

# Florida Specifier

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April 2017

Volume 39, Number 4

## SFWMD bay projects 6

The South Florida WMD approved funding for projects to increase fresh water deliveries to Florida Bay and Biscayne Bay. The Florida Bay plan received funding for four projects along the eastern side of Everglades National Park. The district also approved land purchases to facilitate the first stage of the Biscayne Bay Coastal Wetlands Project.

## West Volusia thirst 8

Utility officials in three west Volusia County cities and the county public works department are seeking new potable water sources to ensure enough supply to meet expected population growth. But the sources will have to spare enough aquifer water to meet the flow standards for three designated Outstanding Florida Springs.

## Florida coral reef survey 9

According to a 2016 census conducted by the Florida Reef Resilience Program, the incidence of coral bleaching last year in Florida was mild to moderate. However, high disease prevalence and recent mortality were also observed at numerous sites throughout the Florida reef tract.

## Phosphate expansion 10

Despite opposition from local residents and environmental activists, Manatee County Commissioners approved a plan that will allow Mosaic Fertilizer to extend its mining operations in the Myakka-Duette area to its Wingate East property.

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### Got a story lead?

Got an idea for a story? Like to submit a column for consideration? Fire when ready. And don't forget to fill us in on your organization's new people and programs, projects and technologies—anything of interest to environmental professionals in Florida. Send to P.O. Box 2175, Goldenrod, FL 32733. Call us at (407) 671-7777; fax us at (407) 671-7757, or email mreast@enviro-net.com.

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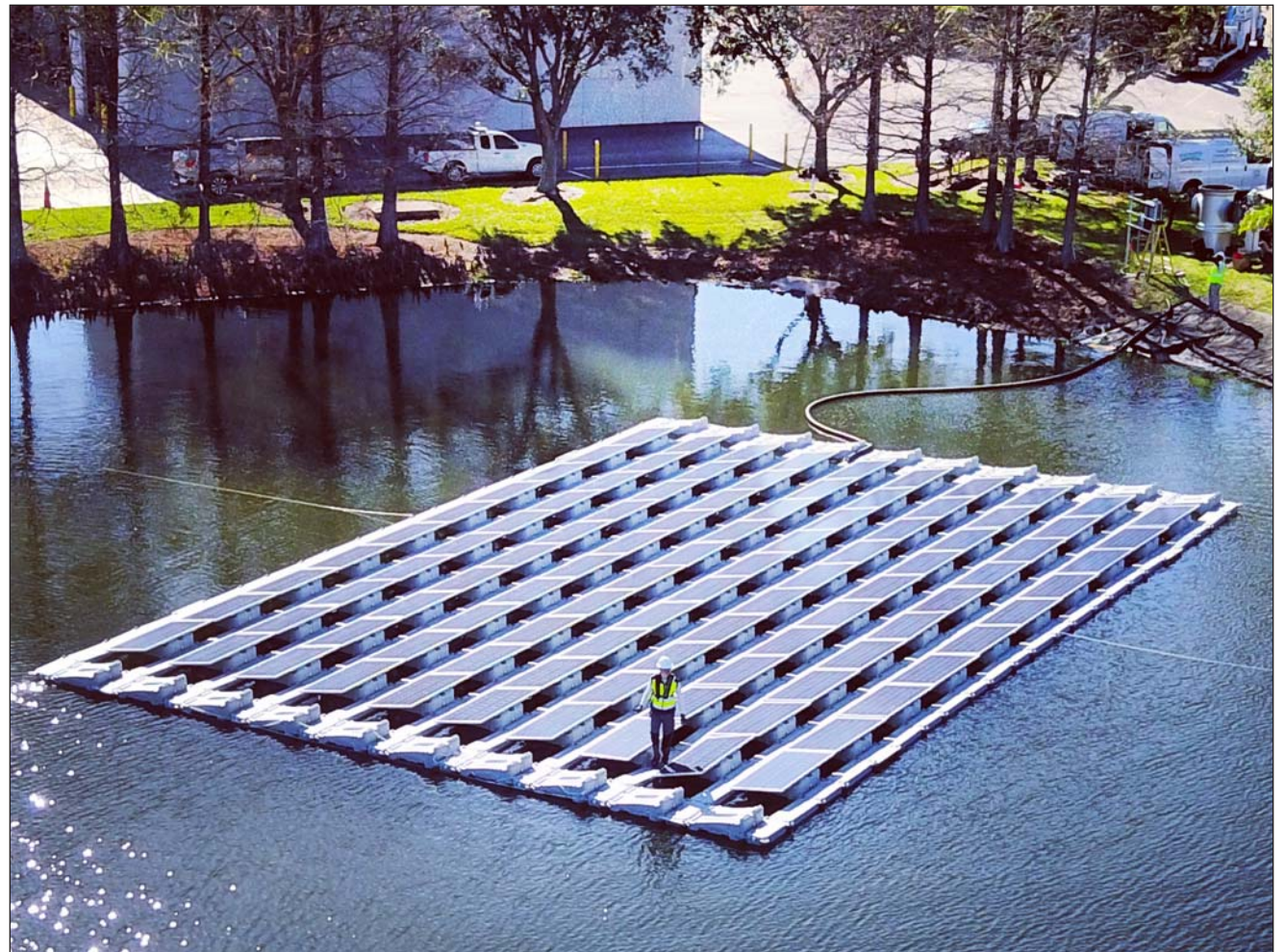


Photo courtesy of D3Energy LLC

Lowell Dunn, president of D3Energy, inspects a 100-panel, 31.5 kilowatt floating photovoltaic electricity generator during final construction stages. The array, installed in February, is adjacent to Orlando Utility Commission's Gardenia facility south of downtown Orlando. See story on Page 12.

## Trump signs executive order repealing Waters of the U.S. rule

By ROY LAUGHLIN

President Donald Trump signed an executive order directing the U.S. Environmental Protection Agency and other federal agencies to begin the rule-making process to revise or repeal the federal Waters of the United States rule.

Trump's order begins with a statement that requires the nation's navigable waters be kept from pollution "while at the same time promoting economic growth, minimizing regulatory uncertainty, and showing due regard for the roles of the Congress and the States under the Constitution."

To achieve these goals, the order requires the EPA administrator and the assistant secretary of the Army for Civil Works to review the WOTUS rule to meet the new and sometimes competing policy objectives stated above.

They are ordered to "publish for notice and comment a proposed rule rescinding or revising the rule as appropriate and consistent with the law."

EPA rules and other federal rules often have hooks into other federal agencies that require them to issue their own rules to comply.

Trump's order requires that "the heads of all executive departments and agencies shall review all orders, rules, regulations, guidelines, or policies implementing or enforcing the final rule and shall rescind or revise, or publish for notice and comment proposed rules rescinding or revising those issuances."

The WOTUS rule has been the subject of persistent lawsuits. It is currently under a stay imposed by the 6th U.S.

District Court of Appeals.

The executive order creates a specific definition of "navigable waters," a phrase that has always been contentious when applied to federal authority to regulate water resources.

"In connection with the proposed rule described in section 2(a) of this order, the Administrator and the Assistant Secretary shall consider interpreting the term 'navigable waters,' as defined in 33 U.S.C. 1362(7), in a manner consistent with the opinion of Justice Antonin Scalia in *Rapanos v. U.S.*, 547 U.S. 715 (2006)."

The language contained in the rule was an attempt to write a rule consistent with language and terminology that the late Supreme Court Justice Scalia

found unconstitutional in earlier EPA applications of "navigable waters" to EPA jurisdiction under the Clean Water Act.

Opponents of the WOTUS rule inferred Scalia's opinion to be far more restrictive of federal authority than the rule that EPA finalized in 2015.

Therefore, the expectation is that a repealed rule would govern waters only where ships or boats can navigate year-round. It may not apply to wetlands bordering waterbodies where boats can be used.

Farmers, real estate developers and local government officials are among

**WOTUS**  
Continued on Page 15

## Special master rules against Florida in latest water war suit

By BLANCHE HARDY, PG

In February, U.S. Supreme Court Special Master Ralph Lancaster Jr. ruled Florida failed to demonstrate that imposing water use caps on the state of Georgia would definitively result in additional flows to the Apalachicola- Chattahoochee-Flint river basin and Apalachicola Bay in Florida.

"Florida has not proven by clear and convincing evidence that any additional stream flow in the Flint River resulting from a decree imposing a consumptive cap on Georgia's water use would be released from Jim Woodruff Dam into the river at a time that would provide a material benefit to Florida," he said.

"Because Florida has not met its burden, I recommend that the court deny Florida's request for relief."

Florida U.S. Senator Bill Nelson and U.S. Representative Neal Dunn introduced legislation in response to the special master's ruling.

The proposed legislation would require the National Oceanographic and Atmospheric Administration to review studies and data related to freshwater flows to the ACF river basin and to provide recommendations on how to maintain those flows.

In the lawsuit, Florida was seeking

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# Significant cross-the-board EPA budget cuts anticipated in coming year

## Staff report

Within a week of the new U.S. Environmental Protection Agency administrator's Senate confirmation, rumors of deep cuts to the EPA's budget were reported in various news outlets—cuts that might amount to over \$2 billion from EPA's total budget last year of just over \$8 billion.

The cuts would first and foremost affect employees in the agency. Thousands of positions could be eliminated.

The news website *Axios* presented a leaked policy memo describing some of the budget plans. Grants to states and Native American tribes, environmental programs and management, and climate programs are among those slated for the axe.

*Inside EPA* reported in early January that the EPA's Office of Enforcement and Compliance Assurance could be closed. The office handles civil and criminal enforcement, including violations of the Clean Air Act, the Clean Water Act, the Oil Pollution Act and the Safe Drinking Water Act.

Under the Obama administration, this office targeted the largest and most egregious polluters in selected industry categories, achieving an impressive series of steadily increasing multi-million dollar fines and consent agreements that im-

proved environmental compliance by most players within those sectors.

Research related to air, climate and energy funding would drop from \$90 to \$46 million, a 50 percent cut.

In mid-March, another leaked memo surfaced with more outlines of specific EPA program budget cuts. To reach the radically reduced funding levels, several programs and offices would be cut deeply.

The *Oregonian* reported 42 budget cuts included in the leaked memo, comparing the current funding with proposed funding outlined in the memo.

Federal and state brown-field programs would decrease from \$25 to \$14 million, 44 percent, and \$48 to \$33, 31 percent, respectively.

The Trump administration and some federal lawmakers said that the states should have the primary role in environmental enforcement. Legislators broadly condemn the federal government for its failures to address issues of local concern.

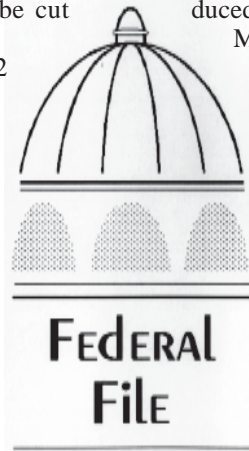
Examples include the recent Flint, MI, drinking water system lead problems,

North Carolina's failure to adequately ensure the safety of coal ash impoundments, Florida's failure to develop surface water quality standards until environmental activists prevailed in a lawsuit, and the failure across broad U.S. regions to reduce nutrient pollution in lakes and rivers.

The EPA educational program's \$8.7 million budget would be drastically reduced to \$0.555 million. The Gulf of Mexico program would be cut by 78 percent, from \$4.5 to \$1 million. Funding for the Lead and Copper Rule would drop from \$13.4 to \$9.4 million.

Leaking underground storage tank cleanup funding would drop to \$8 million, down 29 percent from the 2016 budgeted \$11.3 million. Multipurpose state grants would drop from \$21 million to \$0. Nonpoint source pollution state grants would drop from \$165 to \$115 million, 30 percent.

EPA's radon program would decline from \$2.9 million to \$0.505 million, 83 percent, and radon state grants would be zeroed out. Small minority business assistance funding would drop from \$1.7 to \$0.4 million.



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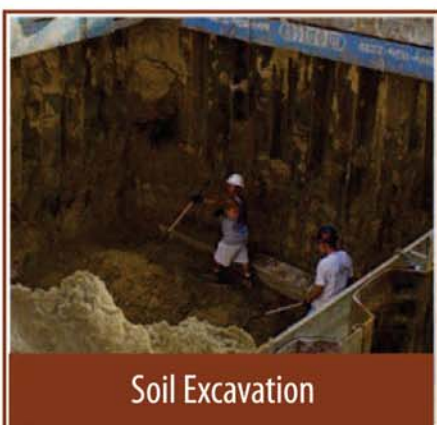
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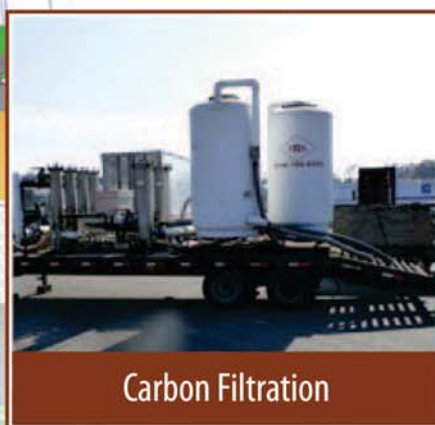
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The Sustainable and Healthy Community program and its grant funding would drop substantially, from \$140 to \$76 million, 46 percent. Underground injection state grants would drop 30 percent, from \$10.5 to \$7.3 million.

