

# Florida Specifier

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Gov. Ron DeSantis requested resignations from two water management district governing boards and installed new leadership.

## Solar jobs report 8

Jobs in Florida's solar sector bucked the national trend, increasing by 21 percent in 2018. It now employs 10,358 people in subsectors that include product development, manufacturing, and installation and maintenance, according to the Solar Institute in its National Solar Jobs Census, 2018.

## Saufley Field contamination 9

Recent drinking water analysis on the west side of Saufley Field in Pensacola found potable well water concentration of perfluorooctanoic compounds exceeding 70 parts per trillion, the U.S. Environmental Protection Agency's current drinking water health advisory level for the chemicals.

## Governor's DEP budget 10

Gov. Ron DeSantis proposed a \$1.872 billion budget for the Florida Department of Environmental Protection in the coming fiscal year, up from last year's \$1.783 billion. The increase would fund up to 120 more positions within the department.

## Robotic sailboat 12

A remote controlled sailboat was back in Florida waters this winter, cruising Lake Okeechobee in a pilot study intended to demonstrate how a mobile, remote sensing platform can contribute to algal bloom surveillance in fresh waters.

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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 (321) 972-8937, or email mreast@enviro-net.com.

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Photo by Scott Duncan, Navocean Inc.

Jordan Beckler, PhD, an assistant research professor with Florida Atlantic University's Harbor Branch Oceanographic Institute, collects water samples in Lake Okeechobee for comparison with instrument determinations made by Vela, Navocean's instrumented drone sailboat. See story on Page 12.

## EPA announces plans for regulating perfluoroalkyl substances, eventually

By ROY LAUGHLIN

In February, the U.S. Environmental Protection Agency announced a "first-ever nationwide action plan" to protect public health and the environment from perfluoroalkyl substances.

The agency conducted two press conferences in February to explain its plan.

David Roth, assistant administrator for EPA's Office of Water, fielded questions, during what was more of a technical session. A formal press conference with EPA Administrator Andrew Wheeler followed.

They described an agenda with a broad set of goals, each with a different time line.

Specific components, endpoints and regulatory actions will be developed through the planning process. With two exceptions, the schedule spans the 2019-2022 or later time frame.

The agency compartmentalized the plan in two ways. At the top of its discussion, Wheeler introduced several "significant actions."

First, the agency has initiated steps to evaluate contaminant standards for PFAS in drinking water, an essential prelude to proposing a maximum contaminant level for perfluorooctanoic acid and perfluorooctanoic sulfonate.

EPA will also begin efforts to develop toxicity values for oral reference doses for two GenX chemicals, hexanoic perfluoro compounds and their three-carbon precursors, and perfluorobutane sulfonic acid.

In actions that involve several programs, the agency intends to designate

PFOA and PFOS as hazardous substances and develop groundwater cleanup recommendations for the two compounds.

In outlining its plan, EPA identified "more short and long-term actions that are currently being implemented to understand and address PFAS."

In the near future, the agency will include PFOA in several risk management programs. It will be scrutinized carefully under the Toxic Substances Control Act's Significant New Use Rules process.

Inclusion gives the EPA 90 days to determine if new use registrations for PFAS could have detrimental risks to human health or the environment, and implement appropriate restrictions if the chemical does.

The document also lists enforcement actions "where appropriate." The time frame for short-term actions is

within two years.

Long-term actions include research initiatives that may lead to rules that reduce PFAS releases; adding PFAS to TRI reporting; adding PFAS to the Unregulated Chemical Monitoring Program, expanding research and assessment beyond octanoic compounds; assessing ecological risk to organisms and ecosystems, especially food chain accumulation and biomagnification; and investigating the potential for atmospheric transfer of PFAS.

Several actions seem to have priority. First is the establishment of an MCL for octanoic compounds. Wheeler said that the agency should be at a point to begin rulemaking for potable water at least by the end of the year.

Most of the questions at the two

**PFAS**  
Continued on Page 14

## Valenstein reappointed as DEP chief

By BLANCHE HARDY, PG

With a unanimous affirmative vote by the Florida Cabinet, Gov. Ron DeSantis reappointed native Floridian Noah Valenstein as secretary of the Florida Department of Environmental Protection in February.

Valenstein was originally appointed to the position by then-Gov. Rick Scott in May, 2017.

"I'm pleased to announce that I have appointed Noah Valenstein to continue to lead the Department of Environmental Protection," said DeSantis. "Noah has led DEP with distinction and has

played an integral role in implementing my vision to protect and restore Florida's environment.



Valenstein

"I'm confident his continued leadership will bolster our efforts to take decisive action on behalf of the people of Florida."

Valenstein is continuing in a position that now appears to have solid

**CHIEF**  
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# Senate confirms Wheeler as Environmental Protection Agency administrator

## Staff report

In late February, the U.S. Senate approved the appointment of Andrew Wheeler as administrator of the U.S. Environmental Protection Agency.

The vote was close with only 52 senators voting to approve, but was not entirely along party lines. Sen. Joe Manchin, D, West Virginia, and Sen. Susan Collins, R, Maine, voted against him. They both had previously voted in favor of Wheeler's appointment as acting administrator.

In a press release, Collins said she has "too many concerns with the actions dur-

ing his tenure as acting administrator to be able to support his promotion."

Wheeler has had a long career in Washington as a lobbyist for coal industry clients. This obvious conflict of interest is the primary criticism his opponents cited.

Wheeler is now expected to regulate industries and their players for whom he has been a well-paid advocate for many years.

As acting administrator, Wheeler followed Scott Pruitt's lead, systematically dismantling EPA rules and policies for air, water and human health protection.

Since replacing Pruitt, he announced

the repeal and revision of coal impoundment regulation, the Clean Power Plan, the Mercury and Air Toxics Rule, fuel economy standards for new autos and the Waters of the U.S. rule.

Wheeler is a habitué of Washington's corridors of power. He has more experience in that realm than any other EPA administrator since those who founded the agency in the 1970s.

In announcing plans to set standards for perfluoroalkyl compounds, he brushed aside criticism of a protracted rulemaking process, saying his agency wanted to draft a rule that will survive court challenges.

It remains to be seen if that reticence translates into a delayed and softened standard that is little better than the current drinking water health advisory level of 70 parts per trillion, which many experts believe is too lax to meet EPA's public health protection mandate.

Wheeler could now have less than two years as EPA administrator under Trump. The EPA's mission will likely be further diminished by slash-and-burn policy making, maybe more than it has been already.

**TSCA inventory updated.** Under the Toxic Substances Control Act, the EPA maintains an inventory of chemicals manufactured, processed and/or imported into the country.

The list had swelled to 86,228 chemicals by 2018, but following a comprehensive review, the agency found that only 40,655 of those are still in commerce.

The Frank R. Lautenberg Chemical Safety for the 21st Century Act required the EPA list to designate which are active and which are not. The benefit for the EPA was to create a list of chemicals still in use and direct attention to those entering the environment or having human exposure.

In addition, of the 40,655 chemicals in current use, 32,898 have identities that are not considered as "confidential business information." For the remaining 20 percent, the EPA is developing a rule pertaining to the agency's review and substantiation of all CBI claims that protect "the specific chemical identities of substances on the confidential portion of the TSCA inventory," according to an EPA release.

The agency noted that during their 18 months of list vetting, they solicited information from chemical manufacturers and processors germane to the task, receiving more than 90,000 responses.

"It's important for us to know which

chemicals are actually in use today," said Alexandra Dapolito Dunn, assistant administrator of the agency's Office of Chemical Safety and Pollution Prevention. "This will help us with our work prioritizing chemicals, evaluating and addressing the risks."

The public version of the TSCA inventory and more information on active and inactive designation requirements is available at <http://www.epa.gov/tscainventory>.

**Sulfur dioxide emission standard.** In late February, EPA announced that it will not tighten air quality standards for sulfur dioxide in ambient air. The current standard, 75 parts per billion, was established in 2010.

Health advocates were critical of it then and continue to press for a 50 ppb standard, which they said will reduce asthma attack risk in children.

Those health advocates, including EPA agency health scientists, cite studies illustrating that exposure to 75 parts per billion of sulfur dioxide causes increased incidence of asthma attacks in sensitive children.

The health risks of EPA's decision not to adopt the 50 part per billion proposed standard has become less critical an issue since the 75 parts per billion standard was first adopted in 2010 because by 2016, sulfur dioxide emissions nationwide dropped 64 percent, primarily due to abandoning coal nationwide as fuel for power generation.

But lowering the standard would have addressed dozens of areas in the U.S., home to three million people, still out of compliance with the 2010 standard. For them, the risks of childhood asthma misery will not decline.

**Water quality trading policy update.** In February, the EPA released a new water quality trading policy memorandum.

The memo lists six market-based principles that the EPA endorses "to encourage creativity and innovation in the development and implementation of programs that reduce pollutants in our nation's waters."

The six principles endorsed were: 1) the use of water quality trading and other market-based programs on a watershed scale; 2) the use of adaptive strategies for implementing market-based programs; 3) water quality credits and offsets banked for future use; 4) simplicity and flexibility in implementing baseline concepts; 5) single project generation of credits for multiple markets; and 6) financing opportunities to assist with deployment of non-point land use practices.

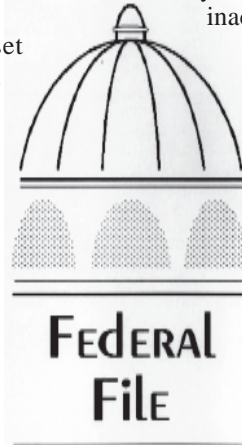
This EPA memo appears to include and expand previously rejected water quality credit trading concepts and practices that were not endorsed because they are ineffective and, in some cases, completely counterproductive.

Nevertheless, David Ross, assistant administrator in the EPA Office of Water, said the updates build on efforts already underway at state, local and tribal levels.

"EPA is taking a number of steps to help facilitate the use of a broad range of tools and technologies that will deliver critical water quality improvements at a lower cost," Ross said.

The press release noted that this action is part of a larger collaboration with stakeholders to better coordinate federal resources on some of the nation's most challenging water quality concerns, including addressing excess nutrients in waterways.

This statement is somewhat optimistic since nutrient pollution has become even more severe and more widespread over the past 20 years as water quality credits increased as a result of "improved" wastewater treatment plants across the nation.



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## Fort Meade nixes Biosolids Distribution Services' proposal

### Staff report

The Fort Meade City Commission declined to hear a proposal by Biosolids Distribution Services to convert a vacant site along U.S. 17-98 in northwestern Fort Meade into a biomass plant.

The proposal before the city commission was for the conversion of yard waste into compost material. The commission dismissed the proposal that included layering compost on the site due to the company's unfavorable history with sludge processing.

BDS previously took over operation of a local facility converting sludge into fertilizer and altered the treatment system to send related sediment-laden wastewater to the city's wastewater treatment facility.

The change damaged the city's treatment equipment and produced unpleasant odors in the vicinity of nearby businesses and residents.

The city sued forcing BDS to shut down leaving outstanding unpaid city wastewater treatment fees.

The company plans to consider other uses for the recently purchased 1,333-acre site.

**Sierra Club opposes TECO power plant conversion.** Tampa Electric Co. plans to shut down its coal-fired Big Ben Unit 2 and undertake an \$853 million conversion of Unit 1 to natural gas fuel.

The utility is promoting the plan as a move to be cleaner and greener than their current operation. However, not everyone is convinced.

"We're sounding the alarm today to let Tampa Bay residents know that (TECO) is planning to make the situation worse for residents when it comes to climate change," said Susannah Randolph, senior campaign representative for the Sierra Club's "Beyond Coal" campaign.

The Sierra Club and numerous environmental advocacy groups opposed the conversion at the Hillsborough County Commission's January meeting.

Environmental groups want the proposed coal-to-natural-gas conversion abandoned and replaced with additional renewable energy sources.

TECO is now constructing 600 megawatts of solar energy generation capacity.

**Land swap helps Jax cleanup.** Greenfield Environmental Multistate Trust is responsible for cleaning up the former Kerr-McGee Chemical Corp.'s Eastside Jacksonville Superfund site.

A land swap was recently arranged by the North Florida Land Trust that allows the Florida Department of Environmental Protection and Greenfield Environmental to clear the way for site cleanup while expanding park land on Fort George Island.

