

# Florida Specifier

Practical Information For Environmental Professionals

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## Miami water quality 5

The city of Miami contracted with Miami Waterkeeper to expand water quality sampling in Biscayne Bay and the Miami River. Results will be posted to the Waterkeeper's website and phone app to provide residents, visitors and others with current information about local water quality.

## IRL study 6

Scientists and engineers at the Florida Institute of Technology are in the early stages of a project to investigate if and how much pumping of low-nutrient ocean water into the Indian River Lagoon would improve its water quality and reduce the severity and duration of algae blooms.

## Session preview 10

Tallahassee-based environmental attorney Bill Preston provides a preview of the 2020 Florida legislative session from an environmental perspective. To no one's surprise, water quality tops the list of lawmaker priorities.

## Keys coral project 12

The National Oceanic and Atmospheric Administration and a group of collaborating organizations launched a plan to "out-plant" hatchery-cultured, disease-resistant coral colonies at seven reefs in the Florida Keys from Key Largo to Key West, the entire length of the Keys' barrier reef tract.

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### Got a story lead?

Got an idea for a story? Like to submit a column for consideration? Let us know. 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](mailto:mreast@enviro-net.com).

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Photo courtesy of Coral Restoration Foundation

A diver prepares a site for staghorn coral replanting by removing nuisance algae. NOAA and its partners including the Coral Restoration Foundation are beginning a project to restore reefs by transplanting corals to seven degraded hard coral reefs in the Florida Keys. See story on Page 12.

## Trump administration proposes aggressive cutbacks on NEPA safeguards

By ROY LAUGHLIN

The Trump administration, working through its Council on Environmental Quality, proposed substantial revisions to implementing regulations under the National Environmental Policy Act.

If one accepts CEQ's statements about the revisions at face value, the changes fall into four main categories:

### Accelerate the review process

The CEQ proposed to accelerate NEPA reviews by simplifying review requirements.

The amendments proposed would limit the environmental impact statement process to two years, and allow one year for an environmental assessment. EIS and EA page limits were also proposed.

Under Trump's One Federal Decision policy promulgated in 2017, the proposed NEPA rules mandate a single EIS and record of decision for multi-agency decisions.

To obtain this, the lead agency will be given a stronger role.

Text in the new rule requires the use of technology for information sharing and public outreach but otherwise places no specific requirements.

### Modified terms, procedures

One of the longest sections in the proposed rule revision involves clarification of terms, applications and scopes of review. This section sets requirements but doesn't specify the implementation that ensures requirements are met.

What the revisions vaguely outline are directions on whether NEPA applies to a particular action by expanding application of categorical exclusions.

It requires public comment before the review is written, and specifies that

the comments considered must be limited to the scope of the review.

This new procedure would certainly lower the quality of public input and enhance the prospects of rejecting comments considered not germane.

Importantly, the new rule proposed the redefinition of environmental effects. NEPA's current definition of "effect" is the usual legal definition: "proximate cause."

The amended NEPA would define "effect" to be "reasonably foreseeable and causally related to a proposed action."

Insertion of the word "reasonably" rather than "scientifically" is a nod to

the flat earth crowd. The subtle changes of language could have an inestimable unanticipated influence on the scope of the review and its useful rigor.

Potentially the most significant move to reduce NEPA's benefits, the draft rule proposed to abandon the analysis of cumulative effects.

Nondiscretionary actions and non-federal projects and projects with minimal federal funding would no longer be considered "major federal action" under NEPA review guidelines.

Under the proposed rules, "reason-

**NEPA**  
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## Water war update: Second special master favors Georgia over Florida

By BLANCHE HARDY, PG

Judge Paul J. Kelly, Jr., the second special master appointed by the U.S. Supreme Court in the Florida versus Georgia water war, recommended denying the state of Florida's request for additional surface water allocations a second time.

Florida is seeking a decree apportioning the waters of the Apalachicola, Chattahoochee and Flint river basins.

The previous special master, Ralph Lancaster, Jr., conducted pre-trial proceedings and oversaw a related trial. He, too, recommended that the Supreme Court deny Florida's request for relief.

"Given my factual findings, I recommend denying Florida's request for a decree because it has not proved the elements necessary to obtain relief," said Kelly.

"Florida has pointed to harm in the

oyster fishery collapse, but I do not find that Georgia caused that harm by clear and convincing evidence," he said.

The Supreme Court remanded the initial case in a 5-4 decision with instructions as described by Special Master Kelly to make findings concerning the following questions on remand:

(1) whether Florida suffered harm caused by decreased water flow into the Apalachicola River;

(2) whether Florida showed that Georgia's use of the Flint River is inequitable;

(3) whether that potentially inequitable use harmed Florida;

(4) whether an equity-based cap on Georgia's use of Flint River waters would materially increase streamflow in the Apalachicola River given the U.S.

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# \$200 million in federal funding for Everglades restoration signed into law

## Staff report

The Everglades restoration effort now has \$200 million in federal funding to underwrite essential project work. The funding is allocated to support the Everglades Agricultural Area reservoir construction and construction of its adjacent stormwater treatment area.

The funding helps ensure that the project is more likely to stay on schedule and closer to budget.

In addition, funding for the Central Everglades Planning Project, the C-44 reservoir and stormwater treatment area in western Martin County, and the C-43 reservoir that will hold water going to the Caloosahatchee River was also passed into law.

The increased funding can be credited to the Florida congressional delegation's concerted influence on the \$1.4 trillion federal appropriations bill signed into law in December, 2019.

**20 chemicals finalized for risk evaluation.** The U.S. Environmental Protection Agency released its list of the next 20 chemicals subject to risk evaluation under the Frank R. Lautenberg Chemical Safety for the 21st Century Act, a 2016 amendment to the Toxic Substances Control Act.

The list includes chemicals that environmental toxicologists and public health advocates have long urged to be reviewed.

Seven chlorinated organic compounds top the list. They include two dichlorobenzene isomers: p-dichlorobenzene and o-dichlorobenzene.

Several low molecular weight chloroalkanes also made the list: 1,2-dichloroethane, 1,1,2-trichloroethane, 1,2-dichloropropane and 1-1, dichloroethane. A similar chain length alkene, trans-1-2-dichloroethylene, is also on the list.

The list continues with a second chemical group, a series of five structurally similar phthalate esters including dibutyl phthalate, ethylhexyl phthalate and dicyclohexyl phthalate. Phthalic anhydride rounds out the group.

Ethylene dibromide and formaldehyde, biocides that have long evaded risk evaluation under TSCA, finally made the risk assessment list.

A pair of organophosphates are also on the list: tris(2-chloroethyl) phosphate and phosphoric acid, triphenyl ester.

Rounding out the list are: 4,4-' (1-

methylethylidene)bis[2,6- dibromophenol], 1,3 butadiene and 1,3,4,6,7,8 -hexahydro-4,6,6,8,8-hexamethylcyclopenta[g]-2 -benzopyran.

The EPA is soliciting public comment on the scoping documents for these chemicals. The agency expects to have the documents completed by June, 2020. The agency will also accept public comments on draft risk evaluations.

In its press announcement, EPA noted that within a few months, they will release and take public comments on a list of manufacturers and importers of these chemicals, a necessary step to apportion appropriate fees as required under the TSCA fees rule.

**PFAS action planning.** In December, the EPA released a list of actions the agency has taken or plans to implement in the near future to meet its promised regulation of poly-fluorinated alkyl compounds.

They first announced the action plan in April, 2019. Then in late December, they announced progress—some of it significant—as a first step under the plan.

The EPA proposed a risk-based 40 parts

per trillion screening level to define whether a PFOA-contaminated site warrants more attention.

Even with this new screening level, the agency continued to endorse its earlier PFOA and PFOS lifetime drinking water health advisory of 70 parts per trillion as a preliminary remediation goal for contaminated groundwater used, or potentially of use, as a drinking water source.

