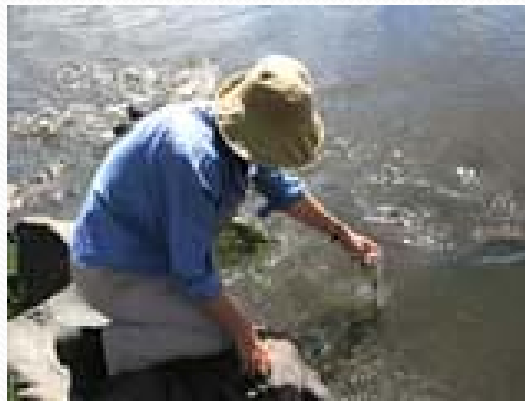
- The San Diego Region Discharges over 300 MGD of sewage effluent to the Pacific Ocean



Augmenting Surface Supplies in San Diego County



Improved water quality





Public Acceptance

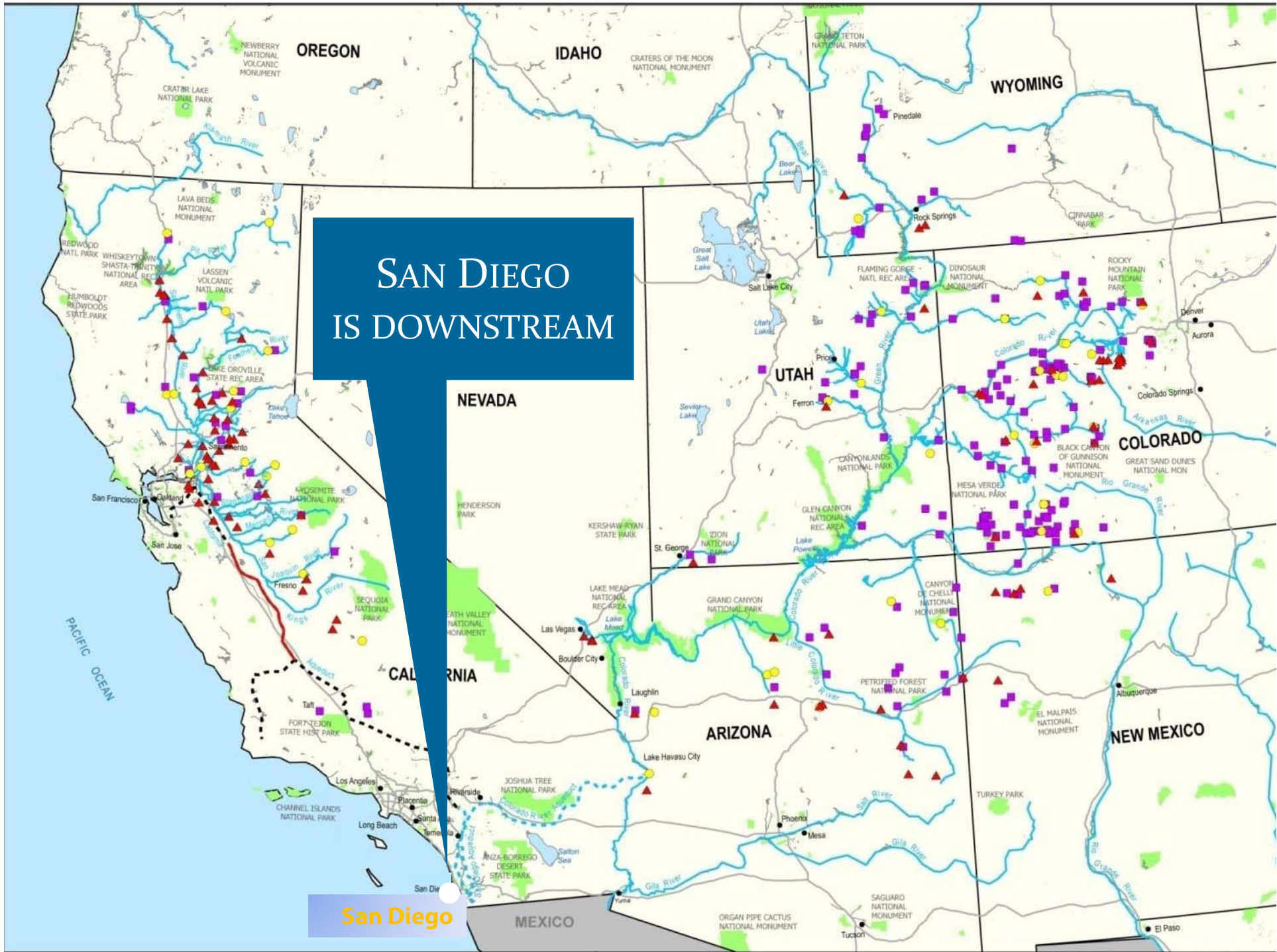
Water Reliability Coalition



- BIOCOM
- Building Industry Association
- Building Owners and Managers Association
- Citizens Coordinate for Century 3
- Coastal Environmental Rights Foundation
- Endangered Habitats League
- Environmental Health Coalition
- Empower San Diego
- Friends of Infrastructure
- Industrial Environmental Association
- National Association of Industrial and Office Properties
- San Diego and Imperial Counties Labor Council
- San Diego Audubon Society
- San Diego Coastkeeper
- San Diego County Taxpayers Association
- San Diego Regional Chamber of Commerce
- San Diego Regional Economic Development Corporation
- San Diego River Park Foundation
- Surfrider Foundation, San Diego Chapter
- Sustainability Alliance of Southern California
- Utility Consumers' Action Network

SAN DIEGO
IS DOWNSTREAM

San Diego



City of San Diego Public Outreach & Education



RESERVED FOR THE MAYOR Future of Water on Display at San Diego's Water Purification Demonstration Project

By San Diego Mayor Jerry Sanders



San Diego Mayor Jerry Sanders

This past summer, San Diego launched a unique test of advanced water purification technology on recycled water. Located in northern San Diego, the Advanced Water Purification (AWP) Facility is a small-scale testing ground that purifies one million gallons of recycled water every day to a level similar to distilled water quality.

The facility is one component of the city's Water Purification Demonstration Project that is examining the safety and cost of purifying recycled water. If this project is approved to go full-scale, the purified water would blend with the city's imported supplies of San Vicente Reservoir and would become part of the city's future drinking water supply.

Another component of the Demonstration Project is the study of San Vicente Reservoir and the potential effects of adding purified water to it. During the test phase, purified water will not be sent to the reservoir or the city's drinking water system. Instead, the purified water will be added to the city's existing recycled water system.

