

Water Management Policy in Florida: Regional Politics and Market Development

by
Kimble F. Ainslie, Ph.D.
Public Policy Analyst
The Cato Institute

**Policy Report #35
January 2002**

About the Author

Kimble F. Ainslie is a public policy analyst at The Cato Institute in Washington, D.C. He began this project while he was a senior policy analyst at The James Madison Institute.

Table of Contents

Executive Summary.....	1
I. Introduction	3
II. Our Regional Approach.....	4
III. Florida’s Regulatory Regime	5
IV. Southwest Florida.....	6
V. South Florida	10
VI. Central Florida.....	12
VII. Northwest Florida.....	12
VIII. Summary.....	14

Figures

<i>No.</i>	<i>Title</i>	<i>Page</i>
1.	U. S. Drought Monitor Map, May 29, 2001	17
2.	Tampa Bay Water Projects, June 2001	19

EXECUTIVE SUMMARY

- The policy politics of water management in Florida over the last several years has been contentious and “driven” by indecision, procrastination, and short-term fixes.
- When the stakes are high, infrastructure politics can be as conflict-ridden as any other kind of politics. On water politics in the state, it remains difficult to get local politicians “off the dime” and “into the game.” Local decision making always seems to get distracted by the politics of personality and jurisdictional turf wars.
- Water politics in the Tampa Bay region and South Florida particularly underscore this problem of contentious politics. And the pollution crisis in Northwest Florida seems to have gone on for years unabated, notwithstanding a grand jury’s call for action in 1999.
- The foregoing conditions indicate a need to reassess the desirability of market mechanisms to coordinate the timely and economical distribution of water. It is not evident that the command-and-control model of state regional organization has worked effectively in the past.
- By adopting an economic theory of use where water is valued at market rates, we shall go a long way to overcoming problems of insufficient supply, political crisis, and community dissatisfaction.

I. Introduction

In February 2001, after Florida suffered drought conditions for close to three years, Governor Jeb Bush convened a statewide conference of water experts and politicians in Tampa to address problems of water conservation. By this time, the water level at Lake Okeechobee had been reduced by four and one-half feet; most of Lake Jackson near Tallahassee had been sucked back into the earth through two sinkholes; and wildfires had ravaged the state since 1998. Most residents had been placed on emergency water rationing since 1999 by the state water management districts, and Tampa Bay Water was actually considering its third desalination plant to serve the region. On May 29, 2001, the National Drought Mitigation Center (NDMC) at the University of Nebraska reported that Florida remained the most drought-stricken state in the nation. (See Figure 1.) About half the state was under extreme drought conditions, a condition that remained in effect well into the 2001 rainy season in central and south Florida. Only the Panhandle enjoyed merely dry conditions. At the February 2001 meeting, the governor declared that the state was experiencing a short-term water crisis, but in the long run, water supplies would be plentiful in the future. Many legislators, local politicians, local bureaucrats, and district water managers also supported the short-term crisis scenario, a crisis that nonetheless had been building for three years.

A number of short-term measures had been employed across the state to address this problem, but some had nearly disastrous consequences. For example, the water level in Lake Okeechobee was deliberately drained off by one foot in Spring 2000 by the South Florida Water Management District. The district anticipated replenishing summer rains that never materialized. Elsewhere in the state, groundwater in Pasco County was pumped until rivers and lakes in the county went dry and lawsuits started to fly. Also in 2000, the Hillsborough River was allowed to run dangerously low in the expectation that precipitation was imminent.

Indeed, these short-term fixes seemed to be canceling out the promise of long-run solutions. The governor, along with Florida's Congressional delegation, had pressed for environmental restoration of the Everglades, but the decision by the South Florida Water Management District to drain off Lake Okeechobee in the dry season meant that restoration was slowed considerably. And in the Spring

2001 session, the Florida Legislature considered an aquifer storage and recovery system that allowed untreated and possibly polluted groundwater to be pumped underground in close proximity to extant fresh water supplies. It appeared the method was preferred simply because it was a “cheap” storage alternative. Late in the session, the governor asked this issue to be deferred as protests from the environmental lobby intensified.

II. Our Regional Approach

In our research, we have learned that regions of Florida differ, sometimes considerably, on the issues that most affect residents, business, and agriculture. But before we proceed with this detailed review, let’s review the key dimensions of the “water crisis” and who is responsible for what on water management issues.