The EPA noted that the interim standards announced in December apply to sites subject to federal programs including CERCLA and RCRA. They provided the interim guidance with the caveat, "final remedial decisions under CERCLA will be specific to each site to ensure protectiveness as required by statute."

These standards may be useful to, but are not binding, for other regulatory authorities such as the U.S. Department of Defense, or state agencies conducting cleanups.

The EPA's PFAS Action Plan as outlined last April was a broad, phased plan that will require several years to make significant progress.

The EPA did not announce a milestone or proximate goal for setting national primary drinking water regulations under the Safe Drinking Water Act. Instead, the agency simply reaffirmed its "commitment."

The agency continues to gather information to help it decide how to regulate PFAS chemicals other than the perfluorooctanoic compounds used in firefighting foams and widely dispersed in the environment as a result.

Most phases of the EPA's PFAS Action Plan are still in the early stages with significant results likely to be months or years away.

For example, EPA announced that it will propose nationwide drinking water monitoring of PFOA under the next UCMR monitoring cycle.

The agency also issued an advance notice of proposed rulemaking that asked for public comment on a proposal to add PFAS to the Toxics Release Inventory chemical list.

The agency also proposed that certain persistent long-chain PFAS chemicals may not be manufactured or imported into the U.S. without TSCA notification and review. That proposal is currently undergoing interagency review at the Office of Management and Budget.

On a more long-range schedule, EPA is in the early stages of data collection and research to support the Clean Water Act's human health and aquatic life criteria for selected PFAS. A component of this work is to critically consider perfluorooctanoic compounds in biosolids.

A separate story in this issue describes the agency's recently approved Method 533 for PFOA analysis of drinking water. Along with EPA Method 437.1, the agency has approved analytical methods for at least 29 PFOA in drinking water.

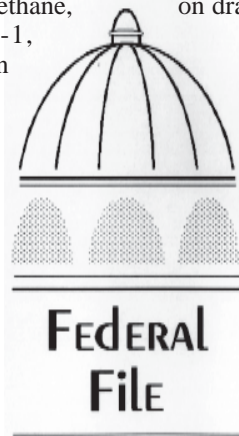
In another specific action taken late last year, EPA announced the availability of \$4.8 million for funding new research on managing PFAS in agriculture.

The EPA continues its work to validate PFAS analytical methods for all other media, assess and review PFAS remediation treatment methods, and to develop tools that will assist in the cleanup of contaminated sites.

Without providing specific examples, the agency also cited enforcement actions involving PFAS it has conducted or may conduct.

**FIFRA approval for 10 hemp production pesticides.** The EPA approved 10 pesticide products for use on hemp.

In its announcement of approval under the Federal Insecticide, Fungicide and Rodenticide Act, the agency noted that nine of the newly approved pesticides are biopesticides and one is a "conventional pesticide," which the EPA characterized as



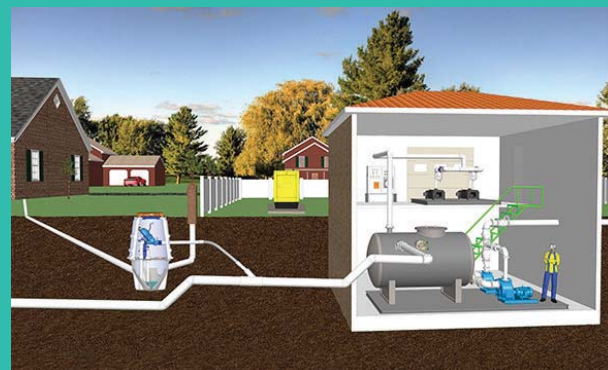
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## DeSantis announces \$5.4 million for rural communities

### Staff report

In January, Gov. Ron DeSantis announced the state will award \$5.4 million in funding for infrastructure projects in 15 rural communities impacted by Hurricane Michael.

The funding is part of the Florida Legislature's 2019 appropriation to the Rural Infrastructure Fund for projects in Calhoun, Gadsden, Holmes, Jackson, Liberty and Washington counties.

"Hurricane Michael left devastating impacts throughout Northwest Florida and communities are still trying to rebuild," said DeSantis. "I appreciate the Florida Legislature's quick and creative utilization of the Rural Infrastructure Fund to help Northwest Florida rural communities recover and focus on rebuilding and developing more resilient infrastructure to move their local economies forward."

The projects include several downtown commercial enhancements including economic development, drainage, water and sewer, and road improvement.

The largest award, \$1,856,410, is to Jackson County to create a telecommunications/broadband segment in Marianna and Sneads that will provide commercial access to the fiber network.

The city of Chipley is earmarked for \$297,800 for a feasibility study to determine the best location for a new solar power plant.

**Turkey Point permit.** Florida Power & Light Co. won approval from the Nuclear Regulatory Commission to operate its Turkey Point nuclear reactors for 20 more years, through 2053.

The facility was given the go-ahead to operate for 80 years, twice the length of time permitted in its original 40-year operating license. This is the first NRC renewal of this duration.

The Turkey Point cooling canals are already the source of a sizable plume of saline water in the adjacent aquifer and waters of the Biscayne Bay. FPL is addressing this problem under order from the Florida Department of Environmental Protection.

However, the federal government found the plant's environmental impacts to be insufficient enough to deny or condition the permit extension.

**DeBary solar farm.** The city of DeBary was selected to host one of 10 proposed Duke Energy solar power plants in Florida.

The fixed-rack plant will include roughly 300,000 solar panels.

Duke selected the 445-acre site on the former Progress Energy property in the vicinity of Highbanks Road near the St. Johns River in Volusia County.

Duke's DeBary plant is expected to become operational in the spring of 2020. The utility anticipates the plant will operate at just under 75 megawatts per day.

Duke intends to eventually generate 10 percent of its electricity through solar power.

Duke Energy Renewables owns and operates approximately 500 megawatts of photovoltaic solar power projects at more than 50 plants across the country.

**Advocates: Fully fund Florida Forever.** Late last year, 123 conservation and environmental organizations signed a letter to Florida's governor asking for a commitment to pass legislation during the 2020 session that restores full funding to the Florida Forever land conservation program, including the Florida Forever Priority List, Rural and Family Lands Protection Program, and Florida Communities Trust program, on an annual basis.

"Recent appropriations, which have been capped at \$100 million, are not nearly enough to meet the needs of Florida's environment or expectations of Florida voters," they wrote.

The Florida Forever Days of Action that followed included coordinated events throughout the state.

Conservation groups sent over a hundred advocates to rallies and events to garner support for the request.

Although Florida citizens overwhelmingly voted in 2014 to fund the acquisition of sensitive lands, the annual allocation for land purchase has dwindled to roughly a third of its initial allocation.

Advocates hope a lawsuit alleging that the state is underfunding Florida Forever will make soon its way to the Florida Supreme Court.

**Sanford Airport firefighting foam lawsuit.** In December, the Sanford Airport Authority filed suit in U.S. District Court for the Middle District of Florida against over 20 companies including Johnson Controls International, 3M Co., DowDuPont Inc., Kiddie Fire Fighting and Chemours Company LLC.

The suit noted that the companies produced and sold the fire extinguishing foam they claim is a risk to human health and safety without disclosing the product's toxicity and harmful effects.

The airport authority claims several structures and land areas at the Orlando Sanford International Airport are now contaminated by the foam and is seeking relief for the cost of assessing and remediating any related contamination discovered.

Firefighting foams are known to contain high concentrations of perfluoroalkyl and polyfluoroalkyl substances. Military bases throughout the U.S. are assessing their sites for the presence of PFAS contamination. The Sanford Airport is a former military airfield and base.

PFAS can be detected in the blood of most people, according to the U.S. Environmental Protection Agency.

PFAS-related health issues depend on

the concentration, frequency and duration of exposure.

PFAS are suspected to be associated with fertility issues, immune system changes, changes in fetal and child development, increased cholesterol, cancer, liver damage, thyroid disease and asthma.

