

1 **Protecting Florida's Endangered Springs: A Proposed Model Law**

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9 An act relating to natural resource conservation known as the
10 Florida Springs Protection Act, creating Ch. 369 Part III, comprising;
11 s. 369.401, providing a short title; s. 369.403, providing legislative
12 intent; s. 369.405, providing definitions for this section; s. 369.407,
13 requiring the Florida Department of Environmental Protection to
14 delineate springsheds and spring protection zones; s. 369.409, requiring
15 that those local governments whose jurisdiction includes first or second
16 magnitude springs, or protection zones for such springs, review their
17 comprehensive plans and if necessary, amend the plans to protect spring
18 water quality; s. 369.411, requiring the Florida Department of
19 Environmental Protection to establish and implement total maximum daily
20 loads of nutrients for all first and second magnitude springs, and s.
21 369.413 prohibiting¹ certain new land uses within primary protection
22 zones.

23 **CHAPTER 369²**

24 **PART III**

25 **SPRINGS PROTECTION**

- 26
27 369.401 Short title.--
28 369.403 Legislative Intent.--
29 369.405 Definitions.--
30 369.407 Delineation of springsheds and primary and secondary protection
31 zones.--
32 369.409 Establishment and implementation of total maximum daily loads
33 of nutrients for first and second magnitude springs.--
34 369.411 Review and amendment of local comprehensive plans to protect
35 spring water quantity and quality.--
36 369.413 Prohibited land uses within primary protection zone.--
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38 Be It Enacted by the Legislature of the State of Florida.

¹ Or "restricting," depending on the final version. See footnotes 31-32.

² Act placed in Chapter 369, entitled "Conservation" as a stand alone section, rather than amending multiple sections of Florida statutes piecemeal. Parts I & II of Chapter 369 are entitled "Aquatic Plant Control" and "Wekiva River Protection," respectively.

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369.401 Short title.--This part may be cited as the "Florida Springs Protection Act."

369.403 Legislative Intent.--

(1) The Legislature recognizes that Florida's springs are a precious and fragile natural resource that must be protected. Florida's springs provide recreational opportunities for swimmers, boaters, wildlife watchers, and cave divers. Because of these recreational opportunities, and accompanying tourism, many of Florida's springs provide great financial benefits to local economies. In addition, springs provide critical habitat for numerous endangered or threatened species of plants and animals and serve as indicators of the quality of groundwater resources in general.

(2) The Legislature recognizes that a spring is only as healthy as its springshed. The groundwater that supplies springs is recharged by seepage from the surface and through direct conduits such as sinkholes. As a result, the health of the spring systems is directly influenced by activities and land uses within the springshed.

(3) The Legislature recognizes that several of Florida's springs have experienced a decrease in spring flow from historic levels. In addition, numerous Florida springs, including Crystal Springs, De Leon Springs, Fanning Springs, Lithia Springs, Manatee Springs, Ponce De Leon Springs, Rainbow Springs, Silver Springs, Wakulla Springs, Weeki Wachee Springs, and Wekiwa Springs currently have elevated nutrient concentrations, as determined by Florida Department of Environmental Protection bioassessments. Elevated nutrient concentrations typically result from nitrogen loading in the springshed and often lead to an increase in the growth of undesirable plants and algae³, which decreases spring water clarity and changes both the aesthetic qualities and the natural ecology of springs.

(4) The Legislature recognizes that Florida's standards regulating nutrient concentrations in ground water are based on criteria designed to protect human health and are therefore insufficient to protect the biological and ecological integrity of Florida's springs.

(5) The Legislature recognizes that springsheds and areas of high vulnerability within springsheds are not clearly delineated and that to adequately protect springs, the springsheds must be delineated and characterized using the best available data.

³ As noted by FDEP scientists, though conventional wisdom associates undesirable algal growth in springs with elevated nitrate concentrations, this link has not been established with scientific certainty. Thus, this statement of causation may have to be revised pending the outcome of investigations into this link, such as that being performed by Dr. R. Jan Stephenson entitled "Ecological Conditions of Algae and Nutrients in Florida Springs."

1 (6) The Legislature recognizes that because springsheds cross local
2 government jurisdictional boundaries, a coordinated, statewide spring
3 protection plan is required.

4 (7) It is the intent of the Legislature that local governments whose
5 jurisdictions are within springsheds emphasize the importance of this
6 state resource in their planning and regulation efforts.

7 (8) It is the intent of the Legislature that future amendments to
8 comprehensive plans promulgated by local governments whose jurisdictions
9 are within the springsheds of first and second magnitude or other
10 smaller springs include land development regulations that protect the
11 water quantity and quality of those springs.