San Diego is examining water purification as a means to diversify its locally controlled, drought-proof, supplemental water supply. San Diego is an arid region in which the annual coverage of rainfall makes up only about ten to 15 percent of the city's water supply. As such, 85 percent of the local drinking supply on average is imported from hundreds of miles away.

Our city has been both creative and aggressive in trying to diversify our water supply. The last way to import water from outside San Diego County, the more we control our own destiny. A locally produced supply of water could be an important tool for all water users in San Diego.

and advanced oxidation with ultraviolet disinfection and high-strength hydrogen peroxide. The multi-barrier approach of consecutive treatment steps work together to remove or destroy all unwanted germs in the water and produce one of the purest supplies of water available anywhere. Each step in the process also includes continuous water quality monitoring. The city thoroughly examines the safety of the water through laboratory tests and computer analysis to ensure it meets public health standards.

Following the year-long collection of scientific data, the results will determine the safety and cost of a full-scale water purification and reuse demonstration project. After the test phase is complete, the decision, whether to go full-scale, will be made.

EDITORIAL THE YUCK FACTOR: GET OVER IT

As San Diego spreads above 3.5 million people countywide in just 10 more years, and a projected 4.4 million by 2050, the greatest threat to our economic health and quality of life is an uncertain supply of water. This urban cul-de-sac at the bottom of California is at the tail end of the pipelines that deliver 80 percent or more of our water. That means we are heavily dependent on the mercy of others, and that is not comforting.

San Diegoans have more than proved themselves willing to conserve the city uses less water in real terms today than it did with a smaller population 20 years ago. That will continue to be a crucial part of the region's water strategy for decades. So, too, will be the development of new sources, such as desalination. And, of course, political battles to rescue the Sacramento-San Joaquin Delta from environmental collapse in order to keep Northern California water flowing south will be never-ending.

