

# UNFILTER

## The truth about water in Florida.

By Cynthia Barnett

In the spring of 2001, state leaders gathered at an emergency summit in Tampa to address Florida's worsening drought. Images of dried-up lakes, parched lawns and road-jumping wildfires had become fixtures on TV news. But the elected officials, utility operators, developers and others knew the real story was underground. In some parts of Florida, aquifers that supply more than 90% of the state's water needs had dipped to the lowest levels on record. The consensus: Florida's rapid growth had finally out-tapped its natural water supplies. Gov. Jeb Bush declared it "a crisis not a potential crisis."

In 2002, the rain started falling again. But even as the lakes and rivers began to brim, there wasn't enough water to replenish the aquifers. In parts of the state, developers heard a dreaded word: Moratorium. In Hillsborough County, for example, Plant City told builders, including WCI Communities, that it might not be able to provide water to new developments the city commission had already approved.

It was a turning point in the politics of water in Florida. After spending 150 years draining land to get rid of water, developers now were desperate to make sure there was enough of it. Water supply — until then the passion and purview of environmentalists, farmers and the state's

vast water bureaucracy — now was a business issue.

Al Hoffman, at the time chairman of both WCI and the powerful business group Florida Council of 100 that advises the governor on policy, made sure water was at the top of the state's agenda. With Bush's blessing, Hoffman created a Council of 100 task force to investigate water supply. In the fall of 2003, the group made a big splash with a report that ignored some key questions, such as pricing issues, but nailed others, such as the need for additional sources of supply. Most important, the report — which aired controversial propositions like changing the state's water-regulation system and transporting water among regions — got

everyone talking about water.

Credit Sen. Paula Dockery, R-Lakeland, with focusing the debate in the legislative arena. She tapped 100 major players who studied water supply and worked for a year on what became Senate Bill 444. The topic's urgency was evident in the breadth of the coalition that supported the measure and the speed with which it passed the Legislature this year. The law beefs up requirements for water-supply development — including mandatory public hearings, better local-government coordination and longer-term planning. It also pours \$100 million into new supply projects — state dollars that utilities will have to match — and another \$100 million into existing water-improvement programs that have languished for lack of money.

The Legislature also passed a growth-management bill that links water supply to new development for the first time and requires local governments to coordinate land-use with regional water plans developed by Florida's five water districts.

At the moment, stakeholders ranging from utility executives to Realtors are patting each other on the back. But the camaraderie may last only until the next big dry spell, and many believe the state ought

### How Much Do You Know About Water?

- 1** Match the goods or service to the average amount that Floridians pay monthly for each.

- |                   |         |
|-------------------|---------|
| 1) Wastewater     | a) \$22 |
| 2) Drinking water | b) \$15 |
| 3) Cable TV       | c) \$50 |
| 4) Soft drinks    | d) \$59 |

See page 45

- 2** What percentage of Florida's drinking water comes from aquifers?

- a) About a third  
b) About a half  
c) More than 90%

See page 42

- 3** True or false:

State law prohibits transferring water across regions of the state; i.e., it's illegal to pipe water from Jacksonville to Fort Lauderdale.

