



UPSTREAM DOWNSTREAM



Spring 2014

“Preserving the Nature Coast”

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Our Mission

To implement civic action and to promote the common good of residents of the community with a focus on public awareness and responsible stewardship of regional water sources, the basis for all the natural systems that define /Florida’s Nature Coast

Our Long Fool’s Errand

by Dan Hilliard. *A version of this article was published in the Citrus County Chronicle on January 11, 2014 and January 19, 2014. . It is reprinted by permission of the author.*

Part One: Charades

A great dialogue is under way in Florida these days involving the media, political servants and the citizens of this state. The topic is the health of our water resources and, locally, the health of our coastal spring systems, which are vital to Citrus County’s long-term prosperity. The discussion illustrates the conflict between the government’s obligation to protect the health, safety and welfare of the people versus what has actually occurred.

We have accepted the administration of water policy by the state in good faith since the 1960s. The lead agencies are the Florida Department of Environmental Protection (FDEP) and our five water management districts. This bureaucratic maze has failed us, and done so in spectacular fashion.

This is illustrated by the very long list of Florida’s pollution-impaired waters. The 2013 FDEP Integrated Water Quality Assessment 303(d) List contains more than 2,700 water bodies or segments of water bodies (80-plus percent) that are impaired, mostly for pollution. All of Citrus County’s rivers are on this list for multiple pollutants, including mercury and nutrients.

Not long ago, Art Jones began the “One Rake at a Time” project with the intent of cleaning up King’s Bay. Kudos to Mr. Jones for that, for it surely needs to be cleaned up! He has energized the public, but perhaps his most spectacular success is bringing the fresh focus of state politicians and business leaders to our local waters. After all, they are the people with the money and power to implement change.

Concurrent with the “One Rake” project, the Southwest Florida Water Management District cleaned up Weeki Wachee and Chassahowitzka Springs. The district will soon begin a project to restore native vegetation and otherwise improve the quality of King’s Bay. The need for such actions is real, but these programs and projects are frequently heralded by the state and media as restoration, which they surely are not.

Charade, n: Something that is done in order to pretend something is true

Our Long Fool’s Errand— Part One (cont.)

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when it is not really true — Merriam-Webster Dictionary

Our springs and rivers are beset by two fundamental problems. One is reduced flow volume and the second is pollution. Spring vents rely on approximations of historic flow rate to expel sediments that will otherwise slowly obstruct outflow. If we do not sharply reduce nutrient pollution in our aquifers, there will be no end to the scourge of Lyngbya in our rivers and springs. We can repetitiously scrub and clean forever or we can begin to undo the damage we have done and let the springs take care of the housecleaning.

Florida is in the midst of developing a program intended to reduce pollution under the auspices of the Total Maximum Daily Load program. While it sounds good on the surface, it will do nothing other than put gauze on a festering wound. The program relies on best management practices for implementation and, as such, is a toothless tiger. It sets goals and objectives, but little else. Compliance is largely voluntary.

The apparent rationale is that what is good for agriculture and industry is good for us. It is not to say that we don’t need these activities, for we surely do, but we also have great need for firm regulatory support and protection of our most powerful economic resource and fundamental need, water. By allowing these and other activities to destroy our waters, we are simply subsidizing one interest at the expense of another. It is not a cheap subsidy, nor is it sound economic policy by any stretch of the imagination. A regional restoration plan like that being implemented in the Everglades costs billions of dollars.

We have watched the accelerated death of the Indian River Lagoon and the Caloosahatchee River estuary due to the discharge of severely polluted waters from Lake Okeechobee. These discharges were prescribed by the Army Corps of Engineers due to safety concerns about the aged levy system around the lake. If this water was allowed to filter

through the prairies of the Everglades, as in the past, the lagoon, Florida Bay and the Caloosahatchee estuary would be in a far better state of health today.

Florida’s waters have specific problems and require specific solutions. Our legislators must realize that killing our largest economic contributor to benefit other endeavors is a fool’s errand. Until the state admits that it has a problem so significant that charades will not mask it, we will watch the continued spiral of degradation of our springs, lakes, rivers and estuaries.

It isn’t that complicated and there are reasonable paths to a solution.