A water crisis was thought to exist in Florida because the state suffered from drought conditions from late 1998 to Summer 2001. The principal problem quite obviously was that the volume of rains in the wet season did not replenish surface and groundwater supplies. The National Drought Mitigation Center, operated by the U.S. Department of Agriculture, the U.S. Department of Commerce, and the National Oceanic and Atmospheric Administration, have defined a drought as “a protracted period of deficient precipitation.” But there are multiple perspectives on the meaning of droughts, including meteorological, agricultural, hydrological, or socioeconomic.¹

The operational definitions usually have involved deficiencies in rainfall when compared to historical averages (for example, 30 years), when underground water tables are determined to be below normal, or when river and lake levels have dropped below normal. In Florida, there was a rainfall deficit of 21 inches in each of the past three years. Last Spring, Florida was the driest state in the nation in terms of precipitation. In addition to Lake Okeechobee being several feet below normal, the Hillsborough River ran close to dry in Spring 2001. And from January to May 2001, there were 2,679 wildfires in the state burning 204,000 acres.²

The supply of water was not the only dimension of the problem; the demand for water in Florida has risen with the growing population. Florida’s population has climbed to 16 million people. Water consumption in the state rose 30 percent from

1970 to 1995 to about 7.2 billion gallons per day, and experts expected demand to rise to at least 9 billion gallons per day by 2020. Some experts have claimed that even without drought conditions, Florida faced a water crisis from the growing population, industrial, and agricultural demands.

Can industrial and population growth be sustained if water supplies are declining or in stasis? On this question, state legislators have faced the prospect of a population and economic growth “wall” caused by demand outstripping supply.

Indeed, more and more taxpaying Floridians are wondering why they should sacrifice on conservation measures, only to see state and local governments promoting economic development and higher levels of water consumption. The electorate needs assurance that there is some sort of rational supply and demand system. An efficient central coordinating and distribution system is needed and it is not clear that the state, as a governing system, can perform that role. Market mechanisms are preferable, but the problem of economical, efficiently distributed water is more complex than a structural solution can fix. The state must have an operating “theory of use.” The first principle of this theory of use is that water must be regarded a precious resource, that it has innate value; it is tradable as a commodity. We can and should invest in water for current and future uses.³ When water is sold at an average of .0008 cents per gallon, as it is by most municipalities, the idea that water is valuable is simply confounded, particularly in contrast to the sale of bottled water in grocery stores at 80 cents per pint. There can be no effective conservation, no rational supply or demand management system when the state is in control, because at give-away prices, governments are effectively devaluing the commodity. When people discover that water is valuable, they won’t throw it on their lawns, as the saying goes, “as if it were water.” Finding value in water means we require reliable trading and pricing mechanisms, and on this, open, unfettered, competitive markets will do the job.

III. Florida’s Regulatory Regime

The structure of Florida’s current regulatory regime over water management involves federal, state, district, and local governing bodies. Under the federal *Clean Water Act, 1969*, Congress sought to “restore and maintain the chemical, physical, and biological integrity of the nation’s waters.” Most of the thrust of this

legislation focused on pollution issues, but the general problem of water management was also addressed. Comparable state legislation, the *Florida Air and Water Pollution Control Act*, essentially adopted federal standards of testing and enforcement. The enforcement agency at the federal level is the Environmental Protection Agency established in 1970, and at the state level it is the Department of Environmental Protection (DEP) created in 1993—an amalgamation of the previous Department of Natural Resources and Department of Environmental Regulation. The DEP is subdivided into five geographical districts. In 1999, the DEP controlled a budget of \$1.6 billion and employed 4,100 persons.

In 1972, the *Florida Water Resources Act* authorized the creation of five water management districts (WMDs), and these districts were mandated to supervise four functional areas: water supplies, water quality, flood protection, and the natural ecology. In all districts but the Northwest, the WMDs were designed to be powerful water management agencies: they were granted special taxing powers (based on ad valorem taxes,) which could not be altered by the adjacent local governments they taxed and served. This institutional autonomy and independent taxing authority, combined with their mostly science-based recommendations on water management, made the districts the target of local politicians who typically demanded relaxed water quality and conservation standards, and who wanted more local infrastructure money. And so the water management districts were born into an atmosphere of political conflict.