See page 42

# ED

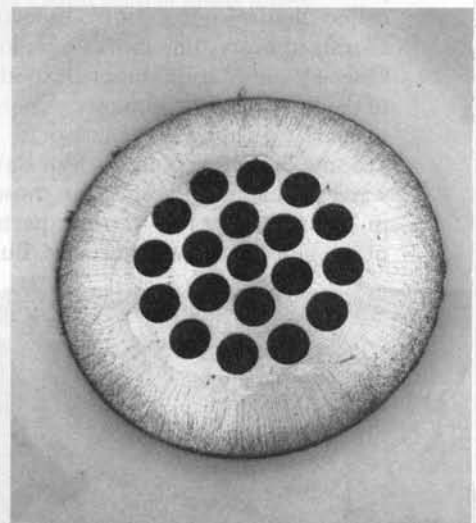
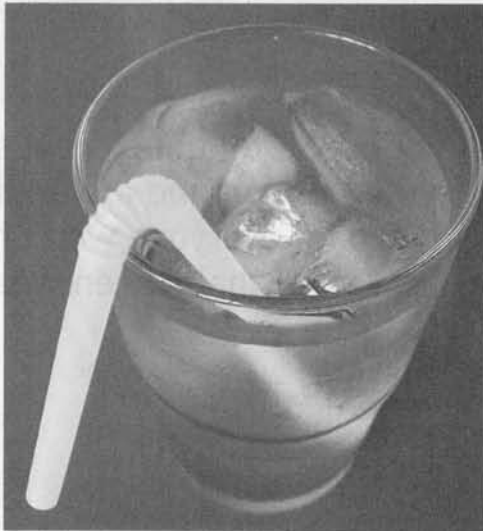
to stay in crisis mode. Though the drought is over, consider these recent headlines from two fast-growing Florida cities: In St. Lucie West, part of the fastest-growing city in the country, officials had to impose a building moratorium after 15,000 residents spent a long holiday weekend with no running water. In Cape Coral, the fifth-fastest-growing city in the nation, thousands of wells went dry. Fire department officials feared they wouldn't have enough pressure to supply hydrants in case of a major fire.

As those residents learned this spring, and as Florida's developers figured out during the last drought, water issues can't be ignored. Lawmakers in Tallahassee and water managers know it; they're making decisions that will dictate everything from how much we'll pay for water to what we can do with it in the future.

"It's the most important issue facing our state," former Gov. Reubin Askew said recently at the annual summit of the University of Florida's Askew Institute for Public Policy, which this year was devoted to water supply. "The Legislature should never convene without working on it."

How much do you know about the Florida water issues that will play out over the coming years? Take our quiz — and then test your perceptions against the facts about water in the Sunshine State.

*Florida water data courtesy of Richard L. Marella, a geographer with the U.S. Geological Survey in Tallahassee.*



**4** True or false: Floridians have been better about conserving water in recent years.

See page 44

**5** True or false: Floridians consume more than 8 billion gallons of water a day.

See page 47

**6** How much does desalinated sea water cost to supply compared to ground water?

- a) About the same
- b) As much as 5 times more
- c) As much as 10 times more
- d) As much as 20 times more

See page 45

**7** What accounts for most of the water used in Florida each day?

- a) Suburbanites/residential use
- b) Power generation
- c) Agriculture
- d) Recreational/golf courses

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## TREADING WATER:

State Sen. Paula Dockery, R-Lakeland, pulled together 100 stakeholders and met with them for a year to help create the state's new water law. It's meant to make Florida's regions work together on water supply, plan for it longer term and pay for it. "Sen. Dockery deserves most of the credit," says Doug Mann, a utility lobbyist representing the American Water Works Association, whose members provide water to more than 9 million Floridians. "Not everyone was pleased with every part of it, but everyone knew it was significant enough to not stand in the way."

## The Truth About Water Fact Number 1

In the Sunshine State, the biggest sources of supply and the biggest sources of demand are in different places. Making sure there's enough for everyone won't happen without regional cooperation — and that's been weak in Florida.

In general, the state's population has settled where water is scarcest. In Florida, 92% of our drinking water comes from aquifers, which are recharged by rainfall. The state gets a swamping 55 or so inches of rain a year. But it doesn't fall evenly. A so-called "hydrologic divide" dissects Florida in a curvy line above Orlando. Only 44% of Florida's rain falls south of the line, yet 78% of the state's permanent population lives south of it.

Some believe this makes Florida's water problems different from those in Western states or in other parts of the globe suffering shortages. But

