

But will Rhode Island's water last?

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By PETER B. LORD and MICHELLE J. LEE
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*The Scituate Reservoir provides water to 60 to 70 percent of Rhode Island.
Journal photo / Bob Breidenbach*

Across Rhode Island, water systems are struggling to generate new supplies to meet soaring demand from growing suburbs that consume vast amounts of water each summer for lawns and car washing.

Whether you get your water from the Providence Water Supply Board, which supplies more than 60 percent of Rhode Island, or a smaller local water company, nearly everyone in the state can expect to see changes in coming years that include higher water rates or restrictions on lawn watering and car washing.

The problem is simple. Too little has been spent to upgrade and expand the water systems built nearly 100 years ago to serve the state's big cities. And too many customers now live in newly built suburbs where every home uses far more water than its urban neighbors.

Solutions will take years. So in the meantime, there will be strains:

- Development of new businesses in the Quonset Business Park and in Kent County could be impeded because local water companies can't generate sufficient supplies. The state's Quonset Development Corp. owns wells that supplied more than four million gallons of water a day when Quonset/Davisville was a Navy base. Now the state business park uses only a fraction of that capacity and its executives believe they can draw on the rest of the capacity for new businesses. But state water officials and environmentalists point out that since the Navy years ended in the 1960s, farms in nearby North Kingstown and East Greenwich have evolved into housing plats, and those houses are using the millions of gallons the Navy once consumed. Local groundwater supplies are already so over utilized, Quonset will have trouble drawing more water, particularly in the summer.

- Summertime water uses are taxing many water departments, forcing them to upgrade their transmission and storage capabilities to meet demands that often double or triple at the very time supplies are lowest. Many officials are calling for statewide rate hikes and education programs to persuade the public to conserve. One idea they've proposed is a "luxury rate" for consumption above the average needed for drinking, bathing and cleaning.

- Underground water supplies, and the rivers and streams they support, are threatened by excessive pumping to meet suburban and summertime demands. Environmentalists are calling for regulations to maintain minimum flow in rivers and streams — a measure that

could put further supply restrictions on farmers and local water companies.

- Very small water companies, established years ago to supply mill villages, are now struggling to meet heightened demands as the neighborhoods expand beyond the villages.

The water problems have led to renewed calls to build the Big River Reservoir in Coventry and West Greenwich. The controversial project was vetoed by the U.S. Environmental Protection Agency in 1989, but most water suppliers say Rhode Island still needs more reserves.

Many of the proposed changes might be scarcely noticed by the average citizen. But efforts to reduce lawn watering are certain to be controversial.

SURVEYS HAVE SHOWN many Rhode Islanders don't know where their water comes from. But anyone who lives near Providence probably gets water from the Providence Water Supply Board's Scituate Reservoir. It supplies 60 to 70 percent of the state.

In the early years, the reservoir was called on to do less. Providence supplied as much as 24 million gallons of water a day to Providence, Cranston, Johnston and North Providence.

But then Warwick wanted water, and the eastern part of Smithfield. In the 1950s, Kent County wanted water. In the 1960s, East Providence, Smithfield and Greenville came on board. Then Lincoln joined in. Finally, in 1998, Bristol County started drawing through a pipeline under Narragansett Bay. Average demand rose to more than 70 million gallons a day.

About 30 smaller water companies supply much of the rest of the state. And about 10 percent of the homes in Rhode Island, largely in rural areas, draw water from their own private wells.

What would Rhode Island do, experts ask, if something catastrophic happened to the Providence water system?

WATER EXPERTS say they've struggled to get the attention of the public and political leaders to address water problems. Rhode Island has for so long been awash in ample supplies of high quality water, many find it hard to believe there could be problems. But this year, the issue has risen to the top of the state's political agenda. Governor Carcieri cited the need to consolidate small water companies in his State of the State speech a few weeks ago.

The state Senate has launched hearings on water supply problems and solutions.