Our Long Fool’s Errand Part Two: Solutions

We need a philosophical shift in how we manage our waters in Florida. Our waters are substantially impaired across the state, and the time for remedial action is past due.

This is not an us-vs.-them debate. It should be understood that regardless of what one does in day-to-day life here in Florida, we are all in this together. Whether we as individuals are involved in agriculture, industry or are simply residents, every one of us is a participant in this affair. We all bear responsibility for where we are today and where we wind up in the future. There can be no single individual or endeavor that is superior to another as we face this challenge. Flawed laws and administrative policies have led us to the unfortunate circumstance we find ourselves in today. A fleeting glance at Florida’s Impaired Waters List should be sufficient to under-

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Our Long Fool's Errand— Part Two (cont.)

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stand that what we are doing is ineffective.

While this thought may grate on the concept of *laissez-faire* politics, it seems peculiar that a conservative-controlled political system in Tallahassee would slight the intrinsic worth of our most valuable and dynamic state resource. If the thought stands that what is good for business is good for the people, then let us at least be consistent across the board and recognize the opposite is also true.

So, what can be done to begin a comprehensive and effective restoration process for our waters?

We must recognize that the era of cheap water is behind us. In some regions of the state, aquifer levels have been drawn down so far that once-vibrant springs are dry and many lake water elevations have been substantially lowered. We need to restructure our regulation of water use in recognition of this fact. We must also promote activities which contribute to cleaner waters while restricting those which pollute. We know the ways of the past have failed. Let us challenge ourselves to find innovative solutions which can assure our future.

There is at present no incentive to promote day-to-day water conservation in Florida. Large-scale users are regulated by permits issued by the water management districts and, with issuance of a permit, may use water freely. Most permitted wells are not metered, and in such circumstances there is no effective means to regulate their use.

As an example, recall that during the January 2010 freeze in the Plant City area, approximately 750 residential wells were affected and more than 140 sinkholes were reported due to agricultural over-pumping. Some of those sinkholes shut down highways and local residents were without water until the aquifer levels recovered. It was not a unique event, and it would seem reasonable that an ounce of prevention would best a pound of cure.

We must do better. Here are a few suggestions to that end:

Protection of springsheds

1. Protect spring basin water quality from nutrient pollution with a fee applied to fertilizer (\$/pound of nitrogen). The proceeds should then be used in part to purchase conservation easements in spring basins that restrict crops requiring fertilizer from 60 percent to 90 percent of such lands.
2. Apply an aquifer protection fee on septic systems, the funds of which will be used to connect the highest density developments in high vulnerability aquifer regions to central wastewater treatment.
3. Allocate the remaining revenues from Items 1 and 2 to be used to upgrade public wastewater treatment facilities and enable substantial reductions of nutrient content prior to the discharge of treated water.

Regional reduction of groundwater use

1. Levy a groundwater use fee on all holders of water management district-issued water-use permits of \$1 per 1,000 gallons, with funds to be utilized for resource protection, development of alternative water sources and subsidy support for water meter installation.
2. Develop a regional Floridian Aquifer water budget that reserves 90 percent to 95 percent of aquifer recharge for natural systems and requires water districts to achieve this goal within 10 years.

Such ideas are not original, nor will they be adopted without broad public support. You may have better ideas, but keeping them to yourself is not part of the solution. Voice your concerns and ideas to local and state governing officials and regulators.

The time to be an active participant in protecting the most valuable resource in our state has arrived!

Nutrient TMDLs for the Chassahowitzka and Homosassa Rivers

By Brad W. Rimbey, P.E...This article was published in the Citrus County Chronicle on March 4, 2014 and is reprinted by permission of the author.

The Florida Department of Environmental Protection (FDEP) has begun developing Nutrient Total Maximum Daily Loads (TMDLs) for the Chassahowitzka and Homosassa Rivers. TMDL rule development is mandated on these rivers because they are both on the Federal Environmental Protection Agency (EPA) 303(d) Verified Impaired Waters List for Nutrients (algal mats) and Mercury (in fish tissue).