And finally, the EPA's Beach Water Quality Testing Program, which monitors bacteria at bathing beaches, would be reduced from \$9.5 to \$0 million.

All of these programs have, in the past two years, funded programs in Florida amounting in aggregate to tens of millions of dollars for the state.

There have also been reports that the proposed budget includes a 40 percent cut in EPA research including closing EPA's Gulf Breeze Environmental Research Laboratory. This facility was one of the lead laboratories used in preparing the scientific findings report for EPA's Waters of the U.S. rule.

Several reports said the personnel reduction will affect EPA's laboratory and research programs more extensively than other programs.

In early March, the *Washington Post* reported that EPA Administrator Scott Pruitt endorsed the brownfield program as an example of an agency program that worked. He also supports Superfund and water infrastructure projects.

But he acknowledged that he is "fighting" for funding in those programs, indicating that he may have little say in EPA's final 2018 budget.

It is difficult to dismiss the reports on memos and leaks as rumors, inaccurate or incomplete. Appropriation legislation is by its nature messy, especially in the early stages with trial balloons of leaks and rumors part of the process.

The Trump administration is scheduled to formally release its proposed budget on March 16, after this article's submission. By the end of the summer, Congress is usually finished with the majority of appropriation bills. The federal budget year begins Oct. 1.

Specific details of what may be the most significant changes in the country's environmental laws, programs and enforcement since the EPA's founding in the 1970s may therefore still be months away.

**Mercury protection rule.** On Dec. 15, 2016, the Obama administration issued its Mercury Effluent Rule, requiring dentists to install equipment to prevent mercury and other metals from being released to wastewater treatment plants or septic tanks.

It required dentists to use American Dental Association best management practices to dispose of mercury from amalgam fillings.

The EPA estimated that the rule would prevent sewer disposal of about five tons of mercury so that it could be properly disposed of, rather than being released via dental office effluents.

Another five tons of other metals in mercury amalgam fillings would also be trapped and similarly managed for disposal.

Mercury amalgam fillings are sparingly used today, but tens of millions of older adults still have them in their teeth. After decades of cavity fillings, the amalgam becomes brittle and needs to be replaced, or the teeth with amalgam fillings are removed.

The EPA estimated that installing equipment to catch the metals would cost a dentist's office approximately \$800. Less than half of the U.S.' 130,000 dental offices need to install additional equipment to comply with the rule.

In its rule analysis prior to issue, the agency said that the mercury rule imposed minimal burdens, was widely praised by dental professionals, and provided a needed benefit public health and the environment.

On Trump's inauguration day, Jan. 20, Chief of Staff Reince Priebus ordered federal agencies to withdraw all rules with

**FEDFILE**  
Continued on Page 12

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## Manatee survey reflects more stability in numbers

### Staff report

A team of observers from ten organizations identified a total of 6,620 manatees in their annual count—3,488 on Florida's east coast from Jacksonville to the Keys and 3,132 on the west coast from the Wakulla River to the Everglades.

That's more than the 6,250 found last year and the 6,063 found the year before.

The survey was coordinated by the Florida Fish and Wildlife Research Institute in St. Petersburg, the state's marine science laboratory.

Last year, 520 manatees died, of which 104 were killed by boaters.

The current number of manatees is far higher than the 1,267 manatees counted in the first state-sponsored survey in 1991.

The increase in population is prompting the U.S. Fish and Wildlife Service to consider moving manatees down a notch on its endangered species list.

A computer model showed they now stand little chance of going extinct.

Manatees have been classified as endangered since the first federal endangered species list was published in 1967. They were put on the list due to the threats they face from boats, the loss of habitat to waterfront development and a decline in water quality.

Though federal officials believe that manatees should be reclassified as a threatened species, environmental advocates strongly oppose down-listing their status.

**JAXPORT land purchase.** The Jacksonville Port Authority approved the purchase of two parcels of land totaling 53 acres at a cost of just more than \$457,000.

The port is purchasing more than 14.8 of those acres from JEA and the remaining 38.4 acres jointly owned by JEA and Florida Power & Light Co.

Port board members also approved \$1.5 million in funding for preparation and monitoring work in collaboration with the U.S. Army Corps of Engineers, which will manage the project to deepen 13 miles of the St. Johns River.

The work includes \$608,000 for contract administration, design, procurement and construction, and \$936,500 for environmental monitoring. The port must share those costs with the corps.

The funding will cover the cost of monitoring salinity levels during dredging as well as its effects on vegetation and wildlife. The conditions will be reported to the Florida Department of Environmental Protection.

Jacksonville city leaders consider the project necessary to compete with other East Coast ports. Some are already deeper than Jacksonville, or under construction to be deeper, to accommodate larger ships.

Officials are not expecting any federal funding at this point.

Gov. Rick Scott is working behind the scenes to have the Jacksonville port deepening project added to the list of infrastructure projects included as priorities for the Trump administration.

Trump said during a Jacksonville campaign stop last year that he would direct a lot of spending to infrastructure, including deepening the harbor in Jacksonville.

The port authority included \$46.6 million in its current operating budget to begin the dredging work. The money for dredging includes \$31.6 million from the state and \$15 million in port financing.

In his recently proposed budget for the 2017-2018 fiscal year, Scott included \$31.1 million for deepening and widening the channel at the port.

**Haines City odors.** Residents are complaining about smells, ranging from dead animals to ammonia, from a compost-handling facility in Haines City.

The facility turns human waste into fertilizer products.

Officials at Jacksonville-based BCR Environmental said the smell was related to a less-than-thorough mixing of the biosolids.

They assured residents they would do

everything possible to resolve the odor issues quickly.

Some residents want operations to be temporarily shut down until the problems are resolved.

**Lakeland solar.** NRG Energy Inc. has completed a 3.15 megawatt solar farm in the city of Lakeland in partnership with municipal utility Lakeland Electric. The project features almost 12,000 solar panels and will supply power to Lakeland Electric.

The project was part of a portfolio the company recently acquired from SunEdison, a bankrupt renewables firm.

**Mobile lab accreditation.** COLUMBIA Technologies LLC announced completion of DoD-ELAP and ISO/IEC 17025:2005 accreditation for its mobile laboratory division.

The company offers a range of high-resolution site characterization services throughout North and South America.

**Reed receives award.** Nathaniel Reed received the Dan W. Lufkin Prize for En-

vironmental Leadership from the National Audubon Society.

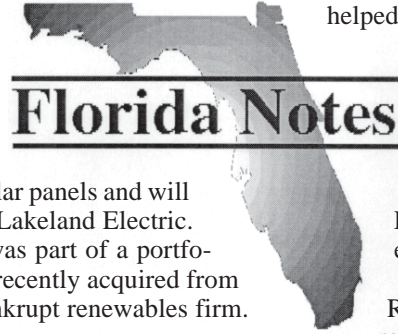
The prize recognizes individuals who have dedicated their lives to the environment and on-the-ground conservation. Reed is one of the founding leaders of the modern environmental movement.

Working for both Florida Gov. Claude Kirk and President Richard Nixon, Reed helped usher in a wave of environmental policies and programs that have created an enduring conservation legacy.


"No one has done more to protect the natural world than Nathaniel Reed," said Eric Draper, Audubon Florida's executive director.

Since leaving public service, Reed has dedicated his life to the restoration of America's Everglades and protection of Florida's Lake Okeechobee and coastal estuaries. He currently serves on the board of the Everglades Foundation.


**People news.** Pinellas County Commissioner Charlie Justice was elected as chair of the Tampa Bay Estuary Program.




**NOTES**  
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# Manasota water supply authority proposes doubling water storage capacity

## Staff report

The Peace River Manasota Regional Water Supply Authority proposed to increase its water storage capacity—doubling its current 6.5-billion-gallon surface storage capacity by constructing another 6.5-billion-gallon reservoir.

The Southwest Florida Water Management District purchased the RV Griffin Reserve in 1992 for surface water storage and for aquifer storage and recovery projects. The reserve has enough remaining area to build the proposed reservoir.

Constructing the new reservoir may entail additional wetland mitigation but that could easily be accomplished by purchasing the adjacent 5,775-acre Orange Hammock Ranch in southeast Sarasota County.

Currently, Orange Hammock Ranch is a working ranch. Its primary involvement with regional water supply occurs because PRMRWSA has constructed a major water transmission pipeline across it to carry water to Sarasota County.

Patrick Lehman, executive director of PRMRWSA, proposed a far greater role in a recent presentation to the district for the ranch's 2,000 acres of former slough land, most of it adjacent to the RV Griffin Reserve.

The sloughs have been drained to im-

prove cattle forage. If drainage was ended or modified significantly, those slough areas could be restored to wetlands.

Lehman proposed his plan to the district's governing board because they would purchase—or substantially underwrite the purchase of—the ranch land.

The purchase would provide additional opportunities for habitat management and improvement, flood control and other environmental benefits in addition to increasing the authority's water storage capacity.

The state of Florida has Orange Hammock Ranch on its Florida Forever priority acquisition list, suggesting a cooperative purchase deal could be done.

PRMRWSA's plan focuses on acquiring and storing water during Florida's rainy season for use during the dry season and for ensuring drinking water supplies through dry years.

The authority's Peace River plant in DeSoto County produces about 25 million gallons a day with a total capacity of up to 51 mgd.

More than 900,000 people depend on

the authority for drinking water. Deliveries to member municipal utilities average 13.6 mgd to Sarasota County, 11.8 mgd to Charlotte County, 1 mgd to DeSoto County and 1.5 mgd to the city of North Port.

Manatee County may look to the authority for up to five mgd in the future.

Currently, the authority has a 400-day emergency water supply based on its 12.5 billion-gallon storage split between 6.5 billion gallons in surface reservoirs and 6 billion gallons in its ASR system at the RV Griffin Reserve.

**MFLs for DeLeon Springs.** The St. Johns River Water Management District approved a minimum flow target of 25.6 cubic feet per second for DeLeon Springs in Volusia County. That corresponds to about 60 mgd.

The minimum flow target became effective on Feb. 1.

The 25.6 cfs target is derived from DeLeon Springs' mean flow rate, 1965-2015. During those decades, the highest flow, close to 40 mgd, occurred after Florida's

2004 hurricane year. In 1997, the lowest flow on record, 10 mgd occurred. The current flow therefore meets the new standard and the district is not recommending any recovery effort.

The standard's primary justification was to ensure sufficient flow to supply warm water to maintain a cold-weather manatee refuge. If the flow rate declined below 25.6 cubic feet per second, the water's warmth would not be sufficient to protect manatees during cold spells.

The current minimum flow standard was set to meet the 2016 spring's protection legislation requiring regional water managers to set minimum flows for all Outstanding Florida Springs, including DeLeon Springs.

Having the new minimum flow standard plus a springshed groundwater model gives permitting authorities a potentially useful tool to ensure continued sufficient water flows from DeLeon Springs and protection for groundwater resources and wetland ecosystems nourished by the spring run.

But not everyone is convinced the new standards are tough enough. Robert Knight, PhD, founder and president of the Florida Springs Institute, warned that it is not based on the most accurate groundwater flow model because it underestimates the effects of groundwater pumping on aquifer water levels.

The flow standard may not meet other human and water resource protection goals in the Florida statute that required it, and may not provide enough water for surrounding wetlands in the surrounding Woodruff Wildlife Management Area.

In spite of the criticism, the district now has a standard upon which it can base legally defensible decisions to ensure springshed management that provides at least 60 million gallons a day for DeLeon Springs.

**Mill Creek project.** The Suwannee River Water Management District cut a \$400,000 check to the city of Alachua to launch the long planned Mill Creek Sink project.

The project's goal is to reduce nitrogen levels in surface runoff that flows through the Mill Creek Sink into the Floridan Aquifer. The completed project would reduce nitrogen in surface water runoff by 70 percent.

The sink is literally a hole in the ground that acts like a storm drain. During heavy rains, runoff flows through it into the cave system below.

In 2005, a dye study conducted by the Suwannee River Water Management District showed that water that entered the sink flowed out of Hornsby Spring on the Santa Fe River within 12 days.

