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Managing Nutrient Inputs to Florida Springs: The Legal Framework

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Summary

The legal framework for managing the nutrient pollution of Florida springs is potentially as broad as the scope of human activities that contribute nutrients to the springshed. Regulations on the discharge of wastewater are key elements. The federal Clean Water Act and Safe Drinking Water Act provide a set of mandates and incentives for state programs. The focus of the Clean Water Act is protecting surface waters through the regulation of point source discharges under the National Pollutant Discharge Elimination System (NPDES). Discharges to groundwater may be regulated under this program if there is a "significant nexus" to the quality of navigable surface waters. The Safe Drinking Water Act protects public water supplies by establishing minimum criteria for drinking water quality and requiring states to regulate the underground injection of pollutants. Groundwater quality standards for nutrients are thus focused on the protection of public health. Florida has been delegated NPDES permitting authority by the Environmental Protection Agency (EPA) and implements an Underground Injection Control (UIC) program that is consistent with the SDWA. In addition, Florida regulates certain sources of nutrient pollution that do not fall within the direct jurisdiction of the federal program, such as nonpoint sources, agricultural discharges, and additional discharges to groundwater.

The regulatory program requires discharges to achieve effluent limitations based on the application of specified levels of technology or to achieve water quality standards, whichever is more stringent. Domestic wastewater treatment plants are generally only required to use secondary treatment, except in areas where the Legislature has required advanced wastewater treatment (AWT). Concentrated Animal Feeding Operations (CAFO) are currently regulated under state rules pending the adoption by EPA of a new federal rule. Those stormwater dischargers subject to NPDES permitting are required to reduce the discharge of pollutants to the Maximum Extent Practicable.

Florida's surface water quality standards must be reviewed and approved by EPA every three years. They consist of designated uses, narrative and numeric criteria for each of those uses, and moderating provisions. There is also a general limitation on the degradation of any waters and a prohibition on the degradation of designated Outstanding Florida Waters (OFW). A narrative nutrient standard prohibits altering nutrient concentrations "so as to cause an imbalance in natural populations of aquatic flora or fauna." Numeric standards can also be developed, most commonly as Total Maximum Daily Loads (TMDL).

TMDLs can be adopted by either EPA or the Florida Department of Environmental Protection (DEP). Florida's process begins with determining whether a particular waterbody is "impaired" based on "objective and credible data, studies and reports" demonstrating it does not meet water quality standards for a specific criterion, such as nitrogen or phosphorus. If there is sufficient data demonstrating the concentration of the specific pollutant causing the impairment, it can be added to the verified list. A TMDL is then calculated and the load reasonably and equitably allocated to the various sources and basins contributing pollutants. The DEP then assembles a group of stakeholders to develop a Basin Management Action Plan (BMAP) to develop strategies for implementing the adopted TMDL. NPDES permits may be revised as necessary to implement the BMAP. Other dischargers may be required to reduce their discharge "to the maximum extent practicable". Nonpoint sources must demonstrate compliance by either implementing Best Management Practices (BMP) or conducting water quality monitoring. There are additional powerful incentives for implementing BMPs. BMPs for nonagricultural sources may be adopted as rules by the DEP or a water management district. Only the Florida Department of Agriculture and Consumer Services (DACS) has the authority to adopt them for agricultural sources, although they must be verified by the DEP or a water management district.

Stormwater is a significant source of pollutants that can be regulated as a point source, because much of it is collected into pipes or channels, or as a nonpoint source, because much of it comes from diffuse sources and activities. The NPDES program regulates many of the larger stormwater systems and stormwater associated with industrial activities. Systems subject to NPDES permitting must be periodically reviewed and ways to reduce pollution must be considered in permit renewals. Most stormwater systems in Florida, however, are either unpermitted..regulated or regulated under an Environmental Resource Permit program or its predecessor. The emphasis of ERP permitting is on the design and construction of stormwater systems. Although they must be operated and maintained, there is no program for periodic review for compliance or enhancements. Because even systems that are constructed in compliance with the current standards discharge more pollutants than previously assumed, the DEP is now developing a unified stormwater rule. Many local governments also have their own stormwater programs.

Septic tanks and other Onsite Treatment and Disposal Systems (OSTDS) are another major potential source of nutrient pollution. The Department of Health (DOH) has adopted regulations for the construction and siting of septic tanks and drainfields. However, these systems are inefficient at removing nitrogen, a nutrient of concern in springsheds. In some areas where nutrients are a concern, such as the Florida Keys, performance-based systems have been required. Local governments can adopt more stringent requirements.

Local governments are required to periodically revise and implement comprehensive plans that can provide a framework for local springs protection. Local comprehensive plans and land development regulations can limit the intensity and design of land development to limit the contribution of nutrients to springs. They can provide for improved stormwater and wastewater management. The Florida Legislature has specifically required local governments in the Wekiva Study Area to amend their comprehensive plans to enhance springs protection. It has also limited the ability of local governments to regulate agricultural land uses and the conversion of

agricultural land to urban uses. Local governments are liable for compensating landowners who show an "inordinate burden". A Consumer Fertilizer Task Force has recommended new restrictions on the ability of local governments to regulate the application of fertilizers.

REGULATION OF DISCHARGES

Clean Water Act

The Federal Water Pollution Control Act Amendments of 1972[1] created one of our nation's most comprehensive environmental statutes. It was enacted in response to widespread water pollution, including nutrient overenrichment, and the failure of the states and weak federal institutions to remedy it. The goal of the FWPCA was to "protect and restore the chemical, physical and biological integrity of the nation's waters[2]" through a combination of research, planning, construction and regulation. The Act was amended in 1977 and renamed the Clean Water Act[3] (CWA), but the fundamental structure and policies have remained intact for over 35 years.

The CWA prohibits any discharge of pollutants that is not authorized by a permit or otherwise in compliance with the Act[4]. Discharges may be authorized through a permit issued by EPA or a state under a program called the National Pollutant Discharge Elimination System (NPDES)[5]. The issuance of a permit depends on compliance with the most stringent effluent limitations based on either technology or water quality. Technology-based effluent limitations require the use of specified levels of technology for the prevention or removal of pollutants regardless of the impacts to water quality. Water quality-based effluent limitations impose additional limits on discharges to prevent violations of state water quality standards.

Not every source of nutrients to springs, however, qualifies as a regulated discharge under the definitions and exemptions of the CWA. A discharge is defined as "any addition of any pollutant to navigable waters from any point source"[6]. Nutrients certainly fall within the definition of a pollutant and many common sources of nutrients fit the definition of a "point source " as a "discernible, confined and discrete conveyance" of pollutants[7]. Point sources might include wastewater treatment plants, industrial sources, concentrated animal feeding operations, or stormwater systems. Agricultural stormwater and irrigation return flows are expressly exempted from regulation, even though they might have the physical characteristics of a point source[8]. A spring itself might be considered a point source under this definition if it served to directly convey pollutants to navigable waters.

[1]PL 92-500, codified at 33 U.S.C. §§1251-1387 (2007).
[2]33 U.S.C. §1251(a) (2007).
[3]PL 95-217, Section 1.
[4]33 U.S.C. §1311(a) (2007).
[5]Id., §1342.
[6]Id., §1362(12).
[7].Id., §1362(14).
[8]Id.