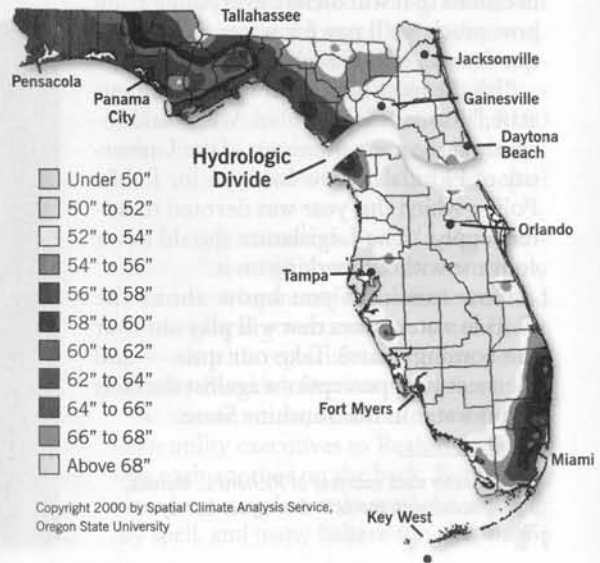
we're no different. The 1% of the planet's water that's available for human consumption is unevenly spread. Some places are water-rich: The Great Lakes region, for example, holds 95% of the country's fresh surface water but only 8% of its population. Others are water-poor: Asia is home to 60% of the world's population but only 36% of the available water. Many places see shortage and plenty within the same geopolitical boundaries. Parts of Chile, Peru and other South American countries, for example, have extreme shortages in some areas and severe flooding in others.

In Florida, people's view on whether the state is in a water crisis often depends on where they live. And those who live in water-rich parts of the state tend to take a possessive view of the resource. But while state law requires that local communities tap the nearest source of water for their own use, it also establishes that water doesn't actually belong to the people who live near it. Rather, the state "holds" all water for the benefit of all Floridians.

Florida law authorizes the transport of water across district, watershed and county lines if the public interest dictates. Short-distance transfers are working successfully now in some regions and will become increasingly common. Long-distance transfer is likely to remain too expensive — and

## Uneven Match

Rainfall amounts vary throughout Florida. Most of the state's rainfall — 56% — falls north of Florida's so-called hydrologic divide, but most of the state's population — 78% — lives south of it.



Copyright 2000 by Spatial Climate Analysis Service, Oregon State University

too logistically and politically daunting — for Florida. But it's not out of the question. UF water-law professor Christine Klein spent much of her career in the West, where the joke is that "water runs uphill toward money." Here in Florida, Klein says, the legal requirements for transfer are still untested. Most likely, she says, "a political debate, rather than a legal debate, will determine how, when and whether we should move water around."



**WATER FLOW:** Most likely in Florida, says UF water-law professor Christine Klein, "a political debate, rather than a legal debate, will determine how, when and whether we should move water around."

The Truth About Water  
**Fact Number**  
**2**

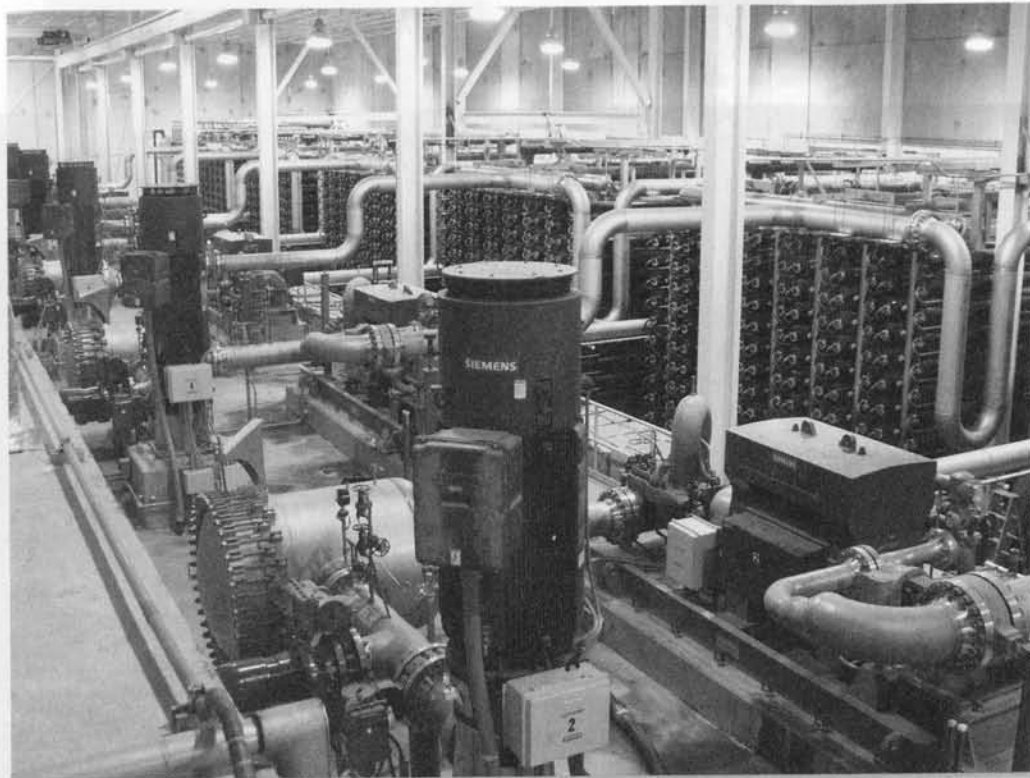
Florida needs major new supplies to meet growth.

