

Gemini Springs MFL – Public Comments and SJRWMD Responses

The SJRWMD held a public meeting on April 20, 2017 to provide information about the Gemini Springs MFL and to receive public comment. The public was informed that they could comment on the proposed MFL in one of three ways: providing comments at the meeting (written or verbal), sending an email to asutherl@sjrwmd.com, or submitting comments via the District's website at <http://www.sjrwmd.com/facts/AlexanderSilverGlenGeminiMFL.html>. Specific responses are attached in a table below.

As of May 4, 2017 the SJRWMD received eight comments regarding the Gemini Springs MFL (see attached for specific comments). The list below provides a summary of public comments, paraphrased by general comment type, and the SJRWMD response to each general comment.

Public Comment: The District did not consider water quality (nutrients or fecal coliforms) when setting the Gemini Springs MFL.

SJRWMD Response: The District assessed the relationship between flow and water quality. We do not have data which indicates that a reduction of 0.6 cfs will cause a reduction in water quality. Our best available data suggests that nutrient (NO_x) levels are either weakly positively correlated with flow, or not related. We do not have data to suggest a negative relationship between flow and nitrate (i.e., that increased flow is related to reduced nitrate concentration). The high nutrient and fecal coliform concentrations at Gemini are a function of loading and to make the spring reservoir swimmable is largely a matter of pollutant reduction. MFLs are not meant to restore/recover a system to historical (pre-development) conditions. They are also not meant to reverse changes due to drought, eutrophication, fecal coliform loading or structural alterations. The FDEP's TMDL and BMAP program are the appropriate tools for dealing with pollutant loading. The two loading factors (nutrients and fecal coliforms) are also likely interrelated, with high nutrient levels exacerbating the growth of fecal bacteria. An MFL is set to determine the limit at which further withdrawal will cause significant harm. We look for the most sensitive criterion to establish MFLs. We don't typically set MFLs based on criteria that are a function of loading, or if there is no relationship established between a parameter and flow or hydraulics.

Public Comment: The District did not include other environmental values listed in Rule 62-40.473.

SJRWMD Response: District staff did look at all 10 environmental values listed in Rule 62-40.473, including recreation, water quality and fish and wildlife. Based on the best available data, we determined that the most sensitive environmental criterion (per Rule 62-40.473) was aesthetics and scenic value. We developed a hydrodynamic model to evaluate the effects of various flow reduction scenarios on this metric, defined as residence time and "full pool" (i.e., water level) condition.

Public Comment: Gemini Springs springshed used is very different from past delineations and warrants further study.

SJRWMD Response: The springshed shown in the draft report was used in a very limited fashion in the actual determination of recommended minimum flow. It was simply used to determine if there was any change in annual groundwater pumping in the vicinity of Gemini springs from 1995 through 2015. It is important to understand that the extent and/or shape of the springshed has minimal or no influence on the outcome of MFL determination. Because of this, it is not the underlying basis for the proposed rule.

Further, the purpose of delineating a springshed for Gemini springs was to determine a best estimate of the possible maximum extent of groundwater contributing area. The groundwater contributing area of a spring changes over time depending on the hydrologic condition. For example, the extent of the springshed could be significantly different in a drought period than a wet period. Because of existence of more than 45 springs and several lakes and river systems in the close proximity of Gemini springs, it is very difficult to delineate a maximum extent of an area where groundwater is contributing to spring flows.

There are two methods that are most commonly used for delineating groundwater contributing areas. One requires the use of Upper Floridan Aquifer (UFA) potentiometric surfaces and the other requires the use of groundwater models to conduct a particle tracking analysis. In an ideal world, a very refined local-scale transient groundwater model with the capability of simulating not only Gemini spring but also all other regional springs (regardless of their magnitudes) over a long time period would be needed to accurately evaluate the maximum possible extent of groundwater contributing area for Gemini springs. In the absence of a refined local-scale groundwater model, we had two choices. We could either use one of our existing steady state regional groundwater models similar to what the USGS did or use the UFA potentiometric surfaces. We chose the latter because we believe it better served our purpose which was to delineate the maximum possible extent of the groundwater contributing area to use to evaluate the change in annual groundwater pumping over time.

As a result, we reviewed several UFA potentiometric surfaces developed for the past 10 years and determined that September 2009 UFA potentiometric surface was the most appropriate to use to estimate the maximum extent of the groundwater contributing area. It should be noted that, regardless of the method chosen, there will be significant uncertainty with any springshed delineated for Gemini springs for the aforementioned reasons. Additionally, we are in the process of refining all springsheds within the District, and we will take your comments into account during this process.

Public Comment: Gemini Springs allowable change should be the same as other OFS's

SJRWMD Response: It was stated that De Leon Springs is very similar to Gemini Springs because of the fixed weir and berm, with the inference that this similarity necessitates a similar allowable flow reduction recommendation for Gemini Springs. However, from the perspective of setting an MFL, these two springs are very different. De Leon Springs is a secondary habitat for the Federally threatened Florida manatee. In consultation with the Florida Fish and Wildlife Conservation Commission and the US Fish and Wildlife Service, it was determined that a "no change from current" MFL was warranted for De Leon Springs given De Leon Springs' importance to this imperiled species. At De Leon Springs, manatee were determined to be the most sensitive environmental criterion. At Gemini Springs we worked hard to also identify the most sensitive metric on which to base the MFL. As discussed at the Stetson and Palatka workshops, the ecological criteria present at Gemini Springs are either 1) maintained by the St. Johns River (e.g., wetlands in the spring run), or 2) do not provide a sensitive criterion because they are either tolerant of small changes in flow (e.g., hydrobiid snails, based on personal communications between staff and Fred Thompson) or there are no data defining the relationship between a small change in flow and long-term viability (e.g., bream, bass or other fish species at Gemini Springs). We have recommended a different approach for Alexander and Gemini Springs because these are fundamentally different systems. Alexander Springs is in a near-pristine state, harboring numerous listed species, and is surrounded by wilderness lands and other National Forest lands.

Public Comment: The District should adhere to the Precautionary Principle when setting the Gemini Springs MFL.

SJRWMD Response: We agree with the precautionary principle, which is why we set the Gemini Springs minimum flow at no more than 15% from no-pumping. Because of Gemini Springs' small size, the many historical alterations, and the fact that the spring run is dominated by the St. Johns River, the conventional metrics used in MFLs determination are in this case very insensitive to small changes in flow. Based on our model results (presented at both workshops) there would also be very little change in the most sensitive metric we identified (i.e., aesthetics – residence time) even if the percent reduction were higher than 15%. Because of the man-made steep sides and fixed weir, the reservoir water levels are very insensitive to changes in flow. However, despite this insensitivity to change in flow (and despite our model results), we decided to err on the side of caution by not allowing more than 15%. Another reason was that other water management districts that use a specific percent habitat change as the basis of MFLs, typically do not exceed 15%. This percent habitat change is based on MFLs for all system types – not just springs, and is commonly used by both the Southwest Florida Water Management District and the South Florida Water Management District.

Public Comment: A relationship between flow and fish assemblage structure “argues for maintaining historic flows of springs.”