Insecticides and fertilizer from an old Kerr-McGee warehouse have contaminated the riverbed of the St. Johns. EPA-approved cleanup plans are expected to prevent additional damage.

The swap allows Greenfield Environmental to acquire the portion of the riverbed to be cleaned up in exchange for donating conservation acreage on Fort George Island, benefiting both parties.

**Tallahassee: Clean energy by 2050.** In February, the Tallahassee City Commission voted unanimously to transition to 100 percent clean renewable energy for city operations by 2035 and to convert community-wide to renewables by 2050.

The city's plans also include committing to a 100 percent clean transit system. They proposed to replace their current fleet with electric vehicles as part of their operations conversion.

Tallahassee is the seventh city in Florida to make the renewable energy commitment, making the city one of the state leaders in clean energy and ranking them among the most environmentally progressive in the country.

The resolution is supported by environmental advocacy groups including the local Sierra Club.

**Nasty nine.** In a new report, Ocean Conservancy identified the nine most urgent threats facing Florida's coasts and oceans.

The report outlines what's at stake for the state and its communities, and how we can collectively confront these threats.

The "nasty nine" biggest threats to Florida's coasts identified in the report are harmful algal blooms, water quality and quantity, ocean acidification, coral disease and bleaching, oil and gas drilling, ocean trash, coastal development, sea level rise and flooding, and extreme weather.

One accelerator fueling several of the "nasty nine" is a well-known culprit, climate change. Carbon pollution has caused our global climate to warm more rapidly, driving and exacerbating environmental disasters that put coastal communities in danger.

The report laid out the solutions to these threats, showing how Floridians across the state can join together and take action for our ocean. It is available at [oceanconservancy.org](http://oceanconservancy.org).

**Names in the news.** Tina Nixon, PE, BCEE; Bruce Mowry, PhD, PE; and Richard Cowles, PG, joined Stantec's Florida

consulting team.

Nixon, a University of South Florida alumni, is joining the Tampa office as an associate and senior civil engineer.

Mowry is joining the firm's Jacksonville office as a senior civil engineer and Cowles is joining the Sarasota office as a senior hydrogeologist.

Elsewhere, Terry Snow, PE, was named Southeast Region director and vice president for Gannett Fleming. He will direct operations in eight offices including one in Florida.

**New directions.** Amy Fu, PE, will be devoting full-time professional attention to Alpha Envirotech Consulting Inc., her Jacksonville Small & Emerging Business, state-certified Woman and Minority Business, and certified Disadvantaged Business Enterprise in Florida.

After serving as chief environmental engineer for three engineering firms, Fu began exploring public sector opportunities in 2018.

AEC provides wide range of environmental science and engineering services.

Its staff represents a wide range of experience in environmental site assessment, hazardous waste management, permitting and compliance, and related disciplines.

She can be reached at (904) 382-0083.

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# TBW providing mini-grants to protect Tampa Bay drinking water resources

## Staff report

Regional drinking water supplier Tampa Bay Water recently awarded source water protection mini-grants to four organizations whose educational efforts promote the protection of the Tampa Bay area's drinking water resources.

Keep Tampa Bay Beautiful and Keep Pinellas Beautiful each received \$10,000.

Keep Tampa Bay Beautiful will use the funding to support education initiatives and presentations to school and community groups through its Environmental

Education Program, teaching students the importance of putting waste in its place and how their actions can directly affect the Tampa Bay watershed.

Keep Pinellas Beautiful will use the money for its K-12 educational curriculum and to expand its Annual Student Summer Workshop. Its presentations will focus on water quality, source water health and habitat improvement.

The utility awarded the Pasco Education Foundation \$5,000 to launch a high school aquaponics farming system with the goal of reducing water consumption for

agriculture by 90 percent, and eliminating agricultural runoff.

In addition, Anthony Leotta, a teacher at Sickles High School, received \$2,000 to enhance his school's hydroponics garden, improving its use as a teaching tool for increasing crop yields and reducing water consumption.

Since 2008, TBW has invested roughly \$200,000 in its mini-grant program to help these and similar community-based efforts to protect the region's drinking water resources.

an alternative to gravity-fed sewage systems.

In 2016, JEA began its first septic tank phase-out program with \$15 million of seed money from the city and an equal amount from JEA.

To date, the city has phased out 1,600 septic tanks in Duval County. The septic phase-out costs from \$35,000-\$40,000 per septic tank conversion.

Duval County currently has 65,000 septic tanks in use. At this rate, JEA estimates a \$2.5 billion

cost to replace all of these with gravity fed sewer systems.

JEA will issue a request for proposal soliciting a consultant to provide information and analysis of available innovative technologies, and assess the needs of the Jacksonville neighborhoods still on septic tanks.

The technology and infrastructure investigation will be supported by a portion of the proceeds from the sale of the South Side Generating Station.

In a local newspaper account, JEA officials said that funding the conversions is the major obstacle.

JEA customers' monthly sewer rates are based only on the service provided to the customer and are not structured to include system expansion. New customers pay a connection fee that funds expansion.

The \$35-\$40,000 per septic tank conversion price is well above the ability of most customers to pay. It is three or four times the cost of advanced on-site wastewater systems, septic tanks that reduce nitrogen and phosphorus released by on-site treatment systems.

With the original \$30 million, JEA retired 1,600 septic tanks in the Jacksonville neighborhoods of Biltmore, Beverly Hills and Cristobal. In Biltmore, participation reached 80 percent.

The program has a stringent 70 percent neighborhood participation threshold, so the 80 percent participation is exceptional.

JEA recently contributed an additional \$15 million to continue its neighborhood-based septic tank phase-out program but seeks more bang for its buck.

The success of its septic conversion program depends less on obtaining participation by subsidized hookups, but rather to use affordable technology that increases hook up opportunities.

Eyes across the state will be watching JEA's efforts as a potential model to follow.

**SJRWMD agricultural project funding.** In February, the St. Johns River Water Management District Governing Board approved \$1.2 million to fund 13 district-wide agricultural cost-share projects.

The grants are intended to increase water conservation by 1.8 million gallons a day. The projects will also reduce total nitrogen and total phosphorus releases by 8,687 and 1,582 pounds per year, respectively.

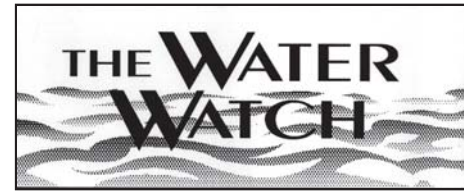
Grants ranged from a low of \$3,375 to Brown's Organic Farm in Alachua County, to a high of \$250,000 to West Vero Farms in Indian River County.

Two other grants to Indian River County agricultural operations exceeded \$200,000. One other large grant of \$199,000 went to Genuine Giant LLC in Duval County.

The remaining grants were all well below \$100,000.

Geographically, Indian River County recipients were the big winners with six companies receiving \$860,000—well more than half of the \$1.2 million offered.

Lake County was second with three grants totaling about \$60,000. Two agricultural entities in Alachua County received about \$45,000. One company in Volusia County and one in Duval County each received a grant.



## PCB waste-water treatment plant.

In February, the Panama City Beach City Council approved the purchase of a 48-acre tract of land for construction of the city's second wastewater treatment plant.

The new plant will serve primarily the city's west side and unincorporated areas of Bay County. The property cost was \$791,590.67.

The planned wastewater treatment plant will be sited west of Beach Commercial Park and north of U.S. Highway 98 and includes 31 acres of developable land and 17 acres of protected wetlands.

The Panama City Utilities Department plans to build a 12 million-gallon-per-day wastewater treatment facility in three phases, each phase providing treatment capacity for four million gallons a day.

The plans also include the construction of a facility to house about a dozen city employees who operate underground utility operations, and a lift station mechanical group facility.

The expected facility cost is about \$46 million for the entire plant, to be financed by user impact fees.

Construction of the new wastewater plant is planned to begin in at least five years in the future. Panama City's existing wastewater treatment plant on North Gulf Boulevard is nearing its design capacity.

The new treatment plant will meet increasing wastewater demands as the region's population continues to grow.

**Biosolids ban request in IRC.** The Indian River County Board of County Commissioners asked the Florida Department of Environmental Protection and the St. Johns River Water Management District to ban landscape spreading of Class B biosolids near any body of water.

The BOCC specifically wants to ban biosolids application in the northwest corner of the county. Monitoring studies indicate that landscape spreading there contributes excess nutrients to Blue Cypress Lake, the headwaters of the St. Johns River.

County board members directed staff to work with the water management district and DEP to continue water quality testing. The testing will inform the creation of a basin management action plan for the Upper St. Johns River.

Class B biosolids are the remaining undigested solids at the end of the wastewater treatment line. Class B biosolids, as designated by EPA criteria, are primarily organic materials and microorganisms, including pathogens, and may also include micro plastics and other natural and synthetic solid particles.

Class B biosolids are rich in nitrogen and phosphorus nutrients, which can be assimilated by agricultural crops or landscape plants. Above the assimilation capacity, excess nutrients become part of runoff, causing eutrophication.

As is becoming apparent across the state, a few years of excess nutrient spreading may lead to many more years of excess nutrients in runoff and eutrophication when conditions promote algal growth.

**JEA septic tank conversion study.** JEA is looking for new technologies to reduce the costs of its ongoing septic tank phase-out program in Jacksonville.

The utility is specifically looking for

**WATCH** Continued on Page 15

# DeSantis puts his stamp on water district governing boards

By ROY LAUGHLIN

Newly inaugurated Gov. Ron DeSantis lost no time making good on a clean water election campaign promise.

In January, he requested resignations from all South Florida Water Management District Governing Board members.

Four of the board members reluctantly complied. But three others initially refused and remained on the board for a month longer until a legal opinion reiterated that Florida's governor may replace a district board member for any reason.

As of the second week of March, DeSantis had replaced seven of SFWMD's nine board members.

The newly appointed board members include Chauncey Goss, a Sanibel Island native, who has worked for the federal government, including the U.S. Department of Defense.

He is the founder and managing director of Goss Practical Solutions, a company that provides federal fiscal policy analysis and budget forecasting.

Another new member is Carlos "Charlie" Martinez, an entrepreneur whose prior careers were in construction and real estate investment. Martinez grew up in Miami and is a member of The Everglades Foundation.

Charlotte Roman, a retired U.S. Army officer, is a resident of Marco Island who has served on a number of local government boards in Collier County and the city of Marco Island. She is active in conservation activities and received awards from the Collier County Audubon Society.

Jacqui Thurlow-Lippisch, a former high school teacher, is now a real estate agent. A Martin County native, she has held leadership roles in various conserva-

tion, environmental and social welfare organizations in Martin County.

On Feb. 28, DeSantis appointed more new board members. John "Jay" Steinle, a managing director of Lighthouse Investment Partners, is a West Palm Beach resident. The second appointee, Scott Wagner is president of Wagner Legal of Miami, where he practices maritime law.

Cheryl Anne Meads is the seventh appointment to the board. She is a member of the Islamorada Village Council and has worked as a contractor for the U.S. Environmental Protection Agency.

The seven replacement appointees represent a diversity of experience and professional affiliations that have not been represented by recent board members. Notably absent is a representative for agriculture and interior county interests. The final two appointments may fill those niches.

Two more SFWMD governing board seats whose members were slated for replacement in March, 2019, as part of the usual rotation, remain vacant as of March 15. The first board meeting of the governor's fully reconstituted board will likely be the second week of April.

DeSantis also made governing board changes at the St. Johns River Water Management District. He revoked three governing board members' appointments, including that of John Miklos.

In addition, he revoked the appointment of Allen Roberts of St. Johns County. The Legislature declined to approve Roberts' appointment during its 2018 session.

The governor also removed Janet Price, Rayonier Inc.'s environmental affairs manager.