12 (9) It is the intent of the Legislature that state agencies and Water
13 Management Districts work together with local governments to provide the
14 data necessary to delineate springsheds and primary and secondary
15 protection zones and to develop adequate comprehensive plans and land
16 development regulations to protect Florida springs.

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18 **369.405 Definitions.--**

19 As used in this part:

20 (1) "First and second magnitude springs" means those springs identified
21 as first or second magnitude by the Florida Geological Survey in
22 Bulletin 66 (2004).⁴

23 (2) "Karst features" means physical features in limestone such as
24 sinkholes, depressions, and solution tubes that act as conduits reducing
25 the travel time of water through limestone as compared to soil or to
26 limestone lacking karst features.

27 (3) "Local comprehensive plan" means a comprehensive plan adopted
28 pursuant to ss. 163.3164-163.3215.

29 (4) "Local government" means a local government whose jurisdiction
30 includes a first or second magnitude spring, or any part of a primary or
31 secondary protection zone for a first or second magnitude spring.⁵

32 (5) "Primary protection zone" means the geographic area within a
33 springshed, identified by the Florida Department of Environmental
34 Protection under s. 369.407, that, because of its proximity or

⁴ As of this draft, Bulletin 66 has not yet been published.

⁵ It has been suggested that this definition be broadened to include all local governments whose jurisdiction includes a springshed for any sized spring, so as to protect smaller springs. To avoid this definitional problem, this could be changed to simply list the counties to which this Act applies. Such an approach, which explicitly places an unequal burden on some counties, has survived an equal protection challenge in the conceptually similar Areas of Critical State Concern program.

1 connectivity to the spring or its karst features, or both, contributes
2 most directly to a spring's water quantity and quality.⁶

3 (6) "Reclaimed water" means waste water that has received at least
4 secondary treatment and basic disinfection and is reused after flowing
5 out of a domestic wastewater treatment facility.⁷

6 (7) "Reuse" means the deliberate application of reclaimed water, in
7 compliance with the Department of Environmental Regulation and Water
8 Management District rules, for a beneficial purpose.

9 (8) "Secondary protection zone" means the geographic area within a
10 springshed, identified by the Florida Department of Environmental
11 Protection under s. 369.407, that because of its location in the
12 springshed,⁸ has a significant effect on spring water quantity and
13 quality.

14 (9) "Spring" means a point where underground water emerges onto the
15 Earth's surface, including the bottom of the ocean.⁹

16 (10) "Springshed" means those areas within ground and surface water
17 basins that contribute to the discharge of a spring.¹⁰

18 (11) "Travel time" means the time required for water to travel
19 horizontally, vertically, or combination thereof, from any point in the
20 springshed to the point at which it emerges from the ground contributing
21 to the flow of a spring or spring run.

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23 **369.407 Delineation of springsheds and primary and secondary**
24 **protection zones.--**

25 (1) The Florida Department of Environmental Protection, in cooperation
26 with Florida Geological Survey and Water Management Districts, shall
27 delineate springsheds and primary and secondary protection zones for
28 first and second magnitude springs.¹¹

⁶ This dual zone scheme is adapted from that proposed in the Florida Department of Community Affairs publication: *Protecting Florida's Springs: Land Use Planning Strategies and Best Management Practices*, (2003). Other systems have been suggested, such as the three-zone scheme described in the *Florida Springs Task Force Report*, (2000).

⁷ This is FDEP's definition, and the definition used throughout the Florida Administrative Code.

⁸ This definition is intentionally broad to allow FDEP to develop a more precise standard. Formerly, this definition read: "that abuts the primary protection zone and therefore has a significant effect...." This was determined to be too limiting because it required the secondary zone to actually abut the primary zone and future data may show that certain isolated areas are more vulnerable than contiguous areas.

⁹ This definition, while seemingly broad, is the definition used in the Florida Geological Survey's Special Publication No. 52, "Florida Spring Classification System and Spring Glossary."

¹⁰ This definition, like that for "spring," is from FGS Special Pub. No. 52. It is different from the previous definition in that it includes surface water.

¹¹ Portions of this work, in particular springshed delineation, are already being performed by FGS. FGS's classification system includes as first and

1 (2) The delineation of springsheds and primary and secondary protection
2 zones shall be accomplished using best available data from Water
3 Management Districts, the Florida Geological Survey, and other credible
4 sources. The delineation of protection zones shall be based on a
5 consideration of the following:

- 6 (a) Proximity or connectivity to the spring
- 7 (b) Travel time
- 8 (c) Proximity to karst features
- 9 (d) Hydrogeologic characteristics of the springshed such as the
10 nature and extent of confining units within the groundwater flow
11 system and the location of areas delineated as recharge areas¹²
- 12 (e) Areas that contribute surface water drainage or overland flow to
13 the spring and its surrounding area¹³
- 14 (f) Data from Florida Geological Survey's Florida Aquifer
15 Vulnerability Assessment
- 16 (g) Other objective and credible data.¹⁴

17 (3) The delineation of springsheds and primary and secondary protection
18 zones shall be completed no later than 3 years after this Act takes
19 effect.¹⁵

20 (4) The Florida Department of Environmental Protection shall adopt
21 rules, pursuant to ss. 120.536(1) and 120.54, to implement the
22 provisions of this chapter.