SJRWMD Response: MFLs are meant to determine the threshold beyond which additional water withdrawal would cause significant harm. MFLs are one resource protection tool among many, but are not meant to restore/recover a system to historical (pre-development) conditions. They are also not meant to reverse changes due to drought, eutrophication, fecal coliform loading or structural alterations.

Public Comment: The estimated groundwater use within the proposed Gemini springshed does not include domestic self supply.

SJRWMD Response: Estimates for DSS use are always included as a component of historic and projected water use totals. For Gemini Springs, the groundwater pumping impact assessment (Appendix D of the MFL report) included estimates for DSS ranging from 0.773 mgd to 2.364 mgd between 1995 and 2015 within the buffered Gemini Springs springshed. Appendix D of the MFLs report has been updated to clarify this.

Public Comment: [The report] states that approximately 51% of the time the St. Johns River backflows into the Gemini Springs reservoir. Observations by Volusia County...staff does not support this statement.

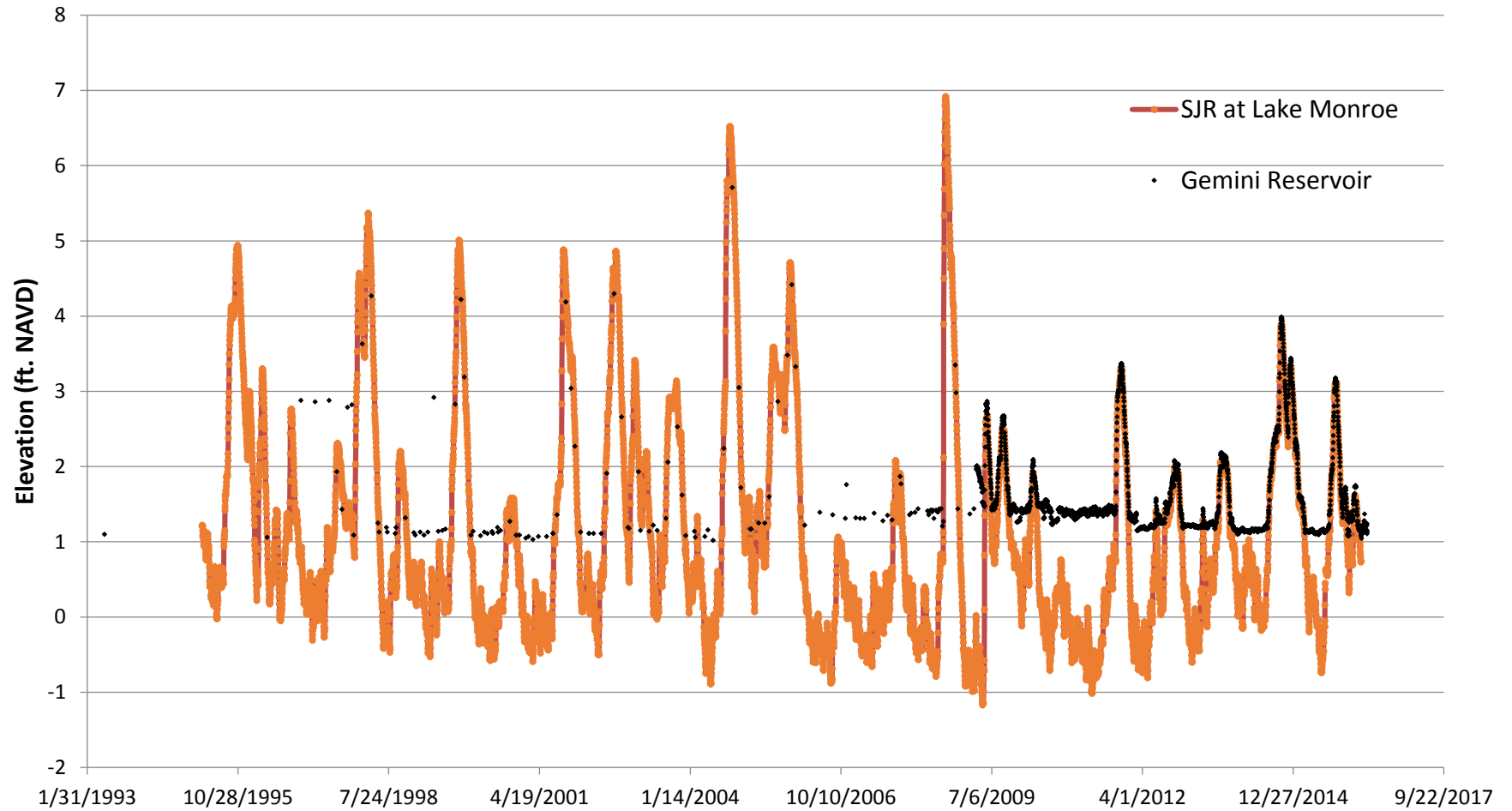
SJRWMD Response: The percentage was based on USGS data (see attached graph) for the period of record 1995 – 2016.

Public Comment: Various concerns have been voiced about the Gemini Springs springshed, regarding size and use in the MFL.

SJRWMD Response: The springshed shown in the draft report was used in a very limited fashion in the actual determination of recommended minimum flow. It was simply used to determine if there was any change in annual groundwater pumping in the vicinity of Gemini springs from 1995 through 2015. It is

important to understand that the extent and/or shape of the springshed has minimal or no influence on the outcome of MFL determination. Because of this, it is not the underlying basis for the proposed rule. It also should be noted that adoption of the MFL for Gemini Springs does not designate any type of regulatory boundary associated with the springshed shown in the report.

Gemini Reservoir and SJR at Lake Monroe Stage 1995-2016



Time	I would like to comment on	Name (First)	Name (Last)	I have a comment on the proposed MFLs for Alexander Springs (Lake County).	I have a comment on the proposed MFLs for Gemini Springs (Volusia County).	I have a comment on the proposed MFLs for Silver Glen Springs (Marion and Lake counties).
4/30/2017 18:47	Gemini Springs, Volusia County	Sandra	Walters		Not good! Not acceptable! Gemini Springs needs to be made more of a priority. You need to have a goal of getting it cleaned up and swimmable again. It's criminal how our springs are dying and the agencies charged with protecting them are asleep or worse. DO NOT REDUCE THE MFLs at Gemini Springs	
5/1/2017 14:30	All	N	BAGWELL	I read the article by Ann Shortelle in the News Journal...& have been following the environment & conservation by those charged with this protection. Recently Senate President Joe Negron persevered in funding for the reservoir in relation to Lake Okeechobee..This is a "WIN" for Florida...!! The St. Johns Water Management has taken a hit from the furor over Miklos in Gemini Springs, etc. And Rightly SO !! It is "past time" to bring attention to ALL of our Springs & also those environmental areas which are Florida's heritage to our children & beyond.... These ARE Florida's Treasures...misuse or destroying of same is non recoverable nor acceptable. This is our responsibility in preservation. Fracking,or failure to protect is not acceptable for the springs, our rivers & lakes. I am encouraged by Ann Shortelle's column that we will follow through in a different direction to protect Florida for this generation as well as the next, etc.... Thank you.....	as written above... Thank you...	as written above... Thank you....
5/3/2017 14:33	All	Suze	Peace	As a Floridian/ citizen, I am against downgrading the current MFL's of ALL the springs in Florida. The SJRWMD says there is "new science", but I think you are misleading the public and seek to lock in lower levels by the July deadline. I read Ms. Shortelle's "Community Voices" in the April 30th Daytona News Journal. Although I appreciate her upbeat explanation, I DO NOT agree to lowering any standards when it comes to springs. Look at the SJRWMD track record of allowing a cattle operation in the Silver Springs spring shed when the spring is losing it's output. Yet the SJRWMD wants to increase the water to the ranch by 1.7 million gallons a day and also decrease the MFL at Silver Springs! I call that outrageous. Ms. Shortelle mentions the dam and weir at Gemini Spring. That should be required to be removed by the county.	Ms. Shortelle mentions Gemini Spring in Volusia County where I live. She says the MFLs should be lowered because of the dam and weir, made-made devices in place. Instead, this spring, which is in death throes, should have the dam and weir removed and the invasive plants removed. See if the flow increases again, but do not lower MFLs.	I would submit what I have said before above. I do not want to see any MFLs lowered. I feel that drought and withdrawal and pollution will increase. The high FLOW is the only thing that will help our springs! Thank you, Suze Peace