The arithmetic of Florida's water-supply problem is as uncomplicated as it is daunting. Like most issues in the Sunshine State, the water issue is driven by dramatic population growth. Now the fourth-largest state in the nation, Florida in the next decade will grow another 21%, exceeding 21 million people to pass New York and become the third-largest state behind California and Texas.

Between those residents and upward of 70 million tourists a year, total demand for water is projected to reach about 9.3 billion gallons a day — at least a billion gallons more than now. Already, parts of south, southeast and northeast Florida suck up more ground water than the rain replenishes. Across the state, saltwater intrusion, dried-up lakes and sinkholes are just some of the symptoms of overtapped aquifers.

State law says each water-management district must have a regional water supply plan that covers 20 years' demand. The current plans call for a mix of traditional ground water; reservoir storage of surface water; restoration; aquifer storage and recovery (ASR) technology; desalination; reuse of reclaimed water; and conservation. The South Florida Water Management District's plan, of course, includes the massive Everglades Restoration now under way.

Political, technological or financial challenges dog many of those strategies. For example, supply plans call for hundreds of new ASR wells from the Everglades to northeast Florida. The wells store water deep underground during wet months when supplies are plentiful. Water from the wells is then pulled up for use during dry or peak-demand months. Florida has some 65 ASR wells already pumping; the oldest, in Manatee County, has been storing water since 1983. But concerns over contamination are growing. Florida's environmental regulators have found that ASR wells "mobilize" arsenic in the aquifer, for example. The EPA recently lowered its drinking water standard for arsenic from 50 parts per billion to 10 ppb — a standard that regulators will begin to enforce in January. ASR



**COSTLY SOLUTION:** Technology will play a role in helping to solve Florida's water-supply problems — but at a cost. Tampa Bay Water's desal plant in Apollo Beach, for instance, is tens of millions of dollars over budget and two years behind schedule.

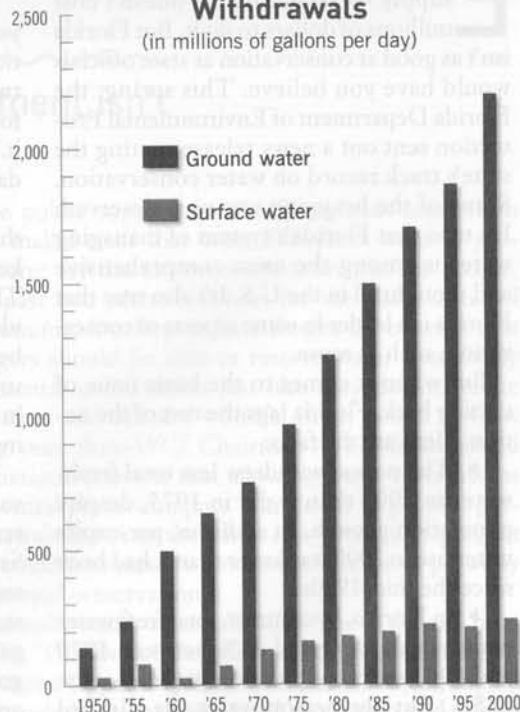
wells throughout Florida have tested for arsenic in excess of 10 ppb. One well in southwest Florida recently tested at 150 ppb.