Although the term "navigable waters" was defined in the Act as "waters of the United States[9]", the extent to which discharges to groundwater are subject to the CWA is not clear[10]. Several judicial opinions held that Congress intended to exclude groundwater from the scope of regulation under this statute[11]. Other decisions have found jurisdiction over groundwater that is hydrologically connected to surface waters[12].

The Supreme Court's recent decision in *Rapanos v. United States*[13] has further confused the scope of CWA jurisdiction in a case involving the discharge of dredged or fill material to wetlands. A plurality held that there was no jurisdiction over waters that were not relatively permanent streams or standing bodies of water and connected wetlands. One concurring justice, with the deciding vote, held that jurisdiction required a "substantial nexus" to waters that are navigable[14]. In interpreting these opinions, the 11th Circuit Court of Appeals recently held there might be no CWA jurisdiction over a discharge of pipe processing wastewater to a perennial stream that connected to navigable waters[15]. A "mere hydrologic connection" was insufficient. A "significant nexus" must be proved in a new trial, presumably by showing how the discharge could significantly affect the chemical, physical or biological integrity of the navigable waters.

A similar test would have to be met for any discharge of nutrients to groundwater to be subject to CWA regulation. There would have to be a relatively direct hydrologic connection to navigable waters and there would have to be proof that the discharge significantly affected the quality of

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[9]33 U.S.C. §1362(7)

[10]See generally, Thomas L. Casey, III, Reevaluating "Isolated Waters": Is Hydrologically Connected Groundwater "Navigable Water" Under the Clean Water Act?, 54 Ala. L. Rev. 159 (2002).

[11]Rice v. Harken Exploration Co., 250 F.3d 264 (5th Cir 2001); Village of Oconomowoc Lake v. Dayton Hudson Corp., 24 F.3d 962, 965 (7th Cir. 1994); Town of Norfolk v. United States Corps of Engineers, 968 F.2d 1438, 1451 (1st Cir. 1992); Exxon Corp. v. Train, 554 F.2d 1310, 1322 (5th Cir. 1977); Umatilla Water Quality Protective Ass'n, Inc. v. Smith Frozen Foods, Inc., 962 F.Supp. 1312, 1318 (D. Ore. 1997); Kelley v. United States, 618 F. Supp. 1103 (W.D. Mich. 1985).

[12]U.S. Steel Corp. v. Train, 556 F.2d 822, 852 (7th Cir. 1977); Coldani v. Hamm, 2007 U.S. Dist. LEXIS 62644 (E.D.Cal. 2007); Idaho Rural Council v. Bosma, 2001 U.S. Dist. LEXIS 9519 (D. Idaho 2001); Washington Wilderness Coalition v. Hecla Min. Co., 870 F.Supp. 983, 990-991 (E.D. Wash. 1994); Sierra Club v. Colorado Refining Co., 838 F.Supp. 1428, 1434 (D. Colo. 1993); Williams v. PipeLine Co. v. Bayer Corp., 964 F.Supp. 1300, 1320 (S.D. Iowa); Idaho Rural Council v. Bosma, 143 F.Supp.2d 1169, 1180 (D. Idaho 2001); McClellan Ecological Seepage Situation (MESS) v. Weinberger, 707 F. Supp. 1182, 1196 (E.D.Cal.1988); Friends of Santa Fe County v. LAC Minerals, Inc., 892 F. Supp. 1333, 1357 (D. New Mexico 1995).

[13]126 S.Ct. 2208 (2006).

[14]The requisite nexus could be shown if the subject wetlands "either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable'". 126 S Ct. 2248. Those effects cannot be "speculative or insubstantial" Id.

[15]U.S. v. Robison, 505 F.3d 1208 (11th Cir 2007).

those surface waters. The 9th Circuit Court of Appeals recently found such a significant nexus in a case involving the discharge of wastewater to a pond adjacent to a river[16]. Because the wastewater seeped into the river through a groundwater connection, affected the quality of the surface water and had a significant ecological connection through bird, mammal and fish populations, it was a regulated water[17].

State Discharge Permitting

The DEP has assumed primary responsibility from EPA for implementation of the NPDES permitting program[18]. For discharges to groundwater that do not have a sufficiently close connection to a surface water, however, only state law applies. Florida's regulatory authority over discharges that affect groundwater is more extensive than that of the federal Clean Water Act. The Florida Air and Water Pollution Control Act prohibits the construction or operation without a permit of any stationary installation reasonably expected to be a source of water pollution[19]. An "installation" is any "structure, equipment or facility which may emit . . .water contaminants. . .[20]" "Pollution" is "the presence in the . . .waters of the state of any substances, contaminants, . . .or manmade or human-induced impairment of . . .waters, or alteration of the chemical, physical, biological, or radiological integrity of . . .water in quantities or at levels which are or may be potentially harmful or injurious to human health or welfare, animal or plant life, or property or which unreasonably interfere with the enjoyment of life or property, including outdoor recreation unless authorized by applicable law.[21]" Finally, "waters" "include, but are not limited to, rivers, lakes, streams, springs, impoundments, wetlands, and all other waters . . .including underground waters[22]." The distinction in federal law between "point" and "nonpoint" sources and between "navigable waters" and groundwater is thus not very significant in Florida[23]. The state, unlike EPA, has clear authority to regulate virtually any discharge to any water.

Several sections of Florida statutes authorize the DEP to adopt rules and issue permits for

[16]N.Cal. Riverwatch v. City of Healdsburg, 496 F.3d 993 (9th Cir. 2007).
[17]496 F.3d 1000-1001.
[18]Fla. Stat. §303.0885 (2007); Rule 62-620, FAC. DEP assumed NPDES authority for industrial and domestic wastewater discharges in 1995 and stormwater discharges in 2000. See generally, Terry Cole, National Pollutant Discharge Elimination System Program, Ch. 12.2, Florida Environmental and Land Use Law (June 2007).
[19]Fla. Stat. §403.087(1) (2007).
[20]Id., §403.031(1).
[21]Id., §403.031(7)
[22]Id., §403.031(13)
[23]If a discharge is regulated under Florida law, but not subject to the Clean Water Act, however, then certain provisions adopted to allow the state to qualify for NPDES permitting do not apply. Id., §403.0885(2). For example, non-NPDES discharge permits can be issued for up to ten years, whereas NPDES permits are limited to five years. Id., §403.087(3). Unlike most other state permits, NPDES permits are not subject to issuance by default if the state fails to take action within ninety days. Id., 403.0885(3).

sources of pollution[24]. If wastewater is discharged directly to groundwater via a well, then an Underground Injection Control (UIC) permit is required[25]. Generally, dischargers are required to provide "reasonable assurance" that water quality standards will not be violated and that appropriate levels of treatment are being implemented. The rules applicable to certain significant sources are set forth below.

Domestic Wastewater

Domestic wastewater must generally receive a minimum of secondary treatment before it is discharged. Additional treatment may be required to meet water quality standards, depending on where the effluent is discharged. Discharges to groundwater can be made through a variety of systems, with different levels of public access[26]. Treated wastewater is increasingly in demand for irrigation of areas where the public has access, e.g. golf courses and lawns. For dischargers to groundwater through sprayfields or rapid infiltration basins, the practical limit on nitrogen has generally been set by the Maximum Contaminant Level (MCL) for drinking water of 10 mg/l measured at the edge of the site or zone of discharge.