5/4/2017 8:47	Gemini Springs, Volusia County	Seminole Audubon Society	Pam Meharg-- Conservation Chair	<p>Dear Sirs,</p> <p>Seminole Audubon Society is the local Audubon chapter that represents the Gemini Springs area and welcomes the opportunity to comment on the proposed MFL's for this spring. We will follow-up with the SJRWMD board with a more detailed letter but we are opposed to the proposed MFL's for the following reasons:</p> <p>---it appears that the District did not consider returning the water quality to a level that would permit swimming in its criteria. This certainly creates the perception that the District has abandoned efforts to restore the water quality of Gemini Springs.</p> <p>---the assumptions used in the size of the spring shed and its location are vastly different from those that have been used in the past and bear further study before a long-term MFL is established for Gemini Springs.</p> <p>As the agency charged with maintaining the water quality of our waterways, it is difficult to understand how water quality could not be one of the "aesthetic" values considered when establishing these criteria. Floridians expect that our water ways should be safe enough to use for recreation purposes as well as "scenic values." We are opposed to the adoption of the MFL's for Gemini Springs as proposed.</p> <p>Pam Meharg Conservation Chair Seminole Audubon Society</p>	
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May 3, 2017

Dr. Ann B. Shortelle
Executive Director
St. Johns River Water Management District
4049 Reid Street
Palatka, Florida 32178

Re: Gemini Springs Minimum Flows

Dear Dr. Shortelle,

Thank you for the opportunity to provide comments on the recently released Draft Determination of Minimum Flows for Gemini Springs, Volusia County Florida.

Volusia County values the protection of our critical natural resources and seeks to partner with the District and state agencies to protect Outstanding Florida Springs. However, we have several concerns about the draft report as outlined below.

1. Springshed Boundary - Appendix D, page 12 states that the springshed was developed using potentiometric surface of the Upper Floridan Aquifer plus a one mile buffer.
 - a. This proposed springshed boundary has significant overlap with both the Volusia Blue Springshed and the Wekiwa Springshed (see attachment). While it is understood that there are interactions between spring systems, the MFL, and future TMDL's and BMAP's are regulatory documents. Overlap of regulatory boundaries creates significant uncertainty for the stakeholders tasked with meeting the requirements. For example, the public supply wells in Volusia County that are shown in the Gemini springshed are also included in the Volusia Blue springshed. Volusia Blue has an adopted Prevention and Recovery Strategy that requires reduction in withdrawals, which is contradictory to the proposed allowable increase in withdrawals in the Gemini springshed.
 - b. In 1987, the U.S. Environmental Protection Agency designated the Volusia-Floridan Aquifer as a sole source aquifer pursuant to Section 1424(e) of the Safe Water Drinking Act. The boundary of this aquifer was determined to be

contiguous with the western and southern boundaries of Volusia County. The proposed Gemini springshed extends into Seminole County, which is inconsistent with the EPA determination.

- c. The proposed MFL springshed is inconsistent with the springshed delineated in the Draft TMDL report for Gemini Springs released by the Department of Environmental Protection in April 2017. Such inconsistencies are problematic for stakeholders and should be resolved before either document is adopted.
2. The estimated groundwater use within the proposed Gemini Springshed does not include domestic self supply. The area directly north of the spring in Volusia County is dominated by single family residential development with self supply wells. This usage should be included to obtain an accurate assessment of groundwater withdrawal.
3. Page 10 of the draft document states that approximately 51% of the time the St. Johns River backflows into the Gemini Springs reservoir. Observation by Volusia County Parks, Recreation and Culture Division staff does not support this statement. Perhaps river stage at U.S. Highway 17 is not an appropriate measure of stage at Gemini Springs, and additional data are needed to support this conclusion.

We appreciate the District's efforts to assess the current conditions, and hope that these comments are valuable in that effort.