IV. Southwest Florida

The Tampa Bay region stands out as the epicenter of conflict on water issues in the state. Politicians and water managers in this region have faced enormous difficulties on the water management front. Most of this conflict arose as a consequence of the rules incorporated into the structure of the West Coast Regional Water Supply Authority. The Authority was comprised of Pinellas, Pasco, and Hillsborough counties and municipalities within these jurisdictions. The three counties and municipalities had assembled the Authority in 1974 in order to coordinate their activities on water supply, including the collection and distribution of water to regional customers. The Authority was the region's government water wholesaler, the primary (but not the exclusive) source for water collection and distribution. The problem with this arrangement was the municipalities held mul-

tiple bilateral water contracts with the Authority; thus, water prices varied from municipality to municipality. In addition, the large municipalities each controlled a “pocket veto,” which meant they could scuttle the funding of water projects at will and, of course, that is what happened. As a result, from 1989 to 1998, the Authority developed only 8 million gallons per day of additional fresh water supplies in a region requiring up to 176 million gallons per day. By 1998, the population of the region had reached more than 2 million.

Water managers struggled to reorganize the Water Supply Authority from 1996 to 1998. While population pressures and an inequitable water management system were the underlying causes of this reorganization, the now infamous “water wars” precipitated the final push. The water wars were the result of years of overpumping groundwater supplies in Pasco County and distributing the bounty to Hillsborough and Pinellas counties. Over the course of a decade, water tables in Pasco were depleted, county lake levels sank lower, and local residents complained about foul-smelling water and wells drying up.

The Southwest Florida Water Management District (aka Swiftmud) had been concerned about overpumping for some time and decided in the mid-1990s to engage in legal action against the West Coast Authority, Hillsborough and Pinellas counties, and adjacent municipalities to enforce pumping cutback orders. Pasco joined Swiftmud’s legal action against its neighbors and the legal fight ensued. The temperature of the political discourse rose several degrees through accusations and personal attacks. In the middle of the melee in the spring of 1996, officials at the Authority started working on a reorganization plan. One of the major changes was the adoption of a uniform price rate for water. Two more years of legal and political disputes, and millions of dollars in legal fees finally brought some resolution when the Florida Legislature passed legislation to implement a new regional water authority, called Tampa Bay Water (TBW). In this new arrangement, the three counties and adjacent municipalities would effectively sign over their rights to drinking water supply sources to the regional authority, and TBW would distribute water at uniform wholesale rates to member jurisdictions. Having signed over their water rights, the municipalities also ended most intermunicipal lawsuits on water use.⁴

In the meantime, three other water issues emerged in the region: privatization, desalination, and lowering the pumping levels on regional wells.

On privatization, the basic idea was to sell the retail assets of municipal water distributors to private distributors, as private water companies had already achieved major successes in keeping water rates down.⁵ But the privatization discussion did not get anywhere and the idea was dropped.⁶

In 1997, the media and political leaders in the region started openly promoting the use of desalination plants. However, water managers downplayed this option given the high cost of the plants and the prospect of water pollution.

Then the issue of pumping capacity again came to the fore in late 1998. TBW still had to obtain permits for new water sources from Swiftmud. Buttressed by a state policy of “local sources first,” pressure remained on TBW to find alternatives to massive groundwater pumping.⁷ A Tampa Bay Water/Swiftmud water management plan called for the reduction of groundwater pumping from 158 million gallons per day (mgd) to 121 mgd by the end of 2002, and 90 mgd by the end of 2007. By 1999, this pressure increased as west central Florida faced another low precipitation year. The evident drought conditions prompted local officials and the media to refer to a “water crisis” in the region, and regional water managers issued emergency orders for water conservation.

Notwithstanding the alarms bells sounded by Swiftmud, local politicians were slow to come to the conclusion that the precipitation deficits were serious, and that conservation measures were required. The Hillsborough River was down to about 25 percent of its historical average in the Spring of 2000 and still the Tampa City Council squabbled about tightening restriction for lawn watering to less than once per week.⁸

Nonetheless, plans by TBW moved ahead including a decision to build a large reservoir in southeast Hillsborough County, “enough to supply 66 million gallons of drinking water per day.”⁹ In predictable fashion the professional NIMBY (“not-in-my-backyard”) folks launched protests with the county about possible breaches in the reservoir walls. It shortly became evident that community involvement in regional water projects would continue to be overrun with local activists intent on

blocking most water projects. This would become more evident as desalination projects emerged from the drawing boards.

Another project also considered included a reverse osmosis plant for the City of Clearwater (that is, pushing freshwater and brackish water through synthetic membranes to remove impurities such as salt and other compounds) which would produce 2 mgd. The plants would be required as Tampa Bay Water faced a Swiftmud-authorized cap on groundwater pumping by 2002.

