BACKGROUNDER

Tapping Water Markets in Florida

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Executive Summary

With a finite supply of water and a booming population, conflicts over water in the Sunshine State have become more regular, more intense, and more costly in recent years. Water markets, which allow competing users to trade water voluntarily, offer Florida the best hope of aligning economic growth, water conservation, and ecosystem health.

This study explains how water markets can help resolve Florida's most pressing water issues. It also describes several policy reforms Florida's lawmakers and regulators should consider if they hope to tap water markets in the future. Fortunately, Florida law already embraces several elements needed to foster water marketing. With relatively minor policy modifications—not overhauls—Florida can harness property rights and markets to make the most of its water resources.

Perceived Abundance, Genuine Scarcity

An old saying holds that Florida is never more than two hours away from a flood or two weeks away from a drought. This tension between abundance and scarcity presents unique challenges for Floridians to develop and implement an effective water management strategy for the future.

The apparent abundance of water in the state (it is available and cheap in most places), most of the time—masks the risks posed by acute water scarcity and the corresponding need for targeted water policy reform.

With more than 1,700 streams and rivers, 7,800 freshwater lakes, 700 springs, and 11 million acres of wetlands, it is fair to say the Sunshine State is rich in water resources.[1] However, that water is not always in the location and condition needed to satisfy the demands of Florida's nearly 23 million residents and 138 million annual visitors. Case in point: 80 percent of the state's freshwater supply is north of Interstate 4, while 80 percent of the state's population lives south of it.[2]

Floridians use approximately seven billion gallons of freshwater every day.[3] As one of the fastest-growing states in the country, the demands on Florida's freshwater resources are increasing rapidly. Indeed, between 2020 and 2040, the state's population is projected to grow by 23 percent (4.8 million people) to 26.4 million, while water demands are expected to grow by 13 percent to 7,302 million gallons per day.[4]

Florida has made great strides in water conservation, reclamation, and reuse. For instance, in 2021 the state reused approximately 908 million gallons of reclaimed water every day.[5] Additionally, graduated rate structures and water conservation measures have steadily reduced per capita water use since the 1980s.[6] However, there are limits to how much additional conservation public utilities can muster. While conservation and reclamation efforts will continue to reduce per capita consumption rates, the state's rapid population growth, estimated at more than 1,200 new residents per day, will continue to pressure Florida's water resources.

Related to water quantity, and just as important, is the issue of water quality. Of the more than 2.5 billion gallons of water devoted to municipal use each day in Florida, 85 percent originates from one of two sources – the Floridan Aquifer and the Biscayne Aquifer. These aquifers, which are vast underground rock formations, are vulnerable to surface contamination and saltwater intrusion.

Treating these sources for surface contaminants or salt water drastically increases the cost of their supply. Several of Florida's rivers, streams, and estuaries are similarly threatened by contaminants that reduce their quality and increase treatment costs. Articles from around the state featuring headlines such as "Florida's Vanishing Springs," "Keeping Florida's Waters Protected," and "Florida's Water Woes Seen as Urgent" underscore the critical need to address long-term water quality.

Water markets are Florida's best hope for addressing its water quantity and quality issues in a timely and effective manner that balances economic growth and environmental protection. Maintaining and improving the quality and supply of the state's water resources is essential not only to the state's fast-growing economy but also to the functional health of the ecosystems on which that economic growth depends.

Section I of this report provides a brief overview of water markets, how they function, and the advantages they have over political water allocation. Section II presents property rights as the building blocks of all water markets. Clearly defined, secure, and transferable property rights are essential to functioning water markets in Florida. Section III then presents several key policy reforms needed to unleash the power of water markets in Florida. The report then offers specific policy recommendations before concluding.

I. Water Markets – The Basics and Benefits

In the most fundamental sense, water markets are exchanges of legal rights in water between willing buyers and sellers. An exchange could be a temporary lease between two irrigators or a large-scale, inter-basin transfer between municipalities. The scale is unimportant, so long as the trade does not infringe the rights of others. The important and distinguishing features of water markets are (1) the voluntariness of the exchange and (2) the legality of the rights exchanged.