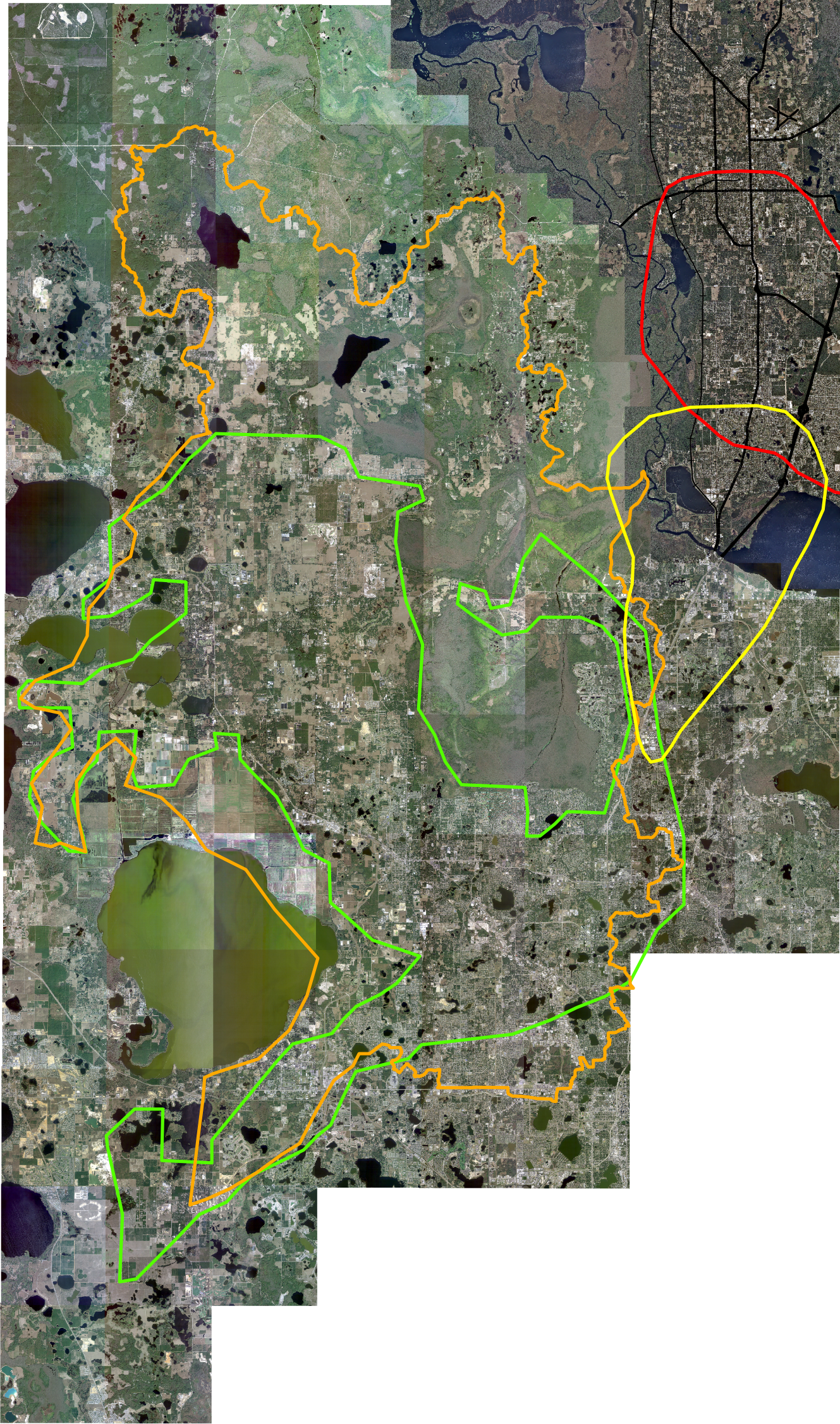
Respectfully,

A handwritten signature in black ink that reads "Ginger Adair". The signature is written in a cursive, flowing style.

Ginger Adair
Environmental Management Director

Cc: Jamie Seaman
Clay Ervin
George Recktenwald

2015 Aerial Photo (Volusia County)
2004 Aerial Photo (All other Counties)



Legend

- GeminiSpringshed_Draft_FGordu
- WEKIVA BMAP
- Wekiva_River_Groundwater_Recharge_Area_USGS_MODFLOW__MODPATH_SJRWMD
- Blue_Spring_Volusia_County_100year_Springshed_Capture_Zone_USGS_MODFLOW__MODPATH_SJRWMD



STETSON UNIVERSITY

May 3, 2017

Dr. Ann B. Shortelle
Executive Director
St Johns River Water Management District
4049 Reid Street
Palatka, Florida 32178

Re: Gemini Springs Minimum Flows and Levels Rule

Dear Dr. Shortelle:

These comments are directed to the proposed rule to amend 40C-8.031(8)(a), F.A.C. to establish minimum flow and levels (MFL) for Gemini Springs in Volusia County to be considered by the Governing Board on May 9, 2017. Establishment of MFL for Gemini Springs is pursuant to the Florida Springs and Aquifer Protection Act Sec. 373.802, Fla. Stat. which designated Gemini Springs as an "Outstanding Florida Spring" and requires a MFL determination by July 1, 2017. Sec. 373.042, Fl. Stat.

The Institute for Water and Environmental Resilience at Stetson University was pleased to host a stakeholder forum on campus on April 18 2017. In addition, the Institute's director attended the rule workshop in Palatka on April 20, 2017. We sincerely appreciate the participation by SJRWMD staff. This meeting gave members of our local community the opportunity to better understand the MFL process and ask questions of staff. We believe the comments from local governments and other stakeholders are important to the process.

During the workshop a number of comments and concerns were raised by the participants, which provide the basis for these comments. Participants at the workshop raised questions about the size of the springshed, proposed reductions in flow, the relationship between flow, residence time, and water quality, increased nutrient loading, and a desire that the springs could be restored someday for swimming. Stetson faculty and students have been engaged in research and monitoring of the springs for several years. As a result, we are aware of how little solid data exists regarding key issues concerning the springs. We are mindful that the Legislature has directed this rule development by the July 1, 2017 deadline and that this short window precludes the usual data collection and analysis which would otherwise be part of an MFL rule.

Gemini Springs remains classified as a second magnitude spring even though its average annual discharge has dropped to 9.8 cfs. The springs are actually two vents in close proximity which flow into an artificial pool after construction of a dam and weir in the 1960s. Gemini Springs is located within the 210 acre Gemini Springs Park, purchased with assistance of the SJRWMD and Florida Communities Trust in 1994 and managed by Volusia County. The SJRWMD retains a

conservation easement over the lands surrounding the spring to protect its conservation values. At the time the property was acquired and the public park was opened, the spring pool was open to public recreation including swimming. The park was closed to swimming in 2002 by order of the Volusia County Health Department as “low flow” caused buildup of *enterococci* which are bacteria that live in the gastrointestinal or urogenital tract of mammals.

Many questions have been raised concerning the springshed map set forth as Figure 11 in the Technical Report SJ2017-X Determination of Minimum Flows for Gemini Springs, Volusia County, Florida, which is the underlying basis for this proposed rule. The springshed map shows a north-south diameter of over 15 miles and which extends significantly north into the established Blue Spring springshed¹ and south into the Wekiva Springs springshed,² as well as extending significantly south beyond the St. Johns River. This proposed springshed is significantly larger than earlier attempts to describe it. The USGS technical report from 2009 shows a springshed essentially bounded by the Blue Spring springshed to the north and the St. Johns River to the south.³ A recent engineering report by Jones Edmunds (2015) commissioned by Volusia County also shows a smaller springshed confined by the St. Johns River. The Blue Spring springshed is similarly confined by the St. Johns River. This is also consistent with the Volusia Sole Source Aquifer determination by USEPA, which shows the Upper Florida Aquifer confined by the St. Johns River.⁴ Accordingly, many of us have questions and concerns about the size of the springshed depicted in the technical report and believe additional research is needed.

There were also questions and concerns about how the proposed reduction in flow for MFL related both to water quality issues and environmental values. The proposed rule recommends a reduction of flow of 15% from the no-pumping condition. Based upon Appendix B-Florida Springs Summary Table provided at the workshop, this 15% reduction is the largest recommended flow reduction for MFL of any Florida spring to date. This proposed reduction compares to a 9.3% reduction in flow approved for DeLeon Springs in Volusia County. This spring is very similar to Gemini Springs inasmuch as it is an altered weir/pool system. The Technical Publication SJ2016-3 Determination of Minimum Flows for DeLeon Springs, Volusia County, Florida notes that all previous MFL determinations for Florida springs have been for 10% reduction in flow or less. Indeed, the recommendation for adoption of MFL for Alexander Springs is 6.8% which was described in the workshop presentation as an average number for reduction in flow among existing Florida springs. The Alexander Springs Technical Report notes the range of reduction in flow for MFL among all Florida Springs is between 0-10%. The proposed reduction in flow of 15% for Gemini Springs exceeds all other adopted MFLs for Florida springs and is outside the accepted norm.