In September 2000, the 2nd District Court of Appeal gave Swiftmud authority to supersede municipal resistance to water reclamation and the construction of desalination plants. Thus, by fall 2000, the first desalination plant for the Tampa Bay region entered the permitting stage of development. (Desalination technologies had undergone considerable change in the 1990s, like many energy and infrastructure technologies, and with technological development came reductions in prices.) DEP completed its approvals of the proposed plant in Hillsborough in December 2000, and construction was slated to begin in June 2001. But one month before construction was to begin, the Hillsborough County Commission and a community group called Save Our Bays and Canals (SOBAC) filed legal challenges against the proposed South Hillsborough desalination plant, claiming an environmental threat from the salinity of plant discharges. Lined up against the county and SOBAC were Pasco County, Tampa Bay Water, Swiftmud, local business associations, and area chambers of commerce. The water wars had returned. However, a month later, when the neighborhood politics got rationalized, the Hillsborough County Commission settled for a \$26 million insurance policy to cover any potential environmental damage and an \$8.5 million performance bond by the construction contractor.

By mid-June 2001, Tampa Bay Water finally agreed to the necessary water projects that would provide the transition through another decade. (See Figure 2.) These projects included:

- A second desalination plant (25 mgd) in Pasco or Pinellas counties near the Anclote River
- A 10 mgd well field on the Cone Ranch in northeast Hillsborough County

- A third desalination plant in Pinellas Park for brackish water at 5 mgd
- A 4 mgd well field in central Pasco County
- The reclaimed diversion of 3.5 mgd of groundwater for Crystal International in Plant City.¹⁰

The next round of hydro politics would soon begin again: Who would pick up the tab for these projects? Pasco County administrator John Gallagher predicted that household water costs could exceed electricity costs, with dire results for economic development. “At \$3 per 1000 gallons, we’d better get a heck of lot more people moving to the community who are affluent,” he opined at a county commission meeting.¹¹

V. South Florida

Water issues in South Florida have been nearly as contentious as the Tampa Bay region, and have come down to the management of two bodies of water, Lake Okeechobee and the Everglades. For good or ill, South Florida’s freshwater system was put into place just past the turn of the 20th century when engineers and entrepreneurs convinced the state legislature to allow them to build freshwater canals from Lake Okeechobee out to Palm Beach, Broward, and Dade counties. Fresh water was delivered in plentiful supply, but the waste was horrendous since the flow of canal water could never be fully controlled at the delivery point. Hundreds of millions of gallons flowed daily into the Atlantic Ocean and Florida Bay without any social or economic use. In fact, during the current drought, water officials were forced to open the floodgates each day to allow the build-up from the canals to drain off. Failure to do so would cause flooding on adjacent lands. At about the same time that canals were built, plans were underway for construction of Tamiami Trail, which divided the Everglades in half and blocked the natural flow of water. Residential development on the Atlantic side also consumed large tracts of the Glades natural territory—the Glades now being less than half its historic size. Moreover, effluent from federally subsidized sugar cane fields also contributed to the steady decline of this water system.

While the Everglades have captured considerable media attention as a site for environmental preservation, even more importantly it has been a crucial source of fresh water for the southeast metropolitan area. Indeed it was in this latter context that Governor Bush took the lead to restore this unique water system. A joint federal-state effort for a 10-year, \$7.8 billion plan to reclaim the River of Grass was finally put into place at the turn of the 21st century.

The three-year drought, which caused so much difficulty in the rest of the state, was most severely felt in south central Florida. From January 2 to July 2, 2001, precipitation was down to 77 percent of historical averages, a decline of 5.02 inches district wide.

To make matters worse, water managers at the South Florida Water Management District decided to lower Lake Okeechobee by one foot in Spring 2000. When the expected summer rains did not materialize, the district was left with even more depleted water resources. Water managers then resorted to a controversial “back-pumping” technique that would pump storm water run-off back into the lake. This water would have been contaminated by chemicals in the surrounding fields, and so the quality of the water became an issue.

In addition, district water managers did not craft a public relations program that effectively enticed regional residents to pitch in with conservations measures. In January 2001, 20 percent and 30 percent residential water reduction targets were established, but a tepid television ad campaign and an intransigent public left real reductions at 7 percent for Miami-Dade, 17 percent for Broward, and 12 percent for the district as a whole by May 2001.

