
Water-Use Fees: An Underutilized Tool For Enhancing Water Conservation in the Sunshine State

A White Paper for the Florida Springs Institute

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Executive Summary

Use fees are charged to users in exchange for access to a product or service. In Florida, for example, use fees are imposed on individuals engaged in phosphate and limerock mining, where those individuals pay fees for the privilege of accessing those resources. This white paper explores the possibility of expanding the precedent of the use fee structure already in place in Florida beyond mining of minerals to include fees for the use of ground water. Water-use fees could provide a powerful signal to large water users to eliminate unnecessary or marginal water consumption, which would enhance water conservation in a State facing widespread water shortages.

Introduction

Water is essential to life. Many in the Western world consider it ever abundant and don't see water shortages, droughts, or water wars as something they would ever experience in their lifetimes. This is especially true in Florida, where there is rain a-plenty, and where beaches, lakes, and springs are at the disposal of nearly everyone in the State. However, this precious resource is not, and will not always be, ever abundant and free-flowing.

Benjamin Franklin once said, "When the well is dry, we know the worth of water." States have had to face this reality. California experienced a drought from 2011 to 2015 so severe that it caused the Sierra Nevada Mountain Range to lose 11.9 trillion gallons of water and grow taller as a result.¹ The drought also meant that cities and farmers were ordered to make major cuts to the amount of water they used. A water conservation order was put in place in an effort to

¹ NASA, *Sierras Lost Water Weight, Grew Taller During Drought*, <https://www.nasa.gov/feature/jpl/sierras-lost-water-weight-grew-taller-during-drought>

prevent a reality that materialized in Colorado, where water pumps stopped working completely for farmers in the San Luis Valley.

It would be prudent for Florida to aggressively examine avenues to enhance water conservation, so that the state can ensure that its most precious resource is available for generations to come. A number of recent trends and events highlight the fragility of Florida's future water availability. Many drinking water wells along both coasts have had to be moved in recent years because of salt-water intrusion. The Central Florida Water Initiative and the Tampa Water Wars both point to large geographic areas which are or will be unable to supply sufficient water for both the human population and the environment. Recovery plans mandated under a number of the State's Minimum Flows and Levels (MFL) program point to the same lack of sufficient water today. Other areas in the state, called "Water Use Caution Areas," have been flagged as requiring action necessary to address declines in aquifer levels due primarily to groundwater withdrawals.² In some areas, drawdowns in aquifer levels exceed 50 feet. And the problem is not abating; ongoing population growth in the State will further strain the State's water supplies.

This white paper describes some mechanisms, particularly water-use fees, which have been implemented around the country to enhance water conservation, and examines the concept of water-use fees as a policy tool for enhancing water conservation in Florida.

Overview of Relevant Law

² Southwest Florida Water Management District, *Southern Water Use Caution Area*, <https://www.swfwmd.state.fl.us/projects/swuca/>

Traditionally, states have assumed primary responsibility for allocating the water resources within their borders among competing users.³ Although each state has developed its own body of water law, the common law systems of water allocation have been grouped into two broad doctrines: riparianism and prior appropriation.⁴

Riparianism is the oldest system of water law in the United States, adapted from English law and applied in the humid states of the East. *Id.* Under this doctrine, the right to use water is tied to the ownership of riparian land, or property that abuts a natural watercourse. *Id.* The western prior appropriation doctrine manifests differently from state to state, but several basic distinctions from riparianism are common. *Id.* The right to water in the West is premised on use and is not dependent on the ownership of a property abutting a watercourse. The western user can acquire a right by satisfying three traditional requirements: 1) demonstrating intent to appropriate water and providing notice thereof; 2) making a diversion of water from a natural source; and 3) applying the water to a beneficial use without waste. *Id.*

Some eastern states have modified or replaced traditional common law riparianism with administrative permit systems. *Id.* Noteworthy departures from the common law include the requirement that water users obtain a permit from the state prior to making any diversions or withdrawals. *Id.* Florida adopted such an administrative permit system in 1972 with the passing of a state “water law.”