**Florida solar, 2018.** According to the new Berkley Lab Utility-Scale Solar Report, more than four gigawatts of utility-scale photovoltaic energy came online in 2018 for a total of 24.5 GW nationally.

Florida added 25 percent of the new power capacity, passing California as the largest state market for the first time.

The report focused on concentrated solar power, conversion of the sun's heat to electricity, and photovoltaic solar power, conversion of the sun's light to electricity, for projects exceeding five megawatts.

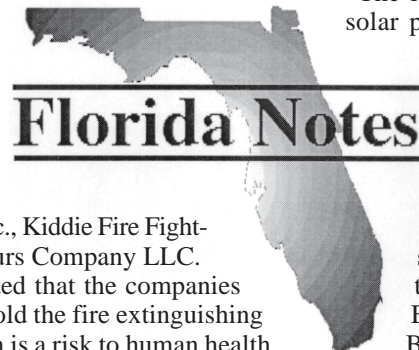
**Climate change impact study.** Palm Beach County and the cities of Boca Raton, Delray Beach, Boynton Beach, Highland Beach, Lake Worth Beach, Lantana and Ocean Ridge have joined forces to conduct a 2020 climate change vulnerability assessment.

The group combined resources to begin addressing sea level rise, extreme temperatures and the probability of significantly increased storm frequencies and impacts.

Palm Beach County Commissioners approved an interlocal agreement for the vulnerability assessment late last year.

The collaborative approach is expected to reduce costs while fostering synergy and consistency in assessing vulnerability, prioritizing needs, and implementing strategies to enhance climate resilience, accord-

**NOTES**  
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# SRWMD announces follow-up MFL study for Santa Fe, Ichetucknee rivers

## Staff report

The Suwannee River Water Management District will be completing a second minimum flows and levels study for the Santa Fe and Ichetucknee rivers.

The study, conducted by district scientists, will result in a technical report outlining the influence of weather, water withdrawals, wildlife needs and other issues that influence the establishment of state-required MFL standards for the two spring-fed rivers.

The St. Johns River Water Management District will also be involved with the study

because water budgets for these two rivers are heavily influenced by water withdrawals in both water management districts.

The SRWMD implemented its first MFL regulations in 2015. At that time, the status of the two rivers was listed as "recovery" because water withdrawals were too large to be sustained while still meeting all water needs.

The rivers' recovery status led to the implementation of a number of conservation measures over the past five years.

The upcoming "five-year after" technical study will evaluate a new ground-

water model, water recovery projects that have occurred and the effectiveness of limited consumptive use permit durations.

If sufficient progress towards meeting the 2015 MFL has occurred, the rivers' status may be changed from recovery to "prevention." That means that further regulations to meet MFL standards will be implemented to prevent them from falling below the established criteria reached during the recovery years.

In response to a query, John Good, PE, chief professional engineer in the SRWMD Office of Minimum Flows and Minimum Water Levels, said that the re-evaluation document is in peer review and a review response is expected by June, 2020. Subsequently, a schedule for submission to the district's governing board will be announced.

**Study: Algal toxins' influence on human health.** The Florida Department of Health awarded the University of Florida \$130,000 to characterize any link between certain neurological and liver diseases, and exposure to cyanobacteria toxins.

Yi Goo, PhD, assistant professor in the Department of Health Outcomes & Biomedical Informatics in the College of Medicine at UF, is the study's principal investigator.

Goo's study will utilize the university's 15 million patient record database, the largest health data repository in Florida.

The investigators will look for hot spots of occurrence of liver diseases and neurodegenerative diseases such as Alzheimer's disease and Parkinson's disease that might be associated with human population exposure to algal toxins.

The researchers are focusing on freshwater cyanobacteria as a source of the toxins.

The study, which began in late December, will last for six months.

Florida Atlantic University's Harbor Branch Oceanographic Institute and the Florida Gulf Coast University Water School will collaborate on the grant-funded research. They will primarily investigate cyanobacteria toxins, but will also investigate human exposure to red tide toxins.

The University of Miami Rosenstiel School of Marine and Atmospheric Science and the University of Miami Miller School of Medicine also received FDOH funding. Researchers will study the long-term health effects of cyanobacteria toxins. These studies are relatively modest in

scope and are intended to inform further research proposals that could attract additional funding for the research groups

**Baffle box under construction in Melbourne.** In late December, the Melbourne City Council approved its share of funding for construction of a baffle box to remove sediment-bound nutrients from a 515-acre drainage basin north of Eau Gallie's business district, east of Stewart road.

The box will be located in the Cliff Creek neighborhood along the Indian River.

This is the eighth baffle box the city has installed during the past five years. The seven installed boxes have a calculated nutrient removal of 3,394 pounds of nitrogen and 829 pounds of phosphorus, annually.

The Cliff Creek box is calculated to remove 3,952 pounds of nitrogen and 797 pounds of phosphorus, roughly doubling the total nutrients removed—if engineering calculations are accurate.

The baffle box under construction is said to be the largest box in the U.S. east of the Mississippi River.

The total cost of the new box will be \$715,290.

The city will pay \$347,781 for its half of the project. Brevard County will pay the other half from the proceeds of the half-cent local infrastructure sales tax passed by voters in 2015.

**Flagler County wastewater repairs.** The cities and Bunnell and Flagler Beach will each receive a \$500,000 grant for water quality improvement projects.

Both will use the funds to apply sliplining to existing clay pipes in their wastewater collection systems.

Applying sliplining to seal wastewater collection pipes prevents water infiltration during flood events and prevents wastewater with its high nutrient content from leaching out of the collection system.

The city of Bunnell will slipline three miles of pipeline to reduce nutrient loading to Black Branch Creek and Haw Creek. Preventing wastewater leakage will reduce nutrient loading by 200 pounds of total nitrogen and 30 pounds of total phosphorus. This project is expected to be completed in October, 2020.

The city of Flagler Beach will apply sliplining to five miles of wastewater collection lines.

The project will reduce annual nutrient loading to the Matanzas River by approximately 540 pounds of total nitrogen in 440 pounds of total phosphorus.

Project completion is forecast for the end of September, 2020, according to Teresa Monson, public communications coordinator at the St. Johns River Water Management District.

The SJRWMD's Rural Economic Development Initiative provided the funding for the projects.

**Lee County to expand fecal bacteria testing.** The Lee County Board of County Commissioners voted to extend its contract with Florida Atlantic University's Harbor Branch Oceanographic Institute to conduct fecal bacterial testing and analysis in several additional county waterways.

The contract is an extension of a 2018 grant for similar work that focused on North Fort Myers, which will receive a second year of fecal bacteria surveillance under the contract extension.

County officials hope the testing will help identify areas bordering their waterways where septic tanks contribute nutrients that can result in algal blooms.

The 2018 algal blooms that began in the Caloosahatchee River initiated the study in North Fort Myers where algal



**WATCH**  
Continued on Page 5

# City of Miami contracts with Miami Waterkeeper for water quality sampling in Biscayne Bay

By **BLANCHE HARDY, PG**

**D**uring a public hearing late last year, the city of Miami contracted with the Miami Waterkeeper to expand its water quality sampling along the city's shoreline.

Alan Dodd, PE, the city of Miami's director of public works, initially recommended a waiver from the competitive bid process in order to sole-source the Waterkeeper, also known as the Biscayne Bay Waterkeeper, in May 2019.

City Manager Emilio Gonzalez then recommended negotiating a professional

## WATCH

From Page 4

blooms were the worst. That study, now a year old, was a success so commissioners voted to increase the surveillance effort to more waterways.

The data, commissioners hope, will also help the county to prioritize septic-to-sewer conversion needs.

County commissioners approved the project in November, so it may be another year before septic-to-sewer conversions supported by the data are ready for the planning stage.