This rapid movement of groundwater provides insufficient time for natural nutrient attenuation or removal of contaminants before the water enters the river.

The Mill Creek Sink is inside Alachua's city limits. The National Speleological Society owns the sink and 8.5 acres of land around it.

Phase 1 of project funding is sufficient to cover some land acquisition costs, and stormwater engineering and design to better manage water from the roads.

Many of the businesses in the area were established before stormwater permits were required. Stormwater management and treatment from some of these properties will also be included in the design plan.

**Boca water towers.** The city of Boca Raton is demolishing two 130-foot high water towers with 500-million-gallon water tanks that are no longer needed to ensure stable water pressures in its public supply lines.

The water towers, built in 1958, use gravity to dampen pressure fluctuations in the city's drinking water supply.

In the future, the city will rely on pumps alone to maintain water pressure in its supply lines.

**WATCH** \_\_\_\_\_  
Continued on Page 5



## Florida Specifier 2017 Drillers Directory

If your organization provides environmental or geotechnical drilling or direct push services, you're invited to complete and return the form below. Our annual directory will appear in the May issue. **There is a fee of \$100 to list your firm.** (The fee is waived for current *Florida Specifier* advertisers and FRC 2016 exhibitors.) Please type or LEGIBLY print the information requested and return as soon as possible to Mike Eastman via fax at (407) 671-7757, e-mail [mreast@enviro-net.com](mailto:mreast@enviro-net.com) or mail to P.O. Box 2175, Goldenrod, FL 32733. You can reach us by phone at (407) 671-7777. **If you were included in last year's directory, there is no need to complete this form—we will be in touch.** The deadline for submitting listings is **Wednesday, Apr. 5, 2017.**

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**WATCH**  
From Page 4

The city has been relying on those pumps for a decade and they function well enough to give them confidence to permanently abandon the towers.

The city hired Kentucky-based Allstate Power Inc. to demolish the towers.

Local news reports said that the towers would be cut into smaller segments that will be sequentially taken down and hauled away. The metal from both towers is slated for recycling.

City officials expect the removal cost to be about \$154,000.

**St. Augustine infrastructure.** The city of St. Augustine has been upgrading its aging sewer, stormwater and public supply water lines to increase system reliability and resilience to flooding events.

The city is under DEP consent agreement for some of its neighborhoods.

Parts of the Lincolnville neighborhood are slated for upgrade. St. Augustine has a plan to replace sewer, stormwater and potable water infrastructure along 10 streets in the neighborhood.

The city also plans to upgrade water infrastructure on parts of DeHaven and South streets. When excavation and installation is complete, approximately two miles of repaving would also be done. St. Augustine officials expect that the entire project will cost \$800,000.

Lincolnville has for years been a predominantly African-American neighborhood near downtown St. Augustine, founded in 1866 by emancipated slaves. Its 45 blocks near downtown are now gentrifying, creating a racial mix within its boundaries.

It, like other neighborhoods in the historic downtown area, experience flooding during extreme weather.

St. Augustine has a city-wide plan to incrementally upgrade infrastructure to make its stormwater system more effective, and to upgrade its wastewater collection lines to prevent inflow and infiltration during flood events.

Upgrades in this neighborhood are just a small part of a much more extensive, within 12 days, to upgrade water infrastructure city-wide.

**Biosolids process affecting wastewater treatment.** In April, 2016, Anuvia Plant Nutrients opened a fertilizer production facility in Zellwood that processes about 240 tons per day of wastewater system biosolids and food wastes to produce an organic fertilizer for agriculture and turf application.

By June, 2016, the city of Apopka's wastewater treatment plant was receiving water with so much nitrogen—from a source then unknown—that residual nitrogen in its reuse water exceeded allowable levels for landscape irrigation.

After nine months of investigation and study, Apopka utilities officials think they understand the problem and have a plan to resolve it.

The fertilizer company is permitted to flush up to 100,000 gallons per day and its 65,000 gallon per day average releases are well within the guidelines of its current agreement with the city.

However, nitrogen levels in that effluent are well over what the wastewater treatment system can handle and still meet its effluent guidelines.

In May, 2016, nitrogen in the fertilizer plant's effluent was 1,130 parts per million. The city allows 60 ppm. Ammonia levels were at 978 ppm. The city expects 30 ppm.

When the city could not send its reuse water to its customers, it discharged 43 million gallons of it to sprayfields.

Last fall, the city hired Woodard & Curran to study the problems at the wastewater plant. The consultants report faulted operations, maintenance, management and administrative shortcomings, but also noted that over the past several months biochemical oxygen and nitrogen loadings from Anuvia's plant are at the root of the problem.

Since last fall, utility officials identi-

fied "a growing inventory of residual biosolids that must be removed" before the wastewater system can operate normally. A project to handle that could take two to four months to complete and cost over \$100,000.

The report also noted that Anuvia's ammonia and nitrogen releases are within its permitted levels. But those are still far in excess of what Apopka's wastewater treatment plant can handle.

The permitted levels need to be reduced substantially below 1,000 ppm.

In the meantime, the consultants recommended that Anuvia consistently keep effluent levels for nitrogen, BOD and COD below permitted levels. The report recommended installing a continuous monitoring device that will notify both Anuvia officials and wastewater plant operators of any exceedances.

In February, Apopka city commissioners unanimously awarded a contract to Shelly's Environmental Systems to remove excess biosolids and sludge from the city's wastewater treatment facility. The 12-week removal project will cost the city \$63,400.

**Microbial testing in the St. Lucie.** The North Fork of the St. Lucie River, which flows through the city of Port St. Lucie and separates it from Stuart, has experienced persistent problems with water quality.

Excessive releases of water from Lake Okeechobee are part of the problem.

Research to characterize the role of Lake Okeechobee drainage revealed what appeared to be high concentrations of fecal bacteria during algal blooms.

However, the presence of fecal bacteria is not consistent with a Lake O drainage source and may be coming from runoff from Port St. Lucie septic tanks.

The Florida Department of Health, the St. Lucie County Health Department, the city of Port St. Lucie and the Florida Department of Environmental Protection initiated a study—the Microbial Source Tracking Study—to identify areas where fecal bacteria were abundant in the St. Lucie estuary and to develop plans to improve water quality by restricting or removing the sources.

The study involves wet weather and dry weather microbial tracking in the North Fork of the St. Lucie River.

The wet season tracking was completed last summer. The dry season tracking began Feb. 16 and will be continued on March 16 and April 13. Results of the study are expected this summer.

Other studies have generally found fecal bacteria as an unusually high component of the bacteria present during algal blooms, or following flooding rains.

This suggests that septic tanks are a significant source of nutrients fueling eutrophication and algal blooms.

This study will provide a seasonally-detailed characterization of fecal bacteria in the St. Lucie River during high rainfall and low rainfall seasons, and may point to septic tanks as the source.

**Stormwater projects funded.** The Florida Department of Environmental Protection awarded more than \$1.8 million for stormwater projects in seven communities.

Total maximum daily load grants were awarded to communities and water management districts to construct projects designed to reduce pollutant loads to impaired waters from stormwater discharges.

Funded through annual appropriations from the state Legislature, TMDL grants focus on projects designed to restore impaired springs, rivers, lakes and estuaries that need help meeting Florida's water-quality standards.

The TMDL grant program provides funding assistance for communities to implement projects to better manage or treat stormwater.

Projects recently awarded TMDL grants include the city of Cape Coral's \$600,000 award to upgrade approximately 300 stormwater catch basins and install enhanced swales in a 725-acre area west of Store Road.

The new catch basins will enable more stormwater runoff to filter into the ground

instead of flowing through storm drains into the canal system and ultimately into Charlotte Harbor.

The project provides significant nutrient reduction to the estuary and harbor.

In addition, the town of Cutler Bay was awarded \$274,000 to reduce nutrients by increasing settling time prior to discharge into Biscayne Bay.

The project involves upgrades to catch basins and other control structures, and adds additional catch basins and drains.

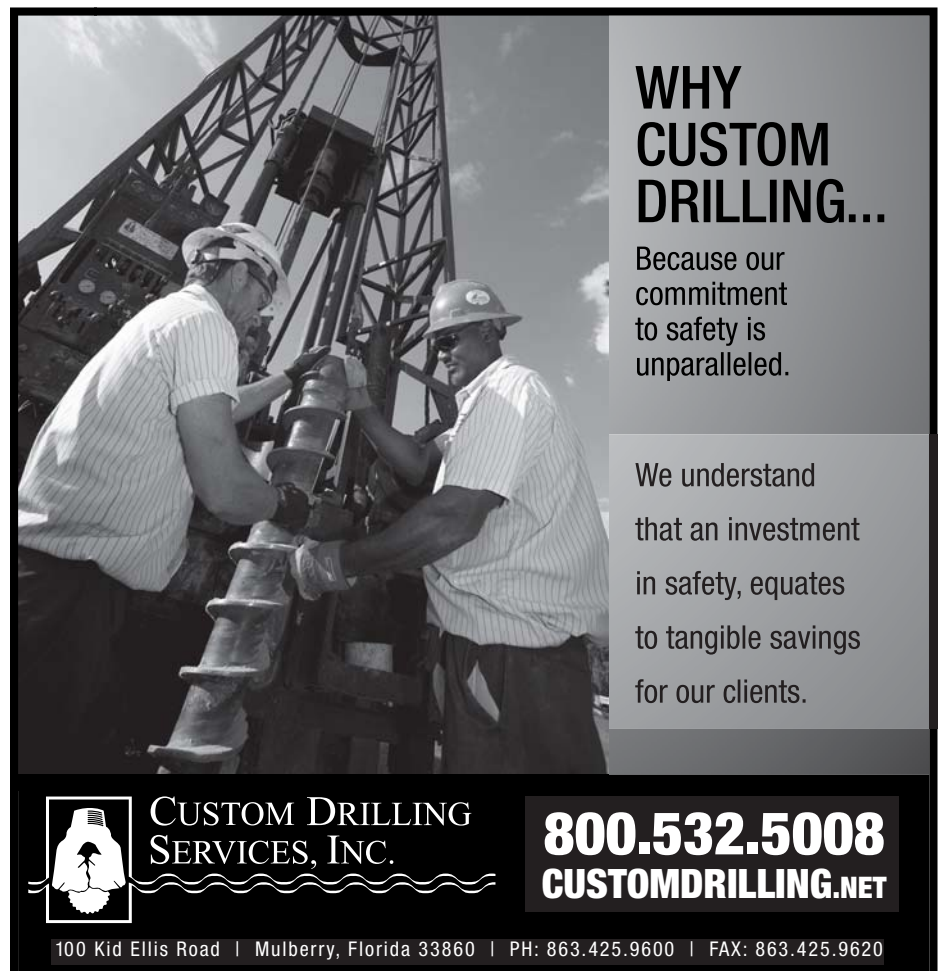
Haines City was awarded \$197,000 to remove excess phosphorus accumulating in Lake Eva by constructing a chemical treatment system.

The system is anticipated to remove ap-

proximately 108 pounds of phosphorus per year, result in an approximately 64 percent reduction of phosphorus in the lake.

The city of Jacksonville was awarded \$225,000 for part of a city drainage system rehab program. Nutrients will be reduced in the St. Johns River by rehabilitating existing storm sewers, constructing new drainage infrastructure and upgrading baffle boxes.

Other grant recipients include North Bay Village, \$150,000 to improve a stormwater system; the town of Oakland, \$301,222 to reduce discharges to Lake Apopka; and the city of Tavares, \$115,000 to eliminate stormwater runoff from entering Lake Dora.