Florida’s Water Resources Act, Chapter 373, Florida Statutes, has been described as “one of the primary models for the regulated riparian system in the United States.” *Id.* The Act establishes five water



³ Klein Cheever Birdsong, *Natural Resource Law, A Place-Based Book of Problems and Cases.*

⁴ *Id.*

management districts (WMDs): The Northwest Florida Water Management District, the Suwannee River Water Management District, the St. John's River Water Management District, the Southwest Florida Water Management District, and the South Florida Water Management District. These WMDs are regulatory and planning agencies that serve the five major surface water hydrologic basins in the state, pictured on page 3.⁵ The WMDs address all of the water-related issues within their respective watersheds. This involves management of issues related to water quantity, and more specifically, the consumptive use of water. *Id.*

In order to effectively manage the water that flows within their jurisdictions, each WMD regulates the consumptive use of water, and in doing so, requires permits for most water uses. § 373.216, Fla. Stat. (2017). A consumptive use permit allows the permit holder to withdraw a specific amount of ground or surface water.⁶ The permit is issued for a fixed period of time and must be renewed prior to the expiration date in order for the permit holder to continue using water. *Id.* The vast majority of water permitted in Florida is groundwater, largely from the Floridan Aquifer.

For an applicant to obtain a permit, Florida Statutes provide that the applicant must establish that the proposed use of water: (1) is a "reasonable-beneficial" use; (2) will not interfere with any presently existing legal use of water; and (3) is consistent with the public interest. § 373.223, Fla. Stat. (2017). A "reasonable-beneficial use" is statutorily defined as a use of water in such quantity as is necessary for economic and efficient utilization for a purpose and in a manner which is both reasonable and consistent with the public interest. § 373.019(16), Fla. Stat.

⁵ Klein, Angelo, and Hamann, *Modernizing Water Law: The Example of Florida* (2009).

⁶ South Florida Water Management District, *Consumptive Water Use Permits*, <https://www.sfwmd.gov/doing-business-with-us/permits/water-use-permits>

(2017). In practice, such uses include public supply for drinking water, agricultural and nursery plant irrigation, golf course irrigation, commercial use, and mining activities.⁷

Fees for Consumptive Use Permits

In Florida, fees for individual permits vary based on project specifics, maximum monthly allocation, and the duration of the water use permit. In general, permits are only required for daily withdrawals exceeding 100,000 gallons; their cost is not large – generally a few thousand dollars.⁸ However, after a water use permit is obtained, the only cost to the permit holder for withdrawal of water is the cost for a pump, and for the electricity to extract the water from the source.⁹ This means that besides the initial cost of the permit, WMDs do not charge permit holders for the water they use or keep, whether it be ten thousand or ten million gallons of water a day. *Id.* This cost scheme differs greatly from the fee structures that are in place for the extraction of other resources in the state.

Precedent in Florida for Use Fee Structures

There is precedent for the State of Florida assessing user fees for the extraction of natural resources. The Florida Department of Revenue assesses on persons engaged in commercial phosphate rock mining an excise tax of \$1.61 per ton. § 211.3103, Fla. Stat. (2017). Likewise, persons mining limerock and sand within the Miami-Dade County Lake Belt Plan must pay a fee of 15 cents per ton extracted. § 373.41492, Fla. Stat. (2017). The limerock and sand extraction

⁷ South Florida Water Management District, *Consumptive Water Use Permits*, <https://www.sfwmd.gov/doing-business-with-us/permits/water-use-permits>

⁸ South Florida Water Management District, *Water Use Permitting Frequently Asked Questions and Answers*, available at https://www.sfwmd.gov/sites/default/files/documents/q_and_a_permit_water_use.pdf