¹ https://pubs.usgs.gov/fs/2008/3035/pdf/fs2008-3035_11x25.5.pdf

² <http://wekivawildandscenicriversystem.com/wp-content/uploads/2013/12/Map3.jpg>

³ Walsh, S.J., Knowles, Leel Jr., Katz, B.G., and Strom, D.G., 2009, Hydrology, Water Quality, and Aquatic Communities of Selected Springs in the St. Johns River Water Management District, Florida: U.S. Geological Survey Scientific Investigations Report 2009-5046, 116 p.

⁴ <https://archive.epa.gov/pesticides/region4/water/groundwater/web/html/r4ssa.html#volusia>

When asked about this discrepancy in the workshop, the answer given was that Gemini Springs had no other specific environmental value as set forth in the Rule. Rule 62040.473, F.A.C. identifies specific environmental values for consideration of MFLs. First among these values is “recreation in and on the water” which includes “swimming.” As noted earlier, swimming by the general public was an established recreational use at the time Gemini Springs was acquired and was only restricted once flows were reduced and bacteria was established in the water due to longer water residence time in the pool. As the technical report notes, lower flows will result in longer water residence time in the pool which allows proliferation of harmful bacteria and other nutrients leaving the spring vents. As also noted in the Technical Report, the nutrient loads measured within the pool are significantly higher than before and increasing over time. As noted by several of the speakers at the workshop, the public is not ready to give up on Gemini Springs. The recreational value of the springs should be noted as aspirational at the very least. Allowance of more reduction in flow will make it that much more difficult for recreational use of the springs to be again enjoyed. The Florida Springs and Aquifer Protection Act clearly states that “The Legislature finds that the water quantity and water quality in springs may be related.” Sec. 373.801 Fl. Stat. Reduction in flow of Gemini Springs will further reduce water quality.

“Fish and wildlife habitat and passage of fish” is another environmental value used for consideration of an MFL. Stetson faculty and students have been engaged in long term research of fish populations within Volusia Blue Spring. A recent article on this research concludes there is a strong relationship between spring flow and an array of chemical and biological characteristics of a spring. Further, there appears to be a relationship between discharge rates and fish assemblage.⁵ This argues for maintaining historic flows of springs.

Finally, there has been a concern raised that Gemini Springs, like all other springs in Florida, have an intrinsic value. It cannot be ignored that the Florida Legislature singled out Gemini Springs with just five other non-first magnitude springs as “Outstanding Florida Springs” in section 373.801(4), Fl. Stat. in order to accelerate determination of MFL and the TMDL. In its finding, the Legislature states as follows:

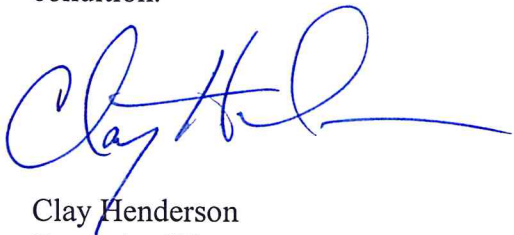
The Legislature finds that springs are a unique part of this state’s scenic beauty. Springs provide critical habitat for plants and animals, including many endangered or threatened species. Springs also provide immeasurable natural, recreational, economic, and inherent value. Springs are of great scientific importance in understanding the diverse functions of aquatic ecosystems. Water quality of springs is an indicator of local conditions of the Floridan Aquifer, which is a source of drinking water for many residents of this state. Water flows in springs may reflect regional aquifer conditions. In addition, springs provide recreational opportunities for swimming, canoeing, wildlife watching, fishing, cave diving, and many other activities in this state. These recreational opportunities and the accompanying tourism they provide are a benefit to local economies and the economy of the state as a whole. Sec. 373.801, Fl. Stat.

⁵ Work, K., Codner, K., Gibbs, M., How Could Discharge Management Affect Florida Spring Fish Assemblage Structure? *Journal of Environmental Management*, 198 (2017) p 266.

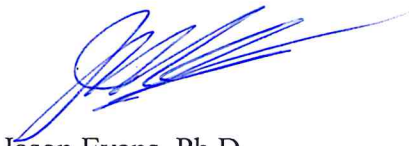
Given the findings of the Legislature and the determination the Gemini Springs is an “Outstanding Florida Spring” it appears highly unusual that Gemini Springs should be singled out for the largest recommended flow reduction outside the norm of all other Florida springs with a MFL determination.

A fundamental principle in environmental law is the precautionary principle that policy makers should take preventative action in the face of scientific uncertainty. In the case of Gemini Springs, there is very little known about the biology of the spring and spring run. There is uncertainty as to the size of the springshed, age of water in the spring vent, source of pollutants and nutrients, biodiversity within the pool and spring run, and the effect of the weir system on sediment loads. Clearly additional research is required, and under normal conditions more research would have been undertaken before adoption of a MFL for this spring. As we have noted several times before, faculty at Stetson University is available to assist in collection of data, as we have been called upon to do as part of the Volusia Blue Spring MFL.

Based upon the comments we heard at the stakeholder workshop, together with our review of the technical report and other data, we recommend that the District err on the side of caution with the Gemini Springs MFL. We recommend that the District not approve a MFL with a proposed reduction in flow outside the established norm of previously approved MFLs for Florida springs. Accordingly, the proposed flow reduction should be no more than 10% reduction from no-flow condition.



Clay Henderson
Executive Director
Institute for Water and Environmental Resilience



Jason Evans, Ph.D.
Associate Professor of Environmental Science

cc: Charles and Sandra Gray
Jamie Seaman
Mayor Bob Garcia

Attachments:

Figure 1 EPA Volusia Sole Source Aquifer Map
Figure 2 Wekiva Springshed Map
Figure 3 Jones Edmunds Springshed Map
Figure 4 USGS Gemini Springs Springshed Map