23 (5) The springsheds and primary and secondary protection zones
24 delineated pursuant to s. 369.407(1) and the rules adopted pursuant to
25 s. 369.407(4) shall be periodically reviewed and amended as necessary.

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27 **369.409 Review and amendment of local comprehensive plans to protect¹⁶**
28 **spring water quantity and quality.--**

second magnitude springs, both single springs and spring groups whose cumulative contribution to the spring run exceeds the minimum flow for that designation. Because there may be smaller springs worthy of protection, an option would be to simply list those springs by name. This, however, would likely require the creation of a procedure by which individual springs could be added to such a list.

¹² Added by suggestion.

¹³ Added by suggestion, to address surface water nutrient inputs to the spring run as well and to match FGS definition of "springshed."

¹⁴ This is the language used in s. 463.067, Florida's TMDL statute.

¹⁵ This section, rather than imposing a single time limit for all springsheds and protection zones, could instead direct FDEP to synchronize individual delineations to local government comp plan Evaluation and Appraisal Reports, giving each local government at least one year before its EAR is due to amend its comp plan. Or, it could retain the 3 year limit, and direct FDEP to delineate the springsheds and protection zones in the same order that the local governments' EARs are due.

1 (1) Upon the Department of Environmental Protection's completion of
2 springshed and protection zone delineations, as required under s.
3 369.407, each local government shall, as part of its evaluation and
4 appraisal report required under s. 163.3191, review its local
5 comprehensive plan and recommend amendments to the comprehensive plan to
6 ensure that it contains goals, objectives, and policies that result in
7 the protection of the quantity and quality of water discharged from any
8 first or second magnitude spring whose springshed¹⁷ is located wholly or
9 partly within the jurisdiction of the local government.¹⁸

10 (2) After considering the recommendations in the evaluation and
11 appraisal report, each local government shall adopt measures to ensure
12 that the cumulative impacts of land use within its jurisdiction:¹⁹

13 (a) do not affect the quality of groundwater recharge within the
14 springshed to the extent that spring nutrient concentrations
15 exceed current levels, and

16 (b) do not reduce the potential for groundwater recharge within the
17 springshed below current levels.²⁰

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19 **369.411 Establishment and implementation of total maximum daily loads**
20 **of nutrients for first and second magnitude springs.**²¹--

¹⁶ "Protect," as used in this section, means to maintain springshed recharge quantity and quality at current levels.

¹⁷ This currently includes the entire springshed and, if necessary, could be restricted to just the primary and secondary protection zones.

¹⁸ It has been suggested that this section be modified (or a new section added) to give local governments with smaller (non-first or second magnitude) springs the authority to modify their comp plans in the same manner as required of local governments with first and second magnitude springs.

¹⁹ This limits a local government's responsibility to development it has the authority to control.

²⁰ This quantitative requirement was added to provide more broad protection of groundwater recharge, independent of its relationship to spring nutrient concentrations. It is phrased in terms of "recharge potential," as opposed to absolute recharge quantity; to account for the fact that absolute recharge is affected by things other than development. However, recharge potential may then have to be defined to mean the ability of rain (or surface) water to actually recharge the aquifer, and to exclude a situation such as the "recharge potential" created when an active well reduces the local potentiometric surface relative to surrounding areas.

²¹ A previously discussed alternative would, instead of requiring TMDLs for all first and second magnitude springs, mandate that FDEP first establish a statewide nutrient threshold (e.g. 1.0 mg/L nitrate) that, when surpassed, requires TMDLs to be established and implemented for those springs. Springs below this threshold would be exempt from the establishment of TMDLs, unless and until they surpassed this threshold. Such a system would reduce the scientific workload of FDEP. However, this option would ignore known (and currently unknown but potentially detectable) "nutrient pulses" traveling toward springs in the aquifer. These pulses, if detected before reaching the spring, could be addressed ahead of time in TMDL implementation, but not if the spring must first exceed a nutrient threshold. Consequently, a nutrient threshold system would