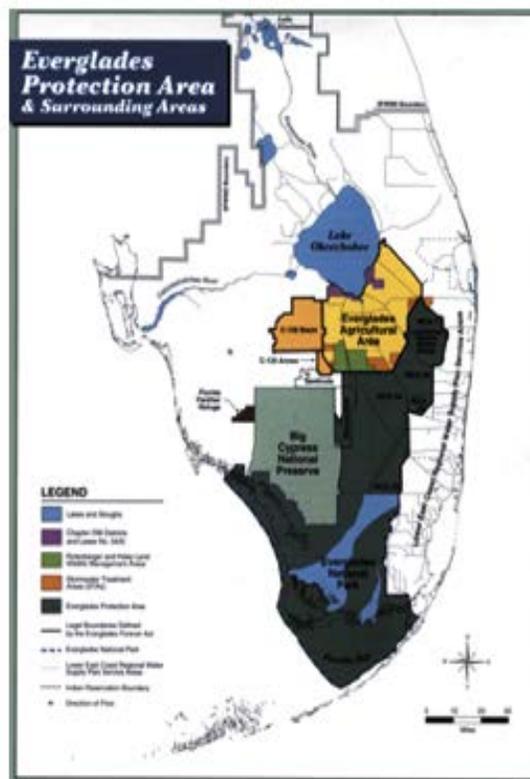
⁹ Swihart, *Florida's Water: A Fragile Resource in a Vulnerable State* (2001).

fees are used to provide for the mitigation of wetland resources lost to mining activities within the Miami-Dade County Lake Belt Plan. *Id.*

Use Fees to Achieve Conservation in Florida

Apart from the purpose of raising funds, use fees have also been implemented in Florida for the purpose of achieving conservation. In an effort to limit phosphate pollution, the Everglades Forever Act imposes an annual tax on agriculture in the Everglades Agricultural Area and the C-139 basin in South Florida (pictured right).

§ 373.4592, Fla. Stat. (2017). This “agricultural privilege tax” is imposed “for the privilege of conducting an agricultural trade or business.” While the phosphorous use fee in the Everglades Agricultural Area is termed a “tax,” it is important for legal purposes to establish that it is not actually a tax, but a fee. Fees are collected for a service, not for public or governmental purposes as a tax is.¹⁰ This is an important distinction as taxes might be challenged as unconstitutional.



Source: <https://sofia.usgs.gov/sfrs/plw/sffuture.html>

Efficacy of Use Fees

In economics, price and quantity are usually inversely related – that is, as the price of a commodity increases, demand for or use of that commodity decreases. It follows that one way to

¹⁰ Internal Revenue Service, *Memorandum from Deborah A. Butler* (2000).

achieve a decrease in the use of a commodity is to increase that commodity's cost. This is seen with the agricultural privilege tax, where a use fee provides a signal to farmers in the Everglades Agricultural Basin to reduce phosphate use.¹¹ The agricultural privilege tax works the same way that a fee for the use of water could work in providing a price signal that would encourage a reduction of water consumption. *Id.* The agricultural privilege tax therefore illustrates how charging a price for use can achieve conservation.

A water use fee in Florida could be imposed by a WMD in one of two ways – as a fee assessed annually based on the amount of water permitted or as a fee charged, on a per-gallon basis, for the amount of water the permit holder actually used.

Currently, the only cost for permitted water withdrawal in Florida is the cost for a pump and for the electricity to take the water from the source. *Id.* Cost-free water encourages over pumping and overconsumption. However, when users pay for the privilege of consuming a commodity, they would likely use less, as is seen with phosphate use and the agricultural privilege tax. Use fees can have real effects on conservation in health care as well. For example, use fees assessed on veterinary drug users are very effective in reducing consumption of veterinary antimicrobials.¹²

Colorado farmers provide a real-world example of use fees reducing water consumption. In the summer of 2000, over-pumping led to a severe drought in the San Luis Valley. Water pumps in the Valley ran dry,¹³ and farmers in the area soon recognized the necessity of