Desalination is another example of challenges ahead. The plants that convert saline or brackish water to drinking water are also in use throughout Florida. But the problem-plagued Tampa Bay sea water reverse osmosis plant at Apollo Beach shows how costly and technologically uncertain the approach is. The plant, launched in 1999, is the largest in the nation. It was supposed to cost \$110 million and pour out 25 million gallons of freshwater a day by 2003. Instead, it remains shuttered — due first to bankrupt contractors, then clogged filters. Tampa Bay Water now is paying tens of millions more to fix it.

Technology is surely part of the answer to Florida's supply problems. But it's highly uncertain whether solutions such as ASR and sea water desalination will prove bug-free — and affordable — in time for Florida's next drought.

**Florida Freshwater Withdrawals**

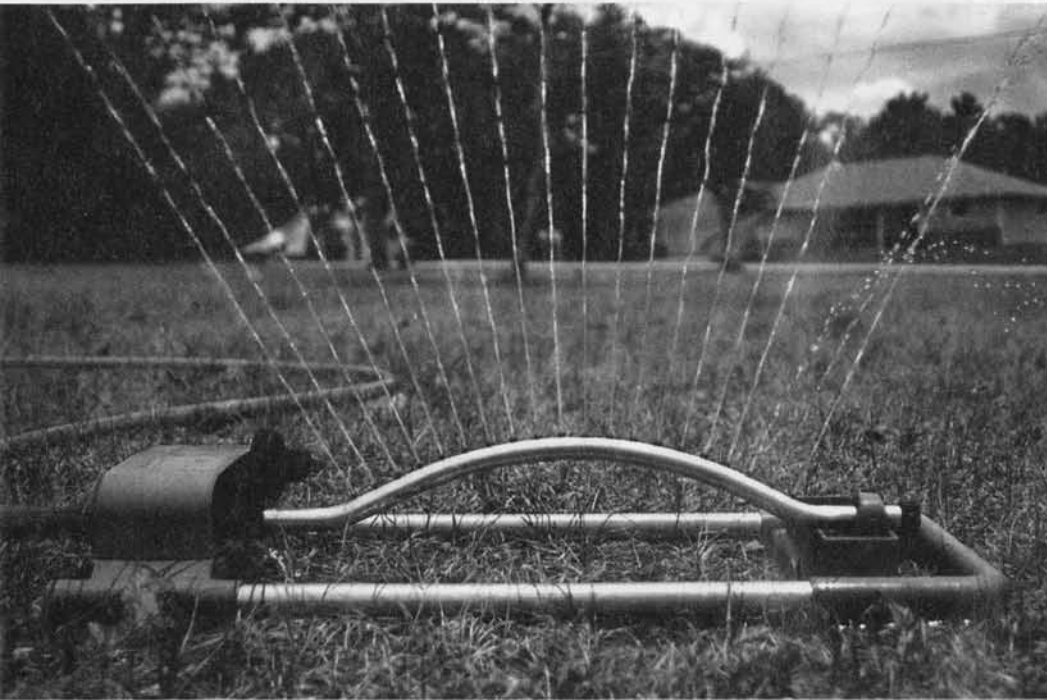
(in millions of gallons per day)



Source: U.S. Geological Survey

The Truth About Water  
**Fact Number 3**

Conservation is a major component of the solution. But Floridians are not doing a good job of it.



**IT'S NOT EASY BEING GREEN:** Outdoor water use accounts for 25% to 75% of domestic use in Florida, depending on the time of the year.

Every drop of water saved is like adding supply — except that it doesn't cost millions of dollars to do it. But Florida isn't as good at conservation as state officials would have you believe. This spring, the Florida Department of Environmental Protection sent out a news release touting the state's track record on water conservation. Some of the bragging was well-deserved: It's true that Florida's system of managing water is among the most comprehensive and thoughtful in the U.S. It's also true that Florida is a leader in some aspects of conservation, such as reuse.

But when it comes to the basic issue of cutting back, Florida lags the rest of the nation. Here are the facts:

▶ The nation withdrew less total freshwater in 2000 than it did in 1975, despite population growth. In addition, per-capita water use in 2000 was lower than it had been since the mid-1950s.

▶ In Florida, by contrast, total freshwater withdrawals increased 46% between 1970 and 2000 as the population grew by some 135%. But per-person water use climbed too. In 1955, it was a little less than 140 gal-

lons a day. Now, it's 174 gallons a day.

