# Save the Manatee® Club

April 22, 2004

Norma Messer
Rules Coordinator
Office of General Council
St. Johns River Water Management District
4049 Reid Street
Palatka, FL 32177

RE: Proposed amendments to Chapter 40C-8.021 and 40C-8.031 Florida Administrative Code

Dear Ms. Messer:

Save the Manatee Club (SMC) appreciates the opportunity to provide comments on the proposed rule amendments to Chapter 40C-8.21 and 40C-8.031 of the Florida Statutes (F.S.), that will establish a minimum mean flow regime for Blue Spring in Volusia County. SMC has reviewed the proposed amendment for a minimum flow regime with the associated technical reports and models, and applicable state and federal regulations. SMC recognizes all of the work that went into the modeling effort and strongly supports the adoption of an *appropriate* minimum flow for Blue Spring, however SMC must **object** to the proposal as advertised in the November 21, 2003 Florida Administrative Weekly. SMC's objections are based on concerns with the model's assumptions, limitations and precision, the incomplete assessment of ecological impacts, the proposal's non-compliance with the Endangered Species Act and Marine Mammal Protection Act, and the resulting threats to manatees and their recovery.

**Proposed Rule/ Model limitations and implications for non-compliance with Florida Statute 373.042, and 373.0421**

Chapter 373.042(1)a F.S. requires that the minimum flow be set at a level to prevent significant harm to the water resources or ecology of the area. Yet, the St. Johns River Water Management District (SJRWMD) has not fully assessed the potential impacts to water quality at the spring that may result from additional withdrawals – and stated these more thorough studies wouldn't be done until after the rule is proposed. Nor has the SJRWMD completed the groundwater/recharge models that assess impacts to the recharge areas throughout the Volusia County region. Increasing development increases impervious surface, which reduces the ability of the spring to be recharged from rainfall events. Reduced recharge areas will add to the reduced spring flow, and affect the time to flow recovery in addition to the impacts from consumptive use withdrawals.

The SJRWMD has not assessed the potential geological impacts of sustained reduction in flow (over a protracted time period) due to additional groundwater withdrawals including the potential for geological changes to Blue Springs vent structure/cavern system that could prevent or impair recovery of spring flow or likelihood of additional ground water withdrawals increasing the likelihood of sink hole formation in the surrounding area.

The SJRWMD has not included sufficient bank-to-bank water depths of the spring run to accurately assess the impacts to the refuge areas due to reduced spring flows. The SJRWMD's analysis and model are based on interpolated data from only 7 actual bank to bank depth measurements for the entire spring run, not even enough to assess the cross spring depth at the "zone" boundary lines used to describe geographically locate manatee use within the spring run, much less within zones.

The proposed minimum flow regime, analysis, and modeling underestimate existing use and potential future manatee use of Blue Spring. The model used to develop the proposal relied on single day counts for Blue Spring called "roll call" counts, that only include manatees observed in a single (one directional) pass by canoe of the spring run for the length of time it takes for the Blue Spring park ranger to identify specific manatees while paddling a canoe from the mouth of the run up to the boil (typically just over 1 hour). Manatees frequently come up the spring run behind the ranger during his count and most data sheets have a list of additional manatees observed (written on the left hand side of the data sheet including their name and the time they were observed) on the ranger's return trip down the spring run – in many cases just minutes after the "roll call" count ended – but these manatees are not included in the total "roll call" count or locations on the data sheets. Wayne Hartley, the park ranger conducting the counts at Blue Spring, has stated that the methodology for the "roll call" should ideally be extended over a more protracted period of time to get a better indication of the actual number of manatees using the spring run in a given day (Hartley, 2004). This would more closely mimic the Florida Fish and Wildlife Conservation Commission's "synoptic survey" protocol at Blue Spring.

This underestimation is evident when the model's projected counts for the 2002/2003 and 2003/2004 winter seasons are compared to the actual "roll call" counts, the Florida Fish and Wildlife Conservation Commission (FWCC) "synoptic survey" counts (synoptic surveys start earlier around 8 am and continue typically until noon) also conducted at Blue Spring, and the number of uniquely identified manatees documented using Blue Spring during each winter season. In the first two winter seasons, the model's projected counts underestimated even the actual "roll call" counts for those winter seasons. This demonstrates the risk of reliance on predicted outcomes of a mathematical model for something as critical to manatees' survival as the availability of warm water.

| Winter Season | SJRWMD Model Projected Count | Actual "Roll Call" Count | Synoptic Survey Count | # Uniquely Identified Manatees Using Blue Spring |
|---|---|---|---|---|
| **2002/2003** | 119 | 123 | 132 | 162 |
| **2003/2004** | 127 | 128 | 141 | 178 |