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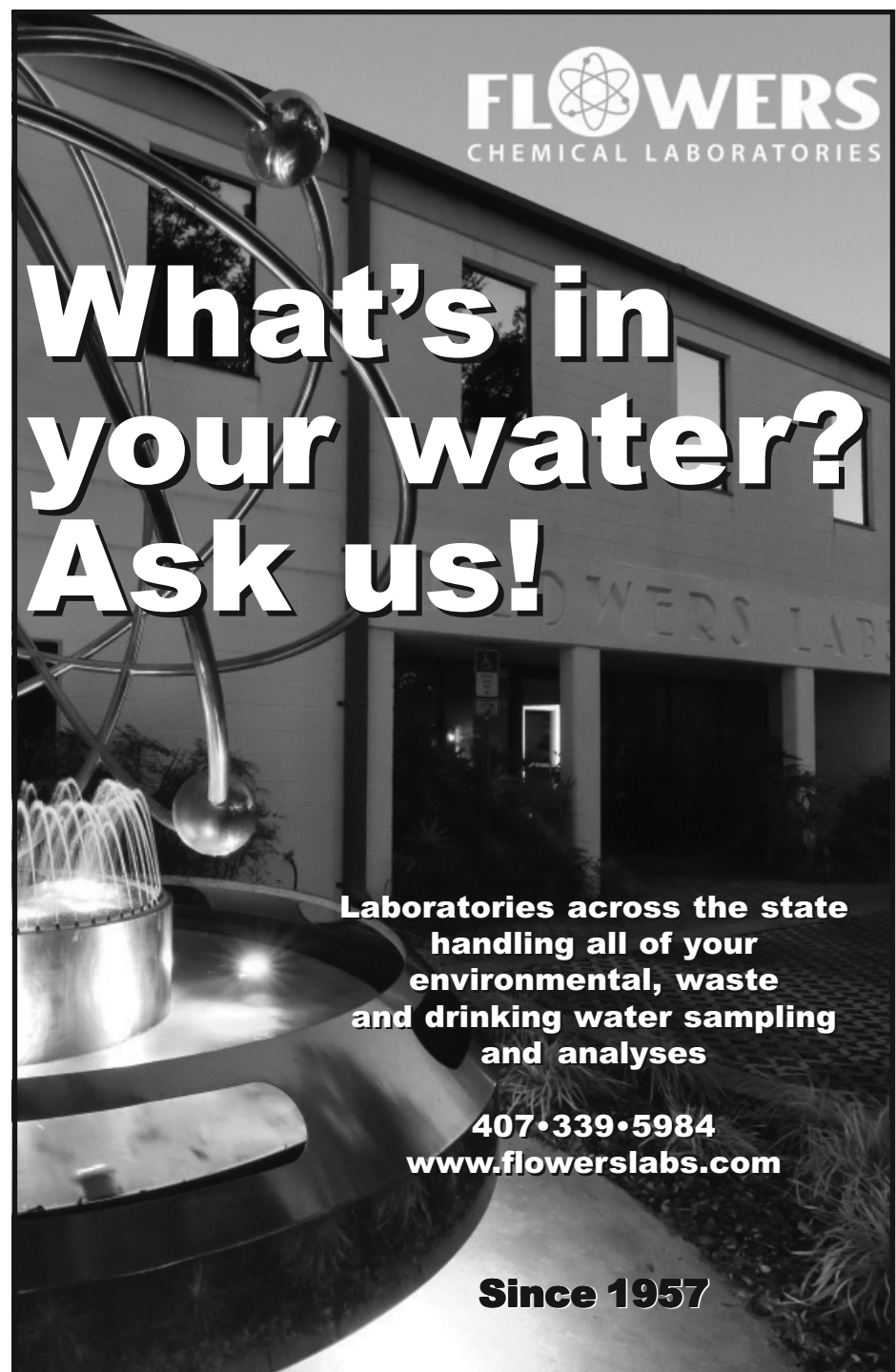
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# South Florida district approves funds for projects to move water to Florida, Biscayne bays

By ROY LAUGHLIN

The South Florida Water Management District Governing Board approved funding for projects to increase fresh water deliveries to Florida Bay and Biscayne Bay.

The district's Florida Bay plan received \$5.4 million—the lion's share of approved appropriations—for four projects along the east side of Everglades National Park that will increase water delivery through Taylor Slough to Florida Bay.

The projects include degrading a weir and adding plugs along the L-31 canal, allowing additional water flow into Taylor Slough. The additional water will be sent through the S-328 water control structure and the L-31 west canal to Taylor Slough.

The Frog Pond detention system will be connected to the L-31 west canal. The L-31 west levee weir will be rebuilt to keep additional water flowing towards Everglades National Park.

The district approved the plan last summer and received U.S. Army Corps of Engineers permits in December.

The Florida Bay plan was originally implemented as a temporary measure in 2013 and 2015, drought years in South Florida, to move more water to Florida Bay.

The lack of fresh water inflow allowed the salinity levels in Florida Bay shallows south of Everglades National Park to approximately double.

In 2015, more than 40,000 acres of seagrass in Florida Bay died back as a result of the high salinity.

Implementing the Florida Bay plan offers two environmental benefits. In dry years, billions of gallons of additional available water may be delivered to Florida Bay to prevent salinity increases.

In wet years, excess water held in water conservation areas can be delivered through Everglades National Park to Florida Bay, which is far more capable of handling an extra few billion gallons of water than are other estuaries now being used by SFWMD.

Water deliveries under the Florida Bay plan could be as high as 6.5 billion gallons per year. That equals one sixth of the total water deliveries to Everglades National Park and Florida Bay called for in the 2000 Comprehensive Everglades Restoration Plan.

Some construction work has already started and should be finished by the end of the summer.

The governing board also approved

land purchases to facilitate the first stage of the Biscayne Bay Coastal Wetlands Project, \$2.3 million to purchase about 622 acres of privately owned land.

If negotiations to purchase the land fail, the district may use eminent domain to acquire it.

In addition to the approved land purchase, the district also plans to purchase about 750 acres from Miami-Dade County and Florida Power & Light Co., purchases that are expected to go smoothly. But that may not occur until 2021.

The Biscayne Bay Coastal Wetlands Project faces substantial uncertainty regarding its effectiveness. The goal is to increase fresh water deliveries to coastal sawgrass marshes and mangrove swamps fringing Biscayne Bay's west side. The

water will flow through the wetlands into the bay, reducing salinity levels there.

A pilot project in the Deering Estate mangrove marsh showed that given enough fresh water to create sheet flow through the marshes, biological improvement such as periphyton regrowth, increases in aquatic species populations and lowered salinity—characteristics of a restored marsh—were evident.

Last year, a National Academy of Sciences review of the Comprehensive Everglades Restoration Plan raised a note of caution about the Biscayne Bay Coastal Wetlands Project.

They questioned whether sufficient fresh water would be available to meet wetlands restoration goals across the entire 3,700 acres of marshes and swamps along Biscayne Bay's landward margin in southern Miami-Dade County.

## GAO: Deadline lawsuits don't cut states, industry out of ESA decisions

By BLANCHE HARDY, PG

In late February, the U.S. Government Accountability Office released Environmental Litigation, Information of the Endangered Species Act Deadline

Suits.

Their findings counter claims that speeding up the U.S. Fish and Wildlife Service and National Marine Fisheries Service decision process excludes public and private interests when considering protection of species under the federal Endangered Species Act.

GAO research found that plaintiffs filed 141 lawsuits against the FWS and NMFS during fiscal years 2005 through 2015 for failing to take actions within statutory deadlines under Section 4 of the ESA.

Section 4 includes mandatory deadlines for actions such as making a finding on a petition to list or delist a species as threatened or endangered.

The suits involved 1,441 species and a variety of related Section 4 actions. The majority of the suits were related to missed deadlines for issuing findings on petitions to list species.

Noah Greenwald, endangered species director for the Center for Biological Diversity in Portland, OR, said the findings are important.

"Republicans in Congress who oppose the Endangered Species Act have long argued that deadline suits, which almost always settle, cut local governments and industry out of the process and force protection of undeserving species," he continued. "The GAO found this not to be the case, determining that settlement of deadline suits does not determine the outcome of protection decisions or alter the process of such decisions."

Delays in species protection have been a persistent problem. The CBD indicated that, on average, species have waited 12 years to receive ESA protection and more than 40 species have gone extinct waiting for protection.

Studies show that citizen lawsuits targeting highly imperiled species have been effective in speeding protection for species.

"The GAO report confirms what many NEPA supporters have argued for years," said Peter DeFazio (D-OR), ranking member of the House Natural Resources Committee. "NEPA gives the public a chance to engage their government in the democratic process, it holds the government more accountable, and it ultimately makes federal projects more efficient, which saves agency time and taxpayer dollars."

Greenwald said that the GAO report "helps us push back against Republican efforts to limit deadline suits."

The Center for Biological Diversity notes that more than 20 legislative attacks on the Endangered Species Act have already been introduced under the Trump administration.

They include bills allowing the sale of ivory, exempting oil and gas drilling on federal lands from the requirements of the ESA, stripping gray wolves of protection and pulling back protections for the greater sage grouse that were put in place to avoid its listing under the ESA.

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- Remedial system optimization
- PRP case studies: Assessment and remediation within the state PRP—tools and techniques for ATC success
- Assessment and remediation within the Florida Drycleaner Solvent Cleanup Program
- Vapor intrusion
- Vendor-focused technologies and products (anticipated to be a session with "speed talks")
- Regulatory policy and initiatives
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In addition, we are considering presenting several sessions featuring open forum discussion on technologies, site assessment techniques and regulatory subjects. If you have a suggestion for an open forum subject, chime in.

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# Hillsborough County considers changes to industrial wastewater standards

By ROY LAUGHLIN

Earlier this year, the Hillsborough County Public Utilities Department appeared ready to implement increased industrial discharge standards for toxic metals and other contaminants discharged into the county's wastewater treatment system.

The proposed standards applied to 16 toxic substances including specific elements, organic compounds, petroleum mixtures, oils and greases.

The industrial discharge standards would have added four additional contaminants and proposed an uncontroversial decrease in silver levels.

More controversial was increasing the

acceptable levels for nine of 16 listed elements or substances. Two of the metals, lead and arsenic, were initially slated for significant increases.

The proposed discharge standard for lead would increase from 18 to 54 milligram per liter in treatment plants subject to freshwater rules, and from 15 to 45 mg/L in those subject to marine water rules.

For arsenic, the proposed increase was from 25 to 57 mg/L for plants subject to freshwater rules and from 20 to 57 mg/L in plants subject to marine water rules.

Six of Hillsborough County's eight treatment plants accept industrial wastewater. According to local newspaper accounts, utilities officials proposed increased standards because some plant cus-

tomers intermittently discharged effluent that exceed existing standards.

The Sun Country Landfill in Wimauma is one of the county's customers reported to be intermittently discharging excess levels of arsenic.

At a February Hillsborough County Board of County Commissioners meeting, a spokesman for Progressive Waste Solutions, who oversees the landfill, attributed excess levels of arsenic in its discharge to high rainfall events.

Installing control measures at the landfill could cost up to \$1 million, so the company prefers to continue using the county wastewater plant for disposal during those occasions when arsenic discharges exceed 0.250 mg/L.

To be clear, the increased inflow of toxic substances has not increased the level of the elements in effluent released from the plants. The issue is trying to maintain inflow levels below a threshold above which toxic levels could be released.

If the wastewater collection system overflows during high rains, as has occurred occasionally around Tampa Bay, high concentrations of toxic elements overflowing the collection system could potentially cause environmental contamination.

Although the public utilities department supported the relaxed standards, County Commissioner Pat Kemp and sev-

eral activists criticized the proposed increases for lead and arsenic in industrial discharges.

At a February meeting, county commissioners unanimously voted to leave all existing toxic substance standards as they have been, except for arsenic. The commissioners voted to delay a decision on arsenic discharge standards.

The arsenic discharge standard vote, originally scheduled for a March meeting, was extended to April. The extension gives county staff more time to research the issues and risks of increasing arsenic's industrial discharge standards.

In spite of the delay for a decision on arsenic, the county submitted a copy of Ordinance 17-2 to the Florida Department of State as required by Florida Statute 125.66. That filing maintains the 0.25 and 0.20 arsenic standards.

In addition to keeping existing standards for the most toxic elements in industrial discharges, the commissioners also voted to approve the prerogative for public utilities officials to test and monitor private industrial wastewater treatment plants that discharge to the its wastewater collection system.

The intent is to prevent environmental contamination that could occur if wastewater treatment systems overflow during heavy rain events.

## Fort Myers Beach initiates proactive analysis of water quality in Gulf, canals

By BLANCHE HARDY, PG

Members of the Southwest Florida Clean Water Movement approached the Fort Myers Beach Town Council at a December, 2016, meeting and suggested that the town conduct its own surface water quality testing to help assure public health.

The council directed the town's Marine Resources Task Force to research possible water testing options.

The SFCWM would like Fort Myers Beach to provide public information about water analysis results by posting the data online and in local publications, as well as on beach access signs.

The collection and posting of water quality data is supported by the Beach Area Civic Association, Florida Environmental Coalition, Clean Renewable Energy Worldwide and some town residents.

As a result of the council meeting, additional analysis of water collected from the Gulf of Mexico is proposed to increase public health knowledge, and analysis of water collected in canals and waterways is proposed to determine if pollutants are impacting local surface waters.

"The testing that was discussed in the last meeting of the Marine Resources Task Force was event testing, such as testing the water when there is a release from Lake Okeechobee, and testing of the Fort Myers Beach canals to see how much nutrients are entering the waterway from the surrounding homes on the island," said Rae Blake, the town's environmental and stormwater technician.

The conclusion of the task force was that the testing type and schedule should be left to the technician's discretion.