Advanced wastewater treatment has been required in areas where the Legislature has determined that the risks of regulatory uncertainty and delay should be reduced in favor of imposing the most protective requirements. For example, wastewater discharged to such estuaries as Sarasota Bay, Tampa Bay, Charlotte Harbor and their tributaries must meet advanced waste treatment standards[27]. Special requirements have recently been imposed on domestic wastewater discharges in the Wekiva Study Area that may serve as a model for other areas contributing recharge to springs[28]. These requirements were based on recommendations developed pursuant to the Wekiva Parkway and Protection Act[29]. The DEP first determined that 0.2 mg/l should be adopted as an initial target for nitrogen concentrations at the spring vents, based on unimpacted reference sites. The DEP also mapped the recharge areas according to their relative vulnerability.

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[24]Id., §§403.061(14), .087(2), (5), .088(2) (2007). The rules governing permitting are at Fla. Admin. Code r. 62-4 (2007).

[25]Fla. Admin. Code r. 62-528 (2007).

[26]Rule 62-610 provides different criteria depending on whether treated water feeds a reuse system or is applied to the land in slow or high rate systems with restricted or open access.

[27]Fla. Stat. §403.086(1)© (2007). For nutrients, the AWT standard is Total Nitrogen, 3 mg/l and Phosphorus, 1 mg/l. Id., §403.086(4).

[28]Fla. Admin. Code r. 62-600.550 was adopted April 13, 2006.

[29] Chapter 2004-384, Laws of Florida codified at Fla. Stat. §369.318(1) (2007). The Wekiva Study Area was delineated by the Florida Legislature, Id. §369.316, and includes large parts of the springsheds of Rock Spring, Wekiwa Spring and other springs feeding the Wekiva River. For the basis of recommendations specific to wastewater discharge see Florida Department of Environmental Protection, A Strategy for Water Quality Protection: Wastewater Treatment in the Wekiva Study Area (December 2004). For background information on the various planning and coordination activities related to the Wekiva Study Area see http://www.dca.state.fl.us/fdcp/dcp/wekiva/wekivaact/index.cfm (visited December 14, 2007).

The rule thus adopted three protection zones, with the Primary Protection Zone considered "Most Vulnerable". The rule prohibits new or expanded sprayfields or rapid infiltration basins and absorption fields within the Primary Protection Zone [30]. Large existing facilities are limited to 3.0 mg/l Total Nitrogen. Increasing concentrations of nitrogen are allowed in areas of less vulnerability, for systems that have lower rates of application and for smaller systems whose costs of additional treatment are much higher. Dischargers can qualify for relief from these requirements by making "an affirmative demonstration, based on relevant water quality data, physical circumstances, or other credible information, that the discharge of reclaimed water is protective of surface and ground water quality with respect to the target nitrate-nitrogen level of 0.2 mg/l, as N, for the spring vent. . .[31]"

Industrial Discharges and Concentrated Animal Feeding Operations (CAFO)

Industrial wastewater is any regulated wastewater that is not domestic wastewater[32]. Industrial dischargers must comply with technology-based effluent limitations developed for various industrial categories and adopted as rules, as well water quality-based effluent limitations[33]. New sources must meet new source performance standards (NSPS). Existing sources are required to implement the best available technology economically achievable (BAT). For conventional pollutants such as Biological Oxygen Demanding materials (BOD5) or Total Suspended Solids (TSS), a less stringent effluent limitation is applicable, termed best conventional pollutant control (BCT).

Concentrated Animal Feeding Operations (CAFO) are a particular type of industrial discharger that generates substantial quantities of nutrients[34]. The national regulations adopted by EPA have been challenged by both industrial and environmental interests[35]. Final revisions have not yet been adopted[36]. Florida will be required to implement the final federal rules, but meanwhile such facilities are governed by rule 40 C.F.R. pt. 412. Facilities that are not subject to NPDES permitting are governed by rule 62-670, F.A.C.[37]

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[30]Fla. Admin. Code r. 62-600.550(4)(a)(2007). Technically these are termed "rapid-rate or restricted access slow-rate land application systems".

[31]Id., 62-600.550(7). This provision appears to allow the discharger to demonstrate that the discharge will achieve compliance with the target goal, not to challenge the goal itself.

[32]Id., 62-660.200(2)(e).

[33]Id., 62-660.400. DEP has adopted by reference the rules developed and adopted by EPA under the Clean Water Act.

[34] See generally, James H. Andreasen, Concentrated Animal Feeding Operations: A Program in Transition, Natural Resources and Environment 45 (Spring 2007). CAFOs produce 500 million tons of manure annually. Id. at 45.

[35]Waterkeeper Alliance v. U.S. Envt'l Protection Agency, 399 F.3d 486 (2d Cir. 2005).

[36]71 Fed. Reg. 37744 (June 30, 2006). The existing rules are at 40 C.F.R. pt 412.

[37]The application of the rule, however, has been affected by court order in Save Our Suwannee v. Fla. Dept. of Envt'l Protection, ER FALR 04:181, Case No. 2001-CA-001266 (Fla. 2d Cir. Ct Mar. 5, 2004). See Susan L. Stephens, Florida's Waters: Significant Cases in the Works, Section Reporter (March 2005). Environmental and Land Use Law Section, The Florida Bar. Available at http://www.eluls.org, visited February 23, 2008. DEP is

WATER QUALITY STANDARDS

Florida has established classifications and standards for both ground and surface water[38]. One of the primary regulatory criteria for any discharge is that it not cause or contribute to violations of water quality standards[39].

Groundwater Quality Standards

The DEP generally regulates discharges of pollutants to groundwater and has established a scheme of groundwater classification and standards.[40] The standards for groundwater are primarily designed to protect human health[41]. For example, all groundwater must be "free from" substances in concentrations which are carcinogenic, mutagenic, teratogenic, or toxic to human beings[42].. The only protection for non-human organisms in the groundwater is for plants, animals and organisms native to the soil that are responsible for treating the discharge. A groundwater discharge is also prohibited from causing violations of the acute toxicity standard for surface water if it reaches the surface[43], cannot cause a nuisance, and cannot interfere with the reasonable beneficial use of adjacent waters. A nutrient discharge that causes the growth of algae resulting in allergic reactions by recreational users could violate these criteria. The difficulties of proving a causal relationship, however, are substantial.

Other standards applicable to groundwater depend on the classification. Generally, the groundwater that discharges to springs is likely to be Class G-II and for this classification the most important standard is the maximum contaminant levels (MCL) for drinking water[44]. The only nutrient listed in the MCL is nitrate/nitrite which is limited to 10 mg/l[45]. Groundwater quality standards thus protect spring discharges against only the highest levels of nutrient contamination..

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engaged in rulemaking to revise rule 62-670 and adopt new rules for certain types of animal feeding operations. See draft rules 62-620, 62-621.500(3) & (3)(a).

[38]Florida, like other states, must review its surface water quality standards every three years and submit any changes to EPA for review and approval. 33 U.S.C. §1313; 40 CFR Part 131.

[39]Fla. Admin. Code r.62-4.030, -4.070, -4.240(4) (2007).

[40]See generally, Cynthia Christen, Groundwater Protection: An Overview, Ch 11.1, Florida Environmental and Land Use Law (Feb 2002).

[41]Fla. Admin. code ch 62-520 (2007).

[42]Id., 62–520.400(1)(b).