The proposed minimum flow and model do not contemplate the realistic higher potential increases in manatee use based on documented counts at Blue Spring during the FWCC "synoptic surveys". Neither does the proposal or model contemplate higher levels of increases in manatee use based on the total number of uniquely identified manatees known to use Blue Spring each season. While some of these uniquely identified individuals are currently able to use other smaller springs in the SJR system opportunistically, they could certainly show up at Blue Spring all at the same time during a catastrophic cold weather event and they would likely be forced into Blue Spring as other smaller springs (that would be impacted before a first order magnitude spring like Blue) also experience reduced flows from increased groundwater withdrawals. Even the known number of uniquely identified manatees at Blue Spring is likely an underestimation of the total number of manatees in the Upper St. Johns River System, since that obviously only includes the manatees that have unique scar patterns, allowing for identification.

In addition, the proposal and model rely on a projected increase in manatee use in Blue Spring based on "roll call" counts instead of the estimated population growth rates for the Upper St. Johns River sub-population, which can be as high as 8.1% (the model only contemplated manatee growth of 6.95%). (Deutsch, 2000; Runge et al. , in press). Based on the model projections, small increases in the manatee attendance rates would greatly decrease the length of time before the spring flow would need to be restored.

According to correspondence to the SJRWMD from the Florida Department of Environmental Protection, dated April 7, 2000, Blue Spring has already suffered the largest reduction in flow from historic levels of any first order magnitude spring in Florida. To allow significant impacts, up to an additional 20% reduction in flow, is not responsible management of Florida's most unique resources.

The proposal does not guarantee spring flow will be restored, it does not require annual assessment of actual data in comparison to the model's projected outcomes nor does it mandate an expedited return of spring flow in the event that the model's assumptions are proven to be incorrect, impacts to manatees are identified, new more inclusive and frequent spring flow data indicate impacts are greater than predicted, or other changed circumstances arise. Mathematical models are useful tools, but they do not necessarily track with reality because they are limited by the accuracy and precision of the assumptions and data incorporated into the models. SJRWMD staff have indicated that the data set used in the model to assess spring flow has a high level of error (perhaps as much as 25%) due to the extrapolation of mean annual spring flow data from few data points collected during the year. The smaller the number of data points collected, the greater the potential for error in the extrapolated value.

**Non-compliance with Endangered Species Act and Marine Mammal Protection Act**

The proposed minimum flow and calculated minimum useable warm water length, 132.6 cfs and 225 linear ft respectively, would allow a 35 % reduction in refuge area under catastrophic conditions (50 year, 3 day combination of extreme values) from the current flow of 156.6 cfs with an estimated 348 ft of refuge area. This means the manatees would lose more than one third of the refuge area they have available to them today under the proposed minimum flow regime.

There is a nexus between reductions in spring flow associated with ground water withdrawals and reductions in carrying capacity for the St. Johns River manatee population. Blue Spring is the only major warm water source for manatees for the entire Upper St. Johns River stock, and the winter carrying capacity of Blue Spring will determine the population size for this stock. The full implication/impact to the manatee population of this relationship is not adequately considered in the proposal or model. For example, density dependent effects of crowding can result in reduced reproductive rates, changes in emigration and immigration, or decreases in juvenile and sub-adult survival rates, all would likely impair recovery of the species. In a small population, like that at Blue Spring, decreases in juvenile and subadult survival rates and decreases in reproductive rates are more deterministic for population growth than similar decreases in a larger population. Environmental variability is also more likely to affect the probability of extinction in small population

A reduced carrying capacity at Blue Spring reduces the ability of the SJR sub population to absorb manatees from the Atlantic Coast in the event of an emergency such as the loss of major man-made warm water refuges. In light of the questionable future of artificial warm water sites for manatees, maintenance of maximal carrying capacity at natural warm water refugia (such as Blue Spring) is critical to long term survival and recovery of manatees (see attached letter from the U.S. Fish and Wildlife Service dated June 4, 2003).

The manatee is federally listed as an endangered species, and Blue Spring has been formally designated as "critical habitat" for the manatee under the Endangered Species Act ("ESA"). Both the ESA and the Marine Mammal Protection Act ("MMPA") make it unlawful to "take" manatees without appropriate authorization from the United States Fish and Wildlife Service ("FWS"). The ESA defines "take" to include actions that "harass," "harm," "wound," or "kill" any member of an endangered species. The FWS has issued regulations that define "harm" to include any "act which actually kills or injuries wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering." 50 C.F.R. § 17.3. The regulations define "harass" to encompass any "intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering." Id. The MMPA similarly defines "take" to include "harass[ment]," and further defines "harassment" to mean "any act of pursuit, torment, or annoyance" which "has the potential to injure a marine mammal or marine mammal stocks in the wild" or "has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering." 16 U.S.C. §§ 1362(13), 18(A).