Blake reported that current testing on the Gulf side of the island includes enterococci bacterial and red tide testing.

Samples are collected and analyzed on a weekly basis through the Lee County Health Department and the Florida Fish and Wildlife Conservation Commission.

The analysis of water samples collected on the Estero Bay side of the island includes the standard suite of field parameters such as dissolved oxygen and pH, as well as nutrients and bacteria. Bay water samples are analyzed monthly by Lee County Environmental Laboratory.

Sampling and analysis of water collected from Fort Myers canals are limited to those criteria required by state standards.


"In conducting event testing, such as testing water quality for Fort Myers Beach (after releases) from Lake Okeechobee, the testing results can be used to influence policy that affects the island," said Blake. "In conducting canal testing, the town can examine how our constituents are positively or negatively influencing the water around the island."

"From that information, education efforts can be started," she added. "The results from testing the canals can also influence town resolutions for the environment of the island, such as fertilizer ordinances, water quality ordinances, etc."

The methods and responsibility for the collection and analysis of water samples

has not been determined although related points such as avoiding duplication of effort and using existing local facilities were suggested.

The Marine Resources Task Force is an advisory committee of the Fort Myers Beach Town Council. The council will make the ultimate determination on what direction the town takes on water quality testing.

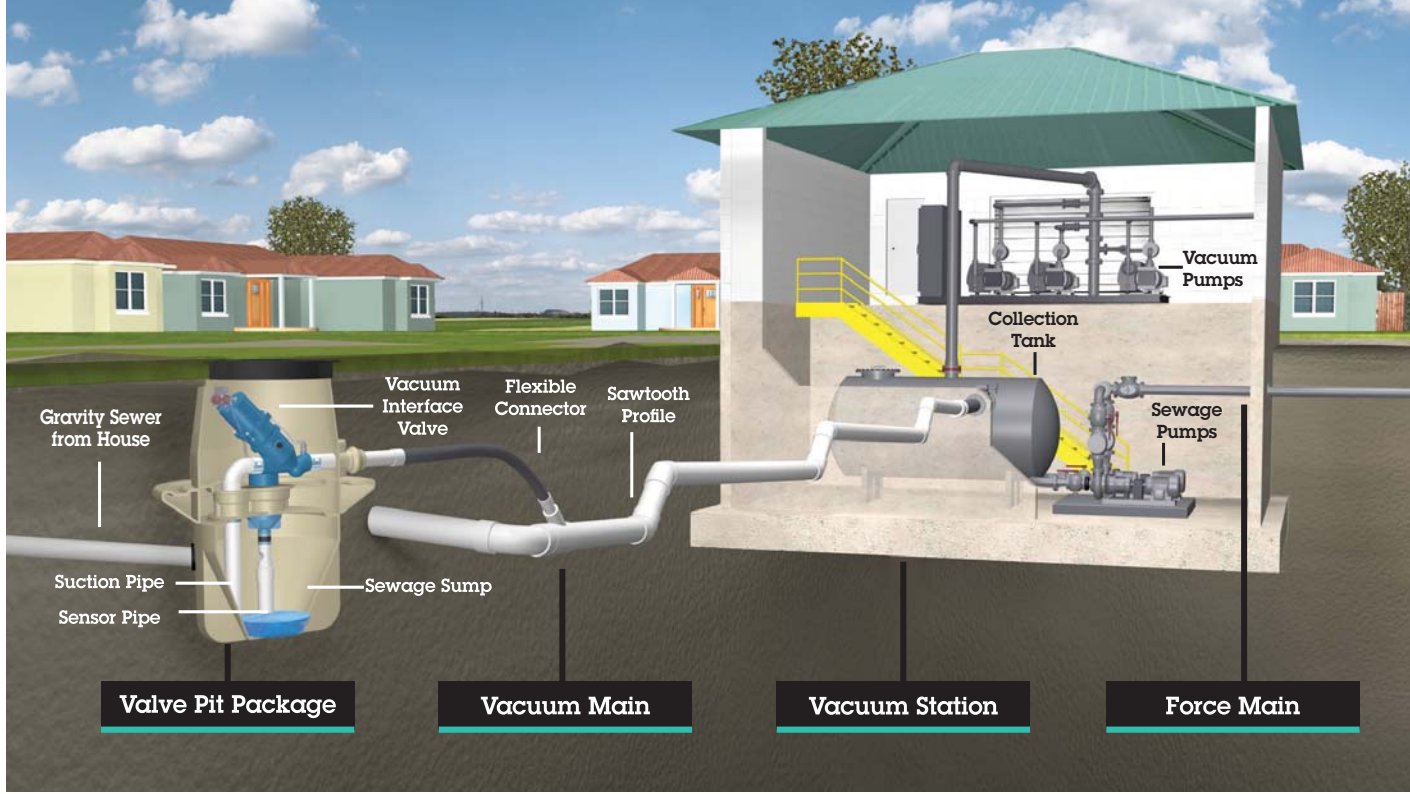


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# Western Volusia region hunts for additional potable water sources

By ROY LAUGHLIN

Utility officials in three west Volusia County cities and the Volusia County Public Works Department are assessing their water supplies for the next two decades and seeking new sources to ensure enough supply to meet expected population growth.

The new potable supply sources will have to spare enough water in the aquifer to meet the flow standards for Volusia Blue Springs, DeLeon Springs and Gemini Springs, all three designated as Outstanding Florida Springs in last year's springs legislation.

Water levels in five Volusia County lakes are also protected.

The first step in the development of additional source capacity involves the renewal of consumptive use permits for the cities of Orange City, Deltona and DeLand, plus the county.

Volusia County serves customers in unincorporated areas of western Volusia County adjacent to the cities. The St. Johns River Water Management District grants CUPs and renews them within guidelines for water resource availability.

Deltona renewed its CUP in 2013. DeLand renewed its CUP earlier this year and received approval for an additional two

million gallons a day of surface water withdrawal from the St. Johns River.

Their permits bind them to concerted water conservation programs to stretch what they use. Deltona, for example has an aquifer recharge project.

Orange City's CUP renewal date is December, 2018. City officials have expressed concern that they may see permit reductions over the next 20 years.

Orange City is expected to be pressed the most in the near term by population growth and commercial property development.

The Halifax Health facility on the border of Orange City and Deltona is expected to foster a surge of surrounding development. Most of the vacant land targeted for development is in Orange City.

Orange City is promoting water conservation leading into its CUP renewal. It spent more than \$350,000 for new Internet-connected water meters that allow residents to monitor their water consumption.

It helps residents to identify leaks and modify their water use if they choose to conserve. Orange City also provides public education and outreach for landscaping techniques that require less water and fertilizer.

Volusia County's CUP renewal is not until 2021. The Volusia Blue Springs restoration effort and its MFL target drives CUP limits in western Volusia County generally, but specifically for Volusia County.

Of the three springs in the area, only Volusia Blue Springs has a prevention and recovery program. It may incrementally lower water availability from Volusia County's wellfields.

The county has not waited for the CUP renewal process before addressing water conservation. It has implemented several measures since 2013 to improve water quantity and water quality in the Volusia Blue Springs watershed.

Volusia County also implemented a reuse water interconnect agreement with the city of Sanford and other cities in western Volusia.

The interconnect system sends water to the Volusia Blue Springs watershed for landscape irrigation to help reduce withdrawals from the Floridan Aquifer that feeds the springs.

But going forward, western Volusia County will need more water. And it may have to come from outside the springsheds for the three designated springs and watersheds of five designated lakes in the western part of the county.

West Volusia County and the city of Sanford united in 2010 to form the West Volusia Water Suppliers group and by 2015 had developed and could share several mil-

lion gallons of alternative water supplies and reuse water by interconnecting their systems.

Brad Blais, PE, president of Quentin L. Hampton Associates Inc. in Port Orange, said that the West Volusia Water Suppliers group operates entirely with interlocal agreements.

"West Volusia Water Suppliers is a functioning group that meets on a regular basis," he said. "They are satisfied with a loose alliance that avoids layers of bureaucracy."

But as existing systems reach capacity, new wellfields will have to be located further from the protected springsheds. As that happens, water transmission costs are expected to increase dramatically—beyond the financial capability of any single utility.

Scott Laidlaw, PG, bureau chief in Water Supply Planning at the St. Johns River Water Management District, said that those additional water supplies may come from wellfields in southern Volusia and northwest Brevard counties.

Miami Corp., the largest private landowner in Volusia County, also known as Farmton Services LLC, owns approximately 40,000 acres of land, most of it undeveloped.

Farmton's CUP authorizes four million gallons a day for western Volusia County. That could help Volusia County officials expand supply under a renewed CUP, beginning in 2021.

Miami Corp. also owns 12,000 adjacent acres in Brevard County, where the city of Titusville wellfields are located, providing about four million gallons a day to the city.

Farmton's water will be available in the next half decade if a wellfield is installed and a transmission pipeline is built to carry it. But the costs will be high—\$40.5 million—according to Laidlaw.

This is in the cost range for projects that regional water cooperatives may undertake, but is not so affordable for most local utilities. Even so, water management district or state funding will be necessary.

Help for funding large water projects may come from the Florida Legislature during this year's session. Several bills, for example, HB 573, the Heartland Headwaters Protection & Sustainability Act, would give regional water utilities special taxing authority.

Other bills give priority to regional water projects. This reflects increasing approval in Tallahassee for regional water projects and should be good news for Volusia County if long and expensive water transmission pipelines become necessary. Currently, the SJRWMD has several planning areas within which it focuses its regional water planning efforts.

Volusia County is in the district's Central Springs and East Coast planning region that includes an arc of parts or all of six counties from northern Lake County to Indian River County and a small part of Osceola County.

A regional planning effort that includes Volusia County is in its early stages.

Lou Donnangelo, regional water supply planning coordinator for the district, said that beginning in April and continuing through the summer, he and other district officials will conduct meetings on a city-by-city basis with government officials in Volusia and Brevard counties to hear what they may need in terms of regional planning goals, planning projects and cost-sharing needs.

The concept of regional water planning in Florida has several forms, some of which exist to foster water supply construction projects and others where construction projects are managed by less formally organized arrangements.

Regional planning efforts along the Upper St. Johns River's coastal counties will be a focused effort in the coming two or three years. What develops will be influenced both by local government views on cooperative methods and the requirements of possible state Legislature funding opportunities.



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# Survey shows bleaching down, disease up in Florida hard corals

By ROY LAUGHLIN

According to a recent report, the incidence of coral bleaching in Florida last year was “mild to moderate.” That’s the good news.

The bad news is that high disease prevalence and recent mortality were also observed at numerous sites throughout the Florida reef tract extending from the Dry Tortugas to St. Lucie Inlet.

The coral bleaching, disease and mortality data come from the 2016 census conducted by the Florida Reef Resilience Program’s Disturbance Response Monitoring effort. The group has conducted annual Florida reef surveys since 2005.

Nine of 28 reef zones in the study showed moderate bleaching, 21-50 percent of coral showed bleaching, while three sites had severe bleaching where greater than 50 percent of corals observed exhibited bleaching.

The moderate bleaching was localized in the Florida reef tract. The Dry Tortugas, the tract between Big Pine and Bahia Honda Key and off Miami-Dade and Broward counties, included a number of sites exhibiting moderate coral bleaching.

One of the severe bleaching zones was in the Dry Tortugas, the other two were off the Upper Keys around Key Largo. In the remaining survey zones, corals exhibited only mild bleaching symptoms.

The report noted that a substantial number of sites rated moderate for coral bleaching between the city of Miami and Martin County, decreasing to low severity prevalence through the fall when water temperatures decline and symbiotic zooxanthellae populations increase again in the coral tissues.

Bleaching refers to the loss of color that coral polyps exhibit when high temperatures cause loss of the microscopic algae from the polyps.

The photosynthetic pigments in the symbiotic algae account for the color in living corals and, without those pigments, the coral become pale white, described as “paling” or “bleaching.”

In contrast to bleaching, disease prevalence in corals was more frequent throughout the length of the Florida reef tract from

Martin County to the Dry Tortugas.

More than 50 percent of the high disease prevalence sites were focused in the Upper Keys around Key Largo. High disease sites are those with disease incidence greater than 10 percent of the coral surveyed.

In spite of the widespread occurrence of specific locations where the incidence of disease coral exceeded 10 percent, corals in the large majority of sites showed the lowest category of coral disease incidence, 0-5 percent.

High temperatures may cause coral bleaching but it does not kill them quickly. Without symbiotic zooxanthellae, the coral’s resistance to disease declines and that causes coral mortality.

Diseased corals become coated with opaque mucus, a condition where death is far more likely. To account for corals’ slow death sequence, the survey also tracked recently dead corals.