On February 19, 2014, the Homosassa River Alliance and the Chassahowitzka River Restoration Committee met with FDEP's Kristina Bridger and James Dodson to share local knowledge regarding the current and historical condition of our rivers. FDEP was particularly interested in observations and data related to the presence and proliferation of algal mats since algal mats are the primary indicator of nutrient pollution on spring-fed rivers.

Although the algae causing these mats are a normal part of the natural environment, excessive algal growth occurs when the natural water chemistry is out of balance. If left unchecked, algal growth will literally choke the life out of our spring-fed rivers.

The primary pollutant fueling algal growth (mats) on our spring-fed rivers is excessive nitrate in the water. Other factors, such as reduced flow (increased residence time), also contribute to excessive algal growth.

In Nutrient TMDL development, FDEP must determine how much nitrate pollution a particular waterbody can tolerate without being impaired by algal mats. FDEP has established a nitrate pollution level of 0.35 mg/L as the maximum allowable limit on any spring-fed river in Florida. However, FDEP will set a lower nitrate pollution level on a particular spring-fed waterbody if they determine that 0.35 mg/L is too high to allow the waterbody to recover

from its nutrient impairment.

According to the Florida Geological Survey, nitrate levels were less than 0.05 mg/L in Florida's springs before human activity began polluting the aquifer in our springsheds. In protected areas of the state (such as the Ocala National Forest), nitrate levels in the aquifer are still below 0.05 mg/L. FDEP's 0.35 mg/L maximum allowable pollution level represents a 600% increase over natural levels.

According to Southwest Florida Water Management District (SWFWMD), the current level of nitrate pollution in Chassahowitzka is 0.63 mg/L and 0.66 mg/L in Homosassa. Nitrate pollution levels in both rivers are continuing to rise. These nitrate pollution levels are nearly double the maximum FDEP allowable nitrate pollution levels for spring-fed rivers and approximately 1,200% higher than natural nitrate levels.

After FDEP establishes an allowable level of nitrate pollution on a waterbody, they must develop a Basin Management Action Plan (BMAP) to address the various sources of pollution which are causing the impairment. Unfortunately, compliance with FDEP's BMAPs will be largely voluntary.

We are far beyond the point where we should be politely asking chronic polluters of the aquifer to please stop fouling our drinking water and destroying our spring-fed rivers. Compliance with BMAPs should be mandatory not voluntary.

According to 1997 data from SWFWMD, the primary sources of nitrate pollution for Chassahowitzka's springs comes from Beef Cattle (33%), Poultry (27%), Fertilizer - Residential, Golf Course, Pasture (21%), Dairies (8%), Wastewater - Septic, Sewage Effluent (6%), Other - Row Crops, Citrus, Sludge Disposal (5%). For Homosassa's springs the primary sources of nitrate pollution are Other - Sludge Disposal, Row Crops, Citrus, Poultry, Dairies (43%), Fertilized Pasture (26%), Beef Cattle (20%), Fertilizer - Residential, Golf Course (6%), and Septic Tanks (5%).

FDEP will continue to gather public input on the TMDLs for Chassahowitzka and Homosassa for sev-

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Nutrient TMDLs (cont.)

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eral months. If you have any data or observations which may be useful in the development of these TMDLs please contact Kristina Bridger at (850) 245-8023 or Kristina.Bridger@dep.state.fl.us.

To view a complete list of our local impaired waters, go to <http://bit.ly/1eMZldW>.

To view springs related presentations recently made to the FL Dept. of Agriculture and Consumer Services Water Policy Advisory Council, go to <http://bit.ly/1pVWWSk>.

To view current West-Central spring status from SWFWMD, go to <http://bit.ly/NNEQTM>.

Lip Service and Futile Action

By Steve Kesterson Sr.. *A version of this article was published in the Citrus County Chronicle on June 24, 2013. It is reprinted by permission of the author.*

Heads are in the sand at all levels of government in Florida, as well as across our nation. In our state, at our back door, is an abundance of evidence that politicians and administrators refuse to acknowledge the root cause of water resource depletion and degradation. Without water, the economic engine they continuously hope to exploit for themselves and their supporters, and on behalf of the public in general, will not run.

Water withdrawals have lowered our precious aquifer to the point that spring flows, river ecology, natural surface retention bodies and municipal and private systems that feed on this source are on the brink of shut down. An example of this obvious disdain and practiced denial is water permitting to private business under the guise of new jobs and the economic stimulus of new business. And business pays nothing for this inventory/commodity that belongs first to nature and second to us. Stewardship — baloney!