SMC believes that if the proposed minimum flow is adopted and implemented by the SJRWMD, the reduction in flow and resultant reduction in available warm water will clearly "harm" and "harass" manatees within the meaning of the ESA and MMPA, and hence will cause an impermissible "take" of manatees. Even if the reduction in flow does not result in population-level effects – which SMC believes it will - it will invariably impair the feeding, sheltering, migratory activities and other "behavioral patterns" of individual manatees, including by displacing them from specific locations where they have engaged in these activities in the past. This clearly constitutes a "take" that cannot, under the ESA and MMPA, lawfully occur without

appropriate authorization from the FWS. However, as the Service explained in its June 4, 2003 letter, "[w]hile federal law provides an avenue whereby takings may be authorized (the Marine Mammal Protection Act's Special Rule process), the process is fraught with difficulty and, given our recent experience, difficult to achieve. To avoid takings, it would be far simpler to adopt the existing flow as the MFL for Blue Spring." (emphasis added). In short, as the Service has made clear, if the Water Management District wishes to avoid violating federal environmental law, the appropriate course is to continue the status quo and avoid adopting a course of action that would dramatically affect critical habitat availability for the manatees that have become dependent on Blue Spring.

SMC appreciates all the work and effort that the SJRWMD has put into developing this model and report. However, we believe the model and report insufficiently capture and predict the extent of manatee use of Blue Spring as a winter refuge. The model and report also do not consider the impacts of habitat reduction on the manatee population from crowding such as reduced juvenile or sub-adult survival, reduced reproductive rates, and/or effects on immigration and emigration. Nor does it consider the importance of maintaining the highest possible carrying capacity at Blue Spring, a natural warm water refuge, in light of the projected loss of artificial warm water refuges along the Atlantic Coast (there is some documented movement of individuals between the Atlantic and Blue Spring stocks), and the only major warm water source for manatees for the entire Upper St. Johns River stock

Ultimately, there is no getting around the fact that under the proposed minimum flow regime for Blue Spring, manatees would have substantially less habitat area available to them than they do today with the current spring flows. The proposal fails to guarantee that diminished spring flows can or will be restored. This is especially problematic under such a protracted time frame, where all the individuals at the SJRWMD ascribing the minimum flow regime will be long since retired or will have moved on to other endeavors before the proposal requires a return to the current flow.

Based on all of the reasons identified above, and the knowledge that the decisions made for Blue Spring will likely impact management decisions at other springs that provide warm water refugia for manatees, SMC does not support the proposed minimum flow regime for Blue Spring. SMC is gravely concerned that the SJRWMD is, in effect, experimenting with an endangered species, its critical habitat, and recovery so that human population growth and development can continue to be accommodated by additional groundwater withdrawals, instead of instituting reasonable alternatives, such as increased conservation, until alternative sources for water come on-line.

**Instead, we strongly encourage the SJRWMD governing board to use their authority, as provided under Chapter 373.042(1)b, to fully protect the special and unique non-consumptive uses of Blue Spring by setting the minimum flow at the current mean annual flow of 156.6 cfs**. Blue Springs is a first order magnitude spring in Florida, purchased and designated as a State Park solely to protect the spring run as warm water habitat for manatees. It is one of only a few major natural warm water refuge sites for manatees in Florida, and the Upper St. Johns River sub-population is the only one of the four sub-populations of manatees that is coming close to meeting measurable recovery goals. By adopting a minimum flow at the current flow (156.6cfs), the SJRWMD also avoids potential liability due to “take” of manatees

under the ESA and MMPA. SMC also encourages the SJRWMD to work toward a long-term goal of recovering the historic flow to Blue Spring.

Thank you again for this opportunity to provide comment. If you have any questions or if I can be of further assistance please do not hesitate to call me at (321) 385-9060.

Sincerely,

Sandra Clinger

Sandra Clinger
East Central Florida Regional Coordinator

cc: Governor Jeb Bush
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Colleen Castille, FDEP
Eric Glitzenstein, Esq.

## Referenced Literature

Deutsch, C. J., 2000. Status of the Florida Manatee Subpopulation in the Upper St. Johns River: 1999. Report to the Manatee Population Status Working Group. U.S. Geological Survey, Sirenia Project. Gainesville, FL. pp 4.

Runge, M., et al. In press. Marine Mammal Science.