When trades are voluntary and legal, we know that water is flowing from lower- to higher-valued uses. Otherwise, if a buyer placed a lower value on the water than a seller, there would be no trade. This movement of water toward its highest-valued uses means water

markets encourage efficiency, and they do this by default rather than design.

In an open market for water, users must face the full, unsubsidized cost of their own water consumption, namely, the market price. If that price is below the value a user places on additional consumption, the user will rationally buy more water in the market. Alternatively, if a water user can sell or lease a portion of her water right for more than she values its use, she will rationally cut back on her own consumption and sell or lease the conserved water for a profit.

Without market prices, experts can only guess at the value different users place on an additional unit of water. In contrast to this unplanned but constantly adjusting nature of market allocation, political water allocation relies on experts to estimate the benefits and costs of various water uses and make allocation decisions. They might use benefit-cost estimates as a substitute for market prices, but more often they will rely on political signals provided from voting, lobbying, interest group pressures, hearings, and polls, to mention a few. Cost-benefit estimates and political signals rarely reflect actual economic values, hence when water is allocated through the political process, there is little hope for efficiency.

Just as water markets encourage efficiency, they also encourage conservation by rewarding water users for cutting excess consumption. As water becomes scarce, during a drought for example, more buyers will enter the market and bid up the price. Potential sellers will respond to the rising price by conserving more and selling more. This spontaneous balancing act of the marketplace, what economists call the price mechanism, works to efficiently allocate traditional market products like oranges and computers, and it works to encourage conservation and efficient allocation of scarce resources, like water too.

By contrast, when water is scarce, the traditional government response is to restrict consumption. Low-flow technology mandates, water rationing, and use restrictions can alleviate short-term and small-scale water shortages through forced reductions in demand. Such regulatory responses, however, ignore the economic forces that produce and perpetuate water scarcity, namely, artificially low water prices. As a consequence, when water is allocated politically, often at rates subsidized below the water's scarcity value, users do not face the full cost of their water consumption and, hence, have little incentive to conserve.

Aside from conservation and efficiency, water markets also encourage cooperation by allowing competing water users to bargain and agree on a price that makes them both better off—a positive-sum arrangement that they will continue until there are no more gains from trade. To be sure, there are costs associated with finding a willing trading partner, negotiating the terms of a water contract, physically moving water from one place to another, and monitoring the performance of the contractual terms. Water markets are not a costless panacea, but the gains from trade often far outweigh these transaction costs. By contrast, when water is allocated politically, by a government agency, one user's gain comes only at the uncompensated loss of another—a zero or negative-sum arrangement that typically benefits the most politically connected water users.

II. Property Rights – The Building Blocks of Water Markets

Water markets offer the best hope for addressing water quantity and quality issues in a manner that balances economic growth and environmental protection. However, water markets only work when there are property rights to water. Moreover, those rights must be clearly defined, enforced, and transferable for water markets to encourage the efficiency, conservation, and cooperation described above. Consider each of these three elements in the context of water rights.

Defining water rights requires some unit of mea-

surement. Stream flows are often measured in cubic meters or feet per second, groundwater withdrawals in gallons per minute, and large surface water withdrawals in gallons per day. No matter how the volume or flow is measured, clearly defined water rights must specify the quantity of water that can be used, the timing of the use, and the quantity and quality that must be returned to the source. Most importantly, when not all claims on a stream or an aquifer can be met, water rights must specify whose rights, if any, have priority or whether all users must reduce diversions proportionately.

Enforceable water rights ensure that owners can enjoy the benefits of ownership without those benefits being taken by others. This means that there must be some way of monitoring water stocks and flows. Also referred to as the security of water rights, enforcement allows owners to exclude other users and therefore to capture the benefits from the uses of their water unless they are compensated to give up those benefits. If rights are not well enforced, on the other hand, others get to use the water without paying, a situation that results in the so-called "tragedy of the commons."[7]

If water rights are not well defined and enforced, and ownership claims are weak, stewardship and conservation are unlikely. For example, if a water user does not have the right to use or sell water he conserves by installing a more efficient irrigation system, he will have little incentive to improve water-use efficiency. Or if a water owner decides to leave water in the stream to improve fish habitat, but others are free to divert it for irrigation, he will be less likely to enhance stream flows.