[43]Rule 62–302.200(1) is the acute toxicity standard.

[44]Rules 62–520.420; 62–550.310 (primary);62–550.320 (secondary). The federal Safe Drinking Water Act (SDWA), 42 U.S.C. §§300f-300j-26 (2007), requires states to regulate the quality of water delivered for human consumption through water supply systems. EPA adopts Maximum Contaminant Levels (MCL) as minimum criteria for drinking water. The SDWA also requires the states to regulate the discharge of pollutants to underground sources of water and MCLs have become commonly used to limit the contamination of groundwater and provide criteria for the remediation of contaminated sites.

[45]Fla. Admin. Code r. 62-550.310 and Table 1. The level can be up to 20 mg/l under some circumstances.

Surface Water Quality Standards

Once groundwater reaches the surface at a spring, however, surface water quality standards apply and a discharge of nutrients to groundwater cannot be permitted if it would cause or contribute to a violation of surface water quality standards[46]. Florida's surface water quality standards include a policy statement on nutrients[47]. It states,

> The Department finds that excessive nutrients (total nitrogen and total phosphorus) constitute one of the most severe water quality problems facing the State. It shall be the Department's policy to limit the introduction of man-induced nutrients into waters of the State. Particular consideration shall be given to the protection from further nutrient enrichment of waters which are presently high in nutrient concentrations or sensitive to further nutrient concentrations and sensitive to further nutrient loadings. Also, particular consideration shall be given to the protection from nutrient enrichment of those presently containing very low nutrient concentrations: less than 0.3 milligrams per liter total nitrogen or less than 0.04 milligrams per liter total phosphorus.

Water quality standards have two components, a classification of the designated use and standards applicable to that class of water. In addition, there are both a general nondegradation standard and special criteria applicable to Outstanding Florida Waters (OFW). The "moderating provisions" are also considered part of state water quality standards[48].

Most spring discharges in Florida will be Class III waters, whose designated use is "Recreation, Propagation and Maintenance of a Healthy, Well-Balanced Population of Fish and Wildlife". A discharge cannot interfere with the designated use[49]. A discharge of nutrients that interfered with recreational swimming, for example, or the propagation of wildlife, would violate this criterion. In addition, a discharge cannot interfere with an existing use, which "may be different or more extensive than the designated use"[50].

There are both minimum water quality standards, applicable to all classes, and numeric and narrative standards specific to each class. The minimum criteria prohibit discharge components which produce nuisance or toxic conditions[51]. To the extent that nutrient discharges could have such effects, they would violate the minimum standards. In that case they would also be likely to

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[46] Id., 62-4.070; 62-302.300(15).

[47] Id., 62-302.300(13)

[48] The moderating provisions include exemptions from water quality standards, Rule 62-4.243, mixing zones, rule 62-4.244 and site specific alternative criteria, rule 62-302.800. Dischargers who are violating water quality standards can also continue to operate under the terms of an administrative order, apply for a variance or seek reclassification of the affected waters. See generally, Jennifer L. Fitzwater, Relief from Florida Water Quality Criteria, 12.4, Florida Environmental and Land Use Law (August 2003).

[49] Fla. Stat. §403.021 (2007); Fla. Admin. Code r. 62-302.300(11), (14) (2007).

[50] Id., 62-302.300(14). A discharger can, however, show that a particular use is not attainable and overcome this prohibition.

[51] Fla. Admin. Code r. 62-302.500(1).

violate the specific narrative standards for nutrients.

There is a general prohibition on any substances, including nutrients, "in concentrations which result in the dominance of nuisance species"[52]. The narrative standard specific to nutrients states, "In no case shall nutrient concentrations of a body of water be altered so as to cause an imbalance in natural populations of aquatic flora or fauna.[53]" Determining the point at which an alteration of nutrient concentrations causes an imbalance can be extraordinarily difficult and conflicted. For example, in 1988 the United States sued the State of Florida and the South Florida Water Management District, alleging that operation of the water management system in South Florida caused an imbalance of flora and fauna[54]. In 1992 the lawsuit was settled[55], but it was not until 2004 that a numeric criterion for phosphorus was finally adopted[56].

Florida's nondegradation policy and implementing rules also control nutrient discharges. In addition to protecting existing and designated uses, the policy prohibits any degradation of water quality by a new discharge or the expansion of an existing discharge unless the degradation is "necessary or desirable under federal standards and under circumstances which are clearly in the public interest"[57] Degradation, for these purposes, includes "Man-induced nutrient enrichment (total nitrogen or total phosphorus). . .[58]" Factors for determining whether a discharge is clearly in the public interest are set forth at rule 62-4.242(1). Nutrient enrichment can be allowed by the DEP after considering and balancing these factors.

A related nondegradation standard protects waters that are designated as Outstanding Florida Waters (OFW) and thus entitled to the highest levels of protection[59]. Many of Florida's springs are designated as OFWs in Rule 62-302.700, F.A.C.. The standard applies to discharges or activities that are located within the boundaries of an OFW or that contribute to significant degradation of the OFW. Existing ambient water quality cannot be lowered as a result of the proposed activity or discharge[60]. The term "existing ambient water quality" is defined as the water quality that could reasonably have been expected, based on the best scientific information

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[52]Id., 62-302.530(46).

[53]Id., 62-302.530(47)(b).

[54]United States v. S. Fla. Water Management Dist., Case No. 88-1886 (S.D. Fla.).

[55]United States v. S. Fla. Water Management Dist., 847 F.Supp. 1567 (S.D.Fla.1992). Enforcement of the resulting consent decree has been similarly controversial. U.S. v. S.F.W.M.D., 373 F.Supp.2d 1338 (S.D. Fla. 2005).

[56] Fla. Admin. Code r. 62-302.540 (2007). For a comprehensive review of the issues and process see Miccosukee Tribe of Indians v. Dept of Envt'l Protection, Final Order, DOAH Case No. 03-2872RP (June 17, 2004). Approval of the standards by EPA was also challenged. Miccosukee Tribe of Indians v. U.S., 2006 WL 648055 (S.D. Fla. 2006).

[57]Fla. Admin. Code r. 62-302.300(17)(2007).

[58]Id., 62-302.530 (47) (a) (Table).

[59]Id., 62-302.700, 62-4.242(2). A slightly more stringent rule applies to Outstanding National Resource Waters, which are given additional protection against degradation to the extent required by federal rule 40 C.F.R. 131.12. Fla. Admin. code r. 62-4.242(2)(3)(2007).

[60]Id.,62-4.242(2)(a)2. The activity must also be "clearly in the public interest". Id. Note that the rule contains numerous exceptions and qualifications to these requirements.

available, to have existed during the baseline year for the particular OFW (i.e. the year prior to designation) or the year prior to a permit application[61].

Specific numeric nutrient standards can be established in several ways. The Legislature required the DEP to establish a numerical criterion for phosphorus in the Everglades[62]. Rule 62-40 provides for the development by water management districts or local governments of pollutant load reduction goals as part of watershed management plans or basin-specific criteria development[63] Most numeric criteria, however, are being developed as Total Maximum Daily Loads (TMDL), discussed below. The DEP also has an ongoing project to develop numeric criteria for nutrients that can be applied throughout the state[64].

