

Water Reuse in Southeast Florida: The Facts Matter

NACWA Winter Conference

Miami-Dade Water and Sewer Department
(MDWASD)

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Your Water and Sewer Provider:

- MDWASD is the largest utility in Florida and top 10 in the country
- 420,000 retail customers, 15 wholesale customers, serving 2.3 million residents
- 300+ MGD of water production and wastewater treatment
- 3 regional WW plants and 3 large water plants
- 14,000 miles of water and sewer lines

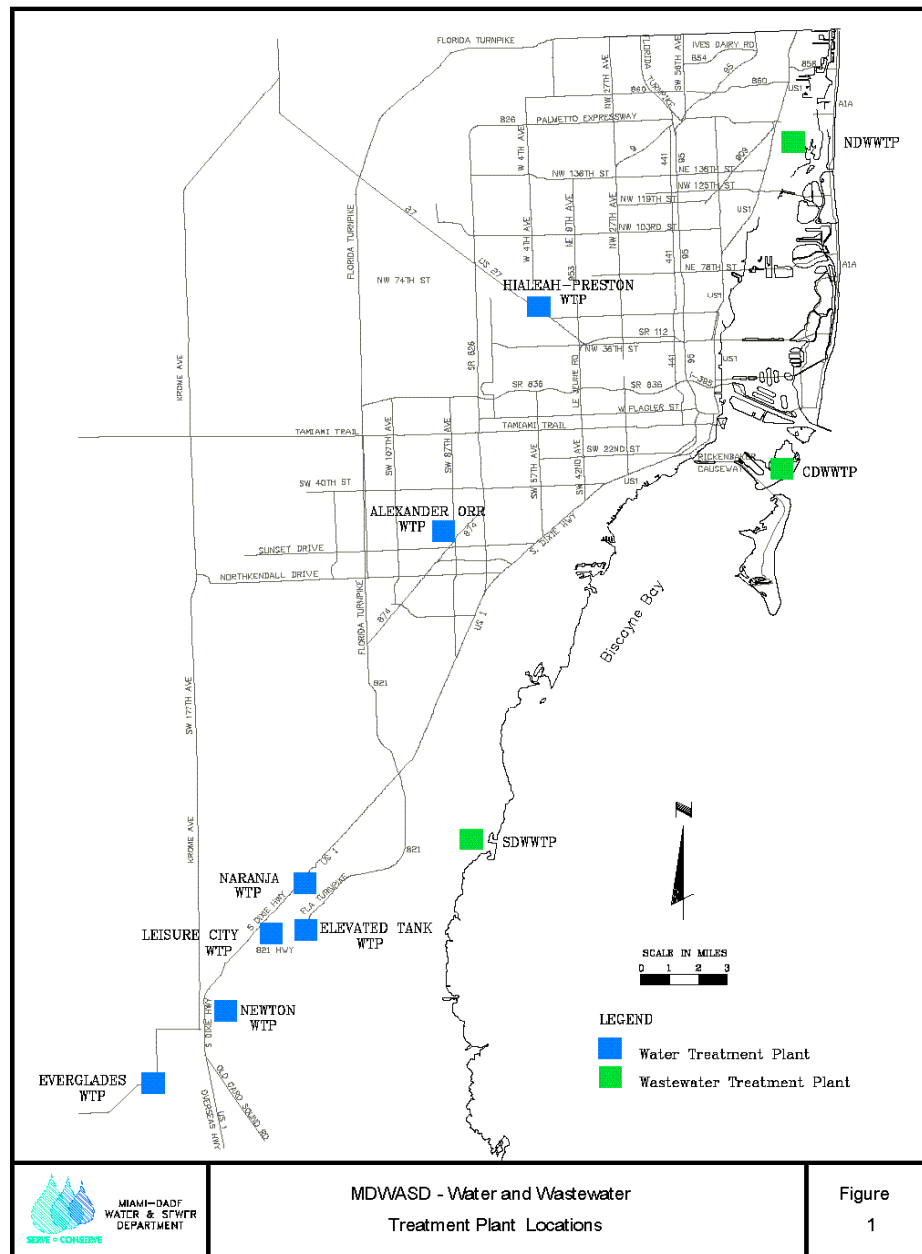
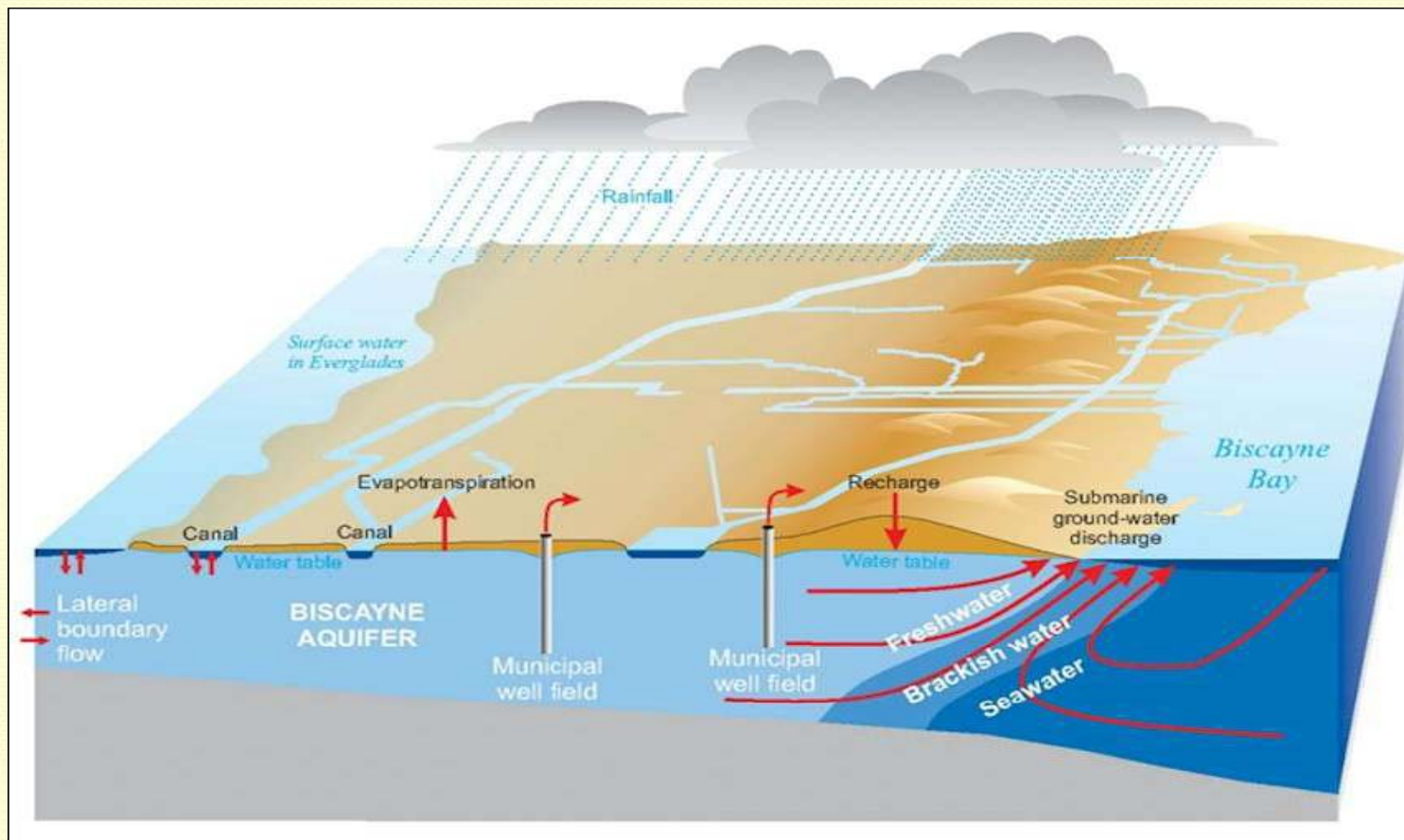
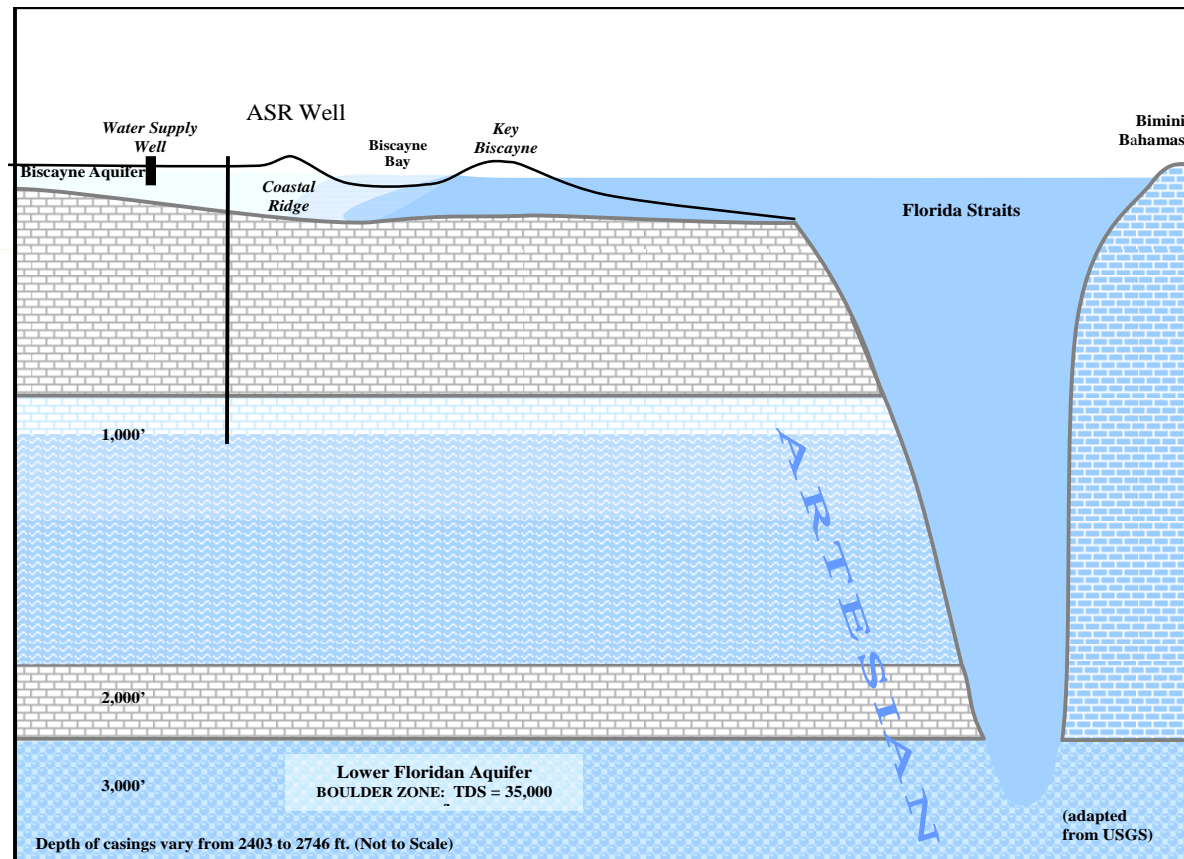