Figure 1. EPA Volusia Sole Source Aquifer

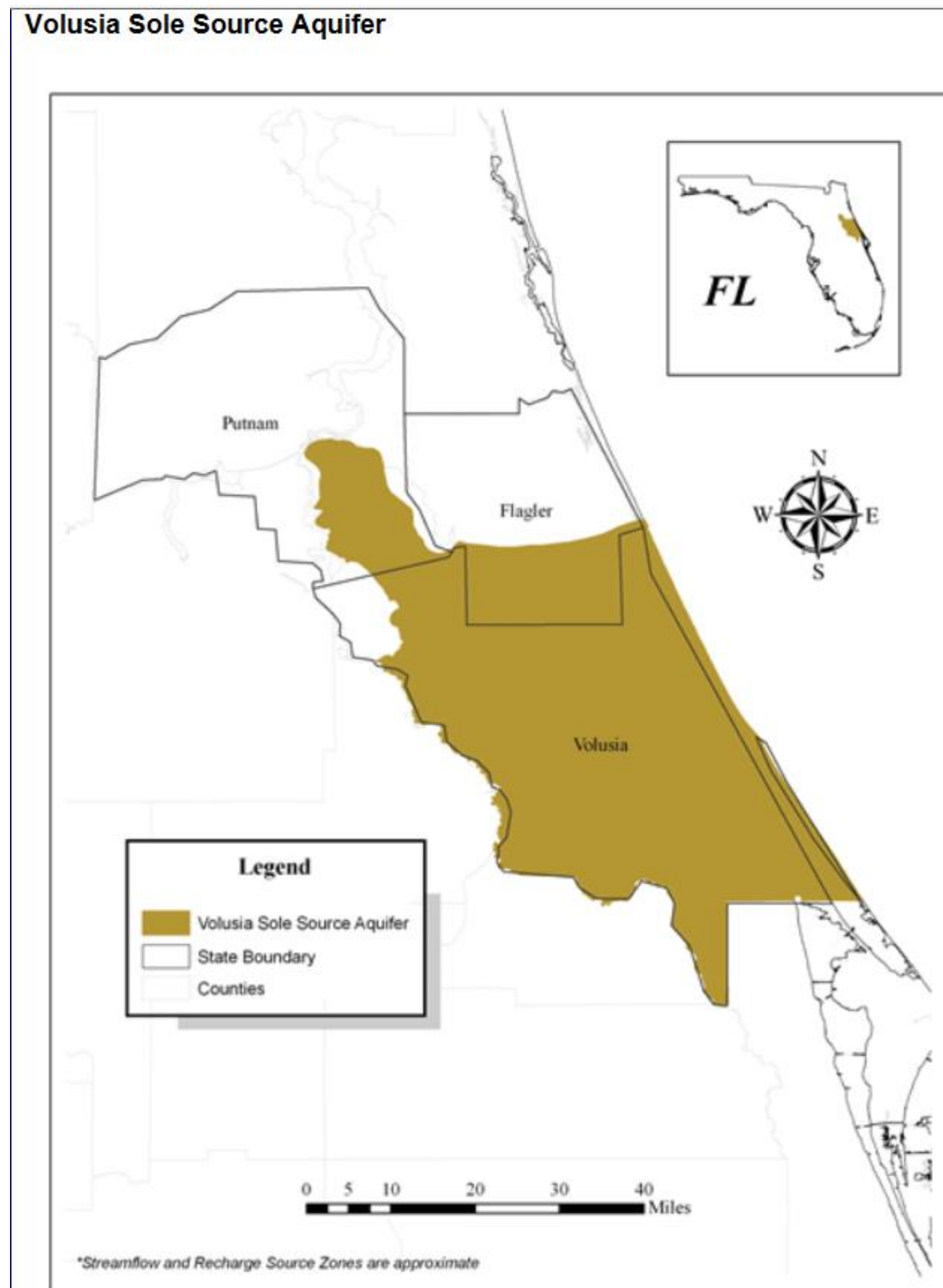


Figure 2. Wekiva Springs Springshed and Volusia Blue Springshed

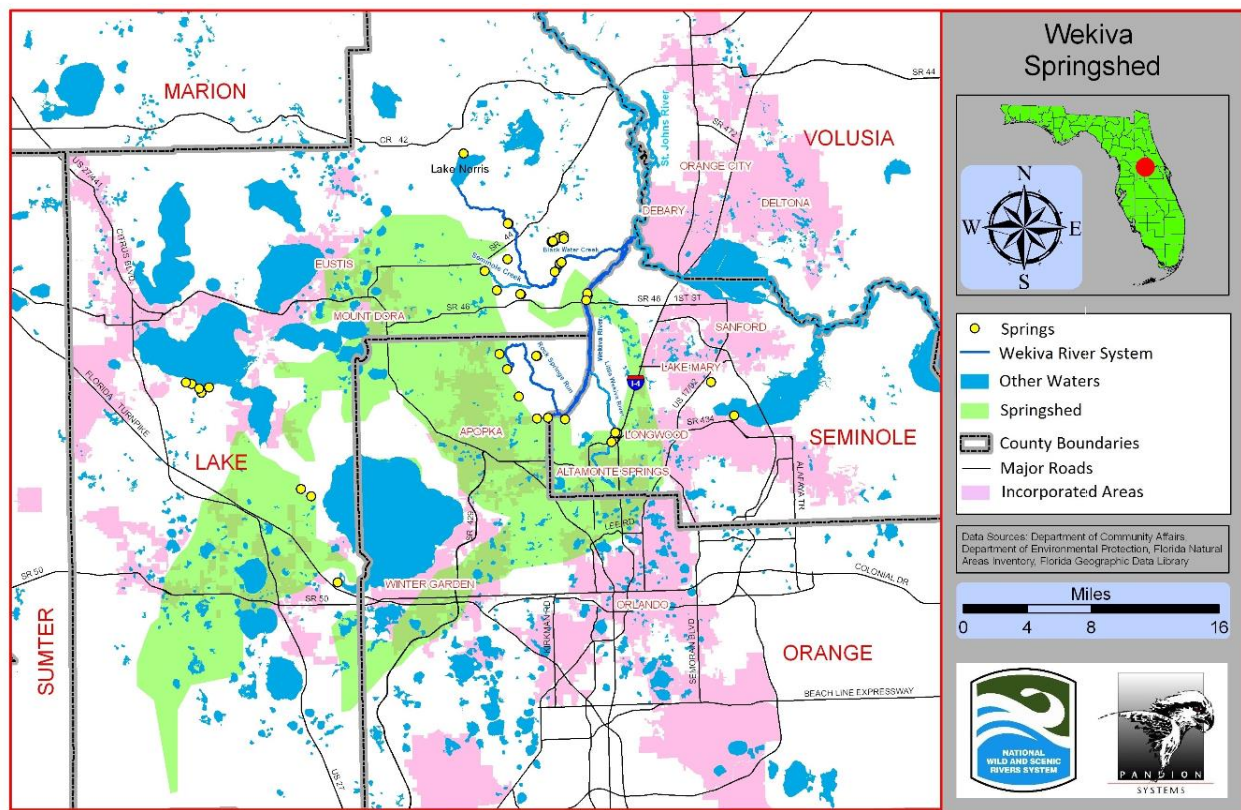
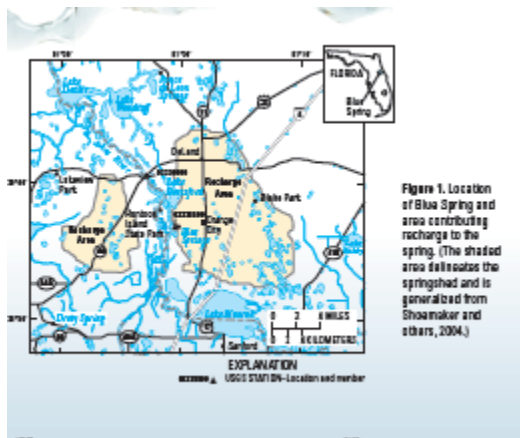