**BOARDS**  
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					Hollow stem auger Air/mud rotary Dual rotary Sonic Direct push Diamond coring Cone penetration testing	1) Other services 2) Firm's specialty 3) Specialty business designations 4) Other equipment/tools 5) Areas served in Florida Note: NA = No Answer
<b>Action Environmental</b> 3007 N. 50th St. Tampa, FL 33619 (813) 909-0040, ext. 111 Fax: (813) 909-0042 Mark James: mark.james@actn.com Omar Velazquez: omar.velazquez@actn.com www.actn.com	0.83	26	275/20	Geoprobe and drilling services including small diameter wells, conventional wells, injection wells and injection services, dewatering wells, dewatering system installation, air sparge wells, SVE wells and well abandonment	■ ■ ■	1) Waste management, roll-off boxes, remediation, excavation, LDA, water treatment and transportation and disposal, trucking and industrial cleaning 2) Env. remediation and construction, env. drilling and waste mgt services 3) NA 4) Ozone, perozone and air stripper systems 5) Serves entire state
<b>Ambient Technologies</b> 4610 Central Ave. St. Petersburg, FL 33711 (727) 328-0268 Fax: (727) 328-2477 Carlos Lemos, President info@ambienttech.com www.ambienttech.com	0.7	26	32/29	Environmental and geotechnical drilling; monitoring wells; soil & groundwater sampling; in-situ testing; inclined probing; rock coring, concrete coring; dewatering well points; methane recovery wells; injection wells for environmental remediation; split-spoon, Shelby tube soil sampling; mud rotary, auger borings (solid and hollow) & DPT; installation of piezometers and inclinometers; SPT with automatic hammer	■ ■ ■ ■	1) Geophysical surveys for environmental, geotechnical and sinkhole investigations 2) Environmental, Geotechnical and Geophysical Field Services for Project Site Assessment and Investigations 3) MBE, DBE, SBE, SBD 4) GPR, EUL, Magnetometer, Vacuum Excavator, ERI Electric Resistivity Imaging, GPS, Pipe & Cable Locators, Swift 56 and 112 Channel Resistivity Systems 5) Serves entire state, Central America and Caribbean
<b>Cascade Drilling   Technical Services</b> Mary Place, Business Development mplace@cascade-env.com (803) 351-3626 Tampa - Mike Early mearly@cascade-env.com Ocala - Mike Rice mrice@cascade-env.com www.cascade-env.com	0.69	28	1100/50	Cascade is the leading provider of environmental and infrastructure drilling, in-situ remediation applications, and high resolution site characterization technologies. Our collaborative approach, high quality service, reliable crews and leading safety program make us the first choice in environmental services. We are the only integrated nationwide contractor with expert technical capabilities and fleet licensed to work in all 50 states. With more than 1,000 employees and over 48 locations, Cascade integrates technology, safety, sustainability and human potential to tackle the challenging environmental and geotechnical issues facing our clients.	■ ■ ■ ■ ■ ■	1) Waste handling/management 2) Sonic: smallest to full size; DPT: remedial injection, direct imaging, sampling; auger & rotary 3) Drilling and Remediation 4) Air/water knife, vacuum extraction 5) Serves entire state
<b>Custom Drilling Services Inc.</b> 100 Kid Ellis Rd. Mulberry, FL 33860 (863) 425-9600 Fax: (863) 425-9620 Michael Johnson, Vice President mdjohnson@customdrilling.net www.customdrilling.net	.78	29	43/43	Environmental drilling: DPT services	■ ■ ■ ■	1) Well abandonment, RC sand sampling, LDA 2) Rotary and DPT 3) Small business 4) Coiled tubing unit for cementing 5) Serves entire state

# Environmental & Geotechnical Drillers serving Florida

Company name / Contact information	EMR rate	Years in biz	Total staff / Staff in FL	Services / Capabilities	Equipment / Tools							1) Other services 2) Firm's specialty 3) Specialty business designations 4) Other equipment/tools 5) Areas served in Florida Note: NA = No Answer	
					Hollow stem auger	Air/mud rotary	Dual rotary	Sonic	Direct push	Diamond coring	Cone penetration testing		
<b>Directed Technologies Drilling Inc.</b> 100 Rolling Ridge Dr. Bellafonte, PA 16823 1-800-239-5950 David Bardsley, Vice President info@horizontaldrill.com www.horizontaldrill.com	0.80	20+	30/0	Horizontal directional drilling (HDD) for environmental and water supply applications. Use of HDD methods to obtain soil samples under obstructions. Horizontal wells for monitoring, SVE, groundwater extraction, injection, dewatering, air sparge and horizontal multiport well installations									1) NA 2) Horizontal environmental drilling and well construction 3) NA 4) NA 5) Serves entire state
<b>Directional Technologies Inc.</b> 130 Geronimo St., Unit 1 Miramar Beach, FL 32550 1-877-788-4479 Kyle Carlton, PG, Senior Geologist kcarlton@directionaltech.com www.directionaltech.com	NA	25	25/6	DTI constructs, installs and designs horizontal remediation wells for environmental cleanup using horizontal directional drilling and proprietary horizontal remediation well design software		■							1) Horizontal well layout design, horizontal well screen engineering 2) Installation of horizontal remediation wells for numerous remedial applications including air/oxygen/ozone sparge, SVE, MPE, ISCO injection, etc. 3) Woman-owned small business 4) Proprietary horizontal remediation well design software 5) Serves entire state
<b>Environmental Drilling Service Inc.</b> 4712 Old Winter Garden Rd. Orlando, FL 32811 (407) 295-3532 Fax: (407) 296-3957 Doug Leonhardt, President doug@edsenvironmental.com Carl Leonhardt, Vice President carl@edsenvironmental.com www.edsenvironmental.com	NA	30	14/14	Full-size sonic (20' stroke), mini sonic, DPT, HS auger, mud/air rotary drilling, sampling and well installation	■	■		■	■	■			1) Full service contract drilling firm offering environmental, geotechnical, exploratory and infrastructure drilling 2) NA 3) NA 4) NA 5) Serves entire state
<b>Enviroprobe Service Inc.</b> 1717 SW 1st Way, Suite 15 Deerfield Beach, FL 33441 1-800-596-7472 Fax: (856) 291-6509 Tim Gallagher, President info.enviroprobe@gmail.com www.enviroprobe.com	0.927	43	17/2	Geoprobe, monitoring well installation, remote access drilling, SPT, ground penetrating radar (GPR), borehole geophysics, packer testing, private utility locating (UMO)	■	■		■	■				1) GPR, Geophysical services, private utility markout 2) We provide both Geoprobe and GPR services so that you only need to schedule one subcontractor 3) SBE 4) NA 5) Serves entire state
<b>Groundwater Protection</b> 2300 Silver Star Rd. Orlando, FL 32804 (407) 426-7885 Fax: (407) 206-0856 Brian Shutts, Owner brian@drillprollc.com www.groundwaterprotection.com	0.73	33	32/32	Monitoring and remediation well installation; injection and well abandonment services; horizontal well installation. Auger, DPT, Sonic, angle drilling	■	■		■	■				1) Remediation systems, injection 2) Sonic, difficult access/low clearance angled wells 3) Certified small business, FL Water Well Contractor, NC/SC Water Well Contractor, Bonded in GA 4) Well abandonment 5) Serves entire state and Southeast U.S.
<b>Huss Drilling Inc.</b> 35920 State Road 52 Dade City, FL 33525 (352) 567-9500 Fax: (352) 567-6646 RJ Huss rj@hussdrilling.com www.hussdrilling.com	0.74	29	31/31	Environmental, geotechnical, exploration deep wire line coring and water resource drilling services	■	■		■	■	■			1) Well rehabilitation 2) Environmental, geotechnical and exploration drilling 3) NA 4) ATV rigs, truck mtd. and track mtd. 5) Serves entire state, GA, AL and SC
<b>JAEE Environmental Services Inc.</b> 3010 Peachtree Cir. Davie, FL 33328 (954) 476-8333 Fax: (954) 476-8347 Willie Smitherman, President jaee@bellsouth.net www.jaeeenv.com	0.96	28	14/14	Soil and groundwater sampling, installation of monitoring wells, well abandonment, bioremediation injection	■					■			1) Bio-injecting, well abandonment 2) Sampling using Geoprobe equipment 3) Water well contractor 4) NA 5) Serves entire state
<b>National Env. Technology Inc.</b> 12435 Jess Walden Rd. Dover, FL 33527 (813) 655-3612 Fax: (813) 655-3652 Ross Chinander, President netross@tampabay.rr.com www.netdrilling.com	0.88	26	6/6	Environmental and geotechnical drilling, and direct push services	■	■				■			1) NA 2) Geotechnical and environmental drilling and dewateringservices 3) NA 4) Limited access equipment 5) Serves entire state
<b>Preferred Drilling Solutions Inc.</b> 8820 66th St. N. Pinellas park, FL 33782 (727) 561-7477 Fax: (727) 561-9028 Chad Campbell, President chad@pdsflorida.com www.pdsflorida.com	0.86	18	62/62	Environmental drilling, direct push and remediation services. Statewide service with locations in Pinellas Park, Lakeland, Live Oak and Milton	■	■		■	■				1) Remediation services 2) Environmental services provider with focus on safety, quality and service 3) NA 4) NA 5) Serves entire state
<b>Terracon Consultants Inc.</b> 1675 Lee Rd. Winter Park, FL 32789 (407) 740-6110 Fax: (407) 740-6112 Erik Bluemke, Drilling Department Manager erik.bluemke@terracon.com www.terracon.com	.066	54	4,560/321	Terracon is a 100 percent employee-owned consulting engineering firm providing multidiscipline services in environmental, geotechnical, construction materials testing and facilities architecture	■	■			■	■	■		1) Solid-stem augers, hollow-stem augers, odex, rock coring (NQ, HQ and PQ), rotary (air, mud, wash), casing advance (N&H) and down-hole hammer 2) Conventional field drilling and sampling methods as well as in-situ testing methods combined with geophysical investigations 3) NA 4) NA 5) Serves entire state from 11 offices
<b>Universal Engineering Sciences Inc.</b> 3532 Maggie Blvd. Orlando, FL 32811 (407) 423-0504 Fax: (407) 423-3106 Rich Carman, Corp. Director of Env. Services (407) 423-0504 rcarman@universalengineering.com www.universalengineering.com	1.26	55	802	Drilling, engineering design & consulting, code compliance plan review & inspection, materials testing/quality assurance, site assessment & remediation	■				■	■			1) Haz materials assessment & remediation, sinkhole assessment & remediation 2) Geotechnical engineering & testing, soil borings, monitor wells 3) NA 4) Drilling crews are 40-hour HAZWOPER trained 5) Serves entire state from 15 offices
<b>Walker-Hill Environmental Inc.</b> 5983 Commerce Road Milton, FL 32583 (850) 564-1876 Chris Hayslip, Direct Image Manager chris@whenv.com www.whenv.com	NA	30	60/12	Environmental drilling and remediation services	■	■		■	■	■			1) NA 2) Environmental drilling and remediation services 3) NA 4) MIHPT, OIP, LIF 5) Serves Northeast and Northwest Florida

# Corps, Riverkeeper continue battle over St. Johns dredging project

By **BLANCHE HARDY, PG**

Federal District Judge Marcia Morales Howard is allowing the St. Johns Riverkeeper and the U.S. Army Corps of Engineers to present arguments regarding whether the corps' flooding analysis of Charleston, SC, can be admitted as evidence in the Riverkeeper's lawsuit to block the deepening of Jacksonville's shipping channel.

The \$484 million, 11-mile-long project to deepen the shipping channel to from 40 to 47 feet deep continues to creep forward.

The judge is allowing the parties to argue the point in legal filings before making a final determination. If the Charleston report is admitted, the judge will have to determine if the flooding analysis conducted by the corps for the Jacksonville project is flawed.

"According to the U.S. Army Corps of Engineers, water levels in the St. Johns River may increase up to 12 percent dur-

ing 'high frequency' storms as a result of deepening the channel from its current depth of 40 feet to 47 feet," said Lisa Rinaman, the St. Johns Riverkeeper. "In addition, storm surge height is projected to increase by as much as eight or nine inches in parts of the river.

"Remarkably, the corps determined that increase was insignificant and continues to downplay the potential risk from higher water levels and storm surge without providing detailed information to support this illogical conclusion."

The Riverkeeper organization believes the corps failed to adequately access how deepening the St. Johns River from 40 to 47 feet could impact flooding in Jacksonville during major storms and that a study comparable to the Charleston study would show the flaws.

"Increases in water levels and storm surge would put our public infrastructure, businesses and homes—and the health of our river and our families—at greater risk

from flooding and pollution," Rinaman said.

When widespread flooding occurs, floodwaters can cause sewer systems to back up and sewage to be discharged into nearby streets and waterways, she noted.

"Flood waters also often flush chemicals and contaminants from roads, parking lots and industrial and hazardous waste sites into surrounding neighborhoods and our river, creating additional health hazards," she said.