Finally, water rights must be transferable for water users to consider the opportunity costs of their use. If a water user is not allowed to transfer his water to a higher-valued use, he will ignore the opportunity costs of the current use and ignore the increased value that could be achieved through water trades. Laws that prohibit transfers directly discourage water conservation efforts by eliminating the economic incentive to conserve. Likewise, laws forbidding or severely restricting the sale or lease of water to environmental groups for enhancing environmental amenities, for example, tell water users to ignore environmental values. Similarly, laws that limit water trades to small geographic areas severely curtail the potential gains from trading water.

III. Tapping Water Markets in Florida

Unlike the arid West, the humid East has historically enjoyed sufficient water supplies to quench the demands of environmental, agricultural, industrial, and residential users. Consequently, the statutes and regulations governing water use in eastern states rarely delineate individual property rights in water. Instead, the laws of eastern states typically declare water to be owned and managed by the state for the benefit of its people. Florida is no exception.

The Florida Water Resources Act establishes that all water in Florida, including surface and groundwater, is a public resource managed by the Department of Environmental Protection and the state's five water management districts.[8] Rather than clearly defining, enforcing, and allowing for the transfer of private property rights in water, the state's water management districts issue consumptive use permits to water users, including individuals and utilities.

While these permits allow defined amounts of water to be withdrawn from surface and groundwater sources for specified uses such as public supply, irrigation, or power generation, they can be revoked from year to year without compensation paid to the permit holder. They also cannot easily be transferred from one user to another. In short, permits are not property rights.

The fact that Florida water users hold permits instead of property rights means that the potential for water marketing is limited. Recent amendments to Florida's water laws included provisions that strengthened con-

sumptive use permits and encouraged water conservation, but additional reforms are needed to foster economically and environmentally beneficial water trades.

For each issue presented below, we describe the potential for water markets to improve upon the political process in terms of both environmental protection and economic efficiency. We also outline several key institutional reforms, both legislative and regulatory, that are necessary to unlock the full potential of water markets in the state.

A. Water Distribution and Access

Florida has a statewide imbalance in water distribution and access: the available resources are not located near the largest and fastest-growing population centers. The challenge is to move available supplies from the water-rich northern part of the state to the water-poor southern part of the state in a manner that benefits both regions and the environment.

The typical response of state governments to issues of water distribution and access is to build large-scale infrastructure projects that store and convey water from areas of abundance to areas of scarcity. California's massive State Water Project and Central Valley Project exemplify this approach. The shortcomings of these projects are numerous and significant.

First, funding depends on a host of political, economic, and legal variables that invariably delay projects from becoming operational by the time they are needed. Second, when water is allocated through the political process rather than by voluntary exchange, source areas rarely receive full and fair compensation. The third and most significant shortcoming of large-scale, government-run infrastructure projects is that they lack flexibility in response to changing climatic and economic conditions. Where and for what purpose water is needed now will almost certainly not be the same 30 or 50 years from now, yet the typical time horizon for financing these projects is several decades. Often, politically appointed commissions are given broad powers to allocate water from one area to another, an arrangement ripe for political rent-seeking, environmental harm, and economically inefficient allocation.

The market-based alternative to infrastructure projects and political reallocation is to define, enforce, and trade water rights and to eliminate subsidized water consumption. When water users face the full cost of their consumption, and when water right holders can capture the gains from conservation and trade, markets consistently move water to its highest-valued and best use. Users and communities who have water can transfer it if the marginal benefits exceed the marginal costs, including any harms such a trade would inflict on other water users. By the same token, communities who need water can secure it if they can afford to compensate suppliers for the full costs, without the government subsidizing growth.