Figure 3. Jones Edmunds Gemini Springs Springshed Map

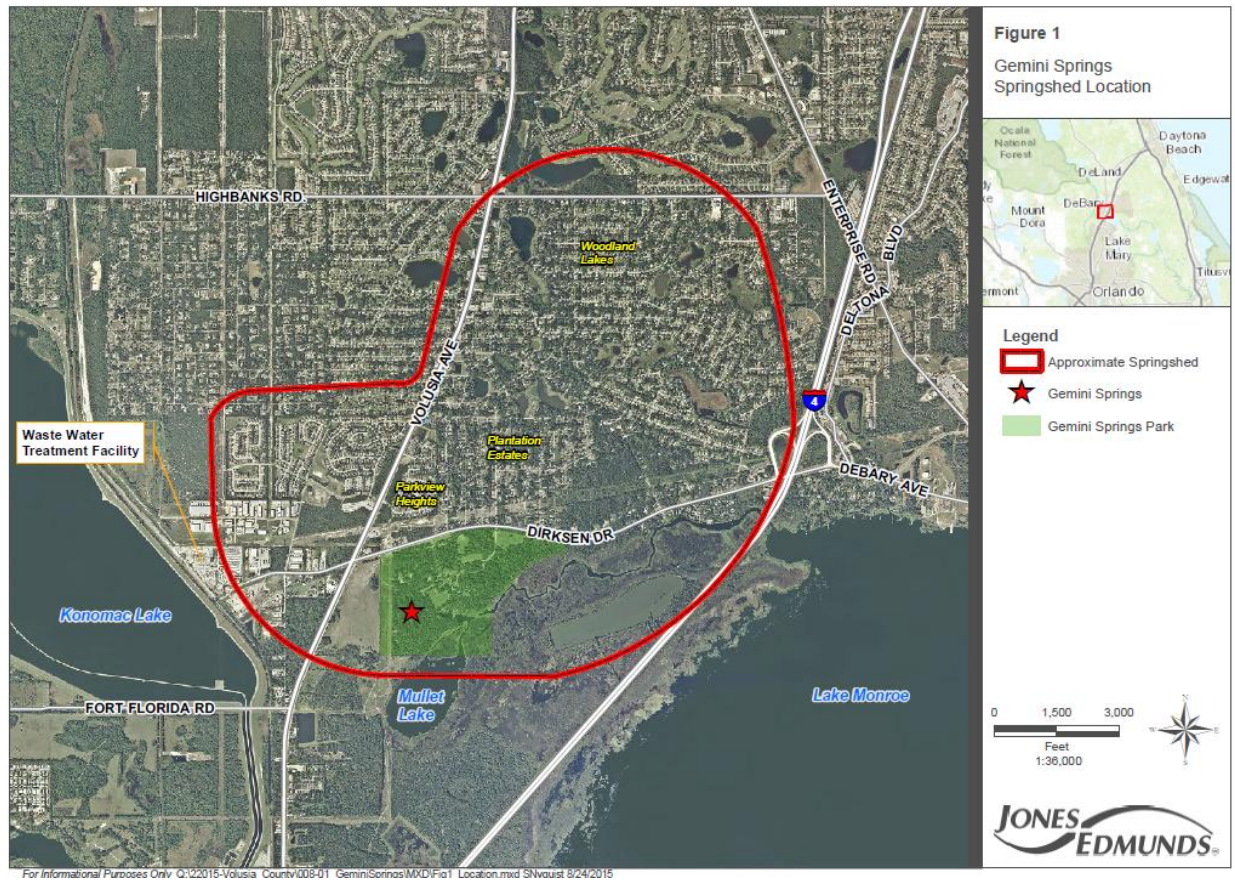
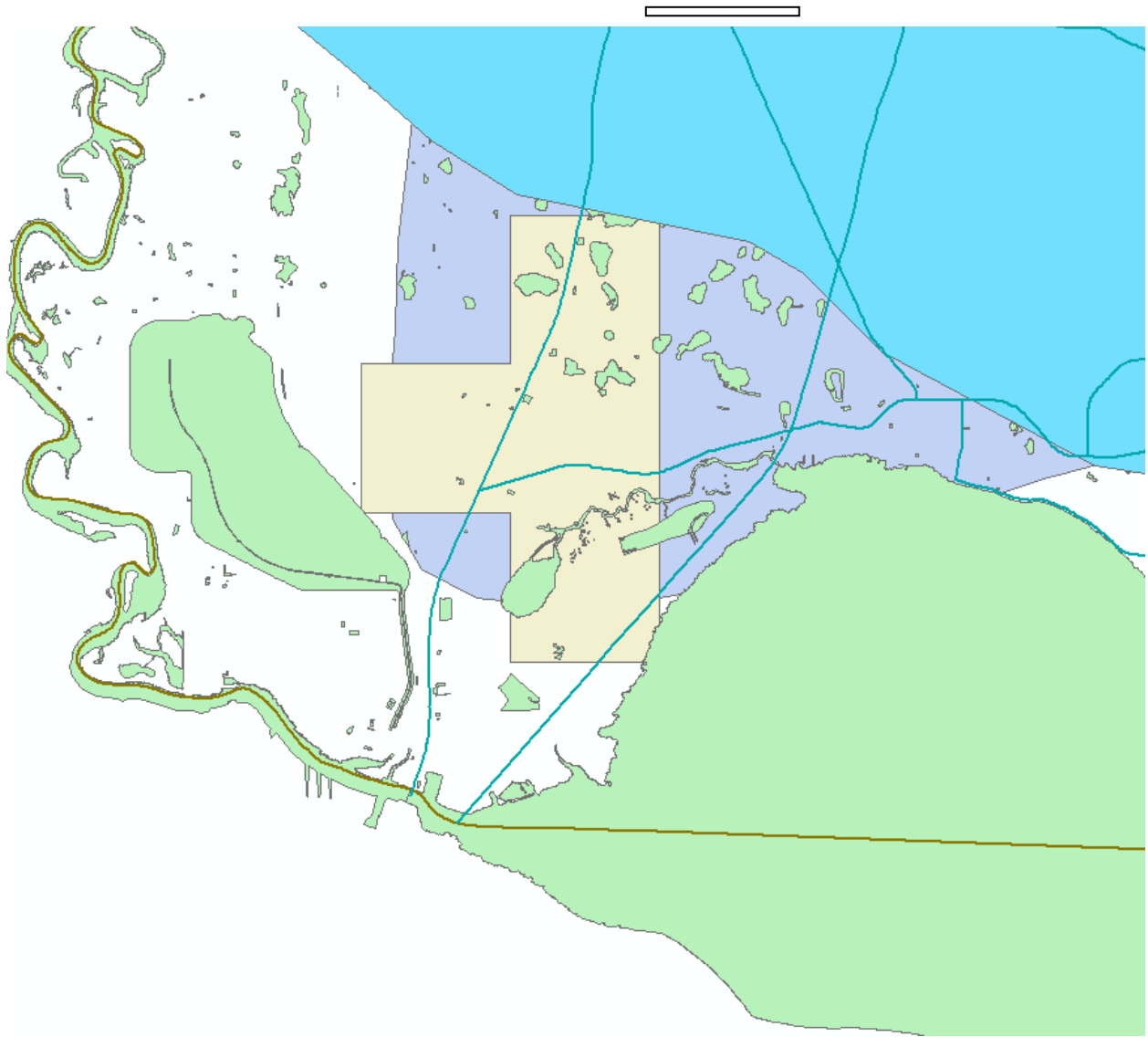


Figure 4. Gemini Springs Springshed USGC





Save the Manatee® Club

The Voice for Manatees Since 1981

Governing Board
St. Johns River Water Management District

Submitted via electronic mail and online comment form

May 4, 2017

Re: Minimum Flows and Levels for Alexander, Silver Glen, and Gemini Springs

Members of the Governing Board:

Save the Manatee Club (SMC) opposes any flow reductions to the three Outstanding Florida Springs subject to this rulemaking. The Minimum Flows and Levels (MFLs) process as implemented by the St. Johns River Water Management District has developed into a process to circumnavigate public stakeholder interests in favor of carving out additional consumptive use allowances, and risks permanent damage to the springsheds, aquifer, and dependent ecosystems.