A 2016 storm surge in Charleston during execution of the corps' port dredging project there resulted in additional flooding. The more refined analysis of the project's potential impacts was reported in a corps Phase II analysis.

"In Charleston, the corps projected that the maximum increases in storm surge caused by the Charleston Harbor deepening are 0.1 feet or less," she said.

However, the corps decided based on this projection that a Phase II study was warranted to "avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative."

In Jacksonville, the corps did not conduct a Phase II study despite the fact that

the corps projected storm surge height to increase by as much as eight or nine inches in parts of the river.

"A Phase II study would allow the corps to better determine the potential impacts of the project on storm surge water levels in the estuary and the impact of that increase," Rinaman added.

St. Johns Riverkeeper noted that the Jacksonville City Council asked the corps if the deep dredge would undermine public infrastructure in 2014. The corps said that they did not know, that more study was needed.

"Unfortunately, that much needed, additional study has not been conducted to date," Rinaman said. "Meanwhile, the corps has recently begun a new \$3 million study of the flood risks on the Charleston peninsula, an effort that will identify vulnerabilities to public infrastructure and could bring federal dollars for infrastructure improvements."

That study could be significant.

By not recognizing the increased risk of rising waters resulting from the St. Johns deep dredge, the corps is not only jeopardizing public infrastructure, she said, but is undermining the city's ability to compete with other areas that are working to become more resilient.

A decision on the matter is expected to be made soon.

## Partners take next steps in Port Tampa Bay evolution

By **BLANCHE HARDY, PG**

Officials with Port Tampa Bay, the Florida Department of Transportation, the U.S. Army Corps of Engineers, Tampa Electric Co. and Mosaic Co. are partnering on an ambitious joint venture to complete work on major expansion of the Tampa Harbor Big Bend Channel.

The channel is in the upper east portion of Tampa Bay and is part of the Tampa Harbor navigation system.

Great Lakes Dredge & Docks Co. was recently awarded a \$47.9 million corps contract to deepen and expand the channel.

The project will deepen the 34-foot channel up to nine feet to between 41 and 43 feet, widen the channel entrance from 200 to 250 feet over 1.9 miles and expand the existing turning basin to 1,200 feet.

The corps estimates the total project cost at roughly \$79 million.

It is one of the largest projects ever undertaken at the port.

The improvements will allow larger vessels to dock along the channel and ease the movement of goods through the port, which is Florida's largest seaport based on both tonnage and land area.

Once the project is complete, operation and maintenance of the federal channel will be the responsibility of the federal government in perpetuity.

While the project's engineering aspects fascinate, the history of the port's development is equally interesting according to Brad Massey, PhD, the Saunders Foundation's curator of public history at the Tampa Bay History Center.

It all started in the southeastern corner of the Interbay Peninsula in the 1880s when the corps dredged a 19-foot deep, 240-foot wide channel.

Henry Plant's railroad extended to the port launching the region into the Second Industrial Revolution, from 1870 to 1914.

Ships entering the port were steam-powered, carrying passengers and goods from the port to Key West, Havana and other distant ports of call.

Expansion of the port was inevitable and Tampa proper wanted in.

To accommodate the city, the federal government created a narrow eight-foot channel in and around the lower Hillsborough River in the mid-1880s.

Dredging south of Tampa proper began in earnest in the early 1900s with a \$350,000 congressional appropriation. The first channel was 20 feet deep and 300 feet wide.

The channel has been repeatedly deepened, widened and lengthened.

Tampa's port became a ship-building center during both world wars.

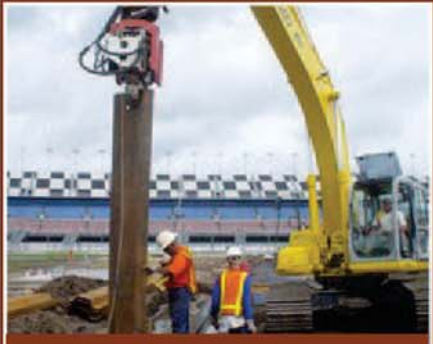
In 1944, the shipyard employed 16,000 workers. The Tampa Shipbuilding Co. built

76 naval vessels during World War II.


By the 1970s, it was 43-foot-deep and able to accommodate the port's growing modern commodity, cruise ships.

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# Solar industry job growth down slightly nationwide, up in Florida

By ROY LAUGHLIN

Jobs in Florida's solar power sector increased by 21 percent in 2018. It now employs 10,358 people in sub-sectors that include product development, manufacturing, and installation and maintenance.

Florida's solar energy employment trend is bucking the national trend. Nationwide, solar power sector employment was down by eight percent in 2018.

These numbers come from the Solar Institute and its National Solar Jobs Census, 2018.

Florida's solar energy sector shone brightly in 2018 for several reasons.

First, Florida clarified state policy on solar leasing. Solar leasing allows a third party to install solar power equipment on private property, either a home or a business, retain ownership of it, then lease it to the property owner.

The power generated by this system may be used only on the property where it is installed because Florida is one of only a few states that still gives franchise power companies monopoly privileges to distribute and sell electricity.

Since Florida's modest inroad on franchise monopoly privilege, solar equipment

leasing increased solar voltaic cell installations on residential property by 62 percent during the first three quarters of 2018 compared to comparable three quarters in 2017.

An overheated residential construction sector was also a contributing factor.

Florida's residential solar power sector was the largest contributor to 2018's 21 percent employment increase.

Another reason Florida's solar energy industry increased was that franchise electricity generating companies are building solar energy generating farms. Orlando Utilities Commission, Florida Power & Light Co. and JEA are among those that announced significant photovoltaic installation construction in the past year.

The electricity produced is sent to the power companies' electrical grid for sale.

In spite of import tariffs, photovoltaic generation is still competitive with fossil fuel generation and its costs are fixed. Solar fuel prices do not yo-yo on a daily basis.

Florida also has a growing solar energy manufacturing sector. In late 2018, JinkoSolar's Jacksonville plant reached full operation. The plant's capacity is equivalent to more than a million solar panels per year.

As of early 2019, JinkoSolar's U.S. sales are buoyed by several big orders that will keep the plant in operation through the year. The plant employs about 200 people.

The Florida solar industry ranks second nationally behind California's 76,838 jobs, and just ahead of Massachusetts, which has 10,210 jobs, and Texas with 9,612 jobs.

Across the nation, solar power employment was down 3.2 percent in 2018, which translates to 8,000 solar jobs out of 242,000 nationwide.

Aggregate employment figures skew one significant trend. Although states with large established solar markets are showing declines, more than half of the states experienced solar job growth in 2018. Florida was one of those states.

The National Solar Jobs Census 2018 described three factors that negatively influence employment and growth of the U.S. solar industry.

The first is uncertainty over a Section 201 trade case, affecting larger utility scale installations.

The second is the hodgepodge of state policies regulating the solar power industry. Florida's recent policy change to allow leasing is an example of how a simple change can expand solar power employ-

ment.

Most significantly, President Trump's tariffs threw shade on the U.S. solar power enterprise. Trump imposed tariffs to increase American jobs in the coal industry.

During the Trump administration's first two years, coal field employment has increased by 3,700 jobs. However, total coal mining jobs nationwide now stand at 53,200, compared to 242,000 solar jobs across the U.S.

Florida's solar power industry will likely have another good year in 2019.

The Solar Energy Industries Association reported that on-site solar panels now power 252,597 Florida homes. But that equals just 1.07 percent of the state's electricity produced by solar energy.

SEIA projects Florida to move from eighth to second in its five-year growth projection.

Solar power use could expand dramatically if the state revises its policy of monopoly privileges. Those exclude opportunities for solar power on multi-tenant commercial properties and multifamily residential buildings.

The recent good news for Florida shows that the solar power industry has an important place in this state, and its expansion could benefit Floridians much, much more.



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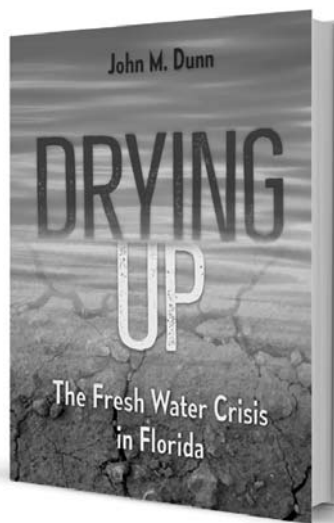
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## Stuart addressing drinking water issues

By PRAKASH GANDHI

Officials in the city of Stuart embarked on a major project to improve the city's drinking water supply.

In a bid to make its drinking water safer, the city is borrowing \$2 million to cover the cost of installing a perfluorinated chemical treatment system at its water treatment facility.

"Through the process, we are providing the cleanest, safest drinking water that we can," said city spokesperson Ben Hogarth.

The system, which will begin operations this summer, will help remove various chemicals from the water supply. Two years ago, the U.S. Environmental Protection Agency detected high levels of the chemicals in city drinking water wells—wells that are now closed.

The suspected contamination source was fire-fighting foam used during training sessions that seeped into the ground and affected the water.

"Our firefighters have been using these foams in putting out fires and also in training," said Hogarth. "We found we had a significant contamination at the public safety complex."

City officials investigated the cause and conducted tests, finding elevated levels of the perfluorooctanesulfonic acid and perfluorooctanoic acid, Hogarth said.

"There are hundreds if not thousands of locations around the county that have found this type of contamination so it's not uncommon," Hogarth said. "But it's a very complex issue."

Water tested in 2015 showed high levels of the chemicals once used to make nonstick pans, fire-fighting foam and stain-resistant fabrics.

In 2016, the city closed and replaced three of the 24 wells that were contaminating the water supply.

Since 2016, the city's water contamination has remained below federal guideline level of 70 parts per trillion. The new treatment system will remove even more of the contaminants.

Hogarth said the city will spend about \$2.1 million and is in litigation to recover the money. Construction on the system started in January and should be completed by June.

The city is also working with the Florida Department of Environmental Protection and EPA on contamination cleanup at the public safety complex.

“Water is the top issue for Florida's future, and *Drying Up* is a must-read primer.

—CRAIG PITTMAN  
author of *The Scent of Scandal*

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# Residential wells near Saufley Field contaminated with perfluorooctanoic compounds

By ROY LAUGHLIN

In late February, U.S. Navy officials began distributing bottled water to some households on the west side of Saufley Field in Pensacola.

Drinking water analysis showed that their potable well water's concentration of perfluorooctanoic compounds exceeded 70 parts per trillion, the U.S. Environmental Protection Agency's current drinking water health advisory level for the compounds.

The Navy used PFOC-based fire-fighting foams for decades at its air bases, making its activities the likely source of the groundwater contamination.

The U.S. Department of Defense is now conducting nationwide surveys at and near its bases to characterize soil and groundwater contamination around its present and former military facilities.

The Navy has been investigating adjacent property drinking water wells around three of its Pensacola facilities.

North of Naval Air Station Pensacola's runway and base, the survey sampled 10 wells and all had PFOC below 70 parts per trillion.

The Navy also tested drinking water wells within a mile of Corry Station, one of the oldest military airfields in the state.

At one well within a mile of it, PFOC was detected. But the well is not used for potable supply as the residence is connected to a public water supply.

The primary area of interest now is the Navy's Saufley Field. It has residences

outside both its west and east borders. The Navy has sampled 20 wells on the airfield's west side.

According to Sue Brink, NAVFAC Southeast public affairs officer, the analyses showed 13 wells contained PFOC levels above 70 parts per trillion and five wells had detections below that level. Two wells had "not detected" levels.

There may be as many as 30 more west side residents with wells supplying their homes who have not responded to Navy letters and personal contact seeking permission to test wells on their property.

On Saufley Field's east side, the Navy sampled 30 wells. None had PFOC exceeding 70 parts per trillion. Twenty-three had detectable levels below 70 parts per trillion and seven had "not detected" levels.

Brink said that the Navy is providing bottled drinking water to households whose wells are contaminated by PFOC above 70 parts per trillion.

She said that they will continue to receive bottled water until the Navy decides how it will further address the water needs of households with contaminated potable water wells.

She said that extension of public supply lines to the residences is one possible solution to meet the residents' needs.

The Navy began sampling water wells around Saufley Field in January, 2019.

Navy officials described the study at this time as "preliminary," including his-

torical research, interviews and limited sampling.

Local news accounts noted that the Navy had sent out letters to residents close to the base advising of the study and asking the residents to allow water testing.