TOTAL MAXIMUM DAILY LOADS

The Clean Water Act required the states to assess their waters to identify those areas where compliance with technology-based effluent limitations is not sufficient to achieve water quality standards[65]. For those waters, the state is required to establish a total maximum daily load (TMDL) for relevant pollutants at a level sufficient to meet the standards or EPA is required to establish one. EPA and the states effectively ignored this requirement until citizen groups had prevailed in a number of lawsuits to force compliance with the statutory mandate[66]. The result in Florida was a 1999 consent decree requiring EPA to establish TMDLs for almost 2000 waterbodies by 2011[67]. The Florida Legislature responded by enacting the Florida Watershed Protection Act[68], which established a process for developing and implementing TMDLs by the state. Florida now has a very comprehensive process for assessing waterbodies, establishing TMDLs and developing Basin Management Action Plans (BMAP) to address water quality violations[69]. TMDLs and BMAPs are being developed to address nutrient pollution in many areas. Whenever the state fails to develop a TMDL that meets federal criteria or the requirements of the consent decree, then EPA must establish one[70]. The Florida Legislature has directed the DEP to take action to develop and implement TMDLs for several specific waterbodies, including

[61]Id.,62-4.242(2)©

[62]Fla. Stat. §§373.4592(2)(m), (4)(e)(2007). The statute provided for a default standard of 10 ppb to be used if the scientific uncertainties could not be resolved sufficiently to adopt a rule by 2004. Id., §373.4592(4)(e)2.

[63]Fla. Admin. Code r. 62-40.210 (20), .430 (2007). The Districts are authorized to develop strategies for meeting water quality standards in Surface Water Improvement and Management (SWIM) plans. Fla. Stat. §373.453(2)(e) (2007).

[64]http://www.dep.state.fl.us/water/wqssp/nutrients/index.htm.

[65]33 U.S.C. §1313(d) (2007).

[66]OLIVER A. HOUCK, THE CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY AND IMPLEMENTATION (2d Ed. 2002). Environmental Law Institute, Washington.D.C. ISBN 1-58576-038-2.

[67]Florida Wildlife Federation v. Carol Browner, Case No. 4:98CV356-WS (N.D.Fla.).

[68]Fla. Stat. § 403.067 (2007).

[69]DEP TMDL documents are available at http://www.dep.state.fl.us/water/tmdl/index.htm.

[70]EPA TMDL documents are accessible at http://www.epa.gov/OWOW/TMDL/.

Lake Okeechobee and its tributaries[71], the Caloosahatchee[72], the St Lucie[73] and the Wekiva[74]. Legislation has been proposed to require the development of TMDLs for additional springs[75].

Impaired Waters

For the purpose of developing TMDLs, the DEP has assigned all of the state's watersheds to one of five groups, which it reviews every five years. The cycle begins by determining whether there is sufficient quality data to prove that a particular waterbody is "impaired", as defined in the impaired waters rule[76], to justify placement on the planning list for further evaluation and assessment. A waterbody is impaired if there is "objective and credible data, studies and reports" demonstrating that it does not meet water quality standards for a specific criterion[77]. The rule establishes stringent quality standards for the data that can be used in this assessment. If numeric criteria have been established, then narrative or biological criteria cannot be used as the basis for showing impairment unless the DEP demonstrates the numeric criteria are not adequate[78]. If impairment is based on narrative or biological criteria, "the specific factors concerning particular pollutants shall be identified prior to a total maximum daily load being developed for those criteria. . .[79]" For interpreting the narrative nutrient criteria, the rule sets forth specific guidance:

> Trophic state indices (TSIs) and annual mean chlorophyll a values shall be the primary means for assessing whether a water should be assessed further for nutrient impairment. Other information indicating an imbalance in flora or fauna due to nutrient enrichment, including, but not limited to, algal blooms, excessive macrophyte growth, decrease in the distribution (either in density or areal coverage) of seagrasses or other submerged aquatic vegetation, changes in algal species richness, and excessive diel oxygen swings, shall also be considered[80].

Specific nutrient criteria are also specified for streams[81], lakes[82] and estuaries[83].

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[71]Fla. Stat. §§ 373.4595(1)(e)-(h),(l), ©, (4) (2007).
[72]Id., § 373.4595(5).
[73]Id.,§ 373.4595(l), ©, (4).
[74]Id., § 369.318(1), (8).
[75]Proposed Florida Springs Protection Act, SB 2394 (02/28/2008). Earlier proposed legislation also relied on a modified TMDL process. See e.g., SB 2368 (03/08/2005), 2005 Regular Session, The Florida Senate. Use of the TMDL program to protect Florida springs was proposed by students in the Conservation Clinic at the University of Florida Levin College of Law. See http://www.law.ufl.edu/conservation/springs_narrative.shtml (visited April 22, 2008).
[76]Fla. Admin. Code r. 62-303 (2007).
[77]Fla. Stat. § 403.067(3)(b) (2007).
[78]Id., ©.
[79]Id.
[80] Fla. Admin. Code r. 62-303.350(1) (2007).
[81]Id., 62-303.351.
[82]Id., 62-303.352.

The Verified List

The next step is to determine whether to list the waterbody on the "verified list". For a water to be placed on this list due to nutrient enrichment, the DEP must have five years of data sufficient to develop a site-specific threshold for when an imbalance in flora or fauna occurs or to apply the generic thresholds for streams, lake and estuaries[84]. To add a water to the verified list, the DEP must be able to "specify the pollutant or pollutants causing the impairment and the concentration of the pollutant(s) causing the impairment.[85]" For waters impaired by nutrients, the DEP must identify whether it is limited by nitrogen, phosphorus or both[86]. Even if the water meets these criteria, it cannot be added to the verified list if the DEP determines that "existing or proposed technology-based effluent limitations and other pollution control programs under local, state, or federal authority are sufficient to result in the attainment of applicable water quality standards" in the future, with "reasonable progress" by the next cycle[87]. The verified list must be submitted to EPA for review and approval and is subject to challenge in state administrative courts as a final order[88].

Calculation and Allocation

The development of a TMDL is the next step in the process for those waterbodies that reach the verified list. For each pollutant specified in the verified list, the DEP must calculate the amount that can be received from all sources without exceeding water quality standards[89]. In calculating the TMDL, the DEP must account for seasonal variations and "include a margin of safety that takes into account any lack of knowledge concerning the relationship between effluent limitations and water quality[90]." The calculated load must then be allocated to the various sources contributing pollutants. The DEP may allocate loadings between point and nonpoint sources, among basins and among sources. The allocation must be "reasonable and equitable" and based on consideration of ten listed factors[91]. TMDLs are adopted as rules by the Secretary. Detailed allocations may be left to the Basin Management Action Plan.

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[83]Id., 62-303.353. Open coastal waters are also included.
[84]Id., 62-303.450.
[85]Id., 62-303.710(1).
[86]Id., 62-303.710(4).
[87]Id., 62-303.600. An example of such a case is the Suwannee River Partnership. Ayşin Dedekorkut, Suwannee River Partnership: Representation Instead of Regulation, Ch 2 in JOHN T. SCHOLTZ AND BRUCE STIFTEL, EDS., ADAPTIVE GOVERNANCE AND WATER CONFLICT: NEW INSTITUTIONS FOR COLLABORATIVE PLANNING (2005). Resources for the Future, Washington, D.C. ISBN 1-933115-18-1.
[88]Winston K. Borkowski, Total Maximum Daily Loads in Florida– The New Millennium, 12.5-5 in Florida Environmental and Land Use Law (June 2007).
[89]Fla. Stat. § 403.067(6)(a)2 (2007).
[90]Id.
[91]Id., §403.067(6)(b).