- 1 (1) For purposes of implementing s. 369.409, within ten years of this
2 Act becoming law,²² the Florida Department of Environmental Protection
3 shall, pursuant to s. 403.067, establish and implement Total Maximum
4 Daily Loads of nutrients for all first and second magnitude springs in
5 the state.²³
- 6 (2) In establishing and implementing the total maximum daily loads of
7 nutrients for springs, the Florida Department of Environmental
8 Protection, or the Florida Department of Environmental Protection in
9 conjunction with appropriate water management districts, shall develop a
10 watershed or basin management plan²⁴, as specified in s. 403.067(7), that
11 addresses protection of springshed water quantity and quality.²⁵
- 12 (3) The establishment and implementation of total maximum daily loads
13 of nutrients shall include the reasonable and equitable allocation of
14 the total maximum daily loads to each local government.²⁶
- 15 (4) The total maximum daily loads of nutrients shall be established at
16 levels that²⁷:
- 17 (a) Protect, maintain or, if necessary, restore spring water clarity
 - 18 (b) Prevent or, if necessary, halt²⁸ the growth of nuisance plants
19 and algae
 - 20 (c) Protect, maintain or, if necessary, restore the habitat and
21 biodiversity of spring ecosystems including the abundance and
22 diversity of plants, macroinvertebrates and vertebrates.

defeat this legislation's ability to proactively protect springs that are not yet nutrient impaired.

²² This time frame comes from a conversation with FDEP scientists about the feasibility of performing this work. See also 369.411(5).

²³ This has the equivalent effect of placing all first and second magnitude springs, whether or not currently impacted by excess nutrients, on the "impaired waters" list. The goal is to both restore currently degraded springs and to protect springs not currently impacted by excess nutrients.

²⁴ FDEP's watershed management program, which is responsible for preparing the 303(d) list of impaired waters and implementing groundwater protection programs, currently has no explicit mandate to protect springs.

²⁵ According to s. 403.067(7)(6)(b); "The watershed or basin management planning process is intended to involve the broadest possible range of interested parties, with the objective of encouraging the greatest amount of cooperation and consensus possible."

²⁶ The "reasonable and equitable allocation" language is taken from s. 403.067's general TMDL language. It is intended to hold local governments responsible only for the water quantity and quality over which they can exert control.

²⁷ These narrative standards are intended to require TMDLs to be implemented at quantities that are significantly below those that would merely remove a spring from the impaired water bodies list. In addition, to meet these criteria, the ultimate nutrient concentration in the spring would necessarily be much lower than the 10 mg/L required by human health standards.

²⁸ Halting growth of nuisance plants and algae may be impossible, and therefore "significantly reduce" may be more practicable.

1 (5) The Department of Environmental Protection shall, within the ten-
2 year period mandated in s. 369.411(1), set the schedule for establishing
3 and implementing total maximum daily loads of nutrients for springs.²⁹

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7 **369.413 Prohibited activities within primary protection zone³⁰**

8 The following activities shall be prohibited within primary protection
9 zones:³¹

- 10 (a) New household and industrial waste water disposal systems,
11 excluding the reuse of reclaimed water³²
- 12 (b) New landfills³³
- 13 (c) New septic systems³⁴
- 14 (d) New rapid infiltration basins³⁵
- 15 (e) New facilities for the transfer, storage or disposal of
16 hazardous waste.

²⁹ Giving FDEP control of the timing was suggested by FDEP, as it is best suited to integrate these new TMDLs into the overall TMDL program.

³⁰ This requirement differentiates between primary and secondary protection zones, adding extra protection to the most vulnerable primary zone. As written, the prohibitions are burdensome and may bring about either takings or Burt Harris Act claims. Therefore, this section will likely need to be amended so that at least some of the prohibitions are removed, to be less burdensome on the rights of property owners.

³¹ Perhaps amend to include "unless the party proposing development can demonstrate with reasonable certainty that the proposed land use does not pose a significant risk to the spring or springshed." This would shift the burden of proving that the development will not harm the spring onto the applicant.

³² This prohibits only the disposal of wastewater in the primary zone and does not include the treatment of waste water to be disposed of outside the primary zone, or stormwater disposal.

³³ Including lined land fills.

³⁴ To be less burdensome, this section will likely have to be amended so as not to constitute a blanket prohibition. Instead, it might prohibit: "New septic systems at a density of greater than one per 5 acres" (the density used in the spring protecting Model Land Development Code being drafted for the Department of Community Affairs). It could also simply provide a narrative standard, prohibiting septic tanks "at or above a density that has a demonstrable effect on the nutrient concentrations of a spring," leaving the determination of the density to FDEP on a spring-by-spring basis. Alternatively, or in addition, this section could mandate the use of advanced, low nutrient output septic systems in combination with a licensing and inspection plan - an option currently under review by FDEP and DOH.

³⁵ These currently release 12mg/L nitrate because they are designed only to meet the drinking water standard of 10mg/L nitrate in the aquifer.