The Department of Defense has been sampling groundwater and drinking water from wells on and near its bases over the past two years.

That sampling effort focused heavily but not exclusively on public supply water wells, and wells supplying military

bases.

There were a large number of positive PFOC samples, many of which exceeded the 70 parts per trillion EPA voluntary health advisory level for drinking water.

Since then, the DOD has broadened its sampling effort to include private potable water wells.

Sampling private wells will be time-consuming because owner permission is required, and the number of private residential potable water wells around military bases is orders of magnitude more than the public supply wells on or near the bases.

## Novel approach could help improve water quality entering Everglades

By BLANCHE HARDY, PG

Bill Mitsch, PhD, a Florida Gulf Coast University environmental science professor, believes he may have developed a way for farmers to treat water entering the Everglades by flipping their fields between agriculture and wetlands in exchange for payment through government programs.

He calls the approach "wetlacture," wetlands plus agriculture.

Wetlacture proposes alternating wetlands and agriculture as a means of solving downstream nutrient-loading problems. Capturing nutrients in the wetlands would decrease the amount of fertilizers needed for farming by recycling the captured nutrients in situ.

The wetlacture business model proposes an approach under which farmers could make profits comparable to crop income if current or anticipated government subsidies, for example, a wetland reserve program or payment for ecosystem services, were coupled with environmental impact bonds sold to investors.

Mitsch and his colleagues are beginning a multi-year, multi-site engineering research project to investigate a landscape-scale approach that integrates wetland retention of nutrients from stormwater and polluted river water fluxes with a mechanism to return those nutrients to agricultural production.

The approach would decrease downstream eutrophication including harmful algal blooms and hypoxia, while reducing the requirements of additional fertilization for agricultural or horticultural production.

To achieve carbon sequestration on a scale of positive impact, Mitsch proposes establishing a significant increase in strategically located wetland resources internationally to reverse the global diminishing wetland trend.

The wetlands would then be used to capture excess nutrients such as phosphorus and nitrogen.

Mitsch noted examples including "minimizing phosphorus inflows to the Florida Everglades and Lake Erie in the Laurentian Great Lakes and reducing nitrogen inflows by wetlands and riparian forests in (the Midwest) to reduce seasonal hypoxia in the northern Gulf of Mexico."

The group has established three physical models comprised of sets of twenty-eight one-mile-square mesocosms. Two of the models are in temperate Ohio and one is in Freedom Park in Collier County.

The projects include installation of a fenced compound containing wetlands planted in mesocosm tubs in an array near phosphorus-contaminated water with a phosphorus concentration of 100 to 200 parts per billion.

Water would be fed into storage tanks then distributed to the mesocosm tubs through gravity flow. The effectiveness of various configurations of mesocosms would then be measured and modeled for project efficiency.

The researchers believe that by converting large portions of farms to wetlands within the area of the Everglades, nutrient-causing algal blooms may be reduced.

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## We must revisit Chapter 62-330 to fix a couple of last summer's mistakes

A Specifier opinion

This year opened with a laser focus on Florida's water resources—a focus that has not been part of the public consciousness since the mid-1990s when the Everglades lawsuit kept the issue front and center. This page of the *Specifier* includes an article characterizing how Gov. Ron DeSantis' budget proposal includes \$320 million in funding for sufficient clean water. The Legislature is proposing new measures and funding to ensure adequate progress to clean up the Everglades, springs around the state and the Indian River Lagoon.

All this activity will benefit Floridians if passed, but success will come more quickly and more affordably if the Legislature or governor reverses last summer's revisions to Chapter 62-330, Florida Administrative Code. Two revisions were the most damaging. The first is that Florida take over Clean Water Act Section 404 wetland dredge and fill permitting from the U.S. Army Corps of Engineers. The second is a Florida Department of Environmental Protection amendment to exempt wetlands less than five acres from environmental resource permit requirements.

Only two other states have taken over Section 404 permitting. We think Florida should stick with the other 48 states and let the federal government continue to exercise its important role in this permitting process.

Florida's prior administration butchered the DEP budget and decreased DEP staffing by over 800 people. Gov. DeSantis proposes to increase the budget and hire 120 additional staff this year—a good start for improving DEP's essential roles but insufficient for adequately handling the delegated Section 404 permitting duties. If the corps continued to handle these permitting activities, the state and its taxpayers would be well ahead both financially and environmentally.

Under negotiation now is which waters and wetlands will be turned over to Florida's delegated authority for Section 404 permitting. If the corps retains Section 404 permitting, it would allow an enlarged scope of federal comment on environmental impact statements from the U.S. Environmental Protection Agency and other federal agencies.

Through sophisticated engineering and economic analyses and public review, the National Environmental Policy Act review process ensures that large projects with interstate consequences are scientifically screened for their effects on water quantity and quality, the secondary effects of stimulated growth and the impacts upon species which might range beyond the affected region, noted the Florida Conservation Coalition in a June, 2018, letter to then-Gov. Rick Scott. Florida, with its history of large-scale phosphate mining, regionally extensive real estate developments and inefficiently planned public works projects, would be especially hard hit without these analyses, they wrote.

In spite of all the proposed programs and funding to combat harmful algal blooms and eutrophication, this concern remains valid to characterize the larger circumstances of Florida's water resource stewardship and wetland conservation.

Adequate funding for Florida's water stewardship is a major issue. But, as FCC noted in their letter, "Florida continuously maintains that new staffing would not be required and that 'multi-disciplinary centers' have been created to serve the assumption process. If so, this adds to our concern that state assumption will simply reiterate Florida's regulatory process, strengthening our unease regarding the failure of delegated programs in considering NEPA and ESA protections." Last year, FCC noted that DEP staff were spending less than an hour to review some environmental resource permits before hastily approving them. Handling Section 404 permits the same way is not going to help Floridians in any way.

A second provision of the revised rule 62-330.020 (d) is another time bomb. DEP amended the code by increasing the area exemption for environmental resource permits from one acre to five acres. This is a huge and ex-

pensive land give-away to the developers and agricultural interests that frequently received special privileges and treatment under the Scott administration. How can it benefit the public to eliminate government permit oversight on up to five acres?

There's no estimate of how many acres, in aggregate, this rule amendment would affect over time, but it would be huge. Wetlands are the functional units of nature's environmental housekeeping services that supply us with clean water. They don't seem useful until they're gone and the water that formerly filled them ends up contributing to a flood somewhere instead of recharging the aquifer below.

Some of the wetlands to be given away are characterized as "isolated wetlands." There is no such thing as a functionally isolated wetland in Florida. Some wetlands may seem horizontally isolated but none are isolated from

the aquifer below. And it is the aquifer that Floridians have always depended upon for their water. Wetlands across Florida are essential to its purity and supply.

Leaving Section 404 permitting in the capable hands of the corps and maintaining the state's environmental resource permit exemptions at one acre or less may seem like small details, particularly when considered on an annual basis. But over time, failure to fix just these two mistakes will increase the costs by multiples of the \$320 million Gov. DeSantis proposes to spend to reverse what is now broken with Florida's water stewardship. And best of all, there's no cost to the public to reverse last summer's changes to Chapter 62-330. If the Legislature chooses not to make the changes by statute this session, the governor should direct DEP to amend its rules.

Florida's wetlands are Florida's diamonds. They should be Florida's forever.

## DeSantis releases "bold" budget proposal for state environmental protection, restoration

By ROY LAUGHLIN

At his inauguration, Gov. Ron DeSantis announced his first-year priorities. One of those was the promise of more money for specific programs that address Florida's surface water eutrophication and harmful algal blooms. DeSantis dubbed his plan "Bold Vision—Brighter Future."

DeSantis proposed a \$1.872 billion budget for the Florida Department of Environmental Protection, up from last year's \$1.783 billion. The budget increase will fund up to 120 more positions within the department.

The details of some of his proposed state budget show "environment" applied to a broad range of state spending priorities but much of the increased spending targeted for water quality programs is a marked improvement over recent years' spending priorities.

### Restoration tops the list

The scope of the proposed environmental restoration program puts it at the top of the list. DeSantis proposed \$360 million for Everglades restoration projects.

The proposed funding, according to the governor's description, is sufficient to fund the completion of the C-44 reservoir and stormwater treatment area, the C-43 reservoir and 20 additional Everglades-related projects over the next 20 years.

The Everglades Agricultural Area reservoir project will receive \$107 million, which increases the annual spending by an additional \$43 million. When complete, the project will increase the water flow south to Everglades National Park by 900 million gallons a day.

Related to the Everglades budget was a recent request by both Florida U.S. senators and Gov. DeSantis for \$200 million from the federal government for Everglades projects.

### HABs, water quality and supply

Recent harmful algal blooms increased the focus on Florida's woefully lacking surface water stewardship. In response, DeSantis proposed spending \$25 million to combat the effects of the blooms. Of that total, \$10 million is earmarked for short term solutions and innovative technologies to address the impacts of algae blooms.

Another \$10.8 million would be spent to increase water quality monitoring, and support the Blue-Green Algae Task Force and a public information portal.

An additional \$4.2 million is recommended for the state Fish and Wildlife Conservation Commission's Algal Bloom Task Force to address red tide. Plus, \$1 million would be earmarked for the state Department of Health to study the long-term health impacts of both red tide and blue-green algae toxins.

DeSantis also proposed that the Legislature fund an alternative water supply program to the tune of \$40 million. That money could be used for conservation, reuse and alternative water supply project grants. It could also support identification of alternative water supply sources.

### Remediation, redevelopment

For the first time in eight years, soil and groundwater cleanup received prominent showcasing in the governor's budget. He recommended \$125 million for the cleanup of contaminated sites.

The footnote in the governor's description is cleanup "with a focus on encouraging redevelopment of those areas once cleanup has been completed ... (to) ensure new businesses and growing communities can safely develop in our economy and continue to grow."

The governor specifically recommended a \$110 million "investment" for petroleum storage tank cleanup, \$8.5 million for drycleaning solvent contamination cleanup, \$5.5 million for hazardous waste contaminated cleanup and \$600,000 for the cleanup of state-owned contaminated sites.

His budget also included an additional \$590,000 for

storage tank verification, the funding to come by ending local government cleanup contracting within DEP's Waste Management Division.

### Environmental enforcement

The governor budgeted \$1.992 million to establish an Environmental Law Enforcement Program within DEP. It will, according to media reports, draw resources and responsibility from the state Fish and Wildlife Conservation Commission and perhaps from the DEP's Office of Emergency Response, whose budget will be reduced by the amount proposed for the new enforcement program.

About \$2 million for environmental compliance may seem small, but it could improve compliance efforts at least enough to keep them from decreasing any more.

### Septic, wastewater and stormwater bills

Septic tank conversion programs and subsidies for those affected, increased state subsidies for sewage collection and wastewater treatment facilities are subject to the provisions of several filed bills.

At least nine filed bills address funding for remediation, operation requirements and capabilities of septic waste handling. Add in stormwater management, and the tally grows. Lawmakers want more effective wastewater treatment to keep nutrients out of surface and ground waters.

The most significant bill may be SB 1758, filed by Sen. Debbie Mayfield, R-Melbourne. It would transfer the septic tank program from the state Department of Health to the DEP. It would require local government to develop wastewater treatment plans that meet certain requirements and would not allow local governments to issue building permits until they have such a plan or a septic tank remediation plan.

Because Rep. Holly Raschein, R-Key Largo, filed a similar bill in the House, HB 1395, this bill has a better than usual chance of passage.

Over the past several years, anti-fracking bills have been defeated by dark political forces, those that cannot be seen but have enough mass to pull down bills widely supported by the public. In the related issue of offshore drilling, in February, both U.S. senators from Florida and Gov. DeSantis asked the Trump administration to close Florida's offshore continental shelf from expanded exploration—drilling the Trump administration promotes.

Lest the governor's list of proposed measures to address HAB and eutrophication give readers the impression that opponents of such government efforts have vanished from the Legislature, Senate Bill 92, stipulates that "the district (SFWMD) may not exercise eminent domain for the purpose of implementing the C-51 reservoir project."

That may not end the Everglades reservoir construction, but it will seriously decrease its effective capacity.

### Plastic waste, recycling

Environmental activists are pushing hard for laws to reduce or eliminate disposable plastic, especially in bags and food service products.

Five bills addressing disposable plastic products have been filed in the Senate this session. Three of them, SB 88, SB 588 and SB 502 have some degree of local government rule preemption, even if they establish restrictions on certain plastic materials and products that are already in some local governments' ordinances.