▶ Those trends have persisted in recent years, including the period of drought. Nationally, per-person water use dropped between 1995 and 2000 — the latest period for which data are available. But in Florida, it increased — by five gallons per person per day.

State water officials blame dry conditions that sent residents running for their hoses to keep their lawns green during the drought. They argue that it's not fair to compare Florida to other states that endured the drought because of our year-round outdoor water use. Between 25% and 75% of domestic use in Florida is for outdoor purposes, depending on the time of year.

But county-by-county data show that some of Florida's 67 counties did a far better job managing the drought than others. Sarasota County, for example, implemented some of the harshest water-use rules in the state and got its per-capita use down to 130 gallons per person per day. And unlike most governments, Sarasota kept its restrictions on the books even after the rain started falling again.

**Florida Water Use**  
 (2000)

Rank	County	Per Capita gallons per day
1	Nassau	274
2	Wakulla	236
3	Holmes	235
4	Lake	233
4	Osceola	233
6	Collier	232
7	Hendry	231
8	Madison	230
9	Orange	229
10	Palm Beach	222
11	Monroe	216
12	Martin	212
13	Citrus	211
14	Franklin	207
15	Bay	206
16	Marion	205
17	Baker	203
18	Seminole	197
19	Levy	195
20	Polk	190
21	Walton	188
22	Hillsborough	181
23	Leon	179
24	Calhoun	178
25	Hernando	175
26	Columbia	173
27	Miami-Dade	171
28	De Soto	169
29	Taylor	168
30	Bradford	166
31	Duval	162
32	Broward	161
33	Manatee	159
34	Alachua	158
34	Lafayette	158
36	Gadsden	157
36	St. Johns	157
36	Sumter	157
39	Escambia	156
40	Washington	153
41	Jackson	150
42	Hamilton	149
42	Suwannee	149
44	Clay	147
44	Lee	147
46	Gilchrist	146
46	Indian River	146
46	St. Lucie	146
49	Dixie	145
49	Okaloosa	145
51	Jefferson	144
52	Flagler	142
52	Gulf	142
54	Liberty	141
55	Putnam	137
56	Santa Rosa	132
56	Volusia	132
58	Hardee	131
58	Highlands	131
60	Sarasota	130
61	Pasco	128
62	Pinellas	127
63	Charlotte	123
64	Brevard	116
65	Glades	115
66	Union	114
67	Okeechobee	103

Source: U.S. Geological Survey

St. Johns River Water Management District bottom right page

The Truth About Water  
**Fact Number 4**

Water is going to cost more.

**W**ater itself, of course, is free. But it costs money to take it out of the ground, river or ocean, treat it and then pipe it to users. According to the Department of Environmental Protection, ground water costs between 5 cents and 34 cents per 1,000 liters (265 gallons). As the state reaches the limits of what it can safely take from underground, its alternatives are considerably more expensive. Desalination, for example, costs between 55 and 90 cents for those same 265 gallons.

Who should pay? When the West was building its great water projects, influential congressmen passed the bill to the federal government — and taxpayers all across the country. These days, Gov. Bush and others in Tallahassee argue that direct beneficiaries should pay for new water-supply projects. The powerful utilities industry, on the other hand, looks to Florida's five water management districts and their combined budgets of \$1.4 billion and argues that a statewide problem deserves state funding.

The new water law allocates \$100 million for water-supply planning grants. Utilities, local governments or others that apply for

Water Supply Options	
(Cost per 1,000 liters, or 265 gallons)	
Fresh ground water	5¢ to 34¢
Brackish ground water	18¢ to 61¢
Surface water	21¢ to 85¢
Sea water desalination	55¢ to 90¢

Source: Florida DEP

the grants will have to show they will pay 60% of the cost of the supply project. And the state's three largest water-management districts have to match state funds dollar for dollar.

But \$100 million is just a drop of the \$25 billion the DEP estimates Florida must spend for water supply, including alternative supply and water-resource development, over the next 20 years.