Basin Management Action Plans (BMAP)

Basin Management Action Plans (BMAP) are the foundation for implementation of an adopted TMDL. BMAPs are intended to integrate existing water management strategies to achieve water quality standards and equitably allocate pollutant reductions. They must include an implementation schedule, a basis for evaluating the plan's effectiveness, feasible funding strategies and mechanisms to address future increases in pollutant loading. Phased implementation is allowed. Credits may be granted to sources that reduced pollutant loads prior to development of the BMAP. The plan must include provisions for monitoring water quality and revising the plan in response to the results[92].

The BMAP may include such nonregulatory measures as public works construction, land acquisition, education, waste minimization, pollution prevention, interagency agreements and further planning[93]. The BMAP must also affect permitting. NPDES permits may be reopened to incorporate conditions to implement the plan[94]. If the NPDES permit regulates stormwater discharges, the obligation of the permittee is to implement "best management practices or other management measures" "to the maximum extent practicable.[95]" For other permitted, nonagricultural dischargers, the pollutant reduction actions in the BMAP must be implemented "to the maximum extent practicable.[96]"

Nonpoint sources are also subject to the BMAP, thus bringing many of them within a regulatory framework for the first time. Nonpoint dischargers identified in the BMAP must demonstrate compliance by either implementing best management practices (BMP) or conducting water quality monitoring[97]. A further incentive for implementing BMPs is that the discharger cannot be required to implement measures by "permit, enforcement action, or otherwise. . .[98]" BMPs provide a presumption of compliance with state water quality standards and release from liability for reimbursement of the Water Quality Assurance Trust Fund for contamination-related expenses[99]. BMPs thus set a maximum limit on regulatory requirements.

Mandatory BMPs must be adopted as rules by the DEP, a water management district or the Department of Agriculture and Consumer Services (DACS)[100]. The DEP and the water management districts have authority to adopt BMPs for "nonagricultural, nonpoint pollutant sources" and DACS has authority to adopt them for "agricultural pollutant sources". The

[92]Id., §403.067(7)(a)5.
[93]Id., §403.067(7)(b)1.b-f.
[94]Id., §403.067(7)(b)2.a.
[95]Id, §403.067(7)2.b.
[96]Id, §403.067(7)2.b.f.
[97]Id., §403.067(7)(b)2.g.
[98]Id., §403.067(7)(b)2.i.
[99]Id., §403.067(7)(c)3. The shield also extends to research projects that are developing or demonstrating BMPs. Id.
[100]Id., §403.067(7)©. The term "BMP" means what this section actually refers to as "interim measures, best management practices, or other measures necessary to achieve the level of pollution reduction established by the department. . ." Id.

effectiveness of all BMPs must be verified at representative sites by the DEP[101]. An initial verification based on "best professional judgement" that BMPs are "reasonably expected to be effective" must be made by the DEP before BMPs are adopted as rules[102]. If water quality problems persist despite the implementation of BMPs, they must be reevaluated and, if modifications are warranted, they must be implemented within a reasonable time period[103].

STORMWATER

Stormwater conveys nutrients to both ground and surface waters, and one of the objectives of stormwater regulation has been to control those inputs. In Florida, stormwater may be regulated by any combination of the DEP, a water management district or a local government, depending on where in the state the discharge is located, the date the discharge was permitted, the activity generating the stormwater and other permits that may be required for the facility.

Florida first enacted a comprehensive stormwater rule in 1982 to regulate the construction of new stormwater systems[104]. Florida's water management districts also exercised authority over the construction and operation of surface water management systems under Part IV of the Water Resources Act of 1972. To streamline permitting and eliminate duplication, the regulation of stormwater in most areas of the state today has been consolidated into an Environmental Resource Permit (ERP), issued by either the DEP or a water management district[105]. Older permitting criteria still apply, however, to many existing developments or ongoing vested development activities. A further complexity stems from the phasing in of requirements for some stormwater dischargers to obtain NPDES permits. In order to achieve more uniformity in stormwater regulation and greater effectiveness in controlling nutrients, the DEP has begun the process of developing a new statewide stormwater rule[106].

The Water Resource Implementation Rule sets forth the goals for stormwater permitting[107]. In addition to controlling pollution, the program is intended to maintain and restore salinity and flow regimes and groundwater recharge. It established the policy that if a stormwater system is designed to meet the criteria of the relevant rules, there is a rebuttable presumption that it will

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[101]Id., 403.067(7)(c)3

[102]Id.

[103]Id., 403.067(7)(c)4

[104]Fla. Admin. Code r. 62-35 (2007). The Department of Environmental Regulation (DER), DEP's predecessor, implemented the rule.

[105]The division of responsibility between DEP and the water management districts is governed by operating agreements. ERP permitting authority may also be delegated to local governments. Many local governments also regulate stormwater under their own authorities. Stormwater utilities have become a popular means of paying for stormwater system maintenance and improvements.

[106]DEP is proposing to develop Rule 62-347. A draft is not yet available. See http://www.dep.state.fl.us/water/rules_dr.htm#erp (visited 12-20-07). See also Chad Kennedy, DEP, Florida's Unified Stormwater Rule Status, Presentation to Lake Okeechobee WRAC, November 2007 (Powerpoint slides available at sfwmd.gov).

[107]Fla. Admin. Code r. 62-40.431(2)(a) (2007).

not cause or contribute to violations of state water quality standards and will achieve an 80% reduction in the average annual loading of pollutants. For stormwater discharges to Outstanding Florida Waters (OFW), the goal is a 95% reduction. Each of the water management districts has rules regulating the construction and operation of stormwater systems[108]. The criteria adopted by the Districts vary significantly, but all rely on a combination of retention, detention and filtration to meet the pollutant load reduction goals. A recent review of the criteria and site conditions, however, determined that current permitted designs only remove 40-50% of the nutrients[109]. There may thus be no rational basis as to nutrients for the presumption.

A problem with the current criteria relevant to springs protection is that the goals for pollutant removal are intended to protect surface water quality. The retention of stormwater that recharges groundwater may contribute to achieving pollutant reduction goals for discharge to surface water, but it does so at the cost of transferring nutrients to the groundwater system. Only the St Johns River Water Management District has adopted any special criteria for groundwater protection. In a Sensitive Karst Area designated for parts of Alachua and Marion Counties special criteria apply to the construction and maintenance of stormwater basins to minimize the potential for the development of sinkholes or solution pipes to convey stormwater directly to the underlying aquifer[110]. These criteria primarily help to maintain whatever treatment is provided by the system as designed and constructed. Deficiencies in treatment capability are somewhat addressed by requirements for additional soil in stormwater basins. In the Wekiva Recharge Area, special basin criteria require the retention of three inches of runoff on certain soils, but do not enhance the removal of pollutants conveyed to groundwater[111].

ERP permits apply to both construction and operation of the permitted system. Once a system is permitted, and constructed as designed, however, the operation of the system is licensed in perpetuity. Provisions for continuing inspection and maintenance are relatively weak. Most importantly, there are no means for requiring older systems to be upgraded to incorporate additional pollution control measures[112]. The NPDES stormwater permitting system addresses that deficiency for a limited class of stormwater systems and, for discharges to nutrient impaired waters, the Basin Management Action Plans (BMAP) of the TMDL program may provide a means for requiring increased pollutant reductions.