Plastic waste in the environment has been a growing issue, with local governments taking action while state lawmakers steered clear of the issue. This year, the Legislature may make its move—but there's a possibility that move would be to preempt local authority without reducing disposable plastic use.

This article was prepared in mid-March when the Legislature still had more than six weeks left to complete its work. Many of the bills mentioned here still have major hurdles to clear before they become law.

**Florida  
Specifier**

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Goldenrod, FL 32733

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Publisher/Editor  
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The *Florida Specifier* welcomes columns, articles and letters to the editor on any subject or issue pertinent to the environmental, regulatory and technical areas the newspaper covers. We reserve the right to edit all submissions for newspaper style and publish submissions on a space-available basis only. The opinions expressed on this page are those of the authors.

# Calendar

## April

APR. 8-11 – Course: Backflow Prevention Assembly Tester Training and Certification, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

APR. 9-11 – 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. 9 – Course: DEP SOPs for Water Sampling & Meter Testing, 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. 9-10 – Course: Introduction to Lift Station Electrical Troubleshooting, 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 – 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).

APR. 12-13 – Course: Backflow Prevention Recertification, Jacksonville, 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. 14-17 – Conference: 2019 Florida Water Resources Conference, Tampa, FL. Presented by the Florida Section of the American Water Works Association, the Florida Water Environment Association and the Florida Water and Pollution Control Operators Association. Call (407)363-7751 or visit [fwrc.org](http://fwrc.org).

APR. 15 – Workshop: FLMS April Workshop, Tallahassee, FL. Presented by the Florida Lake Management Society. Call (352) 434-5025 or visit [www.flms.net](http://www.flms.net).

APR. 15-17 – 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. 22 – Course: Asbestos: Project Design, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

APR. 23-25 – Course: Asbestos: Process Control of Advanced Waste Treatment Plants, 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. 23 – 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. 24 – 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. 24 – 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. 25-26 – Course: Backflow Prevention Recertification, Pensacola, 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. 27-28 – Course: Backflow Prevention Recertification, Tampa, 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. 29-May 3 – 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. 29-May 2 – Course: Backflow Prevention Assembly Tester Training and Certification, Marathon, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

APR. 30-May 1 – 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).

## May

MAY 2-3 – Course: Backflow Prevention Recertification, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

MAY 3-4 – Course: Backflow Prevention Recertification, Marathon, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

MAY 4-5 – Course: Backflow Prevention Recertification, Bradenton, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAY 4-12 – Course: Backflow Prevention Assembly Tester Training and Certification, Tampa, FL.

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

MAY 5-8 – Convention: AMEC National Convention and Legislative Summit, Washington DC. Presented by the American Council of Engineering Companies. Call (202) 347-7474 or visit [www.acec.org](http://www.acec.org).

MAY 6-10 – Course: Backflow Prevention Assembly Tester Training and Certification, Orlando, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAY 6-10 – Course: Backflow Prevention Assembly Tester Training and Certification, Pensacola, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAY 6-7 – Course: Backflow Prevention Recertification, 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).

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

MAY 7-10 – Course: Activated Sludge Process Control & Troubleshooting, 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).

MAY 7 – Course: Asbestos Refresher: Management Planner, Davie, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAY 7-9 – Conference: WasteExpo 2019, Las Vegas, NV. Visit [www.wasteexpo.com](http://www.wasteexpo.com).



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**Asbestos Refresher: Project Design**  
Apr. 22, 2019 | Gainesville, FL | CEUs: 0.8  
May 6, 2019 | Davie, FL | CEUs: 0.8

**Asbestos Refresher: Inspector**  
Apr. 23, 2019 | Gainesville, FL | CEUs: 0.4  
May 7, 2019 | Davie, FL | CEUs: 0.4

**Asbestos Refresher: Management Planner**  
Apr. 23, 2019 | Gainesville, FL | CEUs: 0.4  
May 7, 2019 | Davie, FL | CEUs: 0.4

**Asbestos Refresher: Contractor/Supervisor**  
Apr. 24, 2019 | Gainesville, FL | CEUs: 0.8  
May 8, 2019 | Davie, FL | CEUs: 0.8

### WATER & WASTEWATER COURSES

DEP SOPs for Water Sampling & Meter Testing  
Apr. 9, 2019 | Gainesville, FL | CEUs: 0.8

Introduction to DEP SOPs for Groundwater  
Apr. 10, 2019 | Gainesville, FL | CEUs: 0.4

Process Control of Advanced Waste Treatment Plants  
Apr. 23-25, 2019 | Gainesville, FL | CEUs: 2.1

Activated Sludge Process Control & Troubleshooting  
May 7-10, 2019 | Gainesville, FL | CEUs: 2.5

Microbiology of Activated Sludge  
May 14-16, 2019 | Gainesville, FL | CEUs: 2.2

Water Distribution Systems Operator Level 2&3  
Jun. 3-6, 2019 | Kissimmee, FL | CEUs: 3.2

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Jun. 25-27, 2019 | Gainesville, FL | CEUs: 2.0

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Water Distribution Systems Level 2 & 3 - Online  
| CEUs: 4.0

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May 4-12, 2019 | Tampa, FL\*  
May 6-10, 2019 | Orlando, FL  
May 6-10, 2019 | Pensacola, FL  
Jun. 3-7, 2019 | Gainesville, FL  
Jun. 8-16, 2019 | Tampa, FL\*  
Jun. 10-13, 2019 | Jacksonville, FL

\*Two consecutive Sat. & Sun.  
\*\*Two consecutive Fri. & Sat.

**Backflow Prevention Assembly Repair and Maintenance Training & Certification**

Apr. 1-3, 2019 | Gainesville, FL  
Apr. 15-17, 2019 | Altamonte Springs, FL  
May 24-25, 2019 | Venice, FL  
Jun. 5-7, 2019 | Orlando, FL  
Jun. 10-12, 2019 | Gainesville, FL

**Backflow Prevention Recertification**

Apr. 25-26, 2019 | Pensacola, FL  
Apr. 27-28, 2019 | Tampa, FL  
May 2-3, 2019 | Gainesville, FL  
May 3-4, 2019 | Marathon, FL  
May 6-7, 2019 | Destin, FL  
May 9-10, 2019 | West Palm Beach, FL  
May 30-31, 2019 | Pensacola, FL  
Jun. 1-2, 2019 | Tampa, FL  
Jun. 3-4, 2019 | Orlando, FL

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# Robotic sailboat cruises Lake Okeechobee monitoring water quality

By ROY LAUGHLIN

Navocean's remote controlled sailboat, *Vela*, was back in Florida waters again this winter. This time, it cruised Lake Okeechobee in a pilot study intended to demonstrate how a mobile, remote sensing platform can contribute to algal bloom surveillance in fresh waters.

Scott Duncan, president of Navocean Inc., and scientist Jordon Beckler, PhD, of Florida Atlantic University's Harbor Branch Oceanographic Institution, are collaborators on the Lake Okeechobee pilot study.

The pair conducted three *Vela* cruises in February, lasting from just two days to eight days.

During the first several days, the *Vela* circled Lake Okeechobee's mid-lake LD 40 stationary instrument platform. Last summer, Harbor Branch scientists installed a SeaPRISM light spectrum sensor on the platform.

SeaPRISM is a sophisticated NASA-developed spectral sensor used in remote sensing satellites. It measures narrow wavelength ranges of reflected light, which human vision sees as colors, that can indicate an algal bloom.

Specific wavelengths and combina-

tions of wavelengths of reflected light are characteristic of the different variants of chlorophyll and other plant pigments, and can therefore indicate the species of algae causing an algal bloom.

For example, using data from a wavelength sensor, scientists can accurately differentiate between an emerald green cyanobacteria bloom from a brown dinoflagellate algal bloom.

The initial two-day Lake O cruise indicated a useful correlation between *Vela*'s optical sensors and SeaPRISM's sensors placed last summer.

Data from a *Vela* transect could be accurately compared with that obtained from a satellite image of the whole lake within the same time frame.

"Satellite measurements have excellent advantages as well, but there are no definitive substitutes for sustained, in-situ measurements on the water, especially in such an optically complex, tannin-rich environment," said Beckler.

"We hope this vehicle proves to be a valuable tool in detecting the emergence and patterns in the *Microcystis* blooms along with satellite remote sensing and other optical techniques, which will together, in turn, allow us to better understand HAB behavior to ultimately protect

public health and the Florida economy," he said.

Once the *Vela* had completed its initial few days of cruises around the SeaPRISM, it cruised more extensively around the lake gathering data on an eight-day continuous cruise.

That cruise followed a star-shaped pattern centered on LD 40 with about a 25 kilometer distance between each point on the star-shaped track. *Vela* took measurements every few minutes and sent them to a ground station by satellite telemetry for storage and analysis.

"The pilot cruise was certainly successful," said Duncan. "We did get data that we were hoping for."

The spectral data identified an algal bloom that independent grab sampling indicated was the cyanobacteria *Anabaena*. *Anabaena* may cause neurotoxicity symptoms in humans that consume shell fish that have eaten the cyanobacteria.

The Okeechobee pilot cruises, according to Duncan, showcased the ability of the robotic sailboat to make "a long term array of mobile observations."

*Vela* is a six-and-a-half-foot long remote-controlled sloop-rigged sailboat built for oceanographic surveillance. It is now being tested for similar limnology obser-

vations.

It weighs 85 pounds before any instruments are installed.

When the wind blows, *Vela*, depends on it for propulsion. During calms, *Vela* moves with an electric drive powered by a photovoltaically recharged battery.

Whether under sail or power, the boat has a speed of up to three miles an hour.

For the Lake Okeechobee study, the *Vela* was outfitted with a scatterometer to improve plant pigment spectral measurements and a fluorimeter. The fluorimeter helps distinguish between chlorophyll, colored dissolved organic matter and phycocyanin.

These molecules may reflect light of similar wavelengths, but are distinguished from one another more easily by fluorescent emissions of light.

NavSea engineers also repositioned the *Vela*'s conductivity meter so that it would give more reliable measurements for conductivity-temperature in freshwater.

In preparation for the Lake Okeechobee cruises, Harbor Branch scientists took the *Vela* for a couple of days of preparatory cruising in the Banana River Lagoon about 10 miles south of Cape Canaveral.

In spite of a favorable weather forecast for the day, a rapidly deepening low-pressure system produced winds above 40 miles per hour that afternoon.

*Vela*'s wind sensor identified a 54 mile-per-hour gust, which the sailboat's on-board navigation system competently sailed through.

Before the end of March, scientists will do one more set of cruises, this time in Florida Bay, to further illustrate *Vela*'s oceanographic and navigation capabilities in variably shallow water.

For that cruise, the *Vela* will also carry an acoustic sensor for assessing hypoxic sediments. Algal blooms often cause hypoxia to occur in very shallow levels of sediments.

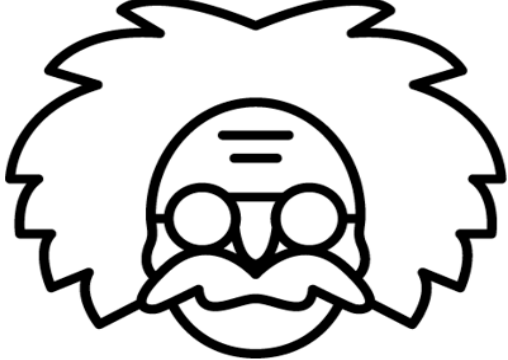
Data from the Lake Okeechobee and Banana River cruises was sent to NOAA's Gulf AUV Network and Data Archiving Long-term Storage Facility. It's available for public viewing online.

Duncan said that Navocean has been working on autonomous and remote-controlled sailboats to serve as special mobile drone platforms for oceanographic and limnology research.


He's hoping that his company's boats will be part of "some pretty big initiatives" focusing on excess primary productivity and water quality.

The platform itself seems to be at least as far along as self-driving cars. So, maybe a sailing drone with bright orange sails will soon be cruising off the coast taking water quality measurements near some *Specifier* readers.

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## Duke to install more solar capacity

Staff report

Duke Energy Florida announced the locations of its newest solar power plants.

Their Lake Placid Solar Power Plant will be built on 380 acres in Highlands County. The 45-megawatt plant will consist of approximately 180,000 tracking solar panels and is expected to be in service in December, 2019.