The House recently passed a bill creating its own study commission.

The four state agencies that regulate water quality, prices and supplies have all given presentations on water problems at the State House and proposed legislative and regulatory solutions. Last Thursday night, more than 125 water experts gathered at Save the Bay to analyze the shortages. And on Wednesday, environmental and business interests are scheduled to testify before the Senate.

"We've got to do something with water," said state Rep. Peter T. Ginaitt, chairman of the House Committee on the Environment and Natural Resources. "This society doesn't understand what it is and how important it is. They don't want to read about a resource that could literally shut the state down if it was disrupted."

W. Michael Sullivan, director of the state Department of Environmental Management, testified to the Senate last week that fresh water in Rhode Island has for too long been undervalued and under-priced.

"There has been an obscene, continued, inefficient use of water driven by people's perspective that it is of limitless quantity and little value," said Sullivan. Two developments in the last two years helped focus attention on water problems.

In fall 2005, Amgen Inc., the pharmaceutical manufacturer in West Greenwich that state economic leaders point to as one of the state's future economic powerhouses, wanted a guarantee from the Kent County Water Authority for more water so it could expand its production of the drug Enbrel — a process that requires high volumes of clean water to help grow cells, purify the medication and sanitize machinery.

The water authority, already struggling to meet demand, refused guarantees of more. So Amgen appealed to the General Assembly, and the legislators did what the water supply engineers wouldn't: it voted last year to guarantee Amgen all the water it needs. (State economic development officials say the state last year failed to attract another drug manufacturer, Bristol Myers-Squibb and its \$660-million production plant, for a host of reasons, but not because of insufficient water, as some suggest.)

Another tipping point was passed a few months earlier. It was hotter and drier than usual in August 2005, so Alisa Richardson, a state environmental engineer, drove to the Potowomut Dam between North Kingstown and Warwick to check on the Hunt River, one of the state's more pristine streams. Water departments for Kent County, North Kingstown and Quonset Point draw water from wells near the river;

in the summer they struggle to meet high demand. So Richardson expected low water levels. But what she found was worse.

A little water sloshed down the fish ladder at the dam. But the water upstream in Potowomut Pond was so low, no water poured over the dam into the river. Downstream, the river narrowed to a warm trickle. Richardson found one "lost" brook trout, and a lot of "red algal stuff."

The two developments prompted environmentalists and business leaders to create a special study commission, which they named the Coalition for Water Security, to look for solutions to the shortages.

The coalition is recommending state standards to protect rivers and streams from excessive water pumping, standards to manage water withdrawals from aquifers, statewide measures to reduce demand, particularly in the summer, and rules guaranteeing the protection of land purchased for drinking water supplies.

The coalition is targeting lawn watering because it creates huge demands on local water systems every summer — the very time when supplies in reservoirs, and particularly in the ground, are at their lowest.

This is a prime example of business and the environment sharing the same goals, insists the coalition.

Sullivan, the DEM director, reinforced that point before the Senate committees last week. He said he meets frequently with state economic development director Saul Kaplan, and they both agree economics and the environment are intertwined when it comes to water issues.

IN TESTIMONY before the Senate in recent weeks, several different strategies for solving the state's water problems emerged.

The state Water Resources Board, the agency authorized to coordinate water supplies, wants to move forward with plans to drill high-capacity wells in the lands set aside for the Big River Reservoir in Coventry and West Greenwich. The reservoir was vetoed by the EPA in 1989 because it would inundate 575 acres of wetlands, including 17 miles of streams and 10 ponds.

The board estimates it could take five years and \$31 million to develop new wells that could deliver an average of 5 to 7 million gallons of water daily, though less in the late summer. But the project has been delayed by feuding with DEM and questions about who would pay for the wells and who would develop them.

State Sen. Leonidas P. Raptakis, D-Coventry, is calling on the state to build a desalination plant. These plants have been built elsewhere, but the process costs much

more to produce water so the idea is not attracting much support.