For his sin of association and for apparent foot-dragging on Bush’s Everglades Restoration plan, SFWMD Executive Director Frank Finch was targeted for removal in June 2001.¹² While Bush appointed all the members of the SFWMD’s board of directors, he and his secretary had no authority to remove the executive director; that is, officially. However, DEP Secretary David Struhs mobilized the board and within days the executive director was removed and a handpicked successor from the St. Johns WMD was hired.¹³ Unlike the previous director, a Washington transplant, the new director came directly out of Florida’s old-boy network, a law graduate of Florida State University and former general counsel to

the state Department of Natural Resources in the early 1980s. But in a maneuver not the even the governor's office could have orchestrated, the SFWMD board also got rid of its chairman. The political bloodletting apparently could not be cauterized, even by the DEP secretary and the governor.

VI. Central Florida

In Central Florida, the drought picture was comparable to South Florida, but public reaction and the politics were considerably different. In general across Florida, the average person consumes 130 gallons/day, and with households averaging 2.7 persons, consumption soon adds up. Water managers typically estimate that the average family can reduce its water consumption by 60-80 gallons per day with some deliberate action. The Ocala Star Banner in June 2001 reported that citizens in the district exceeded the residential water restrictions, having reduced their consumption by 15 percent. From May 2000 to May 2001, Ocala residents reduced residential water consumption by 3 mgd from 19.6 mgd to 16.6 mgd—a very considerably different pattern than Miami-Dade.¹⁴

On the government side, Marion County and the City of Ocala in June 2001 were negotiating an agreement—without much political fireworks—on a regional water utility to accommodate growth in the area. This quiet diplomacy over power sharing for the development of an important water facility stood in marked contrast to the political conflict in the Tampa Bay region and South Florida.¹⁵

VII. Northwest Florida

For outright political inertia and intransigence on water issues, no region of the state can beat Northwest Florida. Pensacola is the water pollution capital of Florida. More toxic pollution is dumped into the water, air, and soil of the city and the surrounding Escambia and Santa Rosa counties than any other region of Florida. Indeed Escambia County “ranks 18th out of more than 3,300 counties nationwide for the amount of toxic releases reported to the federal Environmental Protection Agency in 1999.”¹⁶ “More than 52 million pounds of toxins [per year] are discharged into the air, water, and underground in Escambia County...”¹⁷ The situation is so bad that in May 2001, local health and medical experts started to refer to a “health crisis” in the region. Dr. Michael Rappa, an occupational and

health expert, told a symposium of more than 100 local physicians, “We may be encountering an epidemic in environmental disease in the years to come if we don’t start taking some corrective action.”¹⁸ In response to the call for action, U.S. Florida Senator Bill Nelson promised more studies, as did former U.S. Florida Representative Joe Scarborough. But even the physicians know that more studies are not the answer. Indeed, the answer to the county’s water pollution problems was well known, and mainly attributable to local sewage treatment plants—if “sewage treatment” is the correct term—and effluent from local industrial sites.

The region’s pollution problems came to the public’s and the state’s attention in August 1998 when State Attorney Curtis Golden requested the empanelment of a special grand jury to investigate air and water quality in Escambia County. In June 1999 the grand jury reported its findings, and apart from the firestorm of criticism it received from business and local political interests, the reality of Escambia’s cesspool startled the electorate, state, and federal officials into action.

The grand jury found:

...Pollution has impaired surface waters, destroyed fish and wildlife habitat, and reduced the number and diversity of aquatic species; pollution has contaminated the groundwater and many of our public and private wells, which are used for drinking, irrigation, and other needs.... These circumstances threaten the overall health, safety, and welfare of the citizens of the community and the natural resources essential to a good quality of life.¹⁹

The grand jury further found that:

Regulators in general, and the Department of Environment Protection, in particular, who (sic) are responsible for protecting, maintaining, and improving the environment did not do so. ... Instead of acting to protect, maintain, and improve the environment, regulators have done more studies, duplicating previous work. They have substituted studies for action, because studies are less costly, and less controversial, than acting to improve or restore the environment. We find that the Northwest District of the Department of Environmental Protection failed to properly implement and enforce the environmental laws, rules, and regulations. The district office succumbed to political, economic, and other pressures, allowing regulated businesses, industries, and individuals to pollute the area’s air and water. The district director, and others acting on his

behalf, ignored and concealed environmental violations against the sound advice of staff employees. . . . In several instances, he, and/or others acting on his behalf, disciplined or threatened to discipline DEP employees who tried to implement and enforce environmental laws.²⁰

The grand jury attributed most surface water pollution to industrial wastewater, coming from a pulp and paper mill, chemical plants, municipal sewage treatment plants, and leachate from septic tanks (16,000 of the more than 65,000 individual septic tanks in the region are suspected of leaching septage into the bays, bayous, and their tributaries). Municipal waste treatment plants cited were discovered to be discharging effluent directly into surface waters of the area—although this is contrary to Florida law. State environmental legislation required at least secondary treatment of municipal sewage, and when necessary “advanced treatment.” DEP apparently had never pushed any municipal sewage treatment plant to engage in advanced treatment.