Like most eastern states, Florida water law is based on the reasonable use doctrine, and it has evolved to include a detailed consumptive use permitting system that requires users to show a proposed use (1) is reasonable and beneficial, (2) will not interfere with any presently existing legal use of water, and (3) is consistent with the public interest.[9] The law also requires applicants to report the date of filing, as well as the source, quantity, purpose, and place of the proposed use.[10] This system has elements that both foster and inhibit water trades.

In terms of clearly defining the terms of water use, the required information on date, source, quantity, purpose, and place of use is important and should be specified for each permit. Likewise, from the perspective of enforceability, the requirement that a proposed use not interfere with an existing use is critical; indeed, that standard is the basis of security.

In 2016, the Florida legislature bolstered the security and enforceability of water permits by prohibiting water management districts from reducing permit allocations due to water conservation efforts undertaken during the term of the permit.[11] This removed a longstanding "use it or lose it" disincentive for permittees, and it allowed water management districts to offer permit extensions as an incentive for water conservation projects.

Following the 2016 revisions, water management districts are also prohibited from reducing agricultural consumptive use permit allocations during the term of the permit due to weather events, diseases, crop changes, and market conditions, among other factors.[12] This provision, like the permit protections for water conservation projects, provides additional security to existing water users against the political reallocation of water.

Notwithstanding these two improvements, Florida's water law falls short in two fundamental ways. First, the current law fails to recognize permitted water uses as property rights that cannot be taken, revoked, or rescinded by the government without just compensation. Second, it fails to specify an unambiguous, non-discre-

tionary priority of rights, such as the filing date, for determining which users get water (and which do not) during times of shortage.[13]

Instead, the law gives the Department of Environmental Protection and the water districts broad and unilateral discretion to change the condition of existing permits during times of shortage and to approve one proposed use over another if it better serves the public interest.[14] With the term "public interest" not defined in the statutes, permit holders and applicants face significant uncertainty during times of shortage.

In terms of transferability of rights, the third characteristic needed to facilitate water markets, Florida law ostensibly embraces water transfers as necessary to "promote the availability of water for all existing and future reasonable-beneficial uses and natural systems,"[15] but it explicitly directs the Department of Environmental Protection and the state's five water management districts to encourage the use of sources nearest the area of use.[16]

To transfer water beyond the overlying land, across county borders, or outside the source watershed—the very types of transfers needed to address Florida's distributional imbalance—a permittee must demonstrate that the transfer is "consistent with the public interest," as informed by seven different considerations explicitly described in the statute.[17] This requirement invites delay, increases costs, and discourages socially beneficial trades from occurring.

In 2016, the Florida legislature expanded the authority of select water management districts to unilaterally develop pilot programs for alternative water supply development in other districts,[18] but such authority should be expanded statewide. Moreover, Florida law should be simplified to condition transfer approval upon one simple factor: whether a proposed transfer would interfere with any existing legal use of water. This change—combined with the recognition of permit uses as property rights and an unambiguous, non-discretionary process for determining which users get water during times of shortage—would create the clearly defined, secure, and transferable rights needed to foster water markets and provide the efficiency, conservation, and cooperation needed to address the state's current water imbalance.

B. Environmental Flows

Any discussion of water allocation that ignores potential environmental impacts is incomplete. Whether markets or the political process allocate Florida's water, the state's booming population and rising water consumption threaten the ecological function of rivers, streams, and springs. The relevant question is whether markets or the political process will do a better job of protecting environmental values.

The state's existing water law contains several provisions aimed at protecting water resources and the environment. For instance, section 373.223(4) of the Florida Code provides: "The governing board or the department, by regulation, may reserve from use by permit applicants, water in such locations and quantities, and for such seasons of the year, as in its judgment may be required for the protection of fish and wildlife or the public health and safety."