**Muck removal in Brevard.** Late last year, one of Brevard County's first and most extensive muck removal projects began in entrance and finger canals along the Banana River south of Patrick Air Force Base.

The Grand Canal muck dredging project is named after the largest entrance canal that provides access to many residential finger canals. The canals have filled with muck over the past half-century since they were constructed.

The project began with sediment sampling in 2015, 2018 and 2019. That plan will continue during sediment dredging because sediments may have been contaminated by former dumping sites associated with the Banana River Naval Air Station.

The air station was in operation through the 1940s and later became Patrick Air Force Base, still in operation.

The dredging operation is slated to remove 500,000 cubic yards of muck over the next four years. The cost will be \$27 million, perhaps even more during the first phase of the project.

The Grand Canal system will be dredged from the Pineda Causeway to the north end of Sampson Island. Both the entrance canal and residential finger canals will be dredged.

The Florida Legislature also approved \$9 million in grant funding to partially support this dredging project.

The project does not include a few areas including the canal between Port Royal Boulevard and St. George's Court. Those may be added to the dredging project at a later date.

The work will be intermittent through 2023 due to seasonal manatee closures.

**AquaVenture sold to Culligan.** In December, AquaVenture Holdings announced that Culligan Corp. agreed to pay \$1.1 billion or \$27.10 per share for AquaVenture.

AquaVenture Holdings is a publicly-traded Tampa-based company that provides water filtration, desalination and other water treatment-related services to government, commercial and institutional customers throughout the Western Hemisphere.

It employs 665 people, with more than 100 based in Hillsborough and Pinellas counties.

AquaVenture has two operating units. Seven Seas Water Corp. operates more than 100 wastewater treatment plants along with 11 desalination plants in the Caribbean and South America.

Its other division, Quench, provides filtered water coolers and other services to 55,000 commercial and institutional customers in 300 metro areas in North America.

services agreement with the Waterkeeper organization.

The Miami-Dade County Division of Environmental Resources Management collects surface water samples from 87 locations in Biscayne Bay.

The Waterkeeper noted in an April, 2019, letter to Dodd that despite extensive recreational water use of Biscayne Bay adjacent to Miami, the Florida Department of Health conducts limited testing of the shoreline.

In fact, the FDOH's Healthy Beaches Program tests only two locations for sewage bacteria in the entire bay.

The Waterkeeper implemented a water quality monitoring program at strategic locations inside or immediately adjacent to the bay where recreational use is occurring.

The city's newly created program will expand upon the Riverkeeper's existing water monitoring program.

The city commission approved entering into an agreement with the Waterkeeper in November, noting that competitive sealed bids were not "practical or advan-

tageous" to the city.

The city's Department of Resilience and Public Works allocated \$50,000 in fiscal year 2019-20 to establish the Fecal Indicator Bacteria Monitoring Program, which the Waterkeeper will execute.

The program is anticipated to cost \$50,000 annually.

The city's resolution stated that the program's intent is to "ensure that Biscayne Bay and the Miami River meet federal, state and local standards for recreational use, for support of healthy fish populations, for the pinpointing of sources of contamination and for assistance in eliminating sources of pollution for the city's Department of Resilience and Public Works."

The contract includes six additional sampling locations in Biscayne Bay and the Miami River.

The six sites will be tested weekly for fecal indicator bacteria.

The contract includes retesting sites where unacceptably high levels of bacteria are detected.

Testing results will be posted to the

Waterkeeper's Swim Guide website and phone app to provide city residents, visitors and others with current information about local water quality.

The Waterkeeper noted that the app has thousands of users. Analytical data from both the Waterkeeper and the Miami Dade Department of Health are posted on the app.

Waterkeeper staff will collect the city's program samples from locations ranging from Ransom Everglades to Morningside Park, including a river location at Jose Marti Park.

The samples will be analyzed by the Waterkeeper's laboratory at the Ransom Everglades School in Miami using the U.S. Environmental Protection Agency's approved IDEXX Enterolert rapid-test system.

Interpretation of the analytical results will include the Florida Beach Health Program criteria.

"Good" results show 0-35 enterococci per 100 milliliters of marine water; "moderate" results are 36-70 enterococci per 100 milliliters of marine water; and "poor" results detect 71 or more enterococci per 100 milliliters of marine water.

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# FIT research team investigates artificial inlets for Indian River Lagoon

By ROY LAUGHLIN

A team of scientists and engineers at the Florida Institute of Technology in Melbourne are in the early stages of a research and development project to investigate if and how much pumping of low-nutrient ocean water into the Indian River Lagoon would improve its water quality and reduce the severity and duration of algae blooms.

Presumably, as ocean water is pumped into the lagoon, the displaced higher-nutrient water would flow out to the ocean at inlets miles away from the inflow.

Enforcing a low nutrient regime with oceanic water augmentation ultimately may allow benthic seagrass restoration and improved conditions for organisms that rely on the ecosystem.

The researchers are engaged in the first phase of a project that involves identifying sites where a pumping plant with sub-surface culverts between the ocean and the Indian River Lagoon could be constructed and operated.

One of those sites, according to Gary Zarillo, PhD, a professor in the Ocean Engineering and Marine Sciences Department at FIT, is the Patrick Air Force Base/Patrick Shores area. Another might be north of Port Canaveral.

The Banana River, Zarillo said, is a focus of the effort because it is the most poorly flushed of all Indian River sub-basins and has been one of the most affected by a decade of algal blooms.

Bethel Creek in the city of Vero Beach, Indian River County, is the third site of interest. Bethel Creek was a small inlet until a hurricane filled it with sand in 1944.

Local lore holds that citizens in the area did not reopen Bethel Inlet to prevent German submarines from potentially using it for espionage activities.

It is equally likely that the war-time economy made the effort economically infeasible, regardless of the true espionage risk.

The tidal creek formed by the inlet is still largely intact from the west side of Highway A1A in Vero Beach.

Additional proposed research efforts include modeling of water flows that different locations of ocean water introduction could cause in segments of the Indian River Lagoon.

Zarillo noted that the exercise will examine different pumping-exchange regimes.

He suggested that a 10 cubic-meter-per-second flow rate is one that seems, as a starting point, to be a useful volume, "a natural assist" he said, for the envisioned

ocean water exchange.

"There could be more than one endpoint," Zarillo said regarding the results of the feasibility study. The investigations, he explained, will be "for specific locations."

He said that the simplest solution would be full-time pumping. Other options could be diurnal pumping or even seasonal pumping.

One of the endpoints could be that pumping would not make any improvement at all or minor improvements insufficient to justify the potential adverse consequences.

But the hypothesis behind the effort is that it would be beneficial, if properly implemented to avoid adverse impacts.

Other FIT investigators on the project include Professor John Windsor, PhD, as project manager. In addition, Associate Professor Robert Weaver, PhD; Professor Ashtok Pandit, PhD; Professor Kevin Johnson, PhD; Professor Ralph Turingan, PhD; Doherty Visiting Professor Jeff Eble, PhD; and Assistant Professor Austin Fox, PhD are involved with biological impact characterization and engineering studies.

The biological effects studies will help identify those species that might be influenced, both positively and negatively, by altered levels and gradients of salinity as-

sociated with ocean water exchange.

A historically destructive algal bloom in 2011 with several since engendered widespread discussion of the need for lagoon water quality remediation, as well as a blossoming of opinions about the best and most economical way to go about it.

Creating a new inlet to the Atlantic Ocean has consistently been endorsed by a local group, followed by equally vocal naysayers.

The controversy has been sufficiently pointed. A local newspaper ran a critical opinion piece about the project, questioning the study's motives. In response, a Florida Institute of Technology spokesperson issued a spirited reply.

This study is not seen as just another academic research effort. If it proves feasible, of limited adverse consequences and cost-effective, enough support exists to expect pumping stations to be built.

Zarillo posits that the Indian River, before post-WW II development, received far more frequent ocean water inputs.