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[108] St Johns River Water Management District, Id., 40C-42 (stormwater), 40C-41 (basin criteria), 40C-44 (agricultural surface water); South Florida Water Management District, Basis of Review for Environmental Resource Permit Applications (July 22, 2007); Northwest Florida Water Management District, Id., 62-346; Southwest Florida Water Management District, Id., 40D-4, 40, 400 and Basis of Review; Suwanee River Water Management District, Id., 40B-4.

[109] Harvey H. Harper and David M. Baker, Evaluation of Current Stormwater Design Criteria within the State of Florida (June 2007). Final Report to Florida Department of Environmental Protection, DEP Contract No. S0108.

[110] Fla. Admin. Code r. 40C-41.063(7) (2007).

[111] Id., 40C-41.063(3)(a).

[112] The general prohibition on causing or contributing to violations of water quality standards may still apply to permitted systems, but that is difficult to enforce.

NPDES Stormwater Permitting

Many of the facilities that collect and convey stormwater to navigable waters clearly meet the federal definition of a "point source". Nevertheless, because such systems often collect pollutants generated by many other sources and are controlled by government entities, Congress and EPA delayed requiring NPDES permits for many years. In 1990 EPA began to phase in a regulatory program[113]. Phase I required NPDES permits for larger municipal separate storm sewer systems (MS4), large construction sites and some industrial sites. In 1999, Phase II extended the program to smaller municipalities and construction sites[114]. Authority to implement the program has been delegated to the DEP, which has adopted NPDES stormwater rules[115]. These rules require monitoring, the development of a Stormwater Management Program (SWMP) and the reduction of pollutants discharged to the Maximum Extent Practicable[116]. Because MS4 stormwater permits cannot be issued for longer than 5 years[117], permit renewal provides an opportunity not currently available through the ERP program to require improved performance and correction of problems.

SEPTIC TANKS

Septic tank and drainfield systems, a type of Onsite Sewage Treatment and Disposal System (OSTDS), are used to treat the wastewater of approximately 1/3 of Florida's population and are a major source of artificial groundwater recharge.[118]. OSTDS are regulated by the Department of Health under authority intended to ensure they do not "adversely affect the public health or significantly degrade the groundwater or surface water[119]." Traditional septic systems can be installed in subdivisions of up to four lots per acre, provided the lots are also served by a public water supply and other criteria are met; if there is no public water supply, the minimum lot size is one half acre. Septic systems must be sized according to the projected load and meet standards for the quality of the soils, depth to the water table, and setbacks from wells and surface water bodies. Generally, there must be 42 inches of suitable soils below the bottom of the drainfield[120] and it must be at least two feet above the wet season water table[121]. The drainfield must be set back at least 75 feet from a permanent surface water and 15 feet from a swale or retention area. These standards provide for treatment of wastewater by the soil, which is generally very effective in removing pollutants, with the exception of nitrogen. The criteria can be substantially relaxed for lots in older subdivisions[122]. Variances may also be granted to relieve hardships where there is no reasonable alternative for waste disposal and the onsite system will not

[113]55 FR 47990 (Nov. 16, 1990).
[114]64 FR 68722 (Dec 8, 1999).
[115]Fla. Admin. Code r.62-624 (2007) (MS4).
[116]Id., 62-624.500.
[117]Id., 62-624.300(5).
[118]Florida Department of Health, Nitrogen Impact of Onsite Sewage Treatment and Disposal Systems in the Wekiva Area 1-20, 3 (June 30, 2007).
[119]Fla. Stat. §381.0065(1) (2007). Fla. Admin. Code r. 64E-6 provides standards for OSTDS.
[120]Id., 64E-6.006(1).
[121]Id., 64E-6.006(2)
[122]Fla. Stat. §381.0065(4)(g)(2007).

adversely affect health or "significantly degrade the groundwater or surface waters[123]."

Alternatives to traditional systems that are designed by engineers to meet specified performance standards must be approved[124]. Alternatives include aerobic treatment systems and so-called performance-based treatment systems. The owner of such a system must have a maintenance contract with an approved entity and an operating permit from the County Health Department[125]. Whenever a central sewer system becomes available, the owner of an OSTDS can be required to connect to it[126].

More restrictive criteria for OSTDS have been adopted by statute for the floodways of the Suwannee and Aucilla Rivers[127] and the Florida Keys[128]. Recommendations for improved regulation of OSTDS have been made for systems installed in the Wekiva Study Area[129].

Local governments can adopt more stringent regulations on construction, performance, setbacks or maintenance of OSTDS through local comprehensive plans and land development regulations. For example, in the Green Swamp Area of Critical State Concern, two counties have adopted ordinances requiring periodic maintenance. Wakulla County requires higher levels of nitrogen removal by installation of performance-based systems.

LAND USE PLANNING AND REGULATION

The loading of nutrients to a spring is closely related to the type, intensity and design of land uses in the springshed. Regulatory programs affect land use, but do not provide the kind of comprehensive planning and control of land use that is required to manage nutrient inputs. Florida's growth management system emphasizes the development and implementation of local government comprehensive plans to control land use.

Florida's Local Government Comprehensive Planning and Land Development Regulation Act[130] (hereinafter "Growth Management Act") requires every local government in the state to adopt, periodically revise and implement a local comprehensive plan. The local comprehensive plan must be "consistent" with the goals, objectives and policies of the State Comprehensive Plan[131] and the strategic regional policy plan of the relevant Regional Planning Council[132]. The Florida

[123]Id., §381.0065(4)(h).
[124]Id., §381.0065(4)(j).
[125]Id., §381.0065(4)(j)4.
[126]Id., §381.00655.
[127]Id., §381.0065(4)(t)(2007). The regulatory floodway is defined to include the 10 year floodplain.
[128]Fla. Admin. Code r. 64E-6.017-.0182 (2007).
[129]Florida Department of Health, Nitrogen Impact of Onsite Sewage Treatment and Disposal Systems in the Wekiva Area 1-20, 16-17 (June 30, 2007).
[130] Fla. Stat. ch. 163, Pt. II (2007).
[131]Id., ch 187.
[132]Consistency of the local comprehensive plan with the state comprehensive and the strategic

Department of Community Affairs (DCA), which oversees the process at the state level, has adopted criteria in Rule 9J-5 for making such determinations. The Act requires that local land development regulations be consistent with and implement the goals, objectives and policies of the adopted comprehensive plan[133]. It also requires that land development be consistent with the adopted plan[134].

A local government's comprehensive plan must incorporate various elements potentially relevant to protecting springs and springsheds. Four of the most pertinent elements are: a Future Land Use Element; a Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Recharge Element; a Conservation Element; and an Intergovernmental Coordination Element.
The Future Land Use element must include protections for potable water wellfields and protection of environmentally sensitive lands[135]. The Sanitary Sewer, Solid Waste, Drainage, Potable Water, and Natural Groundwater Recharge Element requires identification of natural drainage features/groundwater recharge areas, assessment of current land use regulations related to these issues, and objectives and policies for implementation of land use regulation to protect drainage and recharge functions[136]. The Conservation Element must identify natural resources, including groundwater, and incorporate objectives and policies to conserve such resources[137]. Finally, the Intergovernmental Coordination Element requires analysis of current intergovernmental coordination, specific objectives for future coordination, and policies addressing each objective[138]. This element could serve a crucial role in encouraging the intergovernmental coordination necessary for effective protection of springsheds that lie in more than one local government. Coordination also must exist to adequately account for springs protection during water supply planning and under water management district regulatory programs. Sources of water supply adequate to provide for planned growth must be identified. Furthermore, when the Department of Community Affairs (DCA) gives assistance to local governments with their comprehensive plan, DCA must consider, among other things, groundwater recharge.

