

## **Rainbow Springs placed on a draft list of impaired surface waters**

By [Fred Hiers](#)  
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DUNNELLON — Rainbow Springs and most of the nearly six-mile-long river that it feeds is on the Florida Department of Environmental Protection's draft list of impaired surface waters.

The move enables scientists to take more formal steps in determining how to help clean the water bodies and address their contamination sources.

The list is available for public review on the DEP website ([www.dep.state.fl.us](http://www.dep.state.fl.us)) By November the list will be considered for final review by the department, said Julie Espy, FDEP's environmental administrator of the watershed assessment section.

But based on studies showing rapid increases of nitrogen concentrations in the spring and river — and no objection to the spring making the list to date — Espy said "we can't see a reason why (the list) shouldn't be adopted."

Being placed on FDEP's impaired water body list will now make the spring north of Dunnellon, and the river that flows through the town and into the Withlacoochee River, eligible for further study, which is part of the process of returning water bodies closer to their natural state.

Most studies show that the Rainbow River and spring have a long way to go. One 1996 study showed a 20-fold increase in nitrate levels during the previous 40 years, according to a recent Southwest Florida Water Management District (Swiftmud) report. Since then, nitrate levels in the river doubled from 1 milligram per liter of water in 1996 to sometimes as high as 2 milligrams per liter in 2008.

Rainbow Springs is a first-magnitude spring with an average discharge rate of nearly 500 million gallons per day. It is one of 33 first-magnitude spring systems in Florida.

While water bodies can be placed on FDEP's impaired list for many reasons, the Rainbow River and its spring's nitrate levels and algae growth qualified them for further study and rehabilitation.

High nitrate levels act as food for algae. Too much algae changes the natural chemistry of water bodies and affects fish populations and species, along with vegetation in the water. A change in fish and vegetation can then impact a variety of wildlife that depend on those water bodies for food and other resources.

When a water body doesn't meet water quality standards that protect human health and aquatic life, that water body is identified as being impaired by the FDEP for the particular pollutants of concern.

The next step for the spring and river is for FDEP to establish the Total Daily Maximum Load for the water. The TDML determines how much a water body can absorb of a pollutant or unwanted nutrient, such as nitrate or phosphorus, and still meet the water quality standards.

That process also identifies the offending pollutant and then develops what FDEP calls a Basin Management Action Plan, which includes identifying the sources of pollution and how to keep it away from the water.

Peter Colverson, of Pandion Systems Inc. in Gainesville, is working with the Rainbow Springs Basin Working Group, which is overseen by FDEP, and charged with identifying the spring and river's problems.

Colverson, a communication's specialist with Pandion and the working group's coordinator, said FDEP has already agreed to fund a three-year study with his business to help identify some of the sources of the nitrate pollutant and make recommendations about how to keep it from entering the water. Pandion is an environmental science, ecology, and communications company.

FDEP is paying the company \$70,000 per year. The company has a similar contract with FDEP for Silver Springs and the Silver River at the same cost. That river was previously added to FDEP impaired water body list, also because of high nitrate levels. Its TMDL has not yet been determined.

Finding the general source of nitrates won't be too difficult.

"The basic sources are going to be fertilizer and some sort of human waste," Colverson said of the nutrient pollutant.

What will have to be determined is whether the fertilizers are coming from farms, residential properties, septic tanks or recreational areas — and exactly which ones.

What is known already, he said, is that when too much fertilizer is put on lawns or gardens and the excess seeps into the groundwater and shows up in springs, it's an indication people are using too much.

Marion County environmentalists can help people learn how much to apply to lawns. The county also has a fertilizer ordinance that limits how much of the nutrients to apply and requires lawn companies that apply fertilizer to attend instructional programs.

"We're basically polluting (the springs) with our money," he said, pointing out the irony.

Meanwhile, the U.S. Environmental Protection Agency has issued average nutrient standards for Florida's surface waters, something the state doesn't have. The standards will go into effect next month but will likely take years to implement.

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