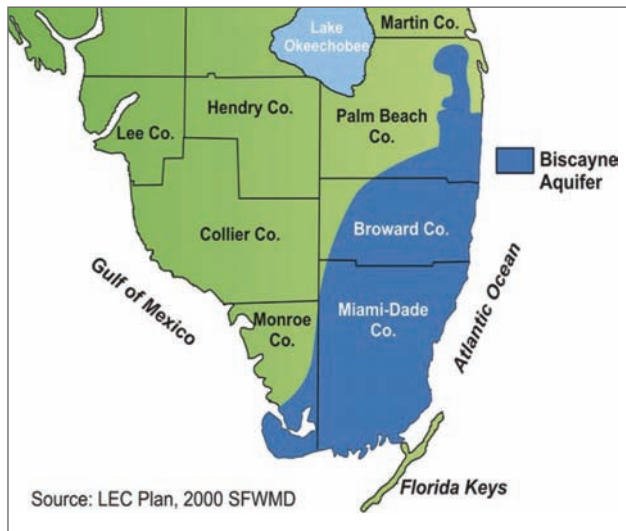


## TAPPED OUT?



### What you need to know about the future water supply in South Florida

Water impacts almost every area of our life. We use it to generate electricity, to make paper and gasoline, to grow our food, to brush our teeth and to irrigate our lawns. It comprises more than half of the average human body and we cannot survive for longer than one week without access to it.



beneath Miami-Dade, Broward and southeastern Palm Beach Counties. Clean and relatively inexpensive to access and treat, the Biscayne Aquifer serves as the principal source of water for more than three million people, including Sunrise residents. Access to the Biscayne Aquifer is regulated by the South Florida Water Management District (SFWMD) – a governmental agency responsible for water quality, flood control, water supply and environmental restoration in 16 counties, from Orlando to the Florida Keys.

The average Sunrise water utility customer currently pays \$3.51 per 1,000 gallons of H<sub>2</sub>O and the typical person uses more than 127 gallons per day. In total, the Utilities Department pumps approximately 30 million gallons of water to almost 220,000 customers in its service area every day. That's enough to fill 750 average-sized residential swimming pools. Historically, South Florida's drinking water has been supplied by the Biscayne Aquifer, a naturally-occurring underground water reservoir that covers approximately 4,000 square miles

New development, population growth and increasing per capita consumption are placing greater demands on the Biscayne Aquifer. In 2007, concerned with growing demand on the area's primary water source, the SFWMD adopted new regulations that effectively turned off the tap to local water utility providers, locking them in at their 2006 water consumption levels and mandating the development of alternative water supplies. As an alternative to withdrawing increased quantities of water from the Biscayne Aquifer to meet

growing demands, water utilities must now turn to less reliable and more expensive sources. One of the replacement water sources is the Floridan Aquifer. Although the Floridan is one of the most productive aquifers in the world, it is deeper than the easily accessible Biscayne Aquifer and contains brackish, difficult to treat water. Treating water from the Floridan Aquifer requires the use of advanced water treatment systems such as reverse osmosis filtration, which is four times more expensive to construct and three times more expensive to operate than traditional water treatment options. Reverse osmosis also results in higher energy consumption, raising the emission of greenhouse gases and boosting costs. Utilities can also augment their water stores through the treatment of reclaimed wastewater, which can be used to recharge the Biscayne Aquifer in the same way that rainwater runoff filters into and through the ground. **Reclaimed wastewater is never used directly as drinking water.** "Ick" factor aside, wastewater reuse is practiced throughout the world and supported by the SFWMD. However, it is also an expensive process - six times more costly than currently used treatment methods. In 2006, the City of Sunrise and the SFWMD jointly funded a

## Bottle vs. Tap

**Bottled water - it's healthy, portable and just tastes better, right? Guess again.**

*Ads and labels showing pristine mountain streams and icy alpine peaks notwithstanding, most bottled water is just water. In fact, the actual source of much of the bottled water available today is tap water from municipal water systems. But that isn't stopping consumers from buying and buying and buying.*

**Bottled water is big business.** However, in terms of economics and ecosystems, it's a dry well. Read on to find out the top three reasons tap water beats bottled water hands down.