The bottom line is that consumers are going to pay more for their water — and they should. In the state's latest wastewater and drinking water user charge survey, Floridians paid an average monthly wastewater charge of \$22 and an average monthly drinking water charge of \$15. Compare that \$37 to what we pay each month, on average, for cable TV: \$49.62. For soft drinks and non-carbonated drinks: \$58.91. "Florida doesn't have a water-supply problem," argues William Kerr, a member of the St. Johns River Water Management District



**"Florida doesn't have a water-supply problem, Florida has a cheap-water supply problem."**

*William Kerr, a member of the St. Johns River Water Management District governing board*

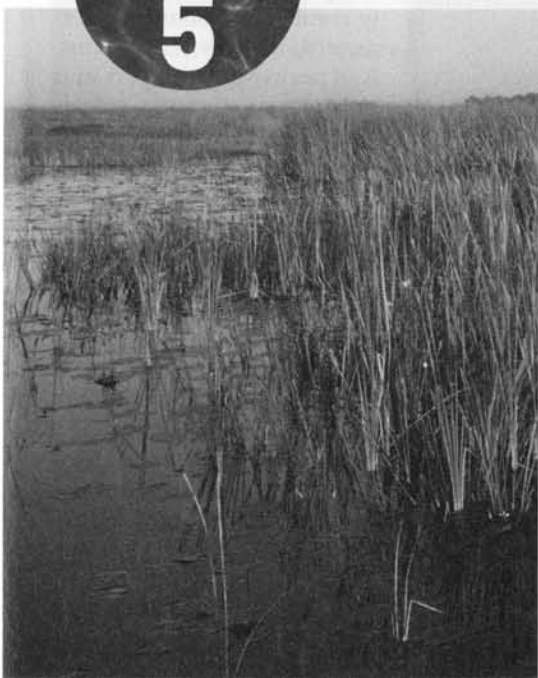
governing board. "Florida has a cheap-water supply problem."

Not only is Florida's water underpriced, it's also unevenly — and sometimes unfairly — priced. Some of the state's poorest citizens pay a lot more for it than some of the richest. For example, in Belle Glade in western Palm Beach County, farmworkers and other residents pay a basic rate for water and sewer of \$62.50 — almost double the combined average rate for the county as a whole, which is \$33.85.

Higher water bills will help pay for new supplies. Moreover, studies have shown, higher bills will spur conservation. A rate hike in Longboat Key last year, for example, resulted in an average 14% lower water use per household. Tiered rates — where consumers progressively pay more for greater consumption — and blended rates — in which newcomers pay a bit more — are other options working well around the state.

The Truth About Water  
**Fact Number 5**

Reserving water for the environment isn't incompatible with development.



**RESOURCE PROTECTION:**

The Blue Cypress Lake in Indian River County is part of the Upper St. Johns River Basin Project, a \$200-million effort by the St. Johns River Water Management District and the Army Corps of Engineers. It will restore or protect 160,000 acres of surface water.

**T**he wide public support for the Everglades restoration project makes clear that most Floridians want to preserve water for the environment as well as for people. But for the past two years, lobbyists for the Association of Florida Community Developers have fought the concept that water managers should be able to reserve water specifically for environmental preservation just like they do for public health and safety and fish and wildlife. In an e-mail to Gov. Jeb Bush last year, then-WCI Chairman Al Hoffman passed on the association's concern that allowing water reservations for environmental protection puts "our ability to get new permits and renewals at risk to the whim of a water management district who could take massive amounts of the water pie away for environmental preservation."

Environmentalists and water officials argue it doesn't have to be either/or. The Everglades plan, as well as smaller restorations such as the Upper St. Johns River Basin Project, should be able to provide both environmental protection and a level of certainty for water for growth.

The Truth About Water  
**Fact  
 Number  
 6**

Privatization is part of the answer — whether Floridians like it or not.

In 1999, a company called Azurix seemed about to make a big splash in Florida. It quietly hired current and former Florida water experts to persuade the Legislature to create water markets — proposing to trade the state's most important public resource like pork bellies. Azurix's tactics and the implosion of its parent company, Enron, soured many Floridians on privatized water. But business trends and basic economics dictate that private companies will be part of the solution to Florida's water-supply problems.