Recent coral mortality sites occurred in Martin, Broward and Miami-Dade counties, and in the Upper Florida Keys.

The Lower Keys and Dry Tortugas each had a single site with high mortality, characterized as “less than 10 percent recently dead corals.”

Sixty percent of the high recent mor-

tality prevalence occurred within the Broward-Miami subregion, one of two subregions with high coral disease.

The other subregion with high coral disease, the Upper Keys, had only two areas of high recent coral death.

It remains to be seen whether the hard coral in the Upper Keys recover, or just take longer to die.

Environmental activists propose that the coral deaths in the Broward-Miami region may have been associated with effects of fugitive sediments on corals during ship channel dredging at the Port of Miami in 2014 and 2015.

Overall, the results of the study indicate generally improving conditions across most of the Florida reef tract. If coral bleaching is the first step leading to coral mortality, then prospects for Florida’s coral reefs may improve.

Over the last three survey years, coral bleaching and paling fell from a high of 70 percent in 2014 to 52 percent in 2015, and 24 percent this year.

The overall lower bleaching incidence in the latest survey indicates a decline in the first step the progression of bleached corals to diseased coral and then dead coral.

The census assesses the current condi-

tion of corals, and living and dead coral occurrence at randomly selected South Florida reef locations.

This survey was based on 162 survey locations. Data for the survey were collected by divers from Aug. 15 to Oct. 21, 2016.

The monitoring is based on a probabilistic sampling design “intended to sample coral populations based on how corals are distributed spatially within and across different sub-regions and zones of the reef tract.”

The observations are categorized into three categories: “mild,” “moderate” or “severe,” based on a bracketed percentage of surveyed coral colonies displaying the trait.

The frequency ranges for the category differs among the three coral conditions.

Support for the Florida Reef Resilience Program comes from federal, state and county agencies; universities and research organizations; and conservation organizations.

The surveys are conducted in late summer as described here, but other more localized surveys occur throughout the year.

The full report, which includes three GIS-based data summaries, is available online at <http://frrp.org/>.

## Developer must follow Manatee comp plan

Staff report

A three-judge panel of the Second District Court of Appeal in Lakeland upheld a lower court decision made last year: Manatee County’s comprehensive land use plan’s coastal management policies apply to development on privately-owned submerged lands.

The court decided in favor of the county’s comp plan rules that prevent development on submerged lands in Sarasota Bay to protect mangrove swamps and seagrass beds. The panel ruled that county policies do not violate property rights that amount to an unconstitutional “taking.”

At issue was a proposed 500-acre Sarasota Bay waterfront development in Manatee County, Aqua By The Bay, that included marina construction and dredging contrary to the county’s comp plan.

The developers argued that since they owned the submerged land, Manatee County’s comprehensive plan code did not apply. They claimed that forced code compliance was an “unconstitutional taking” of private property and asked for an \$18 million award under Florida’s Bert J. Harris Private Property Rights Protection Act for submerged land they could not legally develop.

Through their real estate development partnerships, Cargor Partners VIII LLC and Long Bar Pointe LLP, Carlos Beruff and Larry Lieberman brought suit against Manatee County.

Circuit Judge John Larkin of Bradenton initially ruled against the plaintiffs. Appeals Court judges issued their findings without written opinion two weeks later.

# Manatee commissioners approve Mosaic phosphate mining expansion

By PRAKASH GANDHI

Officials with Mosaic Fertilizer LLC strongly defended their environmental record following a controversial decision to allow the phosphate mining company to expand its operations in Manatee County.

Despite opposition from local residents and environmental activists, Manatee County Commissioners approved a plan that will allow Mosaic to extend its mining operations in the Myakka-Duette area to its Wingate East property.

Mosaic—the world's largest manufacturer of phosphate fertilizer—finished min-

ing about 600 acres in its Wingate Mine property between Myakka City and Duette and wants to expand.

Mosaic filed a \$617.8 million lawsuit against the county after a previous commission voted 4-3 to reject their application to expand Four Corners Mine to a 2,048-acre site commonly called the Altman Tract.

In January, 2009, a commission with a new makeup voted to reverse that denial.

Mosaic Fertilizer also owns the Four Corners Mine spanning Manatee, Hillsborough, Hardee and Polk counties and the Wingate Creek Mine in Manatee County.

The company's plans triggered pas-

sionate opposition from residents and activists who worry that more mining will hurt the environment and impact the quality of groundwater. They believe any expansion in mining operations could affect their property values and tranquil rural lifestyles.

But Mosaic officials said that best management practices have been implemented so that adjacent areas will not be impacted by their operations.

"While some folks are opposed to our mining operations, we have a great relationship with our neighbors and have had a great relationship for some time," said Jackie Barron, the company's public affairs manager in Manatee County. "We completely understand their concerns, but we will be working hard to get to know these people and have them get to know us."

Mosaic representatives said they decided not to seek the rezoning until they were about a year away from moving mining operations there and had a master mining plan to submit to the county.

After the property is mined out, Mosaic is required to restore the destroyed habitat with uplands and wetlands.

Company officials said reclamation at

Wingate East will create more wetlands than exist there now.

In exchange for the county's approval, the company pledged to make a \$2.5 million donation to the Manatee Community Foundation. The contribution will go toward the Conservation Foundation of the Gulf Coast.

Barron said much of the opposition to the company's work is based on misinformation and misunderstandings.

"Not only is what we are doing environmentally safe, but we are leaving behind a lasting legacy for the environment," she said. "We are doing cutting edge reclamation work. We do incredible work with wetlands, we are reconnecting wildlife corridors and we do great work in stream reclamation."

Barron said the company's operations are in rural areas and many of those opposed to the mining live far away from the newly proposed mining.

"A lot of the concerns are based on fear," she said.

The company did not get approval for everything it requested from the county. Manatee commissioners denied a request by Mosaic for reduced setbacks from their mining operations to Duette Road.



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## FPL lays out plans for construction of eight new solar energy facilities

By BLANCHE HARDY, PG

One week after announcing plans to double their planned solar energy output in the state, Florida Power & Light Co. identified the names and locations of their proposed 2017 and 2018 solar projects.

"We are installing 2.5 million solar panels across the eight new solar energy centers we are building," said Alys Daly, FPL's public affairs manager.

Black & Veatch and Blattner Energy were selected through competitive bid and will each build four of the new solar energy centers.

FPL is the largest solar power provider in Florida. The utility currently operates more than 335 megawatts of solar generating capacity, enough to power 60,000 homes.

In addition, FPL has installed small-scale solar arrays for more than 100 Florida schools and other educational facilities.

FPL's eight proposed power centers will be built over the next 12 months. The company estimated that the new plants will prevent more than 525,000 tons of carbon emissions annually.

The utility has a history of investing in clean energy infrastructure.

Through the phasing out of older coal-fired and oil-burning power plants, the company has saved customers more than \$8.6 billion in fossil fuel costs and prevented 108 million tons of carbon emissions.

"The solar capacity at each center is 74.5 megawatts so, combined, the new plants are expected to generate enough energy annually to power approximately 120,000 homes and produce net savings for FPL customers of \$39 million over their operational lifetime," said Daly.

She said that the net savings are due primarily to the projected reduction in the use of fossil fuels rather than offsetting the cost to build the plants.

"On a per-megawatt basis, these eight new plants will be the lowest-cost solar ever built in Florida and some of the lowest-cost solar ever built in America," said Eric Silagy, FPL president and CEO.

"FPL has been working for several years to find ways to reduce costs to bring more universal solar to its customers cost-effectively," Daly said. "Lower costs that come with nearby transmission and substation infrastructure continue to be a driving force behind the selection of FPL's universal solar sites, as well as the company's ability to buy solar panels in large quantities."

Each solar plant will operate individually.

Construction of the first four plants is expected to begin this spring.

Each plant will cost \$230 million to build. At the height of construction, each of the sites is expected to employ about 200 people for a total of approximately 1,600 jobs.

Daly said that four plants are expected to be completed by Dec. 31, 2017, including FPL Coral Farms Solar Energy Center in Putnam County, FPL Horizon Solar Energy Center in Alachua and Putnam counties, FPL Indian River Solar Energy Center in Indian River County and FPL Wildflower Solar Energy Center in DeSoto County.

The remaining four plants in Brevard, Indian River, Hendry and St. Lucie counties are expected to be completed by March 1, 2018.

FPL's operations are already exceeding the carbon emissions goal set by the U.S. Environmental Protection Agency's Clean Power Plan for 2030.

In addition, the utility's typical residential customer bills are among the lowest in the nation.



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# Calendar

## April

APR. 1 – Course: Refresher Training Course for Experienced Solid Waste Operators - 8 hour SPANISH ONLY, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 3 – Course: Wastewater Collection System Cleaning and Maintenance, Tavares, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 3-7 – Course: Backflow Prevention Assembly Tester Training and Certification, Lake Buena Vista, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 4 – Course: Introduction to Lift Station Maintenance, Tavares, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 4-6 – Course: Asbestos: Project Design, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 4-6 – Course: Process Control of Waste Treatment Plants, Miramar Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 5-6 – Course: Leachate and Landfill Gas Management System Design, Temple Terrace, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 5-6 – Course: Pumping Systems Operation and Maintenance, Tavares, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 5-7 – Symposium: 2017 Clemson Hydrogeology Symposium, Clemson, SC. Presented by the Clemson University Department of Environmental Engineering and Earth Science. Contact Scott Brame at [BrameS@clemson.edu](mailto:BrameS@clemson.edu) or call (864) 656-7167.

APR. 7 – Course: Water Distribution Systems Pipes and Valves, Tavares, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 10-11 – Course: Advanced Backflow Assembly Tester, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 10-11 – Symposium: 2017 Southeast Federal Agency Symposium, Atlanta, GA. Presented by the Society of American Military Engineers. Call (404) 556-2786 or visit [www.same.org](http://www.same.org).

APR. 10-12 – Course: Backflow Prevention Assembly Repair and Maintenance Training and Certification, Altamonte Springs, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 11 – Course: Refresher Training Course for Experienced Solid Waste Operators - 4 hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 11 – Course: Refresher Training Course for Experienced Solid Waste Spotter - 4 hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 11 – Course: Initial Training Course for Spotters at Landfills, C&D Sites and Transfer Stations - 8 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 11 – Course: Refresher Training Course for Experienced Solid Waste Operators- 4 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 11 – Course: Refresher Training Course for Experienced Solid Waste Spotter- 4 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

APR. 11 – Course: Refresher Training Course for Experienced Solid Waste Operators - 8 hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

APR. 11-12 – Course: Refresher Training Course for Experienced Solid Waste Operators - 16 Hour - Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 11-12 – Course: Initial Training Course for Transfer Station Operators and Materials Recovery Facilities - 16 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 11-13 – Course: Initial Training Course for Operators of Landfills and Waste Processing Facilities, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 11-13 – Course: Initial Training Course for Landfill Operators and C&D Sites - 24 Hour, Plant City, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 11-14 – Course: Wastewater Class C Certification Review, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 12-13 – Course: Backflow Prevention Recertification Exam, Destin, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 17 – Course: Asbestos Refresher: Project Design, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 17-21 – Course: Backflow Prevention Assembly Tester Training and Certification, Destin, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 17-21 – Course: 40-Hour OSHA HAZWOPER Training Course, Tallahassee, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 18 – Course: Asbestos Refresher: Inspector, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 18 – Course: Asbestos Refresher: Management Planner, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 18 – Conference: 7th Annual Conference on Innovative Environmental Assessment and Remediation Technology, Kennesaw, GA. Presented by the American Institute of Professional Geologists. Contact Ron Wallace at (404) 362-2689 or visit <http://georgiaaigp.weebly.com/>.

APR. 19 – Course: Asbestos Refresher: Contractor/

Supervisor, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 19-21 – Course: 24-Hour OSHA HAZWOPER Training Course, Tallahassee, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 20-21 – Course: Backflow Prevention Recertification Exam, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 21-29 – Course: Backflow Prevention Assembly Tester Training and Certification, Ft. Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

ter. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

APR. 23-26 – Conference: Florida Water Resources Conference, West Palm Beach, FL. Presented by the Florida Section of the American Water Works Association, Florida Water Environment Association and the Florida Water and Pollution Control Operators Association. Visit <http://fwrc.org>.

APR. 25 – Course: DEP SOPs for Water Sampling and Meter Testing, Gainesville, FL. Presented by the UF TREEO Center. Call (352) 392-9570.

APR. 26 – Course: Intro to DEP SOPs for Groundwater, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).



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# OUC installs first-of-its-kind floating solar array in retention pond

By ROY LAUGHLIN

The Orlando Utilities Commission installed a floating array of 100 crystalline photovoltaic panels in a retention pond at the utility's Gardenia facility near International Drive south of downtown.