Ephemeral seasonal high-water incursions and hurricane surges were routine. In some locations, an inlet persisted for several years before being closed by a storm or gradual sedimentation.

The perceived influence of these former modest oceanic water exchange processes gave rise to the current plan to use a pumping station and its possible benefits.

Zarillo acknowledged that construction of a new inlet would have too many negative consequences, not the least of which would be altered sediment flow and beach erosion.

The current plan envisions construction of a pumping structure perhaps similar to the water control structures along canals in South Florida.

Underground culverts constructed using directional drilling technology would pull water from a distance from shore outside the littoral zone and release it through a culvert offshore in the Indian River Lagoon.

Florida Representative Thad Altman of Brevard County inserted line item funding for this project in the 2019 Florida Department of Education's budget. The legislation appropriated \$825,000 to the Florida Institute of Technology for the project.

The current project is labeled as "Phase 1" in a brief description document prepared by the Florida Institute of Technology, and that phase is in its early days. However, some of the tools for the study are already available.

Zarillo has worked for 30 years to create a model of Indian River Lagoon circulation. It will be used in this study.

He said that in early January he placed four three-dimensional Doppler flow meters at stations near the Indian River and Banana River lagoons to obtain data for his model.

Other site assessment efforts will follow, performed by team members and the other disciplines.

Included in subsequent research, the FIT project description noted the need to ensure that successfully permitting the operation of a seawater water exchange facility is a prerequisite for the construction of a pilot-scale demonstration project.

It is not necessarily the case that funding this research is an irreversible prelude to an ocean water exchange project, as some opponents fear.

The study is being done in a research university environment of open inquiry.

"We're not trying to solve all the problems but trying to solve the problems in some compartments that are poorly flushed," Zarillo said. "We're not advocating any particular method. We're looking at a variety of technologies."

If at the end of Phase 1 it appears that synthetic tidal flushing, tightly controlled by engineered devices, improves the prospects for Indian River Lagoon ecosystem recovery, it'll be another tool available to more quickly reach an endpoint that both proponents and opponents can agree on.

## Technical Program Preview



- Biosolids / Resource Recovery
- Collection Systems I & II
- Distribution Systems
- Facility Operations & Maintenance
- Mixed Session
- Modeling/GIS/Computer Applications Nutrient Removal I & II
- PFAS
- Potable Water Treatment I & II Reclamation and Reuse I & II
- Resource Recovery
- South Florida Issues /Reclamation & Reuse II
- Stormwater & Green Infrastructure Sustainability / Water Supply
- Utility Management I & II
- Wastewater Treatment I & II
- Water Quality / Groundwater

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# Neighboring states regulating, overseeing coal ash impoundments

By ROY LAUGHLIN

In April, 2015, a year after the breach of a coal ash impoundment along the Dan River near Eden, NC, the U.S. Environmental Protection Agency passed new rules that regulated coal ash impoundments and established stricter groundwater protection measures.

In many cases, the rules required coal-burning plants—almost entirely electricity generation plants—with water-filled, unlined open disposal pits to move the coal ash to new locations for disposal in lined landfills.

EPA rules also established new standards to protect groundwater from elements such as arsenic that could leach from the impoundments.

A few southern states, notably North Carolina and Virginia, passed state laws regulating coal ash impoundments. These laws remain valid when they provide at least as much protection as federal regulations.

The EPA passed its 2015 coal ash rule under the federal Resource Conservation and Recovery Act. Because it defined coal ash as solid waste, the agency did not have the option under RCRA to delegate authority for coal ash impoundment regulation to states.

That changed significantly in 2016 when Congress passed the Water Infrastructure Improvements for the Nation Act, the WIIN Act. It amended RCRA to allow EPA to delegate coal ash regulation to state agencies.

Under the WIIN Act, states had to implement regulations at least as protective as the EPA's 2015 rule. The states also had to operate a permit program or system of prior approval of coal ash impoundments.

Lastly, state plans had to be submitted to the EPA for review, including a 180-day comment period. If approved, the state plans would operate in place of federal management.

Oklahoma was the first state to receive EPA approval to manage its own coal ash regulation program, receiving approval in June, 2018.

In June, 2019, Georgia became the second state to receive proposed EPA approval for a state-run coal ash impoundment management plan. Final EPA approval occurred this past December.

## The Georgia program

Georgia's solid waste management permitting rule for coal ash meets protective requirements under the EPA rules.

The state requires utilities to make individual applications and operate under individual permits for each coal ash unit.

According to *Utility Dive*, an industry trade magazine, Georgia's largest electric utility, Georgia Power, plans to excavate 19 coal ash impoundments, moving the ash to new disposal facilities that comply with the 2015 EPA standards.

Georgia Power will leave 10 of its coal ash disposal sites in place. Permits for these plans are pending.

In the interim, Georgia utility rate regulators approved a \$1.8 billion increase in Georgia Power's rate base, most of which, according to *Utility Dive*, will pay for Georgia Power's coal ash impoundment remediation.

Georgia's efforts to become the second state to operate its own permitting program is a cause for concern for some.

The Southern Environmental Law Center opposed the proposed program in a letter to the EPA, noting that the Georgia Environmental Protection Division had not hired additional staff to manage the new program.

Also, some of the 10 ash disposal impoundments that were not to be excavated are not lined. Although they are "dry," meaning they are not in direct contact with groundwater, SELC alleged the possibility of groundwater contamination.

State permitting authorities may require Georgia Power to modify its plans as it works its way through permit approval under its new authority.

When the EPA promulgated its 2015 rule, it defined coal ash and coal combustion residuals as "solid waste" rather than "hazardous waste."

The 2015 rule's subtle distinction under RCRA of coal ash as solid waste meant that the EPA could directly step up to regulate coal ash management if there was a citizen lawsuit. Several lawsuits were subsequently filed, bringing in the EPA and state agencies.

## NC, VA programs

North Carolina lawmakers responded to the Dan River coal ash impoundment failure with a new state law, the 2014 Coal Ash Management Act. The law mandated much stricter coal ash impoundment rules for North Carolina than elsewhere.

Duke Power, in particular, has an estimated 150 million tons of ash in coal ash impoundments at 14 facilities in North Carolina alone.

For North Carolina utilities, complying with CAMA is the primary legal force guiding the utilities' plans.

Under CAMA, Duke Power was com-

mitted to excavating 14 coal ash impoundments by 2024.

Duke's Dan River spill also opened the floodgates of citizen lawsuits against Duke Power's numerous coal ash impoundments throughout the Carolinas. SELC was a significant player in ensuing suits.

In January, 2020, as a result of a SELC initiated lawsuit, Duke Power and the North Carolina Department Environmental Quality announced a mutually agreeable settlement to address the electric utility's ash impoundments.

Duke agreed to close its nine remaining coal ash impoundments.

In addition, it will excavate an estimated 80 million tons of ash from six additional coal ash impoundments.

The January, 2020, settlement, adding excavation of six impoundments to Duke's list of sites to be remediated, will cost an extra \$1.5 billion.

The total cost for all Carolina impoundments is now estimated to be between \$8 and \$9 billion. This is expected to increase Duke customers' energy costs.

Duke will be able to close the remaining coal ash impoundments in place. Those impoundments at the Marshall Steam Station in Terrell and its Roxborough plant have lined disposal impoundments. Groundwater around those plants will be monitored moving forward.

The recent North Carolina lawsuit victory is in marked contrast to Georgia's efforts to establish its state-run SWMP program for coal ash impoundment remediation.

It appears that North Carolina has applied to the EPA for a SWMP. It relies so far only on its own law, CAMA, aided by lawsuits allowed under the 2015 EPA rule as amended by federal statute in 2016.

In addition to North Carolina, Virginia also regulates coal ash impoundments by state law, a law that has led to excavation of that state's coal power plant ash impoundments.

## SC program status

The SELC initiated lawsuits in South Carolina to obtain additional coal ash impoundment remediation.