The Trenton Solar Power Plant will occupy about 580 acres in Gilchrist County. The 74.9-MW plant will consist of approximately 280,000 tracking solar panels that will produce enough energy to power over 23,000 average homes at peak production.

The DeBary Solar Power Plant will be built on about 445 acres in Volusia County. The 74.5-MW plant will consist of approximately 300,000 fixed-tilt solar panels and is expected to be in service in March 2020.

The three solar plants are expected to eliminate nearly 800 million pounds of carbon dioxide emissions in Florida each year upon commercial operation.

**FEDFILE**  
From Page 2

**Water reuse action plan.** In late February, EPA announced that it has developed a water reuse action plan that “will leverage the expertise of both industry and government to ensure the effective use of the nation’s water resources.”

Following what the agency characterized as a summit in San Francisco between industry experts and EPA leadership, the press release promised a Water Reuse Action Plan that will foster water reuse as a component of integrated water resource management that EPA promised.

A draft of the plan will be released in September for review at the annual WaterReuse Symposium in San Diego.

What this appears to tacitly endorse is WaterReuse’s assertive efforts on behalf of its industry and consulting members to widely implement potable water reuse.

The EPA press release noted that the agency supports development as outlined in the 2017 Potable Reuse Compendium and 2012 Guidelines for Water Reuse.

The EPA’s announcement is quite muddled as it combines references to “water reuse,” “potable water reuse” and “water recycling.”

The topics to be considered in the proposed plan include technical improvements including development, piloting, validation and data consideration; regulatory/policy analysis at all levels of government, including health considerations and addressing barriers to progress; financial incentives including the expansion and clarity of available funding mechanisms; performance requirements, including efforts to ensure the quality of reuse water as appropriate for the intended purpose; access to water use and availability data including watershed-based information sharing; and outreach opportunities including efforts to ensure public understanding of reuse water as part of integrated water management.

This plan seems to be driven by EPA advisory boards now dominated by industry representatives such as those who have formed the WaterReuse association, an organization composed of consultants and technology providers.

**EPA’s take on enforcement accomplishments.** The EPA press office recently highlighted the agency’s 2018 environmental enforcement accomplishments.

Those include actions resulting in defendant commitments to treat, minimize or properly dispose of more than an estimated 540 million pounds of waste; commitments to reduce, treat or eliminate 260 million pounds of emissions to air and water; commitments to clean up 244 million cubic yards of contaminated soil and water; commitments to block illegal importation of approximately 2,200 vehicles and engines that do not comply with EPA emission standards; 140 enforcement actions that led to lead paint exposure abatement; commitments by “out-of-compliance parties” to spend up to \$4 billion to achieve compliance; cleanup and redevelopment at 150 Superfund sites; and, finally, a total of 733 years of incarceration for individual criminal defendants.

In 2018, the agency established national compliance initiatives consistent with objectives from the EPA strategic plan.

The agency noted that, in 2018, it made a priority of reducing childhood exposure to lead, and gives those efforts special focus in its release.

**Coal ash contaminants nationwide.** Toxic coal ash constituents contaminate groundwater around 91 percent of U.S. coal-fired power plants for which well monitoring data have been reported under a 2015 rule.

Groundwater near 242 of 265 U.S. power plants’ coal ash impoundments that provided monitoring data to EPA contained unsafe contaminant levels typical of coal ash including arsenic, lithium, boron, beryllium, thallium, molybdenum, chromium, selenium and others.

Sulfate levels were also reported to be

high, >500 mg/L, around 145 coal-fired plants, 55 percent of those sampled.

The reporting data that was analyzed encompasses 4,600 groundwater monitoring wells around the ash dumps of 265 coal power plants. The report’s authors estimated that the data set characterizes three quarters of all U.S. coal power plants.

Those plants without data were not required to monitor because either they closed their ash impoundments before the rule went into effect in 2015 or they obtained an extension.

The majority of the 265 coal plants reported that at least four toxic contaminants from coal ash were in the groundwater analyzed. Half had unsafe levels of arsenic, and 60 percent had unsafe levels of lithium, the most prevalent groundwater contaminant from coal ash in the wells sampled. Boron was present 48 percent of the samples and molybdenum was present in 50 percent. The majority of contaminants were metals.

The report noted that less than five percent of coal ash impoundments assessed by the analysis had waterproof liners to prevent leaking.

The data reported are for monitoring wells on power company property. Neither the federal government nor the power companies are required to monitor off-site wells.

Where off-property wells were tested, particularly private residential potable drinking water wells, contamination by coal ash contaminants has been routinely found in well water.

The report was a collaborative effort between the Environmental Integrity Project and EarthJustice.

**EPA releases proposed budget.** The EPA released a proposed fiscal year 2020 budget. According to a press release, the budget highlights include investment in water infrastructure, support for healthier schools, regulatory and permitting reforms, optimizing cleanup efforts at the nation’s most complex hazardous waste sites, and strengthening protections from toxic chemicals.

For FY 2020, investments in water infrastructure will be implemented through providing an additional \$1.98 billion to state revolving funds. The Water Infrastructure Finance and Innovation Act program is slated to receive another \$25 million.

The EPA also proposed \$83 million to fund the recent America’s Water Infrastructure Act. Noting that there are 50 million K-12 American schoolchildren, the budget proposed \$50 million in grants to help schools identify and resolve contaminant exposure hazards.

Regulatory and permitting reforms will focus on helping states and local governments understand and implement new rulemaking particularly for the Waters of the U.S. Rule and the 2015 Clean Power Plan, both of which the Trump administration has promised to extensively revise.

The Superfund account will receive \$1 billion for optimizing cleanup efforts. The EPA intends to act to produce “significant progress identifying impediments to clean up at sites with significant exposure risks and develop action plans to overcome those impediments.”

Finding prospective purchasers, developers and responsible parties to bring more private funding to redevelopment is also an EPA priority this year.

EPA will also have to provide additional funding to implement the Lautenberg Act, which requires the agency to formally evaluate existing chemicals that may pose unreasonable risks.

For those posing risks, the EPA must take immediate steps to protect human health and the environment.

The EPA’s proposed 2020 budget total is \$6.1 billion, about a third less than it was in the current year and 2018.

“This common sense budget proposal would support the agency as it continues to work with states, tribes and local governments to protect human health and the environment,” said EPA Administrator Andrew Wheeler.

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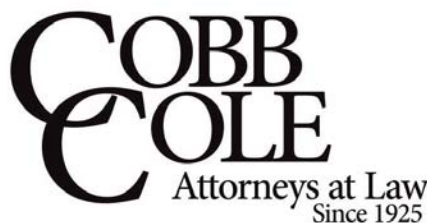


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**CHIEF**

From Page 1

leadership support. DeSantis has expressed his commitment to protecting and restoring Florida's environment, allocating \$625 million in his 2019-2020 budget proposal and \$2.5 billion over the next four years for Everglades restoration and water resource protection.

Valenstein returned to the department under the previous administration with nearly 15 years of public service experience with government agencies.

He previously served as executive director of the Suwannee River Water Management District.

His background also includes working on environmental, agricultural and energy issues in the Executive Office of the Governor and Florida House of Representatives, as well as with several of Florida's leading environmental nonprofit organizations.

The appointment has the support of environmental advocates including the Everglades Foundation, the Sierra Club Florida and the Audubon Florida.

"We applaud Gov. DeSantis' decision to reappoint Noah Valenstein to this crucial position," said Eric Eikenberg, CEO of The Everglades Foundation. "Sec. Valenstein understands the critical link between cleaning up our water and the economic viability of our state."

"With Gov. DeSantis' transformative and bold leadership, Sec. Valenstein's long-standing commitment to Florida's natural resources will deliver tangible results for Florida's waterways."

DEP noted that the newly reappointed director has a strong belief in the power of partnerships and a focus on building relationships between diverse groups of stakeholders, including environmental and agricultural groups as well as local communities and businesses.

He is also noted for resolving issues related to climate change and for effectively dealing with Florida's recent devastating algal blooms.

"This is a great move by Gov. DeSantis for Florida's environment," said Julie Wraithmell, executive director of Audubon Florida. "Sec. Valenstein is a Florida-grown conservationist and has the experience with the science and politics of

**PFAS**

From Page 1

press conferences focused on setting the MCL and the time frame for doing so. Wheeler said that he would rely on EPA scientists for the development of a proposed MCL.

When asked if he expected the MCL to be lower than the current 70 parts per trillion advisory level, he responded by saying he would accept a 70 parts per trillion recommendation for an MCL.

In response to apparent frustration that a proposed rule was unlikely before the end of the year, Wheeler said the EPA would need the time to ensure that they had drafted a rule that could withstand legal challenges over issuance protocol and rule content.

Most experts expect an MCL lower than the 70 parts per trillion health advisory. A generalized "half the current health advisory" is the typical estimate or expectation.

**Plan document details**

Going forward, EPA needs an approved chemical analysis method that has a low single digit parts per trillion detection level. The method or methods must produce an accurate measurement for complex aqueous samples, soil and biological matrices.

Towards that end, the agency recently approved and expanded EPA Method 537.1 to include GenX chemicals. Planned chemical analysis validation includes multi-lab validation for complex water matrices—wastewater, surface waters and groundwater.

Exposure by food or dust are routes that the agency still lacks a reliable analysis method for supporting risk analysis, MCL determination or environmental monitoring.

It may be a year or two before the agency completes the necessary steps to fill this void. For many of the other long-term components of the plan, a robust analytical method or methods for all matrices listed will be an essential step for the earliest possible completion.

The EPA will propose adding PFOA to the unregulated contaminant monitoring registry "under the next Unregulated Contaminated Monitoring Rule monitoring cycle utilizing newer methods available to detect different PFAS and at lower minimum reporting levels than previously possible."

The EPA said that it will solicit pre-proposal stakeholder input this year and issue a proposed drinking water monitoring rule in 2020.

To address human health, EPA "is prioritizing short-term exposure prevention and long-term cleanup goals."

The agency is looking broadly at classifying PFOA as a hazardous substance under CERCLA.

In its plan, EPA noted that "(t)here are several statutory authorities available to define PFOA and PFOS as CERCLA hazardous substances, including CERCLA, RCRA, TSCA, the Clean Water Act, and the Clean Air Act. The EPA is initiating the regulatory development process for listing PFOA and PFOS as CERCLA hazardous substances."

In response to questioning, Wheeler said that the agency had taken enforcement action under CERCLA at eight sites and had based the enforcement action on the 70 parts per trillion health advisory level.

The plan document provided additional information about the enforcement options the agency has available: "Where the EPA finds that there may be an imminent and substantial endangerment to public health or welfare related to PFAS contamination, the agency will consider using its response authority under CERCLA Section 104 or utilizing its enforcement authorities such as the Safe Drinking Water Act Section

Florida's environment to make real progress for our state."

She said that during his tenure at DEP, Florida Forever funding has been restored to \$100 million, strategic springs restoration projects have been implemented, and DEP is beginning to step up to drive state efforts on sea level rise adaptation.

1431 or Resource Conservation and Recovery Act Section 7003."

**Enforcement actions**

Wheeler's comments about regulation are a mixed bag. The EPA press office supplied a list of the eight enforcement actions in response to our query. Those dated from 2005 to 2016, but only one of those occurred during the current administration, that in 2017.

It involved The Chemours Co. and E.I. du Pont de Nemours and Co. at the Washington Works plant in West Virginia. Its settlement document is so highly redacted, the enforcement actions entailed are hard to decipher.

The compounds that were regulated appear to be GenX compounds.

Regardless of the EPA's plan schedule, the agency has a daunting chore ahead of it. More than 4,000 different PFAS isomers may have been manufactured since the 1940s.

The EPA's TSCA lists includes 1,223 PFAS compounds. Of those, 602 are commercially active, meaning that they were in U.S. commerce at some point between 2006 and June, 2016.

The compounds are widely used in consumer goods, packaging and machinery, and have several routes to human exposure. Octanoic compounds, in particular, are widely dispersed in the environment.

PFAS may be the most persistent organic chemicals ever synthesized because of the carbon-fluorine bond's resistance to destruction by chemical or physical disruption.

Just considering exposure through drinking water, the situation outlined in the plan is grim. Between January, 2013, and December, 2015, the EPA obtained and analyzed samples from all public drinking water systems serving more than 10,000 people and from 800 representative public water systems serving 10,000 or less customers.