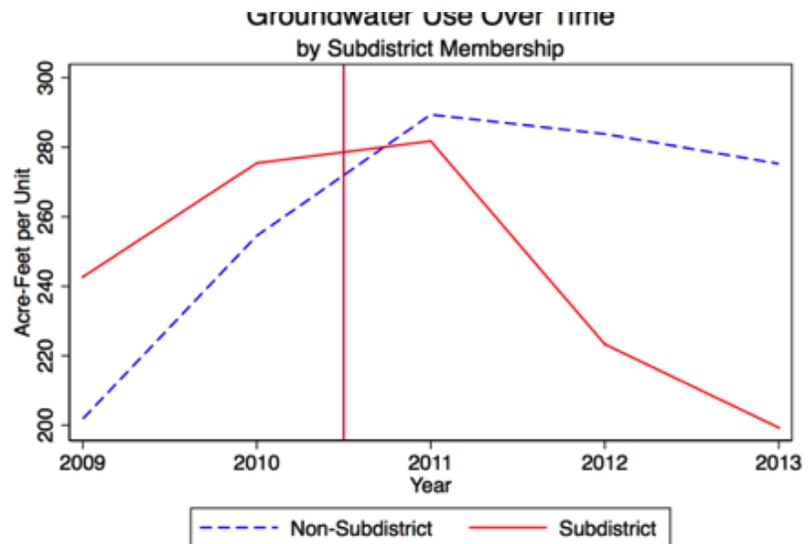
¹¹ Swihart, *Florida's Water: A Fragile Resource in a Vulnerable State* (2001).

¹² Science Mag, *Reducing antimicrobial use in food animals*, <http://science.sciencemag.org/content/357/6358/1350>

¹³ Harvest Public Media, *How These Colorado Farmers Banded Together to Save Their Water Supply*, <http://harvestpublicmedia.org/post/how-these-colorado-farmers-banded-together-save-their-water-supply>

implementing effective water conservation techniques. Ultimately, the farmers voted to self-impose a water use fee of \$75 per acre foot. The fee led to a 33% reduction in groundwater use.¹⁴

The graphic pictured right shows the average groundwater extraction per unit by year measured in acre feet. *Id.* The data to the left of the vertical line represent observations prior to the introduction of the water use fee, while the data to the right of the vertical line show the reduction in groundwater use observed after the introduction of the fee.



Source: Responding to a Groundwater Crisis: The Effects of Self-Imposed Economic Incentives

Other Jurisdictions Imposing User Fees

Other states and regions besides the San Luis Valley have implemented water-use fee structures as well. And, like Colorado, these jurisdictions have robust farming communities which have survived and even thrived despite the imposition of conservation-oriented water-use fees. Examining the lead that other jurisdictions have taken provides useful information on what water-conservation strategies might work in Florida.

Arizona

The Arizona Groundwater Management Code requires users to pay an annual groundwater withdrawal fee.¹⁵ The fee is used to offset the cost of managing the resource. *Id.*

¹⁴ *Journal of the Association of Environmental and Resource Economists, Responding to a Groundwater Crisis: The Effects of Self-Imposed Economic Incentives* (2017).

Arizona law provides that this fee varies depending on which active management area is considered. Active management areas are locations where groundwater has been heavily withdrawn. For example, in the Phoenix active management area, an amount of at least \$0.50 but not more than \$1.00 per acre-foot per year is assessed. Ariz. Rev. Stat. Ann. § 45-611.

California

The California state legislature passed amendments to the Water Code in 2003 that require the State Water Resources Control Board to collect user fees. The Water Code amendments require the Board to adopt a schedule of *annual* fees to be paid by each state permit and license holder. The amendments provide that the Water Board shall set the schedule of fees so that the total amount of fees collected equals the amount necessary to recover costs of administering the water rights program. Cal. Water Code § 1525 (West). The Water Board's fee schedule assesses annual fees based on usage, where the charge for a permit and license is \$150 plus \$0.069 per each acre-foot greater than 10 acre-feet.¹⁶