In 2012, SELC, representing the Catawba RiverKeeper Foundation, ob-

**IMPOUNDMENTS**  
Continued on Page 14



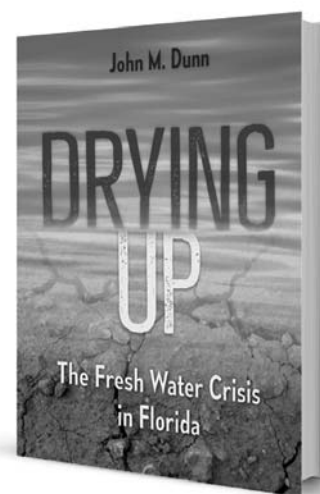
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# Study: Everglades imperiled by sea level rise, lowering ground levels

By ROY LAUGHLIN

For years, ecologists studying the Everglades have noted that the three millimeters per year sea-level increase poses a threat to freshwater Everglades' marshes and swamps.

At the fringes of the Everglades, as sea level has perceptibly increased in the last half-century, sawgrass, *Cladium jamaicense*, which is a freshwater marsh grass, has retreated.

Typically, mangroves and *Salicornia*, both salt marsh plants, replace sawgrass as an ecosystem transitions from freshwater marsh to estuarine conditions.

A recent study by a team of Florida International University researchers illustrated that another factor—the loss of peat sediments formed by sawgrass—is a second measurable component of the freshwater-to-estuary marsh progression.

The loss of peat sediments results in loss of soil elevation.

FIU experimentation performed in microcosms and lasting one year compared the loss of peat soil elevation around sawgrass roots growing in salinity of 10 and 19 parts per thousand.

Seawater salinity is about 32 parts per thousand.

The experimental salinity in the microcosms characterized moderately brackish water conditions near the limits of sawgrass salinity tolerance.

The findings were that when sawgrass grew in saline water microcosms, the loss of peat soil around roots amounted to six ± two millimeters per year compared to peat soil elevation of sawgrass grown in freshwater microcosms.

The peat soil loss occurred because root productivity decreased by 70 percent, resulting in a 37 percent loss of root biomass.

Secondarily, reductions in organic carbon production in leaves, which declined by 33 percent in sawgrass growing in brackish water, contributed less to peat production than for sawgrass growing in freshwater.

This research ties in with research described by this FIU research group last spring in the journal *Ecology*. That research showed that additional phosphorus avail-

ability that might co-occur with brackish water inundation accompanying sea-level rise causes no short-term increase in sawgrass primary productivity that increases peat accretion around the grass.

Whatever increase in sawgrass growth the phosphorus nutrients in seawater might cause is counteracted by the metabolic compensation for the stress of saltwater. Outside of the usual ionic conditions in its freshwater Everglades habitats, sawgrass primary productivity declines in brackish water.

The recent research indicates that the reductions in peat levels could lower peat soil elevation by six millimeters per year in a brackish marsh. This increase in water depth due to soil elevation loss is twice that of three millimeter per year sea-level rise.

Sawgrass meadows bordering even low salinity estuaries in the Everglades experience a vicious feedback loop where saline water inundation causes loss of peat soil elevation, which in turn leads to more rapidly advancing estuarine conditions at the borders of freshwater sawgrass marshes.

This freshwater habitat retreat will be faster—perhaps markedly faster—than that caused by sea-level rise alone.

## ORCA hopes to place more automated water monitoring stations

By ROY LAUGHLIN

Fort Pierce-based Ocean Research & Conservation Association Inc. is hoping for an additional \$750,000 to underwrite several more Kilroy water quality monitoring stations for its network in the Indian River Lagoon and Lake Okeechobee region.

Warren Falls, managing director of ORCA, said the placement of the additional sensors may be in creeks feeding Lake Okeechobee or along the Caloosahatchee River.

This would significantly expand the geographical range of the Kilroy monitoring network in the Indian River Lagoon.

The requested funding from the Florida Legislature, if approved, will come through State Senator Joe Negron's 2014 Indian River Lagoon and Lake Okeechobee Basin legislation.

That legislation already funds some of ORCA's Kilroy stations. Senator Debbie Mayfield and Representative Thad Altman are co-sponsors for a bill that increases funding.

Kilroys are modestly sized autonomous

water quality samplers mounted above the water's surface on pilings or bulkheads.

They were developed by ORCA, which has been monitoring the Indian River with them since 2008. The original Kilroys measured temperature, depth, clarity, salinity, dissolved oxygen, chlorophyll-a, nitrates, phosphates and pH.

The latest Kilroy model has the capability to differentiate cyanobacteria pigments and brown pigmented microalgae in the water column. The Kilroy network portrayed the spread and crash of the "brown tide" a few years ago, caused by *Aureoumbra lagunensis*, a diatom.

The current Kilroy generation also uses a new Doppler water current sensor that measures water velocity and flow direction. In addition, the Kilroy has a sensor to measure the water's oxidation-reduction potential.

That measurement indicates the status of conditions leading to hydrogen sulfide formation in sediments. Hydrogen sulfide is toxic to seagrasses under prolonged exposure.

ORCA receives \$250,000 in annual continuing funding to operate eight Kilroys in the southern part of the Indian River Lagoon. Four additional Kilroy's are in Brevard County, two are in Martin County and one is in St. Lucie County. The counties pay for those.

Between the state and the counties, fifteen Kilroys are currently in operation.

In 2019, the Florida Legislature approved \$500,000 for two additional Kilroys, yet to be placed. One will likely be located in Indian River County near the mouth of the Main Relief Canal where it empties into the Indian River, while the other will likely be placed near Wabasso in Indian River County.

The requested funding could bring the total Kilroy number to 22.

The recent past and proposed 2020 funding is a marked improvement of financial support for ORCA's monitoring network.

At one point before the 2008 recession, ORCA had more than 30 Kilroys in the water routinely telemetering water quality data. During the recession years, ORCA faced losing all state funding, and potentially the end of its monitoring network.

ORCA's Falls was enthusiastic about the Kilroy's recently upgraded capabilities and opportunities to upgrade it further.

The primary limit to measuring other parameters is a lack of suitable sensors. But sensors are improving steadily and ORCA is watching closely to see what might be available to improve the Kilroy platform.

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# Progress made on Indian River Lagoon basin management action plan

By ROY LAUGHLIN

The coming year will usher in several significant changes to the Indian River Lagoon's basin management action plan.

In December, the Florida Department of Environmental Protection conducted a webinar to review its progress since 2009 when total maximum daily loads were first established and BMAPs adopted in 2013 to attain them.

The presentation included a discussion of recent nutrient trends, with a focus on phosphorus, at monitoring stations in the Indian River Lagoon.

The discussion presented monitoring data for nitrogen and phosphorus levels in the lagoon's water since 2000. The overall impression is that the last five years have seen persistently high nutrient levels throughout the lagoon, with correspondingly high chlorophyll levels in the water.

The high chlorophyll levels indicate high primary productivity by planktonic algae, also called microalgae. In extreme events, the microalgae caused algal blooms with many adverse environmental effects.

A high phytoplankton abundance is considered undesirable because it shades seagrass beds. Since 2011, substantial seagrass bed loss has occurred. Replacement has been negligible in most areas.

The Banana River, the initiation site of the 2011 algal bloom that spread throughout the central and north portions of the lagoon, received specific attention during the webinar. Its extremely high chlorophyll and total phosphorus levels coincided between 2015 until late 2018.

In the last year of reporting, both phosphorus and chlorophyll levels had dropped from their highest levels during the algae bloom but were still higher than the usual levels experienced before 2010.

One comment during the presentation on Banana River Lagoon chlorophyll decreases between early 2018 and mid-2019 noted that although the decrease may be real, it belies the difficulty of comparing nutrient levels in water with the biological responses they may induce.

Total phosphorus levels during an algal bloom mushroom. Much of that phosphorus occurs in biomass ostensibly fueled by its initial presence as inorganic phosphorus.