Of those samples, 1.3 percent had measurable concentrations of PFOA and PFOS greater than 70 parts per trillion.

Around chemical synthesis plants and military bases where they were used, groundwater contamination is common.

Information about PFAS in private drinking water wells is notably absent from the potable water data set. Wheeler made special mention that in the plan going forward, analyses of household wells will be included, without elaborating.

**Is EPA up to the task?**

Pinning down the health effects that will determine standard setting is a huge challenge.

In its 63-page plan outline, EPA's Per- and Polyfluoroalkyl Substances Action Plan released at the time of the press conferences, the agency mentioned the large number of PFAS-suspected adverse health effects.

Increased risks observed in some animal studies include developmental effects to fetuses during pregnancy and infants, cancer, liver effects, immune effects, thyroid effects related to developmental outcomes, and others.


The report also noted that different PFAS may be responsible for different adverse effects.

This is the largest interdepartmental and interdisciplinary program the EPA has launched under the Trump administration, an administration not noted for much more than dismantling rules and programs that were carefully crafted by prior administrations.

For the announced plan to reach even its lowest usefully productive level, it will have to be one of the largest EPA programs of the 21st century.

Significant progress on this plan will be a test of whether the EPA still has what it takes, and if so, how much it will complete during the current administration.

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# Audubon releases major plan for restoring Gulf of Mexico region, wildlife

By PRAKASH GANDHI

The National Audubon Society released a major, long-term plan for restoring the Gulf of Mexico.

The ambitious plan highlighted projects and programs that it said are vital to help the region and its wildlife recover from a slew of problems including hurricanes, oil spills and other disasters.

Audubon recommended an investment of more than \$1.7 billion in restoration and conservation efforts across the Gulf-states region to fund 26 restoration projects and four open-ocean projects that it believes are critical to the region's recovery.

"What we want is a lot of financial resources used not only on restoring habitat but on creating new habitat," said Marianne Korosy, PhD, director of bird conservation for Audubon Florida. "With sea levels rising, it's more important than ever to plan for the future."

The Gulf is home to a vast array of bird species and other wildlife, and Audubon said it is committed to restoring it by focusing on priority habitats for these and other species from Texas to Florida.

Its vision involves working over many years to monitor the health of populations of the species in the aftermath of the 2010 Deepwater Horizon oil spill.

The organization said it will continue to develop conservation plans to benefit these species and the habitats they need, and advocate for the timely implementation of large-scale, science-based coastal restoration and conservation projects.

The oil spill left a devastating mark on the Gulf Coast. Audubon recommended 16 state-based, 10 region-wide and four open-ocean projects.

## WATCH

From Page 4

In announcing the grants, the district noted that it received 17 project applications outside of the district's tri-county agricultural area, an area that has its own funding program.

Under the district-wide agricultural cost-share program, SJRWMD funds up to 75 percent of approved projects with a cap of \$250,000.

**Lake Apopka levee repair.** At its February meeting, the St. Johns River Water Management District approved a contract to reconstruct about five miles of Lake Apopka's levee that was breached during Hurricane Irma in September, 2017.

The breach occurred along the lake's north shore and was repaired shortly after the hurricane.

The current contract is part of a plan to reconstruct the levee to reduce the chances of future breaches.

The recreational Lake Apopka Loop Trail runs along the levee. During reconstruction, the trail may be closed at times.

**Key Largo solar.** The Key Largo Wastewater Treatment District recently completed the installation of 334 photovoltaic panels at its wastewater treatment plant.

The panels generate about 200 kilowatt hours of electricity per day.

Originally conceived as a smaller project to cover the chlorine contact basins, the photovoltaic array was expanded to produce more power.

Panels installed over the chlorine contact tanks produce solar power as well as reducing chlorine evaporation, with additional savings for chlorine purchases.

The biggest cost advantage is that the expanded array will supply about 10 percent of the plant's electricity, saving, about \$40,000 per year.

The expanded project was funded entirely by a DEP grant of \$386,600.

Wastewater district officials are considering installing rooftop arrays on the district's headquarters and at each of its pumping stations.

If fully implemented, solar power could defray the district's energy costs by a total of \$738,600 in the next budget year.

In total, the projects amount to more than 136,000 acres of restored or protected habitat for bird and human communities from Texas to the Florida Keys.

The report highlighted projects that will collectively address the recovery and population health of birds as the organization continues to determine how rising sea levels will affect the Gulf.

Korosy said the funds that have come from the BP oil spill settlement are being used not only to repair damage, but for new projects that will decrease the amount of wastewater being discharged into the Gulf of Mexico and improve stormwater treatment.

"Some of the money is also being used to offset damage to tourism by enhancing recreational facilities and reparation for damage to wildlife," she added.

"One of the main lessons from the BP spill is that you can have a catastrophic event that can literally kill all the birds and still have the opportunity to restore the bird population if you have healthy populations elsewhere in the ecosystem."

Audubon also recommended that funds be used to accrue interest to pay for long-term projects, Korosy said.

There are funds available from the Gulf Environmental Benefit Fund, which is administered by the National Fish and Wildlife Foundation. Some of these funds come from the BP oil spill settlement.

Progress is already being made. Korosy said that a \$5 million grant was recently awarded to construct breakwaters that will

protect wading birds in the Tampa Bay area.

She said Audubon's report was submitted to local, state and federal governments and that she is optimistic about the future.

"I think that in the long term, we will get these projects funded," she said. "It's just a matter of how and when."

## DEP biosolids advisory group recommends actions for improvement

By BLANCHE HARDY, PG

The Florida Department of Environmental Protection created a Biosolids Technical Advisory Committee in 2018 "to evaluate current management practices and explore opportunities to better protect Florida's water resources."

DEP recruited stakeholders from a variety of biosolids-related arenas including environmental and agricultural industries, large and small utilities, waste haulers, consultants and academics.

The creation of the TAC was the department's first step in proposing poten-

tial changes to biosolids management.

"What concepts come out of the TAC is up to the department," said Drew Bartlett, DEP deputy secretary for ecosystem restoration. "It's up to us to execute, whether it's legislative change, funding change...or whether it's regulatory change."

The TAC participated in four sessions from September, 2018, to January, 2019, to provide insight on biosolids management in Florida.

Their tasks included determining bet-

**BIOSOLIDS**  
Continued on Page 16

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## BIOSOLIDS

From Page 15

ter ways to improve biosolid management, protection of surface and groundwater, and identifying what additional research should be conducted to build a better biosolid management program.

Their fourth and final public meeting was held in late January in the department's Central District office in Orlando.

The TAC disbanded that month and their recommendations are currently being further developed by the department for implementation. Any resulting proposed new regulations were expected to be ready for the 2019 legislative session.

Among the recommended actions are changes to the current permitting rules including basing biosolid application rates on site-specific criteria such as soil characteristics, water table elevation, site hydrology, distance to surface water and other site uses.

Assessing the characteristics of the actual biosolids, such as evaluating the percentage of water-extractable nutrients, is also recommended in addition to determining the site-specific criteria.

The TAC recommended that DEP establish criteria for low, medium and high-risk sites that function as a guide for future application practices. Currently only

data related to the volume of biosolids applied to a site and the concentration of phosphorus in the biosolids is collected. The volume of phosphorus runoff is not now calculated.

Ways to enhance compliance were considered, including an increase in the frequency of inspection rates during land application.

The TAC recognized that biosolid application sites that threaten nearby lakes and streams should be monitored. The development of site-specific groundwater and/or surface water monitoring protocols and required groundwater monitoring were proposed to detect nutrient migration.

The level of toxicity in biosolids was also considered. Among specific concern is the detection of highly toxic *Mycrocystin* in water samples near a biosolids treated pasture.

The TAC members agree that additional research needs to be undertaken to better understand nutrient runoff and the related impact in both surface waters and groundwater.

The committee suggested conducting studies with various application rates, various types of biosolid application and different geologic conditions.

## BOARDS

From Page 5

Miklos's revocation is a victory for environmental advocacy critics of the St. Johns River Water Management District.

Miklos' company, Bio-Tech Consulting Inc., has been the focus of intense scrutiny because it works with clients applying for permits from the district. To sidestep conflict-of-interest complaints, the board transferred authority for those permits to the administrative side of the district.

Miklos served as district governing board chairman since 2013. Prior to that, the chairmanship rotated annually.

The appointments of three additional SJRWMD board members will end in March, 2019. The three are Fred Roberts Jr., Chuck Drake and Ron Howse, the governing board's vice chairman, secretary and treasurer, respectively.

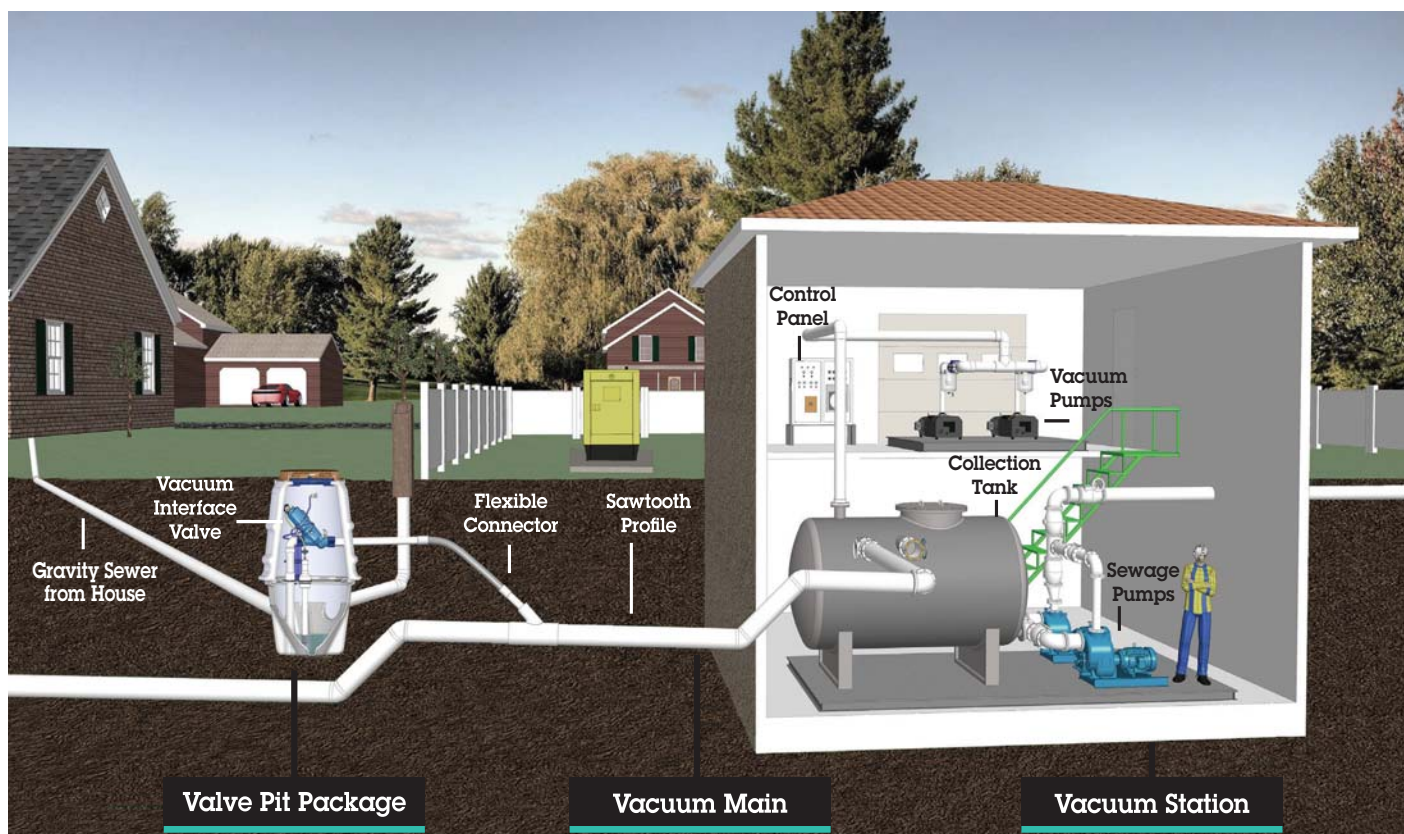
The remaining three SJRWMD governing board members have terms that expire in 2020 and 2021. They appear positioned to serve out those terms.



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Contact us for a **free system layout and cost estimate.**

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Vacuum Technology Systems

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