Additionally, section 373.042 requires the Department of Environmental Protection and the state's five water management districts to establish minimum flows for all surface watercourses and minimum water levels for all groundwater aquifers. The 2016 amendments set specific deadlines for designating minimum flows and water levels and further required the districts to adopt recovery or prevention strategies, with the goal of restoring outstanding Florida spring flow and quality within 20 years.[19]

With relatively minor policy reforms, water markets can complement these administrative procedures, thus providing additional and more cost-effective protection of environmental flows. The required policy change is that private individuals and groups be allowed to specify "fish and wildlife habitat" or "environmental protection" as the reasonable and beneficial use underlying a water right or permit application.

Allowing conservation groups to acquire water rights for the purpose of environmental protection, while leaving the water instream or underground, protected from diversion or pumping by other users, provides those groups with a legitimate means of expressing their demands in the marketplace rather than the courtroom or on the capitol steps.

Indeed, this change in the law will make conservationists out of all water users—even those who are indifferent to environmental impacts—and it will do so via the price mechanism described previously. If, for

example, an irrigator can profitably sell or lease conserved water to an environmental group interested in protecting a spring or aquatic habitat, that irrigator will be more likely to conserve the water than if no such transaction is allowed.

Aside from the conservation incentive, recognizing environmental protection as a beneficial use for the purposes of establishing a water right has additional benefits: it allows conservation groups to prioritize water courses and aquifers for conservation and to put (or leave) water where they deem it most critical.

Numerous states have added environmental flows and habitat protection to the list of beneficial uses for which private parties can acquire and hold water rights. In watersheds throughout the West, for example, irrigators have leased massive quantities of water to environmentalists for instream flows. To get a sense of scale, in the 20-year period between 1987 and 2007, conservation groups spent $530 million to purchase over 10 million acre-feet of water from willing sellers, mainly farmers and ranchers.[20] These deals benefit both parties involved, and they reflect the ability of markets to adjust to changing water demands.

The bulk of Florida's existing water laws reflect a misconception that administrative action is the only way to protect minimum flows and minimum water levels.[21] By preventing private entities from holding instream flow rights, Florida has thrown unnecessary obstacles in the way of water conservation. The default is an unrealistic legislative mandate that the water districts identify, prioritize, and define minimum flows and water levels for every water course and aquifer in the state. Not surprisingly, this approach is fraught with delay, constraints on future development, and limited budgets.

The success of instream flow markets in western states demonstrates that Florida can protect environmental flows without having to rely on legislative mandates or regulatory restrictions. With increasing demand for environmental and recreational amenities, Florida policymakers should be less concerned with how those demands can be met through governmental actions and instead devote their efforts to removing the very obstacles that stand in the way of those who demand instream flows. Florida should recognize instream and in-aquifer environmental protection as a legitimate use for establishing a water right or permit.

C. Water Quality

Whether water is used to fish, for cities, or to grow crops, it must be clean. Indeed, water that is so dirty that it poisons aquifers or estuaries has a negative impact on the environment and the economy.

Florida faces several significant water quality issues that, based on their persistence, seem beyond the capacity of the current regulatory system. For instance, Florida's 2022 Integrated Water Quality Assessment Report identified 15,143 miles of rivers and streams and 2,175,650 acres of lakes as impaired.[22]

The types of impairment vary from nutrient loading to pathogens, but all water quality degradation results from unclear rights to water use. As with water quantity problems, well-defined and enforced property rights can improve water quality.

The most obvious way is through liability rules, which have been used by the common law to hold those who degrade water quality accountable for the costs they impose on others. Another way is to create rights in the form of tradable permits that limit the total allowable discharge of effluent but allow emitters to meet the discharge limits through trading.

Though the Clean Water Act does not specifically authorize markets in water quality credits, these markets have emerged under the act's requirement that states establish plans to control nonpoint source discharges, the main driver of water quality impairment in Florida. Several states have adopted incentive-based market arrangements for controlling nonpoint sources as a positive alternative to the Clean Water Act's technolo-

gy-based regulatory approach.

Markets in water quality represent a "bubble" approach to meeting water quality targets. The bubble theory, which originated under the Clean Air Act, treats sources within a designated area as if they were all under an imaginary bubble. The total allowable level of effluent discharged into the bubble is determined politically, but within the bubble, regulated sources allocate discharges among themselves according to relative economic efficiency.