Local governments must evaluate and update their comprehensive plans every seven years[139]. This evaluation includes consideration of water management district regional water supply plans

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regional policy plan exists if the local plan is compatible with and furthers those plans. It is "compatible" if it does not conflict and it "furthers" a plan if it takes "action in the direction of realizing" the goal or policies of the plan. Id., § 163.3177(10)(b). Consistency with regional water supply plans is also effectively required. Id., §3177(6).

[133]Id.,§163.3194, .3202.

[134]Id.,§163.3194(1).

[135]Id., §163.3177(6)(a) (2006). Fla. Admin. Code r. 9J-5.006 (2007).

[136] Fla. Stat. § 163.3177(6)© (2007. Fla. Admin. Code r. 9J-5.011(2007).

[137]Fla. Stat. § 163.3177(6)(d) (2007). Fla. Admin. Code r. 9J-5.013 (2007).

[138]Fla. Stat. §163.3177(6)(h) (2007. Fla. Admin. Code r. 9J-5.015 (2007).

[139]Fla. Stat. §163.3191 (2007).

and any groundwater issues identified as "major"[140]. Water management districts, the DEP, and DCA all have an opportunity to comment on draft evaluations of local government comprehensive plans, thus giving them a chance for input to help protect springs. Only the DCA, however, has the authority to determine that an amendment is not in compliance with the Act[141]. The DCA and the DEP have published a handbook for local governments to use in developing policies for springs protection[142]. The DCA is also developing a model land development code for springs protection[143].

The state has assumed a stronger role in supervising local land use decisions in certain areas of the state. The Governor and Cabinet, sitting as the Administration Commission, is authorized to designate "areas of critical state concern" in order to promote protection of and reverse deterioration of water resources in those areas[144]. The statute authorizing areas of critical state concern specifically refers to environmental resources and aquifer recharge areas[145]. Local comprehensive plans and land development regulations must be consistent with Principles for Guiding Development adopted by the Administration Commission[146]. The protection of water quality has clearly been an important goal for designating ACSC such as the Florida Keys, Big Cypress, and Green Swamp[147]. While designation as an area of critical state concern could help preserve springs, only five percent of the state can be so designated, thus limiting the usefulness of this tool in its current form.

The Florida Legislature can also specifically compel local governments to adopt policies to protect certain springs, In the Wekiva Parkway and Protection Act, the Legislature required each local government within the Wekiva Study Area to amend appropriate elements of its comprehensive plan to implement a master stormwater management plan and "establish land use strategies that optimize open space and promote a pattern of development on a jurisdiction-wide basis that protects the most effective recharge areas, karst features, and sensitive natural habitats including Longleaf Pine, Sand Hill, Sand Pine, and Xeric Oak Scrub[148]." Legislation proposed to protect Silver and Rainbow Springs would require local governments to "adopt local land

[140]Id., §163.3191(1)© (2007).

[141]Id., §163.3184 (2007). DCA's determination is, however, subject to challenge before an administrative law judge and an ultimate determination, based on that record, by the Administration Commission.

[142]Fla. Dept. of Envt'l Protection and Fla. Dept. of Community Affairs, Protecting Florida's Springs: Land Use Planning Strategies and Best Management Practices (November 2002). Available at http://www.dca.state.fl.us/fdcp/dcp/publications/index.cfm (visited Jan 8, 2008).

[143]http://www.dca.state.fl.us/fdcp/DCP/springs/index.cfm (visited Jan. 8, 2008).

[144]Fla. Stat. §380.05 (2007)..

[145]Id., §380.05(2)(a) (2007).

[146]Id., § 380.05(1)(b)2

[147]http://www.dca.state.fl.us/fdcp/dcp/acsc/index.cfm (visited Feb 13, 2007).

[148]Fla. Stat. §369.321(3) (2007).

development regulations and other local requirements to minimize harmful impacts to the springs[149]."

State statutes can also limit the authority of local governments to plan and regulate for springs protection. For example, agricultural activities do not fall within the scope of "development" for the purposes of comprehensive plans and thus are not regulated by comprehensive plans[150]. Local governments may not enforce new regulations for agricultural activities already regulated by or subject to best management practices promulgated by DEP, the Department of Agriculture and Consumer Services (DACS), a water management district, or a federal entity[151]. Thus, while agriculture is a significant contributor of nutrients to springs and springsheds in many areas of the state, counties and municipalities have limited authority to improve their regulation of agricultural practices.

Local governments have also been prohibited from restricting the density of residential and commercial development in so-called "agricultural enclaves[152]" and cannot impose an "inordinate burden" on any landowner without payment of compensation[153].

One area of current controversy concerns the authority of local governments to regulate the use of fertilizers within their jurisdictions. Many local governments have adopted or proposed regulations to limit nonagricultural fertilizer use[154]. Apparent concern for regulatory over-reaching and confusion led the 2007 Legislature to create a Consumer Fertilizer Task Force[155]. Among the charges to the was the following:

> Recommending methods to ensure local ordinances are based on best available data and science and to achieve uniformity among local government ordinances where possible, unless local ordinance variations are necessary to meet mandated state and federal water quality standards[156].

The Task Force report recommends legislation to authorize local governments to regulate fertilizer use by adopting a specified "model ordinance"[157]. Local governments could adopt more

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[149]Proposed legislation 10-16-07, adding section 369.406(1), F.S.

[150]Fla. Stat. § 380.04 (2007), referred to by Id., §163.3164(6).

[151]Id., §§ 163.3162, 823.14(6); J-II Investments v. Leon Cty., 908 So. 2d 1140 (Fla. 1st DCA 2005).

[152] Fla. Stat. §§163.3162(5), (33) (2007).

[153]Id., §§70.001-.80.

[154]See the undated compilation of "local fertilizer use ordinances" at http://consensus.fsu.edu/Fertilizer-Task-Force/legislation.html (visited April 22, 2008).

[155]S. 10, Ch. 2007-232, Laws of Florida, codified at Fla. Stat. §576.092 (2007).

[156]Id., §576.092(2)(a)4.

[157]Florida Department of Agriculture and Consumer Services, Florida Consumer Fertilizer Task Force, Final Report to the 2008 Florida Legislature, Appendix # 4 (January 15, 2008)

stringent limitations only under the following conditions:

- They have verified impaired waters and are facing existing or possible TMDL requirements (under state and federal laws); or
- They have verified harm to human health or harm to the environment that warrants additional consumer fertilizer requirements; or
- That they will improve water quality or prevent future impacts of consumer fertilizers on the environment[158]. The 2008 Legislature is considering bills to implement the Task Force recommendations[159].

Available at http://consensus.fsu.edu/Fertilizer-Task-Force/index.html (visited April 22, 2008).

[158] Id.

[159]S2352 and H1267, 2008 Regular Session, Florida Legislature.