The basis for this entire fiasco is people. A thou-

sand or more each day cross our border (the state line). We build and create more infrastructure and public service. And the pressure on resources, like a cancer, manifests itself in dying chemical-laden rivers, dying estuary plant life and disappearing animals and aquatic creatures. Upside down natural responses such as the algal explosions alter nature's balance. Wells have salt water intruding and/or mineral poisoning. Even rain patterns have gone negative. Our school children know that rain is not some magical occurrence or God given gift. It requires surface water and humidity from vaporization of same to charge clouds that in turn replenish water bodies and the earth's substrata below. Today, demand exceeds supply and the results are negative. This ain't rocket science!

Vast amounts of our tax-paid money is spent on crumbling and/or depreciated capital improvements. Support services for an unchecked population expansion outpaces these tax revenues, impact fees, licensing and other ingenious methods for raising funds under the category of public welfare such as a landfill. Landfills are essential to the growth process. Once full, in just a few decades they can be reclaimed for development. They must be important, our local state senator has one. Look around. It is nothing but a Ponzi scheme. The downward spiral tightens daily. The root of all this evil? More people!

Meanwhile, back at the ranch, state and local government is always in a dither about how to attract new business and get more people to come to our community. It goes without saying, that our community suffers after the carrying capacity is exceeded. Have you ever had this thought, recently? "Where the ... is all this traffic coming from?"

Now add a recession. Did you see the 60 pages of mice type, for 1,461 properties with delinquent real estate taxes in the Chronicle (Friday, May 3)? There goes the tax base and scary plunges in revenue, on top of Duke's reneging. Too many people. A bitter pill to swallow, debate or acknowledge. We'll never see a legal mandate in our state to halt the overwhelming influx of people or restrict development. It's like running from a tidal wave. Barring a natural miracle, we have exceeded our environmental balance. God, save us from ourselves!

Canaries in a coal mine

By Robert Knight *This article was printed in the Gainesville Sun on March 31, 2013 and is reprinted here by permission of the author.*

In "Region at Risk," The Gainesville Sun spotlighted the high rates of fatal cancers in rural areas of north Florida. The conclusions of local cancer experts appear to be that rural residents do not receive adequate medical care needed to detect and treat cancers early.

In a companion article, The Sun cites studies in North Carolina and Iowa that found that exposure to agricultural pesticides is a possible factor in increased prostate cancer in males, melanoma in farmer's spouses and ovarian cancer risk in female pesticide applicators. But the professors interviewed for The Sun's story did not think that pesticides are likely to be the missing link to increased cancer risk in rural north Florida. In summary, this article pointed to rural poverty and increased tobacco use as possible correlates with higher local cancer death rates.

The President's Cancer Panel Report (2010) takes a much harder look at the effects of exposure to environmental contaminants and the incidence of cancer among farmers, their families and migrant farm workers. These people "are at highest risk from agricultural exposures" both on the job and in their daily lives. In rural north Florida, this population is almost totally dependent on private self-supply wells that draw groundwater from below the lands that are intensively farmed.

While The Sun article appears to conclude that pesticides are not elevated in groundwater in our area, there is one environmental contaminant that is clearly elevated in these drinking water wells — namely nitrate nitrogen derived from fertilizers, animal wastes and septic tanks.

Background nitrate nitrogen concentrations throughout areas where the Floridian Aquifer underlies protected lands (for example, the Ocala National Forest) are less than 0.05 parts per million (ppm or mg/L). County-wide average nitrate concentrations in Union County are over 0.54 ppm, more than 10 times higher than the baseline aquifer levels.

The average value in Suwannee County wells is 0.56 ppm, Gilchrist County's average is 0.41 ppm, and the average in Alachua County is 0.41 ppm, eight times higher than the background.

About 40 percent of the wells sampled in Gilchrist County had nitrate concentrations above 1 ppm, more than 20 times the baseline. Fanning Springs on the Suwannee River in Levy County has an average nitrate concentration above 5 ppm, or more than 100 times the background, and peak concentrations close to 10 ppm. Test wells in Suwannee and Lafayette counties associated with row crops frequently have nitrate concentrations above 30 ppm (600 times the baseline), and a few wells have been recorded at concentrations greater than 100 ppm (2,000 times the background level).