Yet orthophosphate levels at four of five stations with automated nutrient samplers have consistently remained below 0.05 milligrams per liter.

A fourth station has had the highest dissolved orthophosphate concentrations, approaching 0.15 mg/L during a spike in 2003.

The webinar discussed BMAP progress and changes proposed for the coming year. A review of projects since the adoption of BMAPs in 2013 showed mixed results.

The Banana River has had 220 projects completed, calculated to reduce total nitrogen loadings by 45,443 pounds per year. This is 47 percent of the reduction needed to meet the TMDL nitrogen target.

For total phosphorus, those same projects yielded a 4,422 pound per year reduction in phosphorus loading, 42 percent of the target to meet its TMDL.

The central Indian River Lagoon does not have a TMDL allocation, but 248 projects have been completed yielding reductions of 135,000 pounds per year of total nitrogen and 28,000 pounds per year of total phosphorus.

The north Indian River Lagoon sections A and B also have no established TMDL allocations.

The regions discussed give some indication of the broad difference in progress meeting TMDL water quality standards by using BMAPs to assess and reduce nutrient loadings.

In the coming year, the Indian River Lagoon BMAP will be updated including the central and south lagoon segments.

There are some boundary changes proposed for both segments and sections. One of the boundary changes is extensive.

A basin west of Fort Pierce and Vero

Beach that is primarily in St. Lucie County will be removed from the IRL BMAP inventory. It was noted that recent determinations indicate that the basin did not contribute nutrients to the lagoon.

Nutrient reductions used to determine BMAPs are calculated based on nutrients' mass estimates for each project in the basin intended to end or reduce nutrient inflows. They are not necessarily individually monitored.

The estimates for loading are based on land use classifications maintained by county property appraisers. Land use classification and nutrient loading associated with it reflect the 2015 classification in most cases.

DEP proposed to use a new Spatial Watershed Iterative Loading, or SWIL, model to estimate nutrient loading reductions for projects. SWIL is a GIS-implemented estimation method. A comment period for this change was open until Jan. 10, 2020.

One BMAP implementation credit protocol discussed during the presentation was developed through a Patrick Air Force Base sediment and erosion control project. It incorporates sediment mass reductions determined through historical shoreline

erosion rates and sediment sampling.

The basis of the credit depends on marsh denitrification and wetland plantings.

The marsh planting effectiveness was based on Redfield ratios and authenticated by wetland plantings and plant tissue sampling. DEP approved that protocol in September, 2019.

Muck removal is a centerpiece of reducing internal nutrient loading believed responsible for the succession of massive algal blooms that began in 2011.

A revised muck removal credit plan is now under development. It will replace the 2012 credit plan and is specific for the Indian River Lagoon.

As outlined, credits will be based on the aerial extent of muck removal. Muck must be removed to the natural substrates "to the maximum extent possible."

Projects eligible were noted to be best applied to the lagoon proper and to downstream portions of lagoon tributaries. The salinity levels are planned to be greater than or equal to one part per trillion.

The webinar included additional technical details about muck removal. Muck was defined as sediment with more than 10 percent organic matter.

The technical data presented showed that ammonia's contribution to water from muck, a key phytoplankton nutrient, increases linearly with organic content up to 20 percent organic matter.

Between 10 and 20 percent, the credits earned may be stepped up with each one percent increase in average organic matter in the muck removed.

At an organic content of 20 percent or more, ammonia release levels out, according to the credit plan developers. Therefore, muck with 20 percent or more organic material will all be in a single, top credit category.

Entities applying for muck removal credits must also implement post muck removal controls such as erosion ordinances, landscaping ordinances, street sweeping, maintenance of vegetation cover and/or an outreach program.

*Note: This article is a synopsis of the webinar. The presentation slides are available online. The 2019 Star report is also available online at <https://floridadep.gov/STAR>. This planning exercise contributed to the 2020 STAR report, which should be filed online around July 1, 2020. Additional information is available from Sarah Davis at [Sara.c.davis@floridadep.gov](mailto:Sara.c.davis@floridadep.gov).*

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## Game on: What to watch for during the 2020 Florida legislative session

By WILLIAM D. PRESTON

Okay, I'll get the sports metaphor out of the way first. This issue of the *Specifier* will hit the streets just after Superbowl LIV in Miami Gardens between the Chiefs and 49ers. The billions of dollars spent on sports betting, player salaries, lodging and entertainment, media coverage contracts, half-time performances and TV ads will pale compared to the 60-day expenditures for Florida Legislature CXI. This is no contest against the latter's \$92 billion budget, room and bar tabs, lobbyist fees and political contributions. So, if you missed the hype and excitement in Miami Gardens for Superbowl Sunday, make plans to be in Tallahassee for at least a portion of the true Greatest Show in Florida before sine die, Latin for the "hanky drop," on Mar. 13.

Phew! Now on to business. What follows is what to expect during this year's legislative session.

### The warmup

This is one of those "every other" years when the Florida Legislature starts in January rather than March. Pre-session committee work was occurring last fall. Republicans continue to exert control over the Governor's Mansion as well as the House and Senate. This is the last year of leadership for Senate President Bill Galvano and House Speaker Jose Oliva, and that could affect their policy decisions and directives since neither seemingly have further short-term political ambitions after leaving office. Trumping all this (pun intended) is the 2020 election year. These folks will want to leave the playing field (sorry, I couldn't resist) pronto by no later than mid-March.

### The budget

Allow me to remind you yet again that THE APPROPRIATIONS BILL CONTAINING THE 2020-21 STATE BUDGET IS THE ONLY MUST-PASS BILL OF ANY LEGISLATIVE SESSION, meaning no disrespect to any other important Florida issues like education, crime abatement, firearms regulation, health care, environment, etc.

Those portions of that projected \$92 billion Florida budget addressing environmental protection issues will substantially drive the regulatory programs and related actions conducted by the Florida Department of Environmental Protection, water management districts and related city/county programs during that 12-month budget cycle. That is why one sees not only free agents and teams of private sector lobbyists involved in the process in Tallahassee but also dozens of state, regional and local government representatives.

Governor Ron DeSantis' budget proposal, which he touted during his opening speech to the Legislature's joint session, totaled \$625 million in recurring funding for Everglades Restoration and the protection of water resources. Over half of that amount was earmarked for planned or ongoing Everglades restoration projects. The next highest expenditure would be \$150 million for water quality improvement programs from which 50 percent matching grants can flow to participating local governments.

The remaining millions address further restoration projects for Florida springs, support for the new Blue-Green Algae Task Force priorities on associated water quality monitoring and helping prevent or mitigate future harmful effects of algae blooms. Other budget allocations cover beach renourishment, coral reef protection, state parks, coastal resilience grants to local governments and an additional \$100 million for the Florida Forever land purchase program. Of course, these budgetary proposals are subject to review and modification by the respective House and Senate appropriations committees and subcommittees.

### Water resources, quality

By all accounts, these proposals are recognized as the "big bills" on environmental issues during the 2020 Legislature.

**Committee Substitute/SB 712/HB 1343**, the "Clean Waterways Act." Most of this bill's content came from meeting discussions of the Blue-Green Algae Task Force in 2019. In support, Gov. DeSantis stated the bill "is based

on sound science and provides a roadmap to reduce nutrients in our waters." The bill transfers the septic tank regulatory program from the state Department of Health to the DEP and requires new rules for where septic tanks can be located. DEP must also develop updated stormwater rules, new rules to limit leaks from underground sewer pipes and additional rules for managing the application of biosolids used as fertilizer.

This legislation would also establish enhanced basin management action plan requirements including local government wastewater treatment plans in order to meet an established total maximum daily load under certain circumstances. DEP shall adopt the wastewater treatment plan and/or onsite sewage treatment and disposal plan as part of a BMAP no later than 7/1/25.