Tim Trudell, senior media relations coordinator for OUC, said the 31.5 kilowatt solar array could produce up to 51,000 kilowatt hours annually, enough to power five homes.

The project will give OUC and others in Central Florida an opportunity to evaluate the performance, durability and long-term opportunity for floating solar arrays for electricity generation.

"We wanted to try something different," Trudell said.

He noted that OUC has installed solar panels on covered areas of its parking lot

at its Gardenia facility. Those panels comprise a community solar project with a 400-kW capacity purchased by 39 customers.

The utility has also installed six megawatts of photovoltaic capacity at its Stanton Plant in eastern Orlando and is constructing enough to produce another 13 megawatts. The Gardenia project is a different application but sizeable photovoltaic generating capacity is not new to OUC.

The floating photovoltaic array was installed in mid-February and took two days to complete. OUC's Gardenia facility will use most of the electricity it produces but may send some to OUC customers on the grid.

Delray Beach-based D3Energy LLC installed the modular floats that snap and screw together, and the photovoltaic panels on them.

The floats were fabricated in Georgia. The photovoltaic components were made

in Asia and panels holding them were fabricated in the U.S.

The French company Ciel & Terre designed and leases the design for the floating system

Hurricane resistance is a persistent question regarding solar panels—whether on buildings or mounted on the ground. These panels have been wind-tunnel tested to about 120 mph without damage.

Lowell Dunn, D3Energy's chief executive officer, said that his company has identified locations in the OUC's service area that, combined, could generate a total of 52 megawatts of electricity.

The Orlando International Airport could produce up to 12 megawatts of power by placing floating arrays on their infield lakes, which he estimated would meet all of their power needs.

The company is pursuing opportunities with several public utilities and private companies that could use floating arrays.

Asked if opening up the government-granted monopoly privileges of Florida's power companies to transmit and sell electricity could lead to more floating arrays, Dunn hedged his bets.


"Yes, monopoly is a challenge because in a more deregulated environment you could produce and sell it elsewhere," he said. But at the same time, he said that he is comfortable with the net metering arrangements with utilities currently in place in Florida for residential photovoltaic electricity generation.

So for the time being, floating arrays are most likely to be seen at commercial or industrial sites where most of the electricity produced would be consumed on site.

Arrays will be owned and operated by municipal utilities. That plan seems to suit OUC and D3Energy just fine.

In a few years, floating arrays may be much more common in Florida if OUC's solar experience continues to be positive.

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### FEDFILE

From Page 2

pending publication. The Mercury Effluent Rule had a Jan. 24 publication date.

After the EPA withdrew the rule, the Natural Resources Defense Council filed suit to reinstate it.

The lawsuit alleged that pending rules under the Clean Water Act cannot be withdrawn under the wording of Priebus' order—that such actions need to go through a public comment period first.

The case is Natural Resources Defense Council v. EPA et al, U.S. District Court, Southern District of New York, No. 17-00751.

In the big picture, the Mercury Effluent Rule's survival will not preserve a pillar of environmental benefits. It is, however, a litmus test for the NRDC and other environmental organizations to determine if court challenges can effectively slow or prevent the Trump administration's stated goal of eliminating two federal rules and regulations for each new one passed.

If the court hands NRDC a victory in this case, the Trump administration will be on notice to follow established federal rule-making procedures that apply both when making a rule and withdrawing a rule, a crucial tool for advocacy groups' efforts to protect existing environmental laws and regulations.

### EPA delays final mine wastes rule.

In February, the EPA extended its comment period by 120 days for a proposed regulation that would set fiscal responsibility standards for companies that mine hard rock metals including gold, copper, lead and silver. Coal is not included.

The intent of the rule is to protect the taxpayer from abandoned mine cleanup costs by requiring companies to obtain financial bonds or use other financial methods to ensure proper mining waste handling even if the companies go bankrupt.

Mining companies, not surprisingly oppose the rule, claiming that it would unnecessarily increase costs.

The EPA estimated those costs to be \$171 million per year. EPA Administrator Scott Pruitt said that the additional comment period would increase input from affected mining interests.

Those interests have enjoyed special privileges regarding EPA regulations that the proposed rule addresses. For example, the agency's attempts to reduce solid waste production have never focused on mining wastes—even though mining waste dominates, by volume, the country's solid waste production.

Mining industries routinely use bankruptcy laws to evade responsibility for mine waste cleanup, requiring public funds to clean up mine contamination. The federal government, most recently the EPA, has spent billions of dollars for cleanups.

In 1980, Congress asked the EPA to pass a mine wastes rule. More recently, the courts ordered the EPA to comply by Dec. 1, 2017. Neither Trump nor Pruitt has the legal option to refuse the court order.

Pruitt is on record as saying that the

agency he now leads will meet that deadline in spite of the three month extension.

**Stream rule rescinded.** In the first use of Congressional Review Act authority to rescind an Obama administration environmental regulation, the House and Senate rescinded the Stream Protection Rule in early February.

President Trump signed the joint resolution on Feb. 16, 2017.

The Interior Department's Office of Surface Mining, Reclamation and Enforcement finalized the rule on Jan. 19, 2017, making it subject to repeal under the CRA.

The rule applied specifically to coal mining wastes and was intended to stop stream pollution and habitat destruction by preventing overburden and tailings from coal mines from running off into streams and wetlands.

Its specific provisions prevented pollution outside a permitted area. It included several provisions to protect ecological resources, including comprehensive pre-mining data collection and monitoring programs, and protection and restoration of stream resources.

It allowed mountain-top removal mining only when natural waterways would not be destroyed. It also had provisions to protect threatened and endangered species.

While the stream rule is no longer valid, a memorandum of understanding between the Office of Surface Mining Reclamation and Enforcement and the U.S. Fish and Wildlife Service may still be in effect to ensure that threatened and endangered species, and proposed and designated critical habitats are adequately protected for all surface mining and reclamation operations in coal exploration conducted under the Surface Mining Control and Reclamation Act of 1977.

The stream rule required guaranteed cleanup of unanticipated water pollution discharges that require long-term treatment. Coal mining wastes, as well as other mining wastes, were specifically excluded from the hazardous waste rules passed in the 1970s and 1980s.

This provision in the stream rule was a modest measure to ensure that coal mine owners could not walk away from their mine wastes, leaving pollution to be cleaned up with public funds.

The U.S. Department of Interior's economic impact assessment indicated that the rule's cost would be small relative to the size of the coal industry.

The \$80 million annual compliance costs were estimated to be 0.3 percent of estimated 2015 coal revenues. Those costs of coal production, if passed on to consumers, would increase costs by 0.02 percent, or about \$0.20 per month.

It remains to be seen whether coal production will increase, coal prices will decrease, and millions of coal mining jobs will be created.

But in the meantime, a rule that protects and could restore 6,000 miles of streams and 52,000 acres of forests, no longer binds coal mining companies to environmental stewardship.

# Harbor Branch Oceanographic Institute begins phytoplankton toxin study

By ROY LAUGHLIN

Florida Atlantic University's Harbor Branch Oceanographic Institute will conduct a research project to provide background information on algal toxins from cyanobacteria, flagellate and other photosynthetic microorganisms.

These microscopic algae form toxic chemicals, and may release them to water and sediments. The chemicals often cause complex acute and long-term sublethal toxicity to a lagoon system's fish, marine mammals and, potentially, to humans.

The study should shed more light on the cyanobacteria blooms in the southern Indian River Lagoon over the past two years.

HBOI Research Professor James Sullivan, PhD, said that phytotoxins, particularly cyanotoxins produced by cyanobacteria, are a poorly characterized diverse class in the Indian River Lagoon.

The research effort that Sullivan envisions focuses on characterizing the many cyanobacteria and other algal species present in the lagoon that produce algal toxins and the background levels of the toxins they produce.

The research is a baseline study to characterize a number of algal toxins present in water and sediment, and algal toxin presence in selected food chain organisms throughout a three-year observation.

The problem, Sullivan said, is that discussions of algal toxins tend to focus on four types of toxins: brevetoxin produced by the dinoflagellates *Karenia brevis*; saxitoxins produced by dinoflagellates such as *pyrodinium*; microcystin; a hepatotoxin produced by the cyanobacteria *microcystis*; and a more recently suspected toxin,  $\beta$ -methylamino-L-alanine, BMAA.

The first three have a well-characterized toxicity mechanism, a substantial base of occurrence surveys, algal sources and toxic effects. BMAA, a fat-soluble amino acid derivative, is produced by several phytoplankton species in Florida.

Research by University of Miami scientists showed BMAA occurs in several south Florida invertebrate species, fish and dolphins.

As ecological actors, these diverse phytotoxins are bioaccumulated—transferred via feeding from one node in a food chain to the next. Some toxins may also be bioconcentrated, although Sullivan said that phytotoxin bioaccumulation information is sparse for the IRL.

His team's research may put some numbers on bioaccumulation and bioconcentration factors by characterizing the organisms where bioconcentration is most significant in IRL food chains.

Sullivan outlined goals as well as obstacles expected in reaching them. One obstacle may be identifying phytoplankton species-producing phytotoxins.

He said that cyanobacteria are abundant in the ocean but only a few have been linked with specific toxins even though circumstantial evidence implicates others as toxin producers. The BMAA focus may potentially address that issue.

Chemical analysis of the toxins is another aspect. Some of the toxins can be identified and loosely quantified using commercially available enzyme-linked immunosorbent assay test kits.

ELISA test kits are available for both microcystin and BMAA. However, there is some controversy about their accuracy and ability to measure cyanotoxins at low levels.

Derivatization of these chemicals followed by gas chromatography-mass spectroscopy is considered far more accurate and reliable, but is much more expensive and time-consuming.

"The methods for detection are really important," Sullivan said. "We can't pay for the expensive methods (with the funding available for this project)."

The research analysts may use multiple methods with a positive indication by ELISA followed by GC-MS. Clearly this is going to be a rigorous chemical characterization.

In characterizing the algal toxin survey, Sullivan said that the research may be as useful to rule out phytoplankton mistakenly assumed to produce toxins as it is to strengthen the case for algal toxins that are well understood, especially in the case of BMAA, whose source and effects are still widely debated within the expert scientific community.

"My fear is that BMAA is not the problem. It's some other cyanotoxin," he said.

Understanding the scenario for algal toxin biological effects is not limited to identifying them in water or in the organisms that produce them. Algal toxins bioaccumulate and may biomagnify through food chains. Characterizing this behavior is another perplexing and potentially significant aspect of the research.

The conundrum is that algal toxins may occur at relatively low concentrations in water and sediment. They are usually at much higher concentrations in phytoplankton cells that produce them.

If those cells are consumed by filter feeders, algal toxins enter food chains significantly, even when there's no visible or otherwise evident algal bloom. If the toxin persists in the tissues of animals that consume the cyanobacteria, then the toxins may bioaccumulate through the food chain from lower trophic levels to higher ones.

Human seafood consumers are at the top of the chain and potentially at greatest risk of food chain biomagnification of phytoplankton.

Biomagnification is a worst-case scenario for food chain bioaccumulation. It leads to higher toxin concentrations and potentially more serious toxicity in the top levels of food chains.

Saxitoxin is an algal toxin with well-characterized bioaccumulation behavior. BMAA may be another one. Microcystin is bioaccumulated, but somewhat less than saxitoxin.

Substances that are lipid-soluble are most likely to be bioaccumulated to high levels but other chemical characteristics such as slow biodegradability, also favor bioaccumulation.

The most precise characterization of food chains in the IRL requires direct observation, not necessarily comparison with analogous food chains in South Florida or elsewhere.

Sullivan alluded to the research's role in better understanding the role of environmental factors that are clearly implicated in the increasing frequency, aerial coverage and duration of harmful algal blooms worldwide.

Global warming and increasing nutrient concentrations are two primary factors that spur the change in algal bloom characteristics.

Sullivan said that if there is an algal bloom during their work, they will be ready to study it in detail—both with this grant and with funds from a National Oceanic and Atmospheric Administration grant that supports Sullivan's other research efforts on harmful algal blooms.

He said that the research has the potential to characterize multiple unknown or poorly characterized cyanobacteria species that are ubiquitous and continuously present in the IRL.

Modern genetic identification tools such as DNA probes can identify cyanobacteria and other algal species with much greater reliability and speed when compared to light microscope and electron microscope imaging.

Cyanobacteria occurrence may also be masked by the background of other phytoplankton growing in the water column, even though cyanobacteria-forming microblooms may have sufficient intensity to produce algal toxins over short time periods, or over limited areas, for example at a creek outflow.

Quicker, more reliable validated tests will advance the ability to surveil these brief microblooms, and their phytotoxin signature in IRL food chains.