But the reality is that more must and can be done.

At San Diego's North City Water Reclamation Plant, work recently began on an \$18.8 million pilot project - financed mostly through a temporary water rate hike that ended last September - to demonstrate whether purified wastewater can be made safe to drink and affordable to produce in large quantities.

scaping and industrial processes, then purify and scrub it some more to nearly distilled water standards. The demonstration project is to produce 1 million gallons a day for a year, during which it will be continually monitored and studied, but not distributed for public consumption. If it proves safe and affordable, the city could then consider its expansion to a permanent plant that could produce up to 16 million gallons a day, which would be piped to San Vicente Reservoir.

Frankly, there is not that much to demonstrate, at least scientifically. Similar technology is already in large-scale use in Orange County, which produces 70 million gallons of purified wastewater each day for injection into the county's aquifers for public consumption. Similar systems are also producing drinking water for Monticello, Scotland, El Paso and other American cities, along with Singapore, Brisbane and the International Space Station.

But there would be much education of the public to be done.

Similar efforts in years past were dubbed by critics, including this editorial page, as "toilet-to-tap" technology. But this editorial board has come to accept the latest science - and real-life experience - that says this water would likely be the purest and safest water in the system.

Still, there would be a significant yuck factor for



Advanced Water Purification Facility



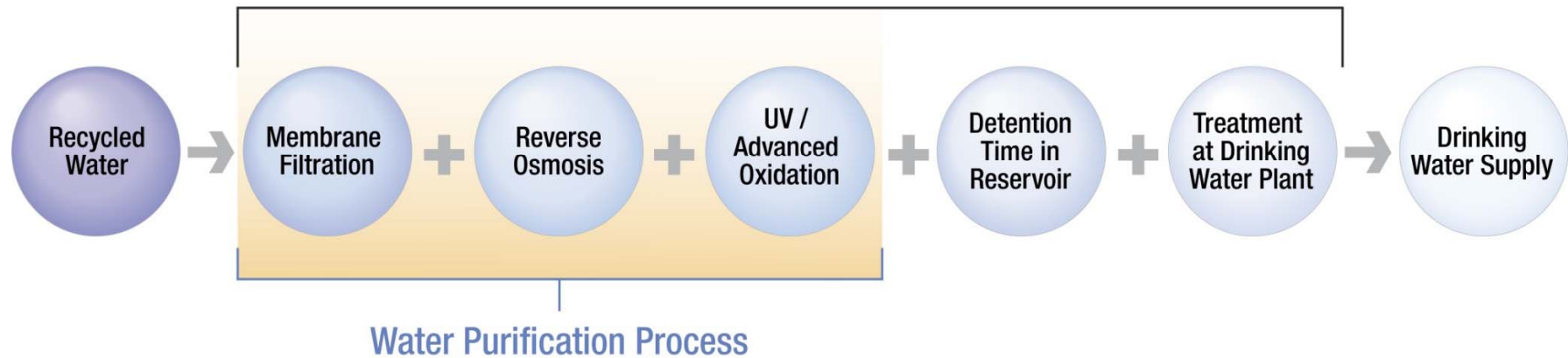
Open for tours
since Summer 2011



Register online at www.PureWaterSD.org

Water Purification Process

Multi-Barrier Water Purification Steps



Microfiltration & Ultrafiltration



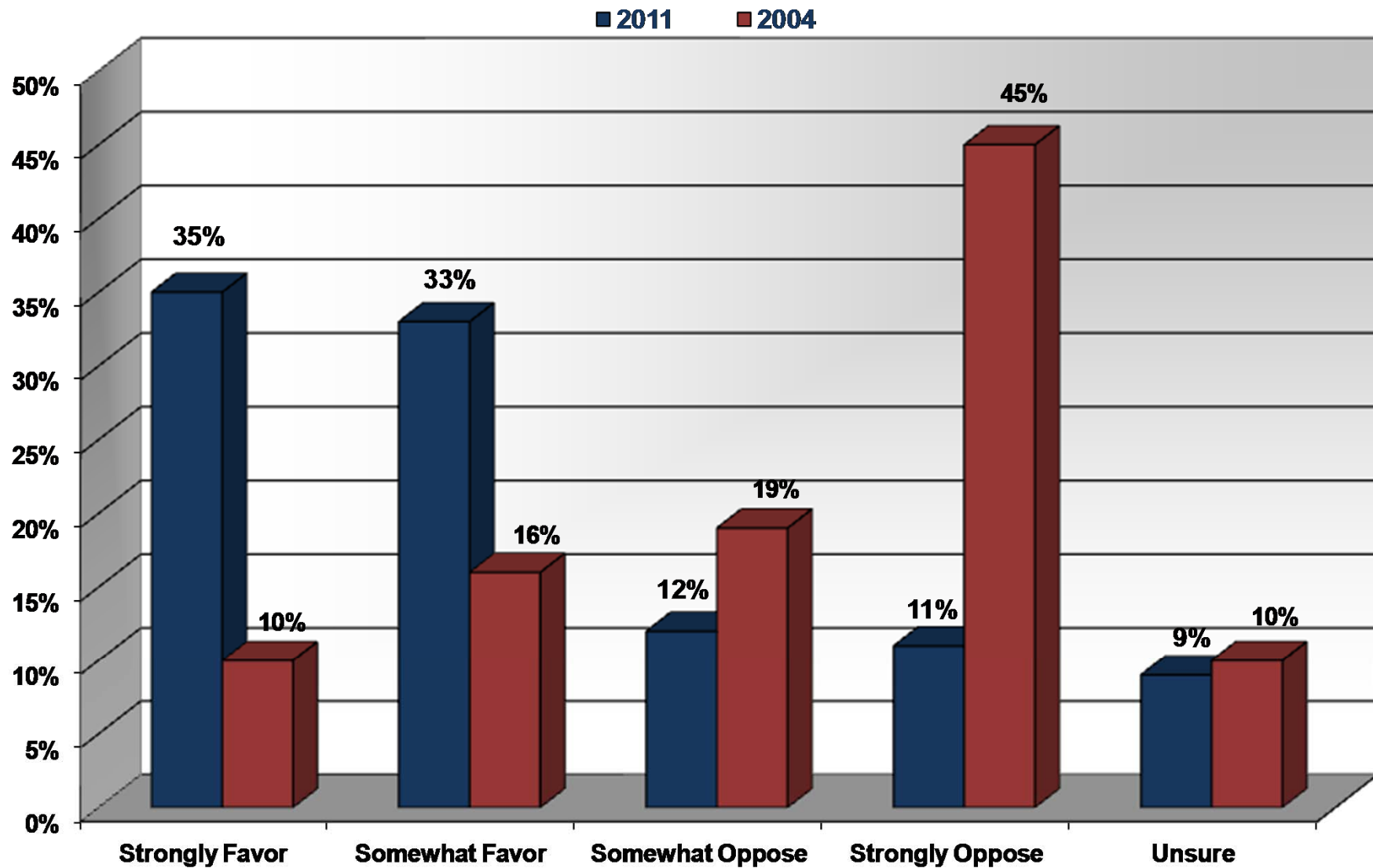
Reverse Osmosis



Ultraviolet Light / Hydrogen Peroxide



Opinion About Using Advanced Treated Recycled Water as an Addition to Drinking Water Supply





