

# Rainbow River Conservation, Inc.

## Winter Newsletter 2017

RRC continues in its effort to protect and preserve the Rainbow River and its environment.

### Annual Members Meeting

RRC held its annual meeting December 3<sup>rd</sup>. Burt Eno, Mary Ann Ermatinger and Herb Reichelt were elected to the Board of Directors. Re-elected to 2017 BOD offices were President Burt Eno, V-P Jerry Rogers, Treasurer Gretchen Martin, and Secretary Louise Kenny.

A tag team consisting of RRC board members Gordon Hart, Jon Brainard, Jerry Rogers, and Bill Vibbert presented a power point review of RRC's noteworthy programs carried out in 2016. These included the Fourth Grade Education Program, the Wood Duck Conservation Program, the Blue Run Park Improvement Program, and the Rainbow River Stewardship Program as well as the assistance provided to the FSI Rainbow River Baseline Assessment Program.

President Eno gave a power point overview of recent Rainbow River studies and plans produced by the Florida Department of Environmental Protection (FDEP), the Southwest Florida Water Management District (SWFWMD), and the Florida Springs Institute (FSI). These ranged from water quantity and quality and natural systems studies to plans for arresting impairments to the river and restoring the river to its earlier healthy condition. All nine studies and plans reviewed in the power point presentation can be found on the Education Tab at [www.RainbowRiverConservation.com](http://www.RainbowRiverConservation.com).

Studies and plans are nice but the major problem is to get our State Legislature convinced that they need to be funded and implemented. The annual meeting guest speaker Dr. Bob Palmer addressed "Springs Protection Advocacy and Legislative Proposals" on behalf of the Florida Springs Council. Dr. Bob Knight joined him in



Annual servicing Wood Duck Boxes from pontoon boat by RRC members

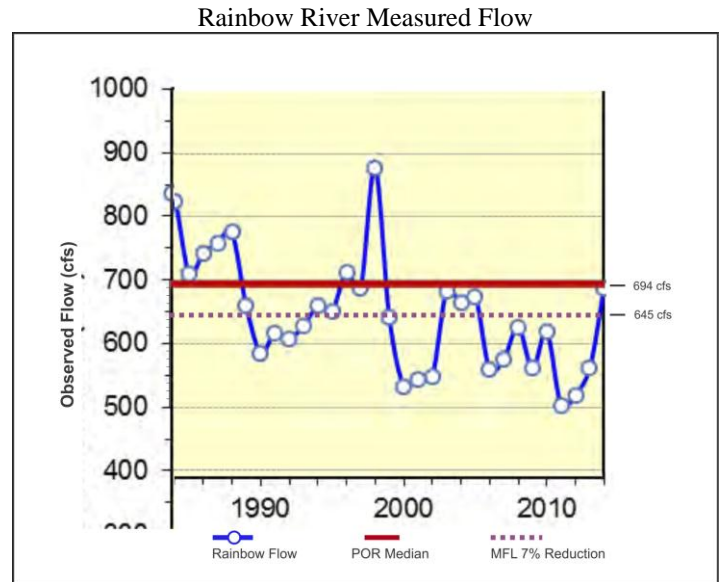


Fourth grade students learn about turtle life cycle at Rainbow Springs

some of this discussion.

### Minimum Flows and Levels

Last quarter we reported to you that SWFWMD had completed a Minimum Flows and Levels (MFL) study for the Rainbow River and concluded that no significant environmental harm would be incurred with a seven percent flow reduction from historic levels. We find, along with the Florida Springs Institute and other peer reviewers, that this study is seriously flawed. First, the “sandbox analogy” for modeling the flow through the aquifer is a gross oversimplification. Second, the estimate of present aquifer pumping is too low. Third, considering the measured flow by the U.S. Geological Survey showing a drop in flow over the past 20 years, the MFL study fails to satisfy a simple water balance calculation.



Flow has been below mean flow rates for 16 of the last 16 years and below the proposed MFL for 11 of the last 16 years.

Fourth, the study claims there is no correlation between quality and quantity of river flow when, in fact, it should be obvious that the slower the flow the longer the nitrate residence time to grow algae. Fifth, significant harm was arbitrarily defined as a whopping fifteen percent loss of fish passage or floodplain habitat. Many other environmental parameters were rather readily dismissed from the analysis.

Our conclusion is that there can be no confidence in the results of the MFL study to establish a take from the river flow. In fact, it appears that the Rainbow River should be placed in a restoration mode. To see more of RRC’s argument pertaining to the MFL study open the attached critique transmitted to SWFWMD.



# **Critique of Rainbow River MFL Draft dated August 2016**

## Preface

The recommended minimum flow for the Rainbow River System proposed by SWFWMD in their August 2016 draft seems flawed and driven by a dictate to “find water” regardless of the harmful consequences. As exhibited in the attached list the Rainbow River has maintained its classification of an Outstanding Florida Water until recently. It has had high flow, excellent clarity, and an abundance of healthy aquatic life and wildlife. In the last decade, however, much of these attributes have begun to fail as lower flows, high nitrates, and excessive traffic have begun to take their toll.