State Senate President Joseph A. Montalbano has been calling for more investment in water pipes and treatment capabilities and more management of the demand for water.

The state's water companies want more water.

"The problem is a lot bigger than watering lawns," said Pamela A. Marchand, general manager of the Providence Water Supply Board. The Scituate Reservoir is providing more water than it should, she says. It can no longer afford, as it did in the past, to rescue parts of the state that are short of water.

"We're really looking at the reliability of water," Marchand said. "You can't count on us always being there."

While Marchand welcomes calls for conservation as a method to lower peak demand, she questions how she can impose mandatory summer restrictions on her retail customers while Scituate's supplies are so ample, the reservoir can afford to release nine million gallons each day, even in the summer, to maintain flows downstream in the Pawtuxet River. The reservoir supplies an average of slightly more than 70 million gallons of water a day to 10 communities, plus all of Bristol County and much of Kent County. Safe yield for the reservoir – the amount that can be safely consumed during a drought – is estimated at 83 million gallons a day and as a rule of thumb, Marchand said, experts recommend not to go higher than 75 percent of that figure, which would be about 62 million gallons a day. So the reservoir is routinely overused.

Henry Meyer, president of the Rhode Island Water Works Association, says he fears more wells and better conservation won't solve Rhode Island's water woes.

"I don't want to say the Big River Reservoir is the ideal solution," Meyer says. "But something has to give. Wells won't survive a long-term drought." Environmentalists, business people and water suppliers agree on many issues.

"Basically, the coalition, the state and the suppliers all have the same focal point — how to get enough supply to the state," said Juan Mariscal, executive director of the water board. "But the devil is in the details."

Strong disagreements have already arisen. Water suppliers are renewing calls for development of a new reservoir in Rhode Island — and they don't care if it's the controversial Big River Reservoir or in another location.

Environmentalists disagree. They are pushing for cutbacks in summertime demand, calling for price increases aimed at minimizing lawn watering. Harold Ward, a professor emeritus of environmental studies at Brown University and coalition member, insists such a

strategy would allow the state to avoid building another reservoir.

"If they have to build Big River Reservoir, they will be building it to water lawns," says Ward.

Marchand is looking for supplies to back up the huge Scituate Reservoir. The massively designed system was developed in the early 1920s by building a 3,200-foot dam and flooding several villages in Scituate. With a capacity of 41 billion gallons, the reservoir seemed big enough to solve much of the state's needs. And it has, so far.

It has been difficult to generate new sources, in part, because Rhode Island doesn't have one large, monolithic water system with lots of money and political clout. Instead, the profusion of smaller water systems are regulated by four different agencies, each with its own areas of interest.

Kenneth Payne, a Senate policy adviser, said the various agencies provide "veto-gates" that get in the way of developing new supplies.

Elia Germani, chairman of the state's Public Utilities Commission, recommends that the General Assembly create one agency that would own the state's water supplies, and then let communities run distribution systems. That would go way beyond the consolidation of small systems recommended by Carcieri. If voters had approved a new casino in West Warwick last fall, Germani said, he doesn't know where the casino would have gotten the water needed to operate.

"In my judgment, the continued economic development of the state is important," Germani added. "We want more Amgens. And that requires a statewide solution. There has to be a super agency."

The Water Resources Board is charged with coordinating new supplies, but its chairman, Dan Varin, told the senators that the board is so depleted it could muster a quorum at only half of its recent meetings. And it has three vacancies in a staff authorized to total nine.

He said his agency has been feuding with DEM over extensive data that DEM wants before permitting major new wells in the Big River Reservoir area. "We have no intention of giving them 90 percent of what they're asking for," Varin said. "It's nonsense."

Varin said the Water Resources Board also wants to lower the public's demands.

"We want to see people using about 65 gallons a day," he said. "The average now is close to twice that."