In response to what seem to be an ever-increasing number of spills and discharges from local publicly owned treatment works around the state, local governments would be required to initiate new wastewater infrastructure projects. To help fund those efforts, the bill creates a wastewater grant program intended to further reduce instances of nutrient pollution.

Lastly, Florida agriculture operations would be subject to Florida Department of Agriculture and Consumer Services inspections every two years to ensure their best management practices for reducing nutrient pollution are working.

**HB 405/SB 686.** This bill would address ongoing nutrient contamination issues from the perspective of requiring the water management districts, with DEP oversight, to adopt and design performance standards for stormwater treatment systems made part of all new development and redevelopment projects.

This would include amendments to the applicant's handbook for revised BMPs and design criteria to eliminate new pollutant loadings being discharged to impaired surface waters. Updated rules for construction, operation and management of stormwater management systems

### NEPA

From Page 1

able alternatives" must be technically and economically feasible. Whether this will modify the use of best available technology requirements remains to be seen and will probably be determined by a number of court cases expected to result from passage of the new rule.

#### Greater roles for states, tribes

Under the proposed rule, duplicate reviews by state, tribal and local governments would be reduced through coordination with the federal agency involved.

While some who have read the proposed rule may interpret this change to mean that federal agencies may bring them in on the review preparation, the rule may, in fact, be turning the responsibility to review a project over to state and local regulators.

That move would vastly dilute the authority needed to protect citizens and the environment.

#### Reducing burden, delay

The CEQ is clearly most interested in reducing burdens and delay while EISs and EAs are being conducted and written.

The CEQ proposed to expand the use of categorical exclusions. As a mechanism, a federal agency under the new rule would be able to use other agencies' categorical exclusions.

Apparently, that means that a resource extraction-friendly state that excludes certain review requirements could take the lead over federal NEPA reviews and evade some federal review requirements.

Allowing state and local regulatory agencies to set standards for environmental regulation has a centuries-long record of poor performance and failure.

Finally, the CEQ proposed to allow permit applicants and their contractors to have substantial and perhaps leading roles in an EIS preparation.

Consider how well the tobacco industry informed the public of the perils of smoking. An Orwellian brave new world of parochial ideas and self-interest dominating NEPA reviews will not protect public health and the environment compared to the current law.

#### What the critics think

Many critics of the proposed rule amendments posit that the likely outcome of rewriting terms and scopes will limit consideration of critical environmental problems including climate change because it would be "remote in time" and the result of a "lengthy causal chain."

The quoted definitions come from the new rule's language to redefine "effect" as the "most significant effect."

According to a critique by Zachary Knaub in the *National Law Review*, the requirement for considering cumulative effects is part of NEPA itself, subject only to legislative, not rule, revision.

Applied too broadly, categorical exclusions and failure to include cumulative effects in NEPA reports could tie up the revised rule's implementation in courts for years

would also be required.

**HB 715.** This bill includes provisions authorizing "recycled water" (reuse or reclaimed water) for use as a source of public water supply. Among other provisions, the bill directs DEP and the water management districts to coordinate permit reviews for groundwater and surface water augmentation projects under a memorandum of understanding to be finalized by the end of 2022.

If enacted, other provisions could lead to the possible use of recycled water as a potable water source after 2022, if ratified by the Legislature, and could prohibit the future disposal of effluent, reclaimed water or reuse water by surface water discharge beginning in 2026, with limited exceptions.

**HB 147/SB 690.** This is a futuristic planning bill that would require DEP to develop a comprehensive review and report on Florida's water infrastructure funding needs for residential, commercial, agriculture and industrial users based on both a five-year and a longer term 20-year planning period.

**HB 775.** Another planning measure aimed at local governments whose boundaries include any portion of the Everglades Protection Area. Adopted plans and plan amendments by such local entities would be required to follow the state coordinated review process for local government comprehensive plans and amendments.

Plus, DEP would determine under its own review whether a plan or plan amendments impede Everglades restoration and protection objectives.

#### Climate action

With a significant push from Gov. DeSantis, this could be a legislative session when we finally see a meaningful enactment of climate-related legislation.

**SB 7016.** A Statewide Office of Resiliency within the Executive Office of the Governor would be established

### PRESTON

Continued on Page 14

into the future.

The proposed categorical exclusions, particularly the one that would exclude evaluating cumulative effects, could be the amended implementation rules' poison pill for its supporters who want less delay.

Knaub wrote that the proposed time and page limits for regulatory reviews is another requirement written within NEPA and is integral to the law.

He pointed out that the primary pratfall of having a court intervene in a NEPA review is the failure to perform it properly. The courts base their decisions more on whether NEPA reviews identify, characterize and evaluate environmental effects against non-environmental effects. The substance of the decision is often less relevant.

In other words, adhering to process supported by precedent, not the decision that results, is the key ingredient of successful review defense against court challenges. The proposed rule's abbreviation of the review process to get to the preferred decision may not be the short path to durable NEPA review decisions.

In summary, Knaub said that the Trump administration's goals and procedures to modify NEPA implementation rules may face a significant challenge if it does not consider 50 years of "well-settled precedent and procedures" the courts imposed on the NEPA review processes.

If Trump's presidency ends with the next election, NEPA implementation would likely remain largely intact as it was originally written 50 years ago. With four years to steer the new rule through courts increasingly filled by Trump appointees, the proposed NEPA changes are likely to have a much longer tenure.

According to multiple news sources, environmental advocacy groups are actively planning a massive public comment effort, one that certainly will be followed by a flood of court challenges to the rule when it is finalized.

Many industry voices that stand to benefit from the proposed NEPA changes are notably uninvolved, issuing few endorsements and avoiding public comment.

The Trump administration has modified more than 80 rules and federal policies to specifically benefit chemical manufacturers, pesticide manufacturers and users, the fossil fuel industry, and those who lease federal land for lumber, mining and other resource extraction industries.

The new rules implemented to date have received far less attention as they were finalized. Perhaps that large group of industry beneficiaries has gained what they put the Trump administration in place to do.

Keeping those gains may be best served by maintaining a low profile in the broader effort to amend and significantly weaken NEPA's public health and environmental protections.

The public comment period for proposed NEPA rule revisions opened in January, 2020, and will close March 10, 2020. The CEQ will also schedule public hearings in February in Washington, DC, and in Denver, CO.

# Florida Specifier

P.O. Box 2175  
Goldenrod, FL 32733

Michael R. Eastman  
Publisher/Editor

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

## February

FEB. 10-11 – 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).

FEB. 10-13 – 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).

FEB. 10-14 – Course: Wastewater Class B Certification Review, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

FEB. 12-13 – Course: Initial Training Course for Transfer Station Operators and Materials Recovery Facilities - 16 Hour, 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).

FEB. 13 – Course: Asbestos Refresher: Worker, 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).

FEB. 18-20 – Course: Initial Training Course for Landfill Operators and C&D Sites - 24 Hour, Daytona Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

FEB. 18-19 – Course: Initial Training Course for Transfer Station Operators and Materials Recovery Facilities - 16 Hour, Daytona Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

FEB. 18 – Course: Initial Training Course for Spotters at Landfills, C&D Sites and Transfer Stations - 8 Hour, Daytona Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

FEB. 18-19 – Course: Refresher Training Course for Experienced Solid Waste Operators -16 Hours, Daytona Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

FEB. 18 – Course: Refresher Training Course for Experienced Solid Waste Operators - 8 Hours, Daytona Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

FEB. 18-20 – Course: Initial Training for Operators of Landfills and Waste Processing Facilities, Daytona Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

FEB. 18 – Course: Refresher Training Course for Experienced Solid Waste Operators - 4 Hours, Daytona Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

FEB. 18-20 – Course: Train the Trainer: How to Design & Deliver Effective Training, 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).

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

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

FEB. 20 – Seminar: 2020 Winter Water Seminar, Orlando, FL. Presented by the Florida Engineering Society. Call (850) 224-7121, email [fes