**Bottled water is no bargain.** Assuming you can still find a 20-ounce bottle of water for \$1, the cost works out to \$6.40 per gallon. To put that in perspective, if gas reaches the \$4 mark

*this summer as anticipated, your \$1, 20-ounce bottle of water will be 60 percent more expensive than a gallon of gasoline. Tap water is far less expensive than either gas or bottled water. For the same \$1, you can enjoy 285 gallons of clear, clean water delivered to your home tap.*

**Bottles produce unnecessary garbage and consume vast quantities of energy.** Most of the price of a bottle of water goes for its bottling, packaging, shipping, marketing, retailing and profit. According to the Earth Policy Institute, approximately 2.7 million tons of plastic are used each year to make bottles, most of which are made from polyethylene terephthalate (PET), which comes from

*crude oil. In 2006, the equivalent of 17 million barrels of oil - enough oil to fuel one million cars for one year - were used to manufacture the plastic water bottles in the United States alone. Additionally, transporting bottled water by boat, truck and train involves burning massive quantities of fossil fuels.*

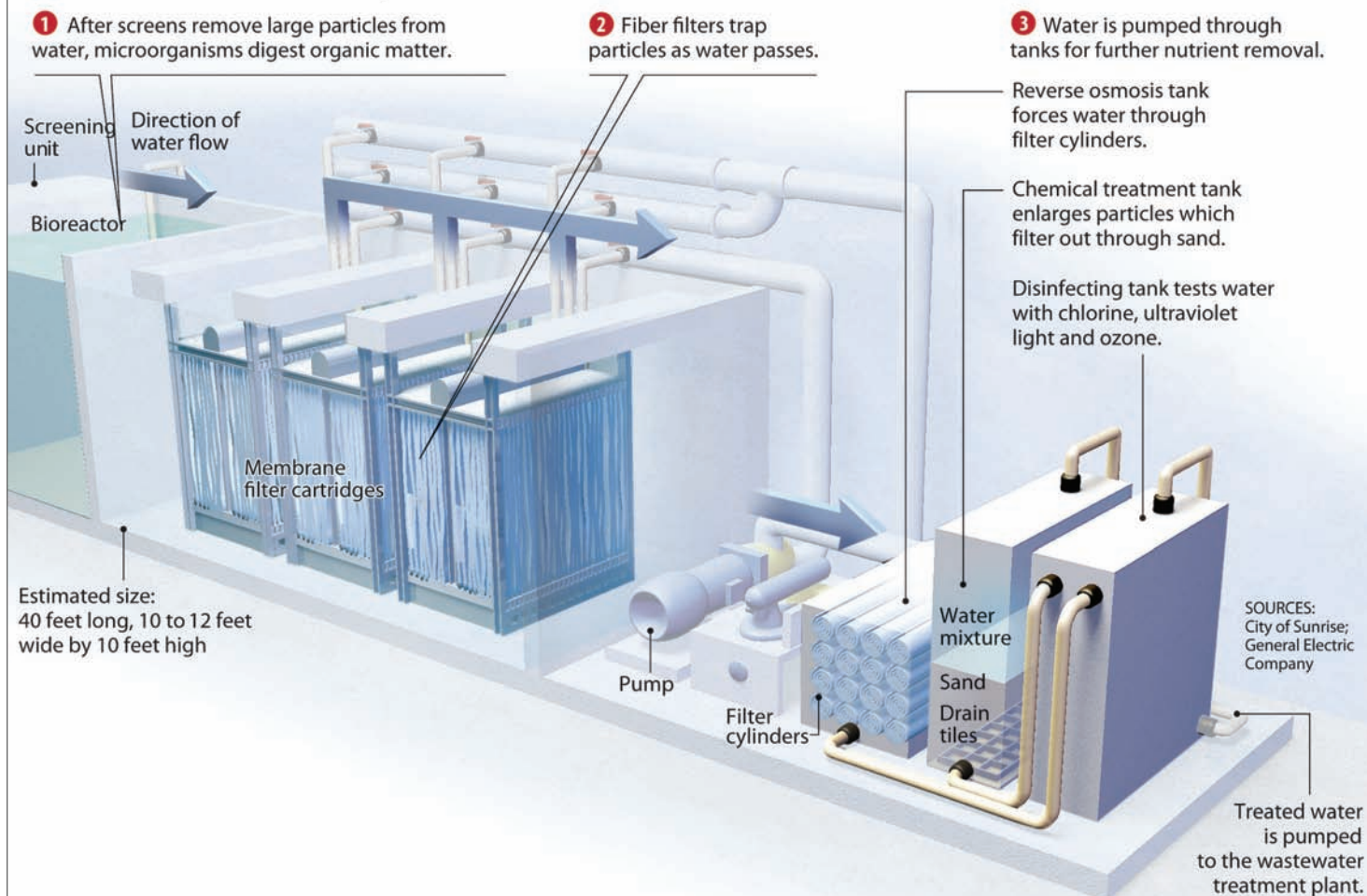
**Bottled water is not healthier than tap.** Sunrise frequently tests its water for contaminants and publishes the results every year in a consumer confidence report (visit <http://www.sunrisefl.gov/waterquality.html> to view the most recent report). In addition to the City, a variety of agencies - from Broward County's Health Department to the Environmental Protection Agency - regularly and rigorously inspect municipal drinking water supplies. Bottled water is subject to weaker Food and Drug Administration (FDA) oversight. In fact, the National