Save the Manatee Club is an award-winning national 501(c)(3) scientific and advocacy nonprofit, established in 1981 by singer and activist Jimmy Buffett and former Senator Bob Graham. The organization is based in central Florida, and represents 11,000 members and supporters throughout the state and an additional 33,000 nationwide in efforts to protect manatees and their aquatic habitat from threats posed by human activity and development. It is with this mission in mind that we offer the following comments regarding the draft MFLs for Alexander, Silver Glen, and Gemini Springs.

These three springs are designated Outstanding Florida Springs (OFS) for which the St. Johns Water Management District (SJRWMD) is required to adopt minimum flows and levels (MFLs) by July 1, 2017. 373.042 Fla. Stat. Alexander Springs is almost unique as a low-impacted first magnitude spring. The spring is regionally important both as habitat for state and federally listed species and as a recreational area for Floridians. The Draft MFL allows a 6.8 percent reduction from no-pumping conditions, and so concludes that there is an allowable 6.3 cubic feet per second (cfs) reduction in mean flow from current conditions.

Alexander Springs and the need for a precautionary approach to MFL development:

The essential problem with the Alexander Springs draft MFL is one of policy. The MFL program is designed to delineate the point at which *significant harm* would likely occur to spring as a result of consumptive use withdrawals. In other words, the MFL should be the bare minimum threshold for flow that springs never drop beneath. In reality, however, the MFL becomes akin to a permit shield, providing carte blanche justification for additional permitting up to that point of significant harm.

There is an inherent danger in setting an MFL that is not sufficiently protective of the system's ecological functions, because once established, MFLs form a primary basis for water supply planning, regulation, and permitting decisions within the water management district. It is therefore imperative that these levels be set carefully, applying a precautionary and conservative approach to water management.

Underscoring this point, the District's recent decision to allow an additional 10 million gallon per day reduction at Silver Springs, despite a concurrent finding that significant harm would likely occur by 2025, exemplifies the lack of common sense applied in these rulemaking processes. The more impaired the system becomes, the greater the expense of recovery (and burden on the taxpayer) and reduced likelihood of successful restoration.

Moreover, because the District, in multiple draft MFLs, cites decreased rainfall as a primary reason for flow declines. Because of the uncertainty in changing climate patterns, MFLs should be set conservatively to account for long-term drought conditions.

Alexander Springs is one of the few remaining largely first magnitude springs with flow rates comparable to historic levels. The SJRWMD and the State do a disservice to Floridians to allow any further impacts to this relatively unimpaired natural resource. Arguably, part of Alexander's value as an ecological resource is its uniquely minimally-impacted state, and that value should be the criterion evaluated in adopting an appropriately protective MFL.

Silver Glen Springs' importance as a warm water manatee habitat:

Save the Manatee Club appreciates the District's recognition of the critical importance of Silver Glen Springs as a warm water refuge for Florida Manatees, but we dispute that any flow reductions are supportable.

The recent US Fish and Wildlife rule to downlist the Florida manatee from endangered to threatened relies on the sufficiency of local regulations to protect manatees and their habitat from increasing degradation. With the loss of artificial warm water habitat from shuttered power plants being compounded by flow reductions in other essential springs habitat, Silver Glen Springs is likely to have increasing significance in sustaining Florida's manatee population. Accessibility is already a problem for manatees in Silver Glen Springs as a result of a shallow system and heavy boat traffic, and decreased flows are likely to exacerbate access issues.

The Draft MFL notes that significant harm would occur at flow levels 2.5% below no-pumping conditions as a result of a loss of warm water habitat in downstream portions of the spring run, and current conditions are already 2.1% below no-pumping conditions as a result of consumptive use withdrawals. The MFL should take climate and rainfall uncertainty into account and should implement a prevention strategy to ensure the continued and increased availability of Silver Glen Springs as a warm water refuge for Florida manatees.

The same concerns about policy and planning expressed with regard to Alexander Springs likewise apply to Silver Glen Springs, and we urge the District to develop a more protective MFL and recovery strategy to restore historic flows at this ecologically significant spring.

Gemini Springs 15 Percent Flow Reductions:

The District proposes a 15% allowable reduction from no-pumping conditions for Gemini Springs (an additional 5% reduction from current conditions). Yet, in its assessment of Alexander Springs, the draft MFL notes that the insufficiency of data for Alexander led to a conclusion of greater than the 0-10% normal range for flow reductions below no-pumping conditions.

Gemini Springs is a regionally significant second magnitude spring and park that has experienced substantial impairment in recent years. The most sensitive criterion for Gemini Springs was deemed to be aesthetic and scenic attributes, rather than the ecological or recreational value of the resource.

The SJRWMD selected residence time as the criterion by which to evaluate both scenic value and fish and wildlife habitat. The District first fails to justify its proposed 15% reduction in aquatic habitat and change in resource value, simply stating that other water management districts have suggested doing so, and it has been peer reviewed once, over 15 years ago, as a possible approach to minimum flows and levels. They conclude that, because Gemini Springs is already impacted, the 15% reduction is reasonable.

On its face, one might agree that the District should direct its greatest resources to preserving pristine areas or restoring critically important first magnitude springsheds – except we have seen the failure of the District to apply this philosophy to Alexander and Silver Springs, respectively. Given that no tradeoff in protections is being balanced against allowing Gemini Springs to further deteriorate, it makes no sense to simply write off 15% of the system's ecological value, except possibly as a matter of convenience to development interests.

It is also unclear how a 15% reduction in ecological resource value for both fish and wildlife and scenic and aesthetic value necessarily translates linearly to a 15% increase in residence time.

A threshold question though is why the District did not evaluate Gemini springs in terms of its recreational value, since the spring was historically used for swimming and other water-based activities. Again, as with Alexander Springs, the State and the District are undermining the democratic nature of Florida's waters as our shared natural heritage in favor of divvying up consumptive use rights.

As a final concern, the District's primary model, the NDMv5 used in the creation of these Draft MFLs, has repeatedly come under fire for its failure to accurately reflect both historical baseline models and for questionable underlying assumptions. At best, the model lacks transparency. Given that this model is consistently used to justify additional flow reductions from the Upper Floridan Aquifer and haphazard approaches to water management statewide, these concerns should be thoroughly addressed and the model should be subject to journalistic peer review standards.

The St. Johns Water Management District should revise its Draft MFLs for Alexander, Silver Glen, and Gemini springs to preclude further withdrawals, and should refrain from permitting additional detrimental groundwater consumptive use permits. Finally, we object to the fact that the DeLeon Springs MFL was finalized with little to no public notice and opportunity for comment. Thank you for the opportunity to offer comments on this important matter. Please do not hesitate to contact me with any questions or concerns.

Regards,

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