In the last dozen years the nitrate level in the headwaters of the river has doubled to nearly 2.5 mg/l, seven times the TMDL established by FDEP (MFL Draft Figure 3-4). Sixty-five percent of this comes from crop fertilizer and animal farms while another nineteen percent comes from septic tanks in the 700 square mile Rainbow Springs recharge area (see MFL Draft Figure 3-1). The consequence of such high nitrate is the rapid growth of filamentous algae in the river (lyngbya), displacing the normal healthy native vegetation which provides the habitat and food sources for the fish life.

Traffic on the river, particularly tubers, has doubled in the last five years. Tubers in the summertime literally clog the river causing other craft to divert into shallow areas tearing up the river vegetation. The sheer numbers of recreationists on the river scare away the wildlife. No effort to date has addressed the seriousness of the excessive recreation problem.

## Significant Harm

SWFWMD has adopted the premise that any water body environmental parameter can be harmed fifteen percent in setting a minimum flow. There is no logical basis for this arbitrary number and, considering the harm already imposed upon the Rainbow River, this could be devastating to this Outstanding Water Body. In 2012 a drought occurred and the flow in the river dropped to 235 mgd. This resulted in a large residence time which seemingly encouraged the spread of lyngbya further upstream in the following year. Natural events such as this are creating enough harm to the river. We don't need to artificially remove flow from the river to force more harm.

## Relation Between Flow and Nitrate Level

In the last paragraph we noted an anecdotal relationship between reduced flow and increased effect of nitrate residence in the river. In Figure 3-4 of the MFL Draft the nitrate level in the head springs has doubled in the last 15 years. Correspondingly, Figure 2-4 shows that the river flow has been substantially below the long term average flow for

the last 15 years. One would suspect an inverse correlation between flow and nitrate level.

Section 3-3 of the MFL Draft presents a study to analyze the effect of flow on nitrate level in the river. Although the influence of time presented in Figure 3-5 is a relatively strong function, indicating increasing nitrate levels introduced from the springs recharge area over time, there does seem to be a significant inverse correlation between flow and nitrate level. This being the case it would be unwise to seek to reduce the river flow.

### Environmental Parameters

Chapter 5 lists ten environmental values that should be considered when developing minimum flows. The MFL analysis quickly honed in on fish passage and instream and floodplain fish and wildlife habitats as most sensitive to flow reduction. All other environmental values, such as recreation, navigation, aesthetic and scenic attributes, and absorption of pollutants, were loosely related to fish passage and wildlife habitats. It is hard to see how all these other environmental values could be so readily dismissed or minimized in the analysis.

### Setting the Minimum Flow

After a complex computer modeling analysis the conclusion seemed to be that a nine percent flow reduction would create a fifteen percent reduction in instream habitat for largemouth bass and a five percent reduction in flow would create a fifteen percent reduction in floodplain wetlands habitat. The conclusion given was “therefore, a seven percent allowable flow reduction”. There is no “therefore”. This was another compromise to set a higher flow reduction than dictated by the most limiting environmental value analyzed. This serves to negate the credibility of the analysis and the conclusion drawn. Considering the arbitrary setting of fifteen percent harm and the other factors discussed above it should be clear that no flow reductions to the Rainbow River system should be granted.

### Aquifer Pumping

There is a large disagreement concerning aquifer pumping in the Rainbow Springs recharge basin predicted by the Northern District Model and the conclusions of the Florida Springs Institute. The Institute, in their letter of October 19, 2016, pointed out that river flow has decreased fifteen percent in the past two decades and reduction in rainfall only accounts for about half of that reduction. Their assertion is that the aquifer pumping accounts for the other half. They further point out that water balances presented to the MFL Peer Review Panel indicate aquifer pumping at a level of three to seven percent of historic flows.

This gives Rainbow River Conservation great concern about the accuracy and legitimacy of the NDM prediction that only 1.0 to 1.7 percent of the river flow has been given up to



aquifer pumping. The “sandbox analogy” of the NDM is a gross oversimplification and thus not reliable. Estimates of aquifer pumping within the Rainbow Springs recharge basin are also unreliable due to the fact that there are very few actual use measurements being made. The liberal granting of water use permits in the District needs to be stopped.

#### Mandates for the Rainbow River

Rainbow River Conservation, Inc. has, for more than 50 years, sought to preserve and protect the Rainbow River from harmful events and practices. It would seem that the Water Management District would have the same objective as exhibited in the 2015 SWIM Plan. The MFL draft does not comply with this desirable objective but rather to further compromise the already impaired river to satisfy the thirst for growth and consumption. The plan to siphon more flow from the river is ill-conceived and shortsighted. There should instead be a plan for restoration of the river.

RRC believes that there is a much stronger dependence of river quality on river flow than implied in the MFL study. Considering such arguments put forth by the peer reviewers, FSI, and RRC board member Bill Vibbert, it seems that the recommendation for additional water withdrawals from the Rainbow River should be rejected and a restoration plan should be established instead.