The coalition wants to see legislation requiring DEM to establish minimum stream flows and to require the Water Resources Board to create a system for authorizing water withdrawals.

Those measures would be opposed by the state's farmers, according to Al Bettencourt, executive director of the Rhode Island Farm Bureau, representing 500 farms in Rhode Island.

Farmers believe that if they own water along rivers, they have the right to pump the water they need. Farmers, he said, don't think there should be legislation limiting water withdrawals.

If farmers have to stop pumping water to protect fish in a stream, is the public willing to reimburse them for losing their crops? Bettencourt asked.

House Majority Leader Gordon Fox, who sponsored a bill launching a second study commission, said it's been difficult to get people to believe Rhode Island has water problems, because there has always been so much.

But he's convinced the time to act is now. "Rather than wait for an August day and have no water, we want to see what we can do now."

Still, many at the State House wonder if the General Assembly can resolve such complex issues on its part-time schedule. The Senate has scheduled meetings on a weekly basis, but the House has yet to begin.

Stretching the supply

- Don't ignore water laws in Jamestown. The town is serious about conservation. A15
- In Kent County, the water authority confronts scarcity as the region grows. A15
- Simple steps to save water. A15

http://www.projo.com/news/content/water_problems_03-04-07_1R4C4V1.2d67e95.html

When water becomes an economic roadblock

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BY BENJAMIN N. GEDAN

Journal Staff Writer

Amgen spent \$500,000 for a water-treatment plant so its drug-manufacturing facility could have clean water. State leaders stepped into a dispute last year to guarantee water for the plant.

The Providence Journal / Bob Breidenbach

For some Rhode Islanders, recent warnings from state leaders of a potential water crisis have not come as a total surprise.

The Kent County Water Authority has been confronting regional scarcity for years as explosive commercial and residential growth has outpaced the development of new water sources and improved delivery systems.

Summertime has meant restrictions on lawn watering, with fines and service shut-offs for scofflaws. In parts of the water authority's sprawling service area, new home owners seeking connections have had to plead with the water authority's board and pledge to install low-flow shower heads and toilets. A moratorium on development has been repeatedly proposed and shelved.

The water authority's restrictions and gloomy projections have spooked developers, provoked a lawsuit from the owner of the Centre of New England — a giant strip of retail and housing in Coventry — and prompted local officials to blame the utility for discouraging economic investment.

But until recently, that sense of urgency had never extended outside the water authority's coverage area.

In the summertime, home owners served by other water

departments, living just yards away from Kent County Water Authority customers, have been permitted to irrigate their lawns and wash their cars with impunity. The water authority's prolonged efforts to pump more water from local aquifers have consistently run into opposition from state environmental regulators.

In April 2005, when the water authority board urged local, state and federal policymakers to spend \$1 billion to transform acres of wetlands into the Big River Reservoir, its resolution did not provoke a single response.

"The fact that it didn't go anywhere was an indication to us there was no interest in water issues," said Timothy J. Brown, the water authority's longtime general manager.

Then Amgen got involved. Less than a year later, the water issue is now on everybody's lips.

"We have been talking about that for a long, long time, but nobody paid attention. Then they started screaming and everybody heard it," said Francis J. Perry, a former chairman of the Kent County Water Authority board and a member of the state Water Resources Board.

For many months in 2005, the pharmaceutical company held intense negotiations with the water authority to obtain a guarantee of at least 800,000 gallons of water a day for its plant in West Greenwich — an enormous quantity even for a manufacturer. The two sides could not agree, and in February 2006, the dispute became publicly known.

State officials reacted fast. Sen. Stephen D. Alves, chairman of the Finance Committee, filed an unprecedented bill to force the water authority to meet Amgen's needs. It passed the Senate less than a month later, and it was quickly approved by the House.

Governor Carcieri, after dispatching his chief of staff to meet with Brown, signed the bill on June 29.