The research began in March and will continue for three years. The funding,

\$275,000, came from Florida's "Protect Wild Dolphins" Specialty License Plate Fund.

Sullivan's study is a mix of fundamental science with clear application to resource management and human health.

"Ultimately people are tired of hearing

we need more science," he said. "But we do need more science. There's a lot we don't know particularly about the risk to human health (of algal toxins). We can debate all day about what is happening (when a bloom occurs). We need a handle on the science."

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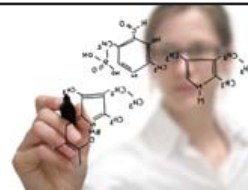
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# DEP provides funding for IRL surface water quality improvement projects

By **BLANCHE HARDY, PG**

The Florida Department of Environmental Protection recently awarded \$24 million for 12 projects designed to improve water quality in the Indian River Lagoon.

The projects were proposed by eight cities, Brevard County and the St. Johns River Water Management District.

Funding will come from the state's Total Maximum Daily Load Water Quality Restoration Grant program, legislative appropriation grants and a U.S. Environmental Protection Agency Section 319 grant.

DEP is taking what they characterize as "an aggressive stance" to improve water quality in the lagoon by identifying and funding projects to reduce nutrient discharges and dredge muck from the lagoon bottom.

"We are committed to partnering with local communities to expedite and implement projects that improve water quality and contribute to the ongoing restoration of the Indian River Lagoon, which is vital to Florida's environment, economy and quality of life," said new DEP Interim Secretary Ryan Matthews in a press release.

The recently funded projects will help

the communities reduce stormwater nutrient loading, continue stormwater treatment improvements, reduce or eliminate non-point source pollution and eliminate muck sediments.

The St. Johns River Water Management District's legislative appropriation grants will be doubled from \$10 to \$20 million for muck dredging of the lagoon's Eau Gallie River tributary.

The project will complete dredging efforts to remove approximately 625,000 cubic yards of muck sediment from the river's main stem and its southern branch, Elbow Creek.

The project is expected to result in the elimination of approximately 1,200 tons of nitrogen and 260 tons of phosphorous contained within the sediments.

Two projects will be funded in Brevard County. The county will receive \$556,100 for construction of a system to treat stormwater runoff and reduce nutrient discharge from a 71-acre commercial and industrial area.

Upon completion, the enhanced Pine Industrial Pond system is estimated to remove approximately 800 pounds of nitrogen and 100 pounds of phosphorous per year.

Brevard County was also awarded a \$122,350 grant for Johnson Jr. High School pond retrofits.

The retrofits will regulate and redirect stormwater flow through nitrogen-removing, phosphorous-absorbing chambers installed to enhance the efficiency of the existing retention pond to reduce pollution entering the northern Indian River Lagoon.

The city of Melbourne was awarded a \$517,050 grant for stormwater retrofits within the heavily populated Bell and Garfield residential areas.

Stormwater currently drains from the two neighborhoods into the Eau Gallie River and northern Indian River Lagoon.

Ocean Breeze will retrofit the stormwater treatment system within a 46-acre Indian River Lagoon watershed to prevent nutrients from entering the estuary.

A grant of \$465,000 and a legislative appropriation will fund the construction of a bioswale, two baffle boxes, an exfiltration pipe and plantings.

The city of Palm Bay was awarded a \$400,000 legislative appropriation for

stormwater treatment upgrades at its Palm Bay Marina near the mouth of Turkey Creek.

The project includes the retrofit and installation of systems to prevent seawall erosion and to remove an estimated 40 pounds of nitrogen and 1,600 pounds of phosphorous per year.

The city of Titusville received a \$352,752 grant to install two treatment trains with catch basins for stormwater flowing into the lagoon from the 588-acre Main Street and Sycamore Street sub-basins.

Titusville was also awarded a \$105,000 legislative appropriation for improvements in the Knox McRae Basin including construction of a treatment system.

The project will eliminate about 280 pounds of nitrogen and 55 pounds of phosphorous annually.

The city of Rockledge was awarded \$162,500, bringing their funding to a total of \$937,500, for Phase 1 of a septic tank elimination project in the Rockwood and Knollwood Gardens subdivisions adjacent to the IRL.

A sewage collection pipeline will be constructed to connect approximately 140 residential lots to a lift station.

The city of Edgewater was awarded a \$159,300 grant for stormwater treatment improvements at Lamont and Hubbell streets to reduce and treat runoff into the lagoon.

The project is expected to eliminate 24 pounds of nitrogen and three pounds of phosphorous per year.

The city of Cape Canaveral will receive a \$98,400 grant for shoreline restoration along 1,700 feet of the eastern shore of the Banana River Lagoon.

The restoration will take place at the Banana River and Manatee Sanctuary parks and includes coquina rock placement, installation of native vegetation such as mangroves and wire grass, and enhancement of an infiltration swale.

The city of Indialantic received a \$65,500 grant for stormwater improvements at Lily Park.

The city will install 900 feet of storm sewer, excavate a stormwater treatment area and clear invasive Melaleuca trees.

The existing 1960s era system drains directly into the Indian River Lagoon.

used by farmers.

The special master generally criticized Georgia's weak actions to control water use and characterized the limited efforts they have made as "ineffective."

Although Florida made the case for harm, the issue isn't what Georgia has done and is continuing to do to Florida. The issue is that the water in the ACF basin is significantly under the control of the U.S. Army Corps of Engineers. The ability to apportion the water between the states isn't limited to the two states in this case.

He found that Florida's requested consumptive cap on water use by Georgia may not resolve Florida's water problems. Water released from basin's lakes is controlled by the corps and depends on their operation and management of the associated water control systems.

The corps was not party to the lawsuit, although it was previously proposed and rejected. Because the corps could choose to release or not release water from the systems, a cap on Georgia's consumption may or may not work—depending on the corps.

"The evidence presented at trial does not 'instantly tilt' the scale in favor of Florida. See Colorado, 467 U.S. at 316," said Lancaster. "The evidence instead tends to show that the corps' operation of federal reservoirs along the Chattahoochee River creates a highly regulated system over much of the basin, rendering any potential benefit to Florida from increased stream flow in the Flint River uncertain and speculative."

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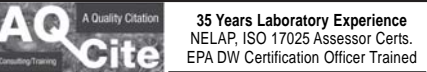


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# Polk water cooperative to study three regional potable supply projects

By PRAKASH GANDHI

Towns and cities across sprawling Polk County are banding together to address future water needs in the fast-growing region.

The Polk Regional Water Cooperative, consisting of the county and all its towns and cities, was established to seek alternative ways of dealing with a projected water shortage of about 46 million gallons a day by 2035.

The regional water board recently chose three projects that, in combination, could provide an additional 50 mgd.

Each of the coop's members is now being asked to approve and fund Phase 1, which consist of scientific testing and conceptual and preliminary design for the three proposed projects before construction starts in Phase 2.

## WOTUS From Page 1

the dominant critics of the current WOTUS rule. Provisions of the rule that protected seasonal flow streams and isolated water bodies are the most controversial.

Farmers criticized the rule because it prevented them from plowing up some of the wetlands on their property. With record high corn and soybean crops during the past decade, even an acre of land taken out of production has a noticeable financial impact.

Real estate developers criticized it because it required additional permitting in some developments involving payments to consultants, additional permit fees and construction delays.

Trump himself, through his ownership of several golf courses, is subject to the provisions of the current rule.

When the EPA wrote the rule in 2015, they cited protection of drinking water sources and wildlife habitat as the primary justifications.

In 2006, the EPA estimated that 117 million U.S. residents obtain some or all of their drinking water from intermittent, ephemeral and headwater streams that may lose federal protection after a revision or rescinding of the rule.

Hunters, environmental advocacy groups and scientific societies criticized the intentions of Trump's executive order. They have consistently backed the EPA's efforts to preserve habitat adjacent to streams as the most effective way to let nature provide the environmental house-keeping functions required for a reliable supply of clean, fresh water.

Where the regulations apply to salt marshes and estuarine areas, the protection is vital for sport fisheries, recreational industries and seafood providers. All are innately local industries that cannot be outsourced to overseas providers.

Experts on EPA rulemaking said that it could take up to two years for the agency and the U.S. Army Corps of Engineers to complete the ordered review and propose a new rule.

The time frame could be extended even further under a court challenge, which is certain to be pursued by environmental advocates and other affected stakeholders that depend on wetland habitat and water quality protection.

The U.S. Geological Survey reports that 18.5 percent of Florida is covered by water, ranking it seventh among all states.

The number of Florida residents that rely on potable water from surface water sources is relatively low. Residents in only 10 Florida counties, predominantly in Southwest Florida, depend on surface sources for drinking water that could currently be classified as waters of the U.S.

Most Floridians rely on the Floridan Aquifer for their drinking water. But surface waters replenish the Floridan so, in effect, clean surface waters that are now protected by the WOTUS rule are essential across the state.

In addition, most of the wetlands, lakes, streams and estuaries in Florida that are waters of the U.S. have significant habitat value. These include the Everglades, Florida's extensive estuaries and its fresh-

Ryan Taylor, town manager in Dundee, said officials are tackling water issues on several fronts.

A primary goal is to address water at a cooperative level so that the municipalities and county are working closely together to address water needs, Taylor said.

"We want to ensure the sustainability of economic development within the county and (avoid) competing against each other for additional water capacity," he said.

"Before (the group was established), each utility would apply for additional water withdrawals on their permits," he said. "We are now trying to address everybody's needs as a cooperative."

Polk County is one of the fastest growing regions in the state. Officials estimate a water deficit of more than 46 million gallons a day by 2035 unless steps are

water wetlands.

The state owns approximately 4.7 thousand square miles of these habitats, predominantly freshwater and some estuarine habitats and is bound by the Clean Water Act and, by extension, the WOTUS rule for the land it owns.

The state would likely continue to manage most of those lands for habitat protection even if Clean Water Act protections no longer apply.

For the remaining surface waterbodies including wetlands, Florida residents have proportionally more to lose if federal protections under the Clean Water Act no longer apply to areas deemed not to be waters of the U.S. under a revised rule.

taken to address water needs, Taylor said. Those estimates, he added, are based on planning, economic development and residential growth.

"The steps we are taking will address that deficit," he said. "We need to be ready for the growth."

But it's not just water resources that concern officials. "We want to address environmental (issues) and lessen the impacts on our groundwater levels," he said.

"Polk County is at the headwaters of six rivers and those rivers reach out and touch 32 counties in the state—almost half the state," he said. "If we are over-pump-

ing, we will create adverse impacts downstream."

Other towns have already stepped up to the table to deal with their water issues. City of Auburndale officials agreed to take part in Phase 1 and pay its share of the costs, based on the city's estimated water shortage in 20 years of 3.26 million gallons a day—seven percent of the total.

Haines City also signed off on the Phase 1 agreement. Other municipalities are now considering the agreement.

**POLK**  
Continued on Page 16

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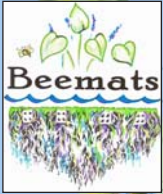


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**POLK**

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The five-year Phase 1 study will look closely at the three proposed projects.

The Peace Creek Integrated Water Supply Plan would focus on restoring the natural hydrology of the Peace River system by enhancing and restoring wetland areas, increasing aquifer recharge and reducing impacts on water flows and levels.

Preliminary estimates indicate the project would create an additional ten million gallons of water daily at a cost of some \$121 million over 35 years.

The Southeast Wellfield project would construct a new Lower Floridan Aquifer wellfield, a new water treatment plant, transmission lines and concentrate disposal wells to increase groundwater withdrawal of up to 37.5 million gallons a day.

The wellfield project would be built in three phases over 35 years at an estimated cost of \$352.4 million.

The West Polk County Lower Floridan Aquifer Wellfield project involves building a new wellfield, water treatment plant, transmission lines and concentrated disposal wells.

The project is expected to create 15 million gallons of water daily at a projected cost of \$166.8 million over 35 years.

The planning phase for the combined projects is projected to cost \$23 million.

The Southwest Florida Water Management District would foot half the bill. Polk County would contribute \$7.5 million to the first phase.

Before the construction phase starts, another interlocal agreement will be required.

**NOTES**

Continued on Page 16

The program set a goal for the return of at least 38,000 acres of seagrass in Tampa Bay. Strategies agreed to by partner governments led to the current level of over 41,000 acres, the highest level of seagrass since 1950.

The program is a partnership of Hillsborough, Manatee and Pinellas counties, the cities of Tampa, St. Petersburg and Clearwater; The Southwest Florida Water Management District; the Florida Department of Environmental Protection and the U.S. Environmental Protection Agency.

Rob Blakely joined Alpha-Omega Training and Compliance Inc. as director of business development. AOTC is full service environmental, health & safety company headquartered in Cocoa.

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