Pensacola state Senator W. D. Childers pushed through a bill requiring water testing of waters adjacent to beaches around Florida. New restrictions were placed on International Paper’s Cantonment paper mill, and new regulations were produced to contain effluent flowing from municipal treatment plants. But not all the pollution sources were addressed in the first year. DEP still allowed millions of gallons of industrial effluent to wash into streams, rivers, and bays in the two-county area. By 2001, progress on the grand jury’s recommendations seemed to be slowing down. However, a Pensacola lawyer kept the pot boiling in a kind of one-man campaign. In the last two years, Mike Papantonio spent about \$100,000 of his own money sponsoring television advertising to prompt more environment action, and in March 2001 he launched a \$500 million tort action against Conoco and Agrico Chemical Co. to pay for a cleanup of a toxic plume from the old Agrico fertilizer plant that had contaminated Bayou Taxar.²¹

VII. Summary

The policy politics of water management in the state over the last several years has been contentious and “driven”—if this is the correct term—by indecision and procrastination. If there is a common theme, it is the perception by elected officials that water issues are amenable to short-term fixes. To some extent this resort

to the short-term policy fix is emblematic of state legislative politics. But, it is evident that local control is no panacea. When the stakes are high, infrastructure politics can be as conflict-ridden as any other kind of politics, and it remains difficult to get local politicians “off the dime” and “into the game.” It is not clear that just NIMBY politics is to blame for this recalcitrance. Local politics always seems to get distracted by the politics of personality and personal fiefdoms. Florida is no more captured by this problem than any other state. And yet, more timely responses and more serious attention to water management by elected officials is obviously desirable. This will require some significant reconsideration of market mechanisms to coordinate the timely and economical distribution of water. It is not evident that the command-and-control model of state regional organization has worked effectively. But perhaps more importantly, considerable reassessment is needed over the value of water.

I am arguing that fresh, clean water begs for higher valuations, marketability, and efficient distribution. We need to place water in the category of a valuable commodity, and thus prevent water even in its natural setting from being wasted and degraded by nonowners. From a market perspective, it cannot remain acceptable that fresh, clean water is used to sustain green lawns in the suburbs, or given away to golf course owners at ridiculously low prices by local municipalities. If people want green lawns, then let them pay for the privilege. But this preference ought not to be subsidized by taxpayers. In addition, if large commercial consumers and recreational lands owners want to consume vast quantities of water for their personal use, it ought to be sold to them at appropriate prices. If the consequence of this policy is high green fees for golfing or more expensive agricultural productivity, then so be it. Let chemical and pulp and paper plants prosper, but also let us be certain that the cost of production includes paying market prices for the water used and paying for the ameliorative technology proven necessary to clean any dirty water coming from production processes. Society, the marketplace, and individuals cannot be expected to pay for this cost of production. Indeed, it is entirely unacceptable for the state to trade off these costs of production for the prospect of employment gains, which is the usual shibboleth used by state economic developers to rationalize the public costs of pollution.

