

**MARINE MAMMAL COMMISSION
4340 EAST-WEST HIGHWAY, ROOM 905
BETHESDA, MARYLAND 20814**

26 April 2004

G.B. Hall, Ph.D.
Technical Program Manager
Division of Water Supply Management
St. Johns River Water Management District
4049 Reid Street
Palatka, FL 32178-1429

Dear Dr. Hall:

The Marine Mammal Commission has reviewed and offers the following comments on the proposal by the St. Johns River Water Management District to amend Chapter 40C-8 of the Florida Administrative Code to establish minimum flow levels for Blue Spring in Volusia County. The Marine Mammal Commission is an independent federal agency established under the Marine Mammal Protection Act to provide advice on activities affecting the conservation of marine mammals.

Florida manatees are unable to survive long periods in waters colder than about 18–20°C. During winter months, Blue Spring, which discharges water at a near-constant temperature of 23°C year-round, is the primary source of warm water for virtually the entire manatee subpopulation inhabiting the upper St. Johns River. Without the ability to thermoregulate in the half-mile-long spring run connecting Blue Spring with the St. Johns River, only a few manatees in this subpopulation would likely survive winters. Thus, maintenance of minimum flow rates at this spring is essential for the subpopulation's long-term survival.

Compared to average annual flow rates measured at Blue Spring in the 1930s and 1940s, flow rates both have declined and have become much more variable since the mid-1950s. This change has been attributed to increased withdrawal of groundwater for human use from the spring recharge area. A continued decline in flow rates would reduce the expanse of warm-water area available to manatees during winter.

The District's proposed action seeks to avoid such an impact by establishing minimum average annual flow rates based on estimates of the spring run area needed during winter months by the projected number of manatees in this growing subpopulation. The proposed minimum flow rates would be increased steadily at five-year increments from 130 cubic feet per second (cfs) on the effective date of the rule to 157 cfs by 2029. A recent District report ("Human Use and Ecological Evaluation of the Recommended Minimum Flow Regime for Blue Spring and Blue Spring Run, Volusia County) notes that, although the average annual flow level since 1932 has been about 156 cfs, during drought conditions between 1998 and 2000, flows declined to an annual average of 133 cfs with a minimum recorded flow rate during that period of 74 cfs. We understand that a recent break in the drought has increased flow levels to near the long-term average.

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The proposed flow rates are based on results of a hydrological modeling study undertaken by the District in cooperation with the Florida Fish and Wildlife Conservation Commission and the U.S. Fish and Wildlife Service. The model was used to project the area of warm water (with temperatures greater than 20°C) in the spring run that would be available to manatees, assuming worst-case conditions (e.g., drought and low river stages). As we understand it, the District would allow an increase in groundwater withdrawals from the Blue Spring aquifer up to the point where additional withdrawals would reduce the average annual spring flow level below the established annual minimum flow levels.

The Marine Mammal Commission commends the District for its efforts to project warm-water needs for manatees and to establish minimum flow levels based on warm-water requirements for the region's growing manatee population. However, we have three concerns:

1. The District proposes allowing the average annual flow to decrease by up to 26 cfs from the current long-term average of 156 cfs, thereby establishing 130 cfs as the new environmental baseline.
2. The critical determinant for manatees is flow in the winter, not average annual flow. It is unclear precisely what flow rates have occurred during winter or what the District proposes for managing winter flows.
3. The history of water use in this country includes many instances where government agencies have had great difficulty weaning water users off relatively inexpensive and readily available water sources when the alternative sources are likely to be much more expensive.

As we understand it, during the first five years, the District would allow additional groundwater withdrawals for new development on an assumption that spring flow rates can be reduced by about 25 cfs and still meet manatee requirements for warm water. In the future, as minimum flow levels are increased, it would reduce groundwater withdrawals by replacement with water from a new source, possibly either treated surface water from the St. Johns River or desalinization of ocean water, both of which are very expensive. Although we recognize that a decrease of 25 cfs is unlikely, if new groundwater withdrawals are authorized, it seems possible, if not likely, that flow rates could be reduced at least to some extent below the current long-term average. This could become a significant problem for manatees should drought conditions similar to those in 1998–2000 occur after additional groundwater withdrawals had been authorized but before arrangements were made for replacing groundwater withdrawals with an alternative source.

The Marine Mammal Commission therefore recommends that the proposed rule be changed to establish a single, immediately effective minimum flow level of 157 cfs. This is essentially the same as both the current long-term average flow level (factoring in declines since the 1950s) and the proposed long-term minimum flow level. Establishing that level now, rather than 25 years from now, will greatly improve the likelihood that this level could and would be met and that alternative water sources will be developed in a timely manner. Furthermore, the Commission recommends that the District develop and implement a management program for spring outflow to assure that flows during the winter are adequate to maintain water temperature in Blue Spring and adjacent run at above 20° C.

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Once again, the Commission commends the District for its attention and concern to the fundamental relationship between the minimum flow levels at Blue Spring and required long-term habitat needs for the St. Johns River subpopulation of Florida manatees. If you or your staff has questions, please call.

Sincerely,

A handwritten signature in black ink that reads "David Cottingham". The signature is written in a cursive style with a long horizontal flourish extending to the right.

David Cottingham
Executive Director