Private companies run only about 5% of the world's water works today, but that percentage is expected to grow quickly. Ten years ago, about 51 million people got their water from private companies. Now, it's nearly 400 million. Executives

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with German multinational RWE and France's Suez and Vivendi Environment — the three largest water companies in the world — say now that they're up and running in Europe, Africa, Latin America and Asia, they plan to turn to the lucrative U.S. market.

Aqua America, the largest publicly traded water utility in the U.S., moved into the Sunshine State last year when it acquired Florida Water, adding 63 of the state's water systems and bringing its customer base here to 100,000. Chairman Nick DeBenedictis says his Pennsylvania-based company sees solid growth potential in the Sun Belt, including Florida — mostly by serving new developments that existing utilities cannot accommodate.

On the downside, private water companies have become known for promising



**Wasted Water**

Construction and repair of water systems is the No. 1 infrastructure need nationwide. In Florida ...

- ▶ Leaking pipes lose 364 million gallons of water a day.
- ▶ The drinking-water infrastructure backlog totals \$3.7 billion.
- ▶ The wastewater infrastructure backlog is \$9.96 billion.

the moon to land contracts then renegotiating them later; being less accountable than government; and being more expensive than public utilities. United Water's rate increases in northeast Florida, for example, led to a buyout by the Jacksonville Electric Authority, which has reduced rates by some 25%.

But a new report from the AEI-Brookings Joint Center for Regulatory Studies finds that in the U.S., private customers did not, on average, appear to pay more for water and private-owned systems complied with health and safety regulations about as well as government-owned systems. And perhaps the biggest plus on the privatization side is this: Construction and repair of water systems is the No. 1 infrastructure need in the U.S. It will require an estimated \$276 billion over the next 20 years. Florida's drinking-water infrastructure backlog is \$3.7 billion. The state's wastewater infrastructure backlog is \$9.96 billion. Meanwhile, the state loses 364 million gallons a day to leaking pipes. DeBenedictis argues that private companies can build new systems and repair old ones at lower cost.



**REPAIR CONCERN:** An Aqua America worker tends to broken pipes. Some argue that private companies can build and repair water distribution systems cheaper than governments.

Aqua America bottom

The Truth About Water  
**Fact  
 Number  
 7**

As the supply-demand gap grows, agriculture will come under increasing pressure to cut back.



**BUMPER CROP:** Florida's irrigation water use is the highest in the eastern U.S. Statewide, agricultural water use increased 21% from 1995 to 2000.

In all, Florida drinks up 8.2 billion gallons of freshwater a day, according to the U.S. Geological Survey. The conservation message from government officials focuses on residential lawn watering. And indeed, outdoor use accounts for half

of public supply, or more than 1 billion gallons a day.

But Florida's agricultural industry still uses the lion's share of freshwater each day — 3.92 billion gallons, or 48% of the total. In fact, Florida has the largest irrigation withdrawals in all the eastern U.S.

There's no question that Florida's farmers are keener to conserve than they used to be. In some parts of the state, farmers working with water-management districts and other partners have made remarkable strides. Some large farms in the stressed Southern Water Use Caution Area, for example, use no ground water thanks to a "tail-water recovery" project that captures, stores and reuses water.

Still, inefficient flood irrigation quenches 45% of the state's farmland — down from 60% two decades ago. Efficient micro-irrigation covers only 38%. The rest is irrigated by sprinklers. Meanwhile, the total

amount of water withdrawn for agriculture statewide continues to climb, increasing by 21% between 1995 and 2000.

Chuck Aller, director of the state's Office of Agricultural Water Policy, points out that the areas of the most intense agricultural water use in the state are also where urban use is greatest. "That does set the table for potential conflicts between agricultural and urban users in the future," he acknowledges. "But that's the very positive thing about alternative water supply: If we can pull it off, it's essentially drought-proof."

Of course, agricultural water policy has to balance conservation with agricultural interests — especially as pressure mounts to turn farmlands into subdivisions. As competition among users heightens, it will become more important to create and protect water for people, the environment and agricultural and other businesses. "Hopefully, we will give some very thoughtful consideration to all state needs — both human and environmental," says UF water-use professor Christine Klein, "and not simply let the water flow uphill toward money and let dollars and sheer voting power dominate." □

**Total Water Withdrawals  
 in Florida  
 (2000)**



Source: U.S. Geological Survey