Kansas

The Kansas Division of Water Resources through the Department of Agriculture issues permits for surface and groundwater withdrawals under the Water Appropriation Act. In order to obtain a permit to appropriate water to a beneficial use, a permit holder must pay a fee based on the amount of water to be used. Fees for 0-100 acre-feet are \$200.00, for 101-320 acre-feet the fee is \$300.00, and for more than 320 acre-feet the fee is \$300.00 plus \$20.00 for each additional 100 acre-feet or any part thereof. Kan. Stat. Ann. § 82a-708a (West). An additional water protection fee is imposed at a rate of \$0.03 per 1,000 gallons of water sold at retail by a public

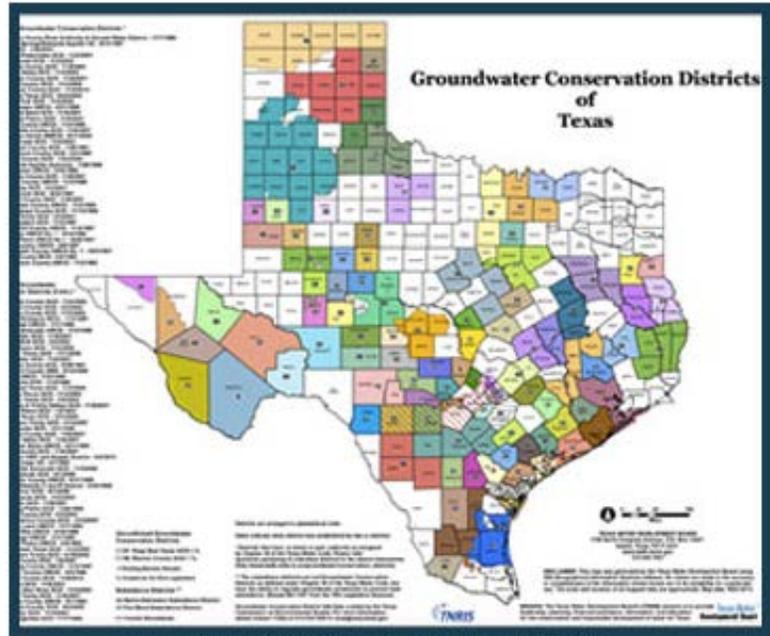
¹⁵ Arizona Department of Water Resources, *Overview of the Arizona Groundwater Management Code*, http://www.azwater.gov/AzDWR/WaterManagement/documents/Groundwater_Code.pdf

¹⁶ California Environmental Protection Agency State Water Resources Control Board, *Fiscal Year 2017-18 Fee Schedule Summary*, https://www.waterboards.ca.gov/waterrights/water_issues/programs/fees/docs/fy1718_finalfeeschedulesummary.pdf

water supply system, appropriated for industrial use, and appropriated for stock watering. Kan. Stat. Ann. § 82a-954 (West).

Texas

The Texas Water Development Board assists the 98 groundwater conservation districts in the state (pictured right) with management of their groundwater resources. The groundwater conservation districts have the authority to set fees. A district may assess production fees based on



Source: <https://cbgcd.com/education-info/>

the amount of water authorized by permit to be withdrawn from a well or the amount actually withdrawn. TX WATER § 36.205 (West). Production fees shall not exceed \$1 per acre-foot payable annually for agricultural water use or \$10 per acre-foot payable annually for water used for any other purpose. *Id.*

Vermont

All public water systems in Vermont are subject to construction permit application fees, source permit application fees, and annual operating fees.¹⁷ The fee schedules differ depending on the type of facility to be charged. The Department of Environmental Conservation charges community drinking water suppliers \$0.50 per 1,000 gallons of water produced annually. *Id.* The

¹⁷ Vermont Agency of Natural Resources Department of Environmental Conservation, *Fees*, <http://dec.vermont.gov/water/forms/fees>

Department charges bottled water facilities differently, assessing a cost of \$1,390 to be paid annually per permitted facility. *Id.*

Implementing a Water Use Fee in Florida

Implementation of a water use fee necessarily involves consideration of how to organize implementation to ensure success. The successful water use fee proposal in the San Luis Valley, Colorado demonstrates that water users themselves may achieve effective water conservation through self-organization, rather than through a top-down State-mandated mechanism.