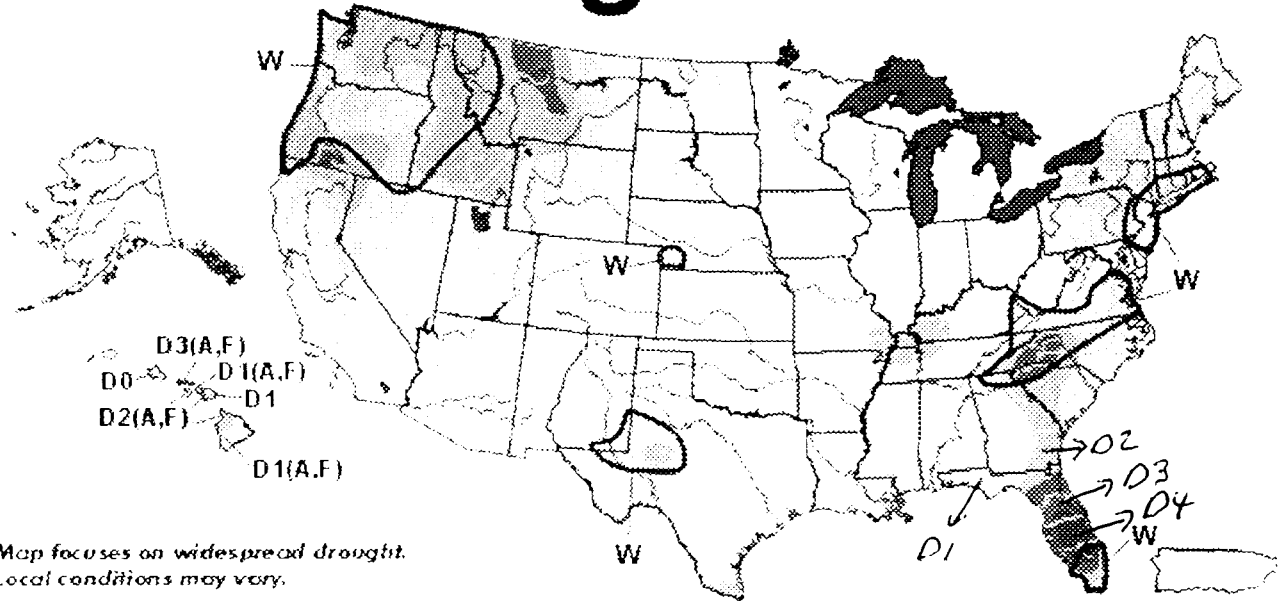
Endnotes

- ¹ Cf. the website at the National Drought Mitigation Center at the University of Nebraska at Lincoln. <http://enso.unl.edu/ndmc/enigma/def2.htm>.
- ² See *Sarasota Herald-Tribune*, Apr. 23, May 1, 22, 2001.
- ³ See Anthony Scott, *Natural Resources: The Economics of Conservation*, Toronto: McClelland and Stewart, Ltd., 1973. (originally University of Toronto Press, 1955).
- ⁴ See www.tampabaywater.org.
- ⁵ Michael Buettner, "As Rates Rise, Water Utility Privatization Debate Surges," *The Business Journal of Tampa Bay*, Oct. 28, 1996.
- ⁶ "Privatize Water, Sewage Service," *The Business Journal of Tampa Bay*, Oct. 28, 1996.
- ⁷ Section 373.223(3) (a-g) *Florida Statutes*.
- ⁸ "Tampa's Water Crisis Getting Worse," *St. Petersburg Times*, May 12, 2000.
- ⁹ "Reservoir Stalled by Sense of Distrust," *St. Petersburg Times*, Sept. 25, 2000.
- ¹⁰ "Water Board Okays Second Desal Plant," *St. Petersburg Times*, June 12, 2001.
- ¹¹ "County: Water Prices to Surge," *St. Petersburg Times*, June 9, 2001.
- ¹² "Top Water Managers Are Ousted," *Miami Herald*, June 14, 2001.
- ¹³ "Water District to Discuss Firing Executive Director," *Miami Herald*, June 12, 2001.
- ¹⁴ "Consumers Have Limited Water Usage," *Ocala Star Banner*, June 8, 2001.
- ¹⁵ "City, County Debate Regional Plant," *Ocala Star Banner*, June 12, 2001.
- ¹⁶ "Escambia Toxic Releases Jump 26%," *Pensacola News Journal*, Apr. 12, 2001.
- ¹⁷ "Pollution Hides Health Crisis, Doctors Warn," *Pensacola News Journal*, May 12, 2001.
- ¹⁸ Ibid.
- ¹⁹ Report of the Special Grand Jury on Air and Water Quality, in the Circuit Court of the First Judicial Circuit in and for Escambia County, Florida to the Honorable Judges of the Court, June 1999.
- ²⁰ Ibid.
- ²¹ "Papantonio files Conoco Lawsuit," *Pensacola News Journal*, Mar. 24, 2001.

Figure 1. U. S. Drought Monitor Map, May 29, 2001

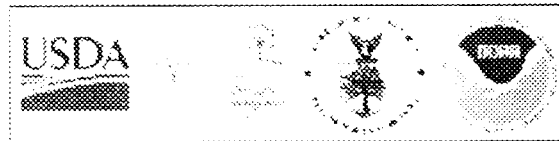
May 29, 2001 Valid 8 a.m. EDT

U.S. Drought Monitor



Map focuses on widespread drought. Local conditions may vary.