If it is too expensive for a point source discharge to meet its target level, it can buy credits from other point or nonpoint sources that have reduced their discharge levels below their respective target or permitted level. Point and nonpoint sources with lower control costs have the incentive to reduce effluent amounts, thereby creating tradable credits. Higher-cost dischargers would buy credits and clean up less. Either way, the net amount of discharge would not exceed the allowed amount established by Florida's Department of Environmental Protection.

To harness markets to improve water quality, the Florida legislature or Department of Environmental Protection must first establish target levels of pollutant loadings for individual pollutants in quality impaired waterbodies and basins. Those targets are typically determined by the maximum amount of a pollutant that may enter a waterbody without violating water quality standards for that particular pollutant, often referred to as the total maximum daily load (TMDL). Once a TMDL or similar framework is established, pollutant loadings can then be allocated across all point sources and nonpoint sources.[23]

Once baselines and load allocations are determined, it is important that pollution credits are easily tradable. The flexibility by which regulated point sources can offset their discharges through markets is determined by provisions in the state trading program and its permitting authority. How pollution credits are generated must also not be restricted by technology-based requirements that dictate how discharge levels are to be achieved.

Florida law ostensibly embraces water quality trading already, but not in the sense that regulated parties are free to innovate and trade. Quite the opposite, the relevant provision of the 2014 Florida statutes titled the "Florida Everglades and Estuaries Protection Program" narrowly focuses on management practices (inputs) rather than water quality improvements (outputs). Indeed, that particular code section uses the term "best management practice" a total of 46 times.[24] Requiring the Department of Environmental Protection to define best management practices in each of the state's watersheds imposes an unreasonable burden on the department.

The 2016 amendments set stringent deadlines by which the department must develop and implement basin management action plans for priority focus areas and outstanding Florida springs.[25] The legislature also bolstered the authority of the department and local governments to regulate fertilizer use and septic tanks. This regulation-first approach stifles the innovation and efficiency that a water quality market would foster. Indeed, despite scores of basin management action plans being drafted, the Department of Environmental Protection's Water Quality Trading Registry reports only four water quality trades since 2009, and all of them are point source to point source trades.[26]

By setting standards and granting participants flexibility in achieving them, markets create a discovery incentive, wherein dischargers will seek the most cost-effective methods of abating pollution to minimize costs and maximize profits. In addition, when they can profit by finding cheaper ways to reduce discharges, they have an incentive to discover and apply new technologies. Leaving the means of pollution abatement to those with time- and place-specific information about control costs and effectiveness will generate water quality improvements more cheaply and efficiently than the top-down approach currently embodied in Florida law.

The Path Forward

Achieving successful reform in an area as complex, far reaching, and critical as water policy is no task for the faint of heart. Fortunately, Florida is well ahead of its neighbors in terms of embracing water markets. Compared to Georgia, South Carolina, and Alabama, for example, the Sunshine State already has a solid legal foundation for encouraging voluntary water transfers, and several of the 2016 amendments further encouraged water conservation efforts. The state's policymakers can get across the goal line with the reasonable policy reforms outlined in this report.

These four specific policy prescriptions must be undertaken if Florida is going to realize the full potential of water markets:

1. Recognize permitted water uses as property rights that cannot be taken, revoked, or rescinded by the government without just compensation; and specify an unambiguous, non-discretionary priority of rights, such as the filing date, for determining which users get water (and which do not) during times of shortage.
2. Lower the cost of transferring water by clarifying the criteria used to determine when transfers are "consistent with the public interest" or by striking that criteria altogether and replacing it with a standard that transfers cannot harm existing right or permit holders.
3. Recognize instream and in-aquifer environmental protection as a legitimate use for establishing a water right or permit and allow private individuals and groups to specify "fish and wildlife habitat" or "environmental protection" as the reasonable and beneficial use underlying a water right or permit application.
4. Establish target loads (TMDL) for individual pollutants in quality impaired waterbodies and basins, and enact policy allowing regulated sources to trade water quality credits.