The President's Cancer Panel Report states that the "most likely known mechanism for human cancer related to nitrate is the body's formation of N-nitroso compounds (NOC), which have been shown to cause tumors at multiple organ sites in every animal species tested." The report goes on to say: "In humans, NOCs are suspected brain and central nervous system carcinogens" and that in an Iowa study, older women drinking water with elevated nitrate concentrations had increased risk for bladder cancers.

The authors conclude that nitrate in drinking water at concentrations less than 10 ppm (the "safe" human drinking water standard) could be carcinogenic and that further research is warranted, especially since groundwater nitrate concentrations in many agricultural areas continue to increase.

The Florida Department of Environmental Protection and the U.S. Environmental Protection Agency have found that nitrate concentrations between 0.2 and 0.4 ppm cause a kind of "ecological cancer" in natural springs by promoting a proliferation of nuisance algae. However, the state's nitrate standard in groundwater continues to be 10 ppm, a value that has resulted in the wholesale loss of desirable submerged aquatic vegetation in a growing number of Florida's springs. To date there has not been any publicized effort to look for a relationship between human consumption of groundwater contaminated by nitrate in Florida and the risk of increased cancer.

Canaries in a coal mine (cont.)

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It has often been stated that springs are a window into our aquifer and are also like canaries in a coal mine. Perhaps those analogies are even truer than most people think.

If you see celebrated nature photographer John Moran's springs before-and-after photos at the Florida Museum of Natural History, you may conclude that the "cancerous" algal proliferation impairing our springs may be a fair warning of the unseen dangers to humans resulting from drinking polluted groundwater. With the documented increased risk of cancer deaths in north Florida's most rural counties, it is critical that state and federal epidemiologists look for a link between elevated nitrate concentrations in our groundwater and these high cancer rates.

Robert Knight, Ph.D., is director of the private, nonprofit Howard T. Odum Florida Springs Institute in Gainesville and holds a master of science in public health degree from the University of North Carolina.

Annual Meeting 1/27/14

Vice President John Fuchs welcomed attendees and thanked members for donations. John mentioned the need to fill vacant positions: webmaster, membership director and President.

John Fuchs and Dan Hilliard reported on The Lower Withlacoochee River Study project. Phase I which is a review and compilation of existing data, is complete. A proposal has been prepared for Phase II which includes sampling over a 1 year period. Phase III will include restoration proposals. W.A.R., Inc. is seeking donations and grants to cover the cost of this ambitious and important project.

Guest Speaker Mark Fulkerson, Ph.D., P.E., Engineering and Watershed Management Section, Water Resources Bureau, SWFWMD, spoke on his research on the Withlacoochee River. His work encompasses researching historical modifications of the river from early colonial to modern times, and constructing a computer model. Dr. Fulkerson has a list of 20 critical issues for evaluation. He plans to evaluate various approaches to the issue of low flow in the Lower River. Dr. Fulkerson welcomes input from interested citizens.

Withlacoochee Area Residents, Inc.

Preserving The Nature Coast
a 501(c)(3) Non-Profit Organization

Membership Application

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for events as well as articles of interest.

**Withlacoochee Area Residents Inc.,
a 501 (c) (3) Corporation**

About the Withlacoochee Area Residents

Withlacoochee Area Residents, Inc is a 501(c)(3), not for profit charitable organization incorporated in 1984. Our underlying principal is promoting the social welfare and common good of the residents of our communities. Current focus is on coordinating with other public advocacy groups that share our interests in preserving and restoring the quality of the Withlacoochee River and associated ecosystems. Withlacoochee Area Residents, Inc. is engaged in improving state decision making oversight practices that continue to contribute to degradation and depletion of increasingly scarce potable groundwater that is the foundation for the survival of our communities. Withlacoochee Area Residents, Inc. is responsible for the designation of the Withlacoochee River as an "Outstanding Florida Waterway", and contemplates future actions to provide an umbrella of Federal protection over the river basin and associated estuary.

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