- | | |
|------------------------------|------------------------------|
| D0 Abnormally Dry | Drought Impact Types: |
| D1 Drought-Moderate | A = Agriculture |
| D2 Drought-Severe | W = Water (Hydrological) |
| D3 Drought-Extreme | F = Fire danger (Wildfires) |
| D4 Drought-Exceptional | (No type = All 3 impacts) |
| Delineates Overlapping Areas | |



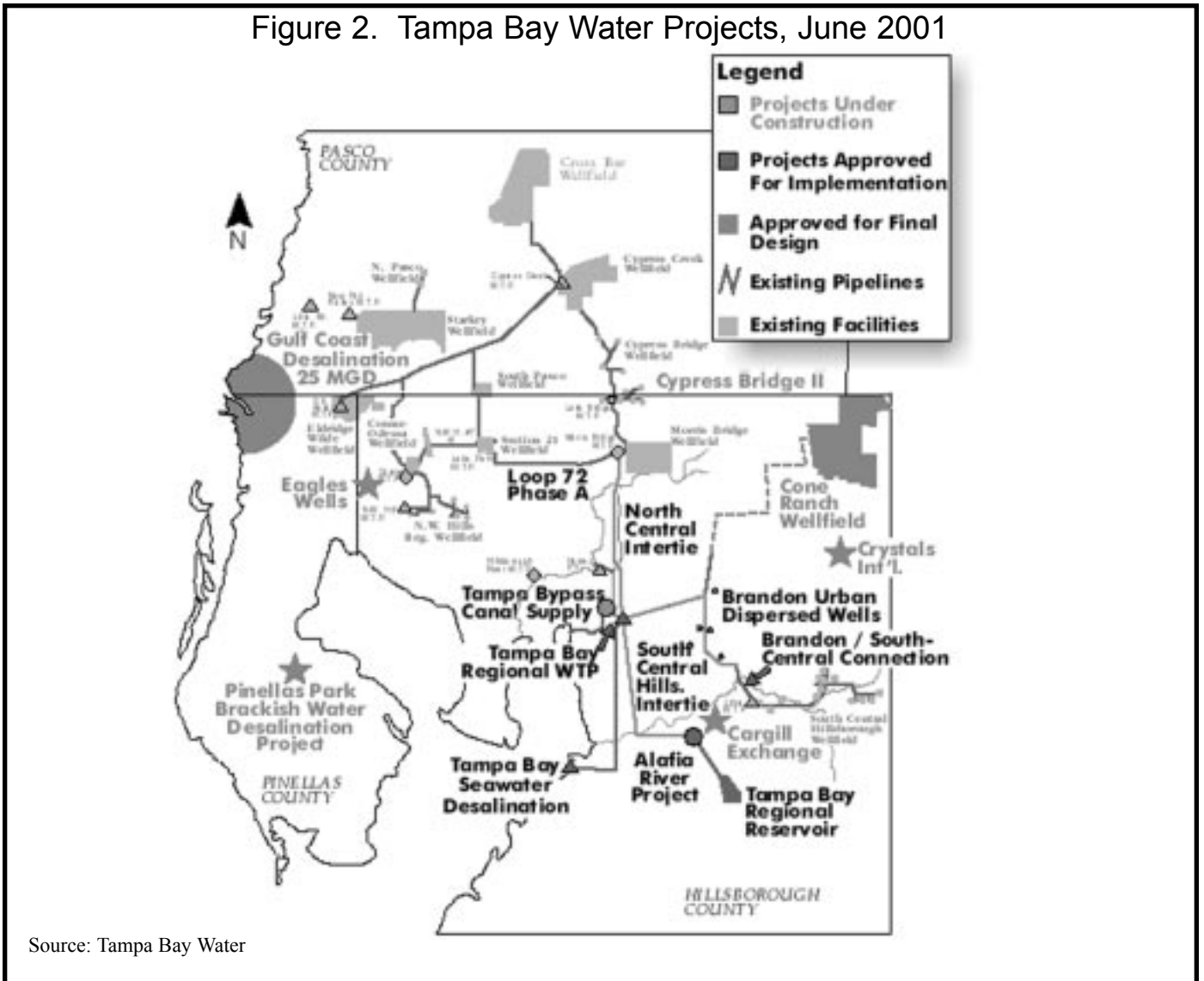
See accompanying text's summary for forecast statements
<http://ers.usda.edu/monitor/monitor.html>

• Released Thursday, May 31, 2001 •

Author: Karin Gleason, Scott Stephens

Source: National Drought Mitigation Center

Figure 2. Tampa Bay Water Projects, June 2001



Source: Tampa Bay Water