These policy reforms have the potential to resolve Florida's worsening water conflicts in an efficient and amicable manner. Change will be gradual, not immediate, as water users more carefully consider the economic cost of their consumption and uncover opportunities for mutually beneficial trade. Like any new market, willing buyers and sellers must identify each other, agree to terms, and demonstrate that a proposed transfer will not infringe on the legal rights of other water users. These first trades can take years to develop, as previously conflicting groups build the trust necessary to negotiate.

One strategy for proving the viability of water marketing is to pursue pilot projects on a limited geographic scale, such as individual watersheds or water management districts. Florida already has a pilot water quality trading project in the Lower St. Johns watershed. With simpler trading rules and reduced planning obligations on the Department of Environmental Protection, the success of this program could be replicated in other watersheds, and the market could expand to include water quantity as well as quality.

Conclusion

Undertaking successful policy reform in an area as overarching as water use is a long-term endeavor. It is not a discussion that can or should take place in a vacuum in one legislative session. The issues surrounding Florida's water challenges have evolved over many years, and it will take an open, frank, and realistic dialogue to move policy in the right direction.

Nevertheless, Florida will have to deal with population and industry growth that will necessitate policy changes that should begin now. With a practical free market approach, Florida can ensure that our prosperity is protected for us and for future generations.

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About PERC

PERC is the national leader in market solutions for conservation, with over 40 years of research and a network of respected scholars and practitioners. Through research, law and policy, and innovative applied conservation programs, PERC explores how aligning incentives for environmental stewardship produces sustainable outcomes for land, water, and wildlife. Founded in 1980, PERC is nonprofit, nonpartisan, and proudly based in Bozeman, Montana. Learn more at www.perc.org.

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7 *See* Hardin, Garrett. 1968. "The Tragedy of the Commons." *Science:* Vol. 162 no. 3859 pp. 1243-1248.

8 Chapter 373, F.S.

9 § 373.223(1), Fla. Stat. (2016).

10 § 373.229(1), Fla. Stat. (2016).

11 §373.227(5), Fla. Stat. (2016).

12 §373.227(6), Fla. Stat. (2016).

13 § 373.233(1), Fla. Stat. (2016). The law does specify that if two or more competing applications qualify equally under subsection (1) then the Department should give preference to the renewal application over the initial application and that, if both are renewal applications, the Department shall give preference to the application for the use nearest the source. *See* § 373.233(2).

14 § 373.246, Fla. Stat. (2016).

15 § 373.701(1), Fla. Stat. (2012).

16 § 373.701(2), Fla. Stat. (2012).

17 § 373.223(2), Fla. Stat. (2023).

18 § 373.037, Fla. Stat. (2016).

19 Fla. Stat. §373.805(1) (2016) and §373.807 (1)(b)(8) (2016).

20 Scarborough, Brandon. 2010. "Environmental Water Markets: Restoring Streams through Trade." PERC Policy Series No. 46. Bozeman, MT: PERC.

21 Fla. Stat. §373.4591 encourages public-private partnerships to accomplish water storage, groundwater recharge, and water quality improvements on private agricultural lands.

22 Florida Department of Environmental Protection. 2022. "2022 Integrated Water Quality Assessment for Florida: Sections 303(d), 305(b), and 314 Report and Listing Update." https://publicfiles.dep.state.fl.us/DEAR/DEARweb/WAS/Integrated_Report/2022_IR_Master_Final.pdf.

23 In general, nonpoint pollution sources are not regulated under the Clean Water Act. Point sources, however, are regulated under the act and required to have a National Pollutant Discharge Elimination System (NPDES) permit before discharging any pollutant into a waterbody, as defined by the Clean Water Act. With a trading program in place, waste load allocations can be incorporated into the NPDES permits, allowing point sources to exceed their permitted levels as long as sufficient credits or offsets are obtained. In the absence of a trading scheme, point sources must not exceed their permitted levels.

24 § 373.4595, Fla. Stat. (2014).

25 § 373.807, Fla. Stat. (2016).

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