Instances of failed water use fee implementation can also provide insight on how to structure such a proposal in Florida. In China, efforts to conserve irrigation water through a use fee were unsuccessful.¹⁸ Subsequent study showed that institutional capacity to monitor and enforce the fee was lacking. *Id.* A study which examined a pumping tax in the Netherlands did not find any meaningful increase in conservation attributable to the pumping tax. *Id.* However, farmers had used political power to exempt themselves from the tax. *Id.* From these examples of failure, it is clear that in order for a water use fee proposal to successfully achieve conservation, there must be monitoring and enforcement, and there must be a way to ensure that the largest users are not exempt from the fee. In Florida, domestic supply and agriculture dominate groundwater withdrawals, so it is important that both of these sectors participate fully in any user-fee program.

In 1989, the Governor's Water Resource Commission submitted a final report to Florida Governor Bob Martinez. The report advocated the implementation of a water use fee, stating "collect a fee from all users based on water used. Credits shall be given for aquifer recharge, use

¹⁸ Journal of the Association of Environmental and Resource Economists, *Responding to a Groundwater Crisis: The Effects of Self-Imposed Economic Incentives* (2017).

of reclaimed water, reverse osmosis, desalination, or other alternative technologies.”¹⁹ The report also called for the funds to “be accrued in a Water Resource Trust Fund” to be used for alternative sources development within critical water supply problem areas, resource protection activities, water quality testing, infrastructure improvement, and planning studies.

A 1991 study by Chase Securities, Inc. analyzed the potential to implement the Water Resource Commission’s recommendation to assess a fee on all water use and to use fee revenues to finance the Water Resources Trust Fund. The study found that a fee on public water supply and on the agricultural and industrial sectors was feasible and would lead to minimal adverse economic effects.²⁰ The study projected revenues from a fee of 10 cents per 1000 gallons could range between \$120.1 million and \$127.5 million per year, on average. The Chase Securities study is 27 years old. Considering the positive impacts on water conservation and the potential for revenue generation along with the age of existing data, the need for an updated report on water use fees is apparent.

An updated report on water use fees could re-assess the parameters covered by the Chase Securities study, such the potential for economic impacts to the agricultural and industrial sectors. The report may also explore additional parameters, such as alternative fee structures (e.g. universal pricing, tiered pricing, and regional pricing), systems for accurately monitoring consumption, enforcement for over-consumption, collection of fees from private residential water wells, potential negative impacts on economically sensitive communities, and “opt-in” fee systems like San Luis Valley, Colorado.

¹⁹ Governor’s Water Resource Commission. *Final Report Submitted to Governor Bob Martinez December 1, 1989*. Available at <http://ufdc.ufl.edu/WL00004996/00001/1>.

²⁰ Chase Securities, *Capitalizing a Water Resources Trust Fund with Water Use Fee Revenues: Feasibility and Effects* (1991).

Conclusion and Recommendations

The San Luis Valley example of a successful water use fee is promising, but it's only one data point demonstrating the efficacy of water use fees in achieving conservation. Intuitively, water use fees would seem to be an effective tool for water conservation, but the fact is that few comprehensive studies have examined or conclusively demonstrated their efficiency in achieving water conservation goals. A pilot water-use fee program in Florida could provide valuable information on this topic.

We recommend that the Florida legislature appropriate funds for both a water-use fee study and a pilot study. The pilot program should implement a water-use fee in a specific area or areas where groundwater is heavily withdrawn, similar to the implementation of water use fees in active management areas in Arizona. For example, the State could consider such fees in Priority Focus Areas of specific Florida springsheds where an MFL recovery plan is in effect. Area-specific programs are not new to Florida. Precedent exists with the Agricultural Privilege Tax in the Everglades Agricultural Area and the C-139 basin in South Florida.

By signaling permit holders to use water more efficiently, a water use fee would be a solid step toward effective water resource management in Florida. Pricing water to reflect its important value will help to achieve the critical conservation needed for this precious resource.