Discussions of potential water shortages subsided after the last General Assembly session ended. But as Carcieri and legislative leaders announced their priorities earlier this year, it became clear that the Amgen controversy had focused attention on the issue.

"You read about that stuff happening in Arizona and New Mexico. Some people here probably didn't recognize the seriousness of the issue until this brought it right to the forefront," said William P. Devereaux, a lawyer at Pannone Lopes & Devereaux, in Providence, who represents Amgen.

Officeholders in West Warwick, Coventry and other communities have expressed concerns that public discussions of regional water scarcity might inhibit growth. But to Saul Kaplan, director of the Rhode Island Economic Development Corporation, it is critical that the issue get legislative attention.

"These are long-term, critical path items that underpin our entire economic development strategy," Kaplan said in a recent interview. "We need to do this not just for Amgen, but for an entire innovation economy we're trying to create."

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http://www.projo.com/news/content/Go_Amgen_03-04-07_PH4L5MB.2d64b89.html

Jamestown could teach state about conserving

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BY MICHELLE J. LEE

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Bill Petrarca, of the Jamestown Public Works Water Department, performs tests on water taken from a shallow reservoir in town. Wells also provide water, which is in short supply on the island.
The Providence Journal / Bob Breidenbach

JAMESTOWN — Water is precious on Jamestown. The island depends on wells and shallow reservoirs filled by nature. And because water is so scarce here, the town has become Rhode Island's model community for water efficiency.

While the municipal water system serves only about half the island, the town's conservation regulations affect the entire population of 3,200 people.

All residents are required to install low-flow water faucets, showerheads, toilets and energy-efficient washers and dryers. Town inspectors have gone to each home to verify that the water-saving measures were adopted by July of last year.

Residents are prohibited from using town water from June to the end of October to irrigate lawns and wash their houses, cars and boats. Jamestown also has other mandatory restrictions the rest of the year when the North Reservoir runs low, including 15-minute limits for garden watering and a ban on all outdoor and commercial water use to wash vehicles. Ignoring the water laws can lead to a \$50 fine per quarter on the water bill or water shutoffs.

"That's the ultimate. That's the real thing you can do," Public Works Director Steven Goslee said.

The town Web site has a "consumption calculator" to help residents estimate how much water they use for various tasks such as dishwashing and showering.

Even the 74-acre town-owned golf course promotes conservation. Since 1992, Supt. Joseph Mistowski has irrigated the grounds with recycled effluent water from the sewage treatment plant. Last year, the town Department of Public Works and the Jamestown Golf Course received the "business of the year" award from the Audubon Society of Rhode Island for "the innovative use of alternative water." The irrigation model is so successful the town proposes to extend it to the baseball, softball and soccer field on Lawn Avenue, Town Administrator Bruce Keiser said.

Jamestown created many of its water-conservation laws after suffering a severe drought 14 years ago.

In the summer of 1993, the reservoir water levels were so low the town declared a state of emergency. The National Guard trucked 200,000 gallons of water a day from North Kingstown for several weeks and installed an emergency water pipeline over the old Jamestown Bridge, Goslee said.

During the drought, all non-essential water use was banned. No one was allowed to use town water outdoors. Even the local car wash and laundry shut

down and restaurants had to use paper plates, Keiser said.

Jamestown spent \$70,775 that fiscal year for emergency purchases, supplies and labor.

High water costs also play a role in water conservation.

An average American uses 90 gallons of water per day, according to the U.S. Environmental Protection Agency. The average water rate is \$2 per 1,000 gallons of water. Rhode Islanders typically use more than 100 gallons of water per day, according to the Rhode Island Water Resources Board. The water rates in Rhode Island range from Lincoln's \$2.81 to the \$25 Block Island summer rate, per 1,000 gallons of water.

In Jamestown, the average person uses 7,000 gallons each quarter, said Denise Jennings, the town water clerk. That breaks down to 77 gallons per day. Customers pay a flat service fee of \$184 to \$1,525 a year, depending on the water meter size. The fee includes 20,000 gallons of water. If customers need more water, they pay an additional \$3.43 to \$13.03 per 1,000 gallons of water.