*Resources Defense Council - an environmental action group - petitioned the FDA with a study that tested 1,000 bottles of 103 bottled water brands for a range of pollutants, including arsenic, microbiological contaminants and toxic chemicals. According to that study, about one-fourth of the brands tested showed some level of bacterial or chemical contamination that violated "enforceable state standards or warning levels."*

*So what's the economical and eco-friendly way to have your water on the go? Switch to a stainless steel or lined aluminum water bottle and drink up knowing that you are enjoying some of the nation's best water and making the planet a better place.*



## Membrane Bioreactor Pilot Project



Graphic courtesy of the South Florida Sun-Sentinel  
Staff research/Jennifer Gollan, staff graphic/Cindy Jones-Hulfachor

wastewater reclamation pilot project known as the Membrane Bioreactor (MBR) Wastewater Reuse Study. The purpose of the MBR study was to determine what technology is best suited to meet groundwater recharge reuse standards, as set by the Florida Department of Environmental Protection and Broward County Department of Environmental Protection.

A MBR is a self-contained wastewater treatment facility that combines several systems to treat wastewater by biological and physical methods commonly employed by most existing wastewater treatment plants in the nation. In the first step of the process, bacteria are

introduced which feed on organic matter and reduce that matter to carbon dioxide and water. After this biological treatment, the water is twice forced through very fine filter membranes, using a process known as reverse osmosis (RO), to remove any remaining organic and inorganic matter down to .001 microns. A micron is 1/25,000 of an inch or roughly 100 times smaller than the width of a human hair. RO filtering will remove virtually all contaminants from any water stream including bacteria, viruses and microconstituents (such as pharmaceutical residue). The final step in the Pilot Study treatment process was disinfection of the water through

the addition of chlorine and by passing the water through a very powerful ultraviolet light beam. The wastewater treated through these three steps produced water that exceeded all state and local standards for groundwater recharge and met or exceeded all primary and secondary drinking water standards adopted by the Environmental Protection Agency. Plans for the alternative water supply project schedule will be presented to the City Commission in June 2008. Anyone interested in learning more about Sunrise's water supply work plan should visit the City's Web site at [www.sunrisefl.gov/WaterPlan.html](http://www.sunrisefl.gov/WaterPlan.html). ■

# be water wiser

The little things add up. Try one of these suggestions each day and save thousands of gallons per year.

**01 Shower, don't bathe.**

*You'll save up to 5,000 gallons per month if you take a five minute shower instead of soaking in a bubble bath.*

**02 Go low flow.**

*Purchase and install a low flow shower head and save an additional 500 gallons of water per week.*

**03 Turn off the tap.**

*Turning off the water while you brush your teeth can save up to four gallons per minute. That adds up to 200 gallons per month for a family of four!*

**04 Reclaim your mailbox.**

*Twenty-eight billion gallons of water is wasted each year producing and recycling junk mail. To stop pre-approved credit card and insurance offers, call 888-567-8688 (888-5-OPT-OUT) from your home telephone; it will be checked against an address database. Or visit [www.optoutprescreen.com](http://www.optoutprescreen.com). To free yourself from more than 75% of unwanted junk mail and catalogs, buy a subscription to an organization like 41 Pounds (\$41 for five years) or Green Dimes (\$20 for first year/\$10 to renew). As a bonus, Green Dimes will even plant five trees in your name.*

**05 Test your tank.**

*Add food coloring to the water in your toilet's tank. If it seeps into the bowl, you have a leak. Fixing the leak can save more than 600 gallons per month.*

**06 Wash only when you have a full load.**

*Wait until you have a full load to use your dishwasher and your washing machine and you'll save up to 1,000 gallons per month.*

**07 Trash it.**

*Throwing that tissue in the trash saves five gallons of water vs. flushing it away.*

**08 Pick your plants carefully.**

*Choose low water or drought tolerant landscaping for significant water savings. For tips on Florida friendly yards, visit <http://www.floridayards.org/>.*

**09 Drip.**

*Choose a water-saving drip irrigation system for your landscaping. It not only saves water and money, it's more effective than regular sprinklers.*

**10 Be an early bird.**

*Watering your lawn in the early morning hours when temperatures and wind speeds are at their lowest reduces evaporation and waste.*