Figure
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Generalized Cross-Section of the Biscayne and Floridan Aquifers



Why Reuse?

1. To meet water supply needs
2. To meet wastewater disposal needs
3. Combination of 1 & 2
4. Because the law says so

Reuse in Florida

- Florida is a national leader in reuse
- Statewide, 64% reuse capacity (treatment & distribution)
- Statewide, 49% actual reuse (722 MGD of 1618 MGD capacity)
- Most reuse is irrigation, which solves both water supply and effluent disposal issues in central and west Florida
- MDWASD reuses 5% of annual flows, mostly for wastewater operations-typical of SE Florida

Reuse Options

- Irrigation (Tertiary treatment/HLD)
- Industrial use (Tertiary treatment/HLD/maybe nutrients)
- Biscayne Aquifer replenishment (indirect potable reuse)(RO/Advanced Oxidation/nutrient reduction)
- Floridan Aquifer replenishment (Tertiary/HLD)
- Aquifer Storage and Recovery (ASR-stormwater reuse) (disinfection)
- Direct potable reuse (the works)
- Reuse is typically an energy intensive process

Reuse/Water Supply Capital Costs

- Biscayne aquifer replenishment/indirect potable reuse: \$30-\$35/gallon
- Floridan aquifer replenishment: \$2/gal HLD treatment +high pressure recharge system+RO water treatment
- Irrigation reuse: \$2/gallon HLD treatment + distribution cost or \$11/gallon for MBR treatment + distribution
- Direct potable reuse: \$22-\$25/gallon
- Floridan aquifer brackish water supply (RO): \$10/gal
- ASR (stormwater reuse for water supply): \$1.3/gal
- Conservation: \$1/gallon

MDWASD Reuse Future

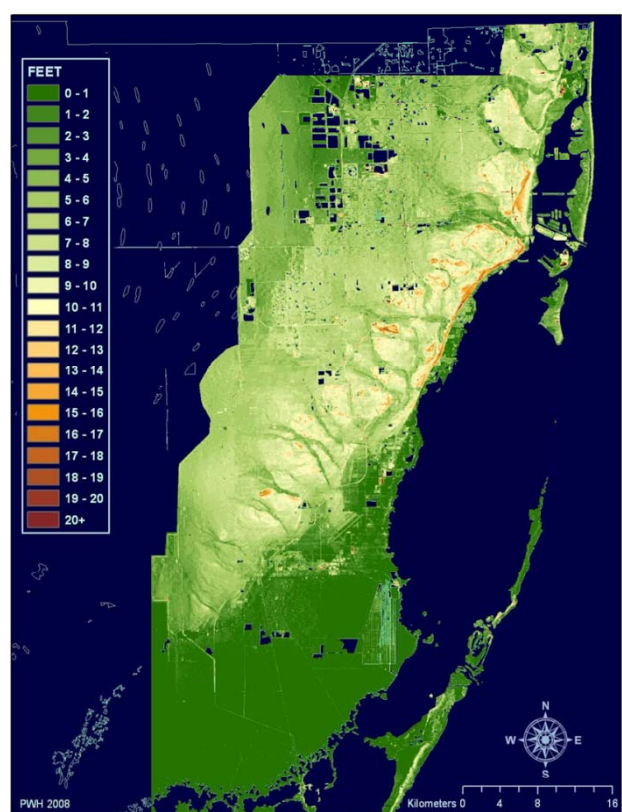
- Agreement to provide 90 MGD of reclaimed water to FPL for powerplant cooling, largest single reuse project in Florida history
- Mandate to reuse 117 MGD as part of state ocean outfall discontinuation mandate but for which no water supply need before 2030 has been identified: Floridan aquifer recharge
- ASR (25 MGD)

Conclusions

- Reuse is technically feasible, up to and including direct potable reuse, but very expensive and energy-intensive in the southeast Florida context
- Cost-Effective Reuse opportunities are greatest for industrial uses
- Mandated reuse that does not reflect demand, cost, and energy factors distorts market and public investment processes and can fail the “common sense” test
- Potential climate impacts in SE Florida complicate assessment of return on investment analysis

Water Management and the Future

Current Conditions



3 Feet of Sea Level Rise