Expensive prices on Block Island also provide a big incentive to save water.

The Block Island Water Company uses seasonal water rates to cope with the fluctuating demand of thousands of tourists. On Block Island, the rates range from \$12.50 to \$25 per 1,000 gallons of water. A typical residential

water bill is \$1,290 a year, according to the Rhode Island Water Resources Board.

John Breunig, the water company chief operator, said most customers tend to be frugal with water.

"In my mind, money is always the biggest motivation for everybody," Breunig said. "If you stick it to their pockets, they will fix the daily stupid things, like shutting water off when you're brushing your teeth. In general, there's a conservation mentality out here."

Although water conservation is an effective water management tool, Goslee said it isn't a permanent fix for Jamestown's shortages. To alleviate the situation, the town spent \$6.2 million on a new water tower, water-distribution system with bigger pipes, and a high-tech water filtration plant that removes contaminants on a molecular level. The water tower and distribution system are complete. Construction of a new water plant will go out to bid in the spring and is scheduled to be done next year.

"It's a balancing act," Goslee said about juggling conservation and selling water. "It's like selling Christmas trees. You still want a few in the lot. You want revenues."

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http://www.projo.com/news/content/SAVEWATER18_03-04-07_OL4EOA2.2d642b6.html

Simple steps for saving water

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1. Fix the Leak

Leaky faucets that drip one drop per second can waste 2,700 gallons of water a year. A leaky toilet can waste 200 gallons every day. Fix the leak or replace old devices with low-flow faucets and toilets. A low-flow toilet uses less than 1.3 gallons per flush and a family of four can save \$1,000 over 10 years.

2. Pile in the Laundry

Update the washing machine and use only full loads. The average washing machine uses 41 gallons of water per load. Energy-efficient washing machines use less than 27 gallons per load.

3. Water Wisely

Instead of using municipal water to water the garden, use a rain barrel, cistern or consider a drip irrigation system. Avoid over-watering the lawn. A lawn needs only one inch of water per week, according to Ken Lagerquist, executive director of the Rhode Island Nursery and Landscape Association.

"Put out a cup. Measure it," Lagerquist said. "Your lawn won't die. Even if things were so bad that there was a total water restriction, you don't have to sneak it because it will always come back in the fall with water."

Source: EPA Water Sense, Providence Journal research.

FOR MORE INFORMATION and tips on how to conserve water, visit:

University of Rhode Island Cooperative Extension Healthy Landscapes:

This program has advice for homeowners on how to cut back on landscaping water use.

www.uri.edu/ce/healthylandscapes

U.S. Environmental Protection Agency Water Sense:

An EPA Web site listing water-saving programs, tips and energy-efficient products.

www.epa.gov/watersense

FOR INFORMATION about the different organizations handling water issues across Rhode Island, visit:

Rhode Island Department of Health:

In charge of monitoring the purity of municipal water.

www.health.state.ri.us

Rhode Island Water Resources Board:

In charge of development, protection, conservation and use of the state's water resources.

www.wrb.state.ri.us

Rhode Island Department of Environmental Management:

In charge of maintaining the quality of lakes, rivers, streams and other water bodies.

www.dem.ri.gov

Rhode Island Public Utilities Commission:

In charge of regulating water prices.

www.ripuc.org

Providence Water Supply Board:

Water utility company that supplies water to 60 percent of Rhode Island.

www.provwater.com

List of all major Rhode Island water suppliers:

www.wrb.state.ri.us/watersuppliers.htm

Coalition for Water Security:

A group of environmentalists and other nonprofit organizations concerned about water issues.

www.coalitionforwatersecurity.org

http://www.projo.com/news/content/WATER_WEBSITES4_03-04-07_G44LUR1.2d635be.html