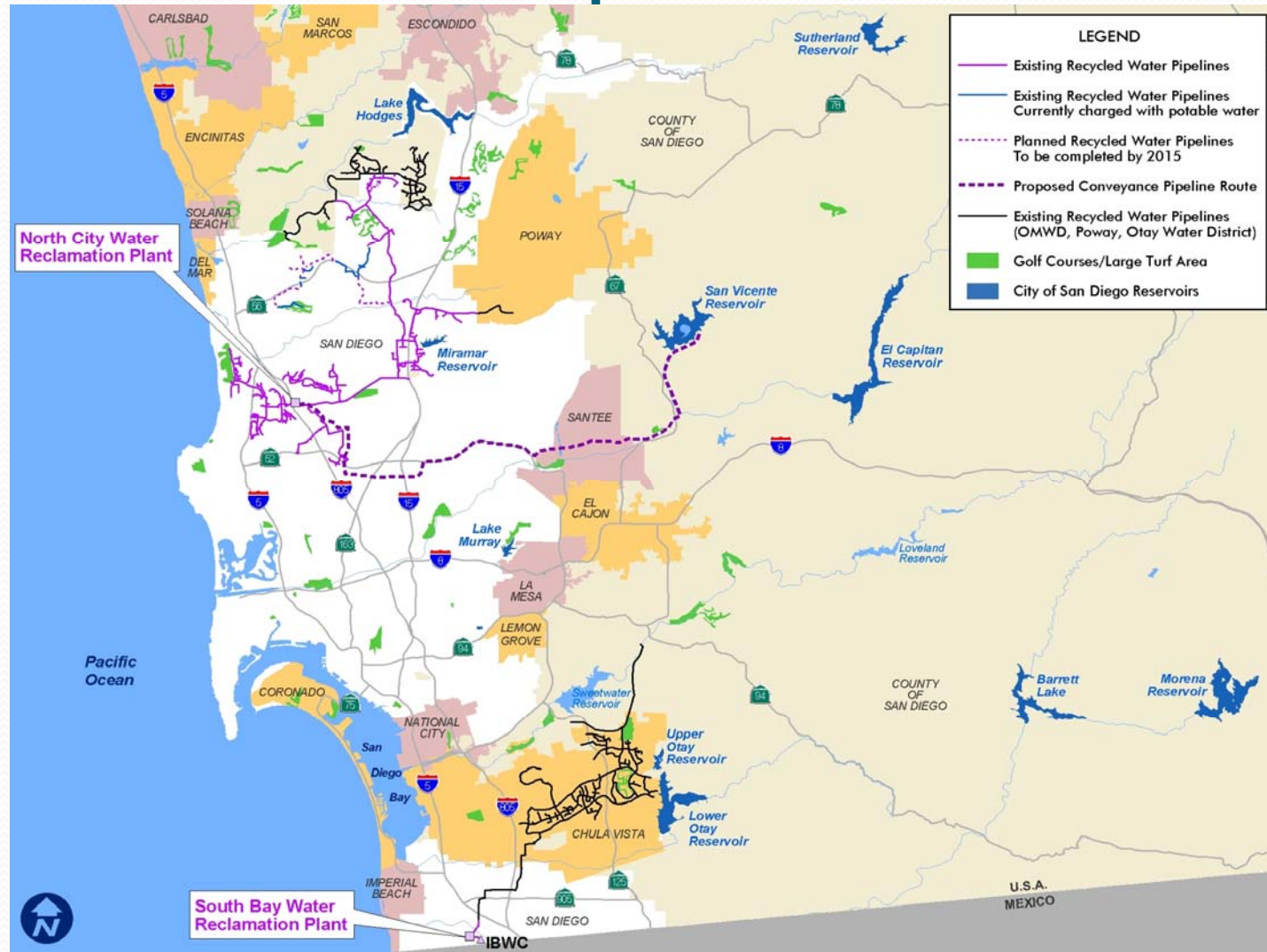
Regulatory Certainty



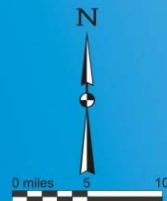
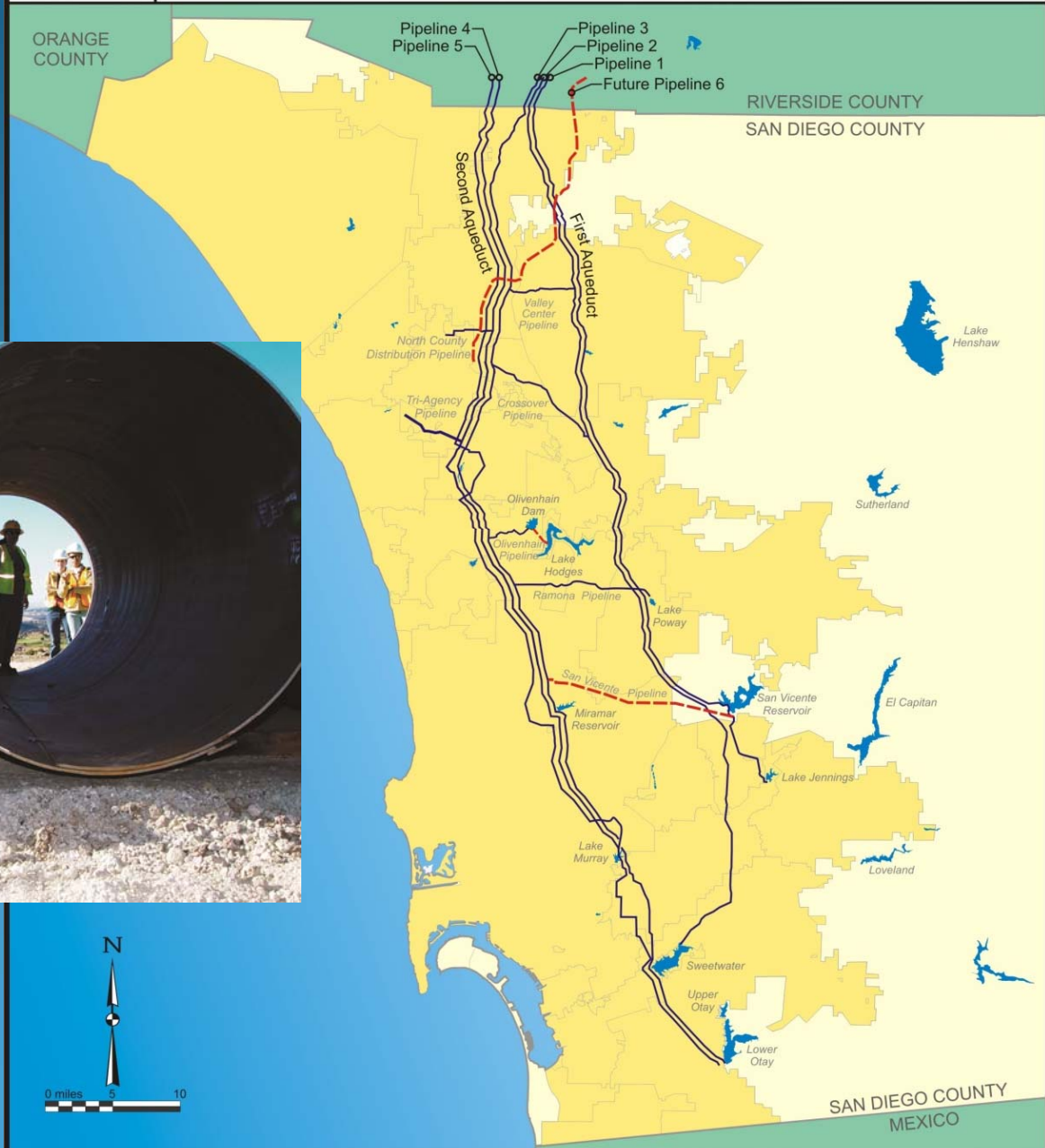
Regulatory Goals

- CDPH: Reliable supply of pure, wholesome and potable water that is protective of public health
- State and Regional Boards: protect and enhance the quality of our state's waters for present and future generations for all needs – such as drinking, bathing, boating, swimming, farming, manufacturing, and environmental uses.
- Regulatory certainty is critical for allowing policy makers to make educated decisions

Regulatory Requirements can have significant cost impacts



CURRENT AQUEDUCT SYSTEM



LEGEND

Expert Panel Opinion on “Direct” Potable Reuse

- Can raw water augmentation be done in a safe manner and what should the criteria be?
- SB 918: Expert Panel Opinion due in 2016
- Delays in this expert panel leaves regulatory uncertainty in the planning process



Regulatory Certainty on Regional Board Permitting is critical

- Criteria for Regional Board permits?
- What if the reservoir is on the 303(d) list?
- What if ATPW is blended with other raw water supplies ?
- What if this water may end up in various reservoirs throughout the County?



Fishing at San Vicente



Permitting of projects using ATPW

- Should Porter Cologne apply?
- Should the Federal Clean Water Act apply?
- Does the high purity of the advance treated water make a difference?
- What are the risks?



One Solution for Creating Regulatory Certainty

- The risk of ATPW to the environment is de minimus
- This is a water supply and not a waste
- ATPW should be regulated under the Safe Drinking Water Act as a drinking water supply
- CDPH should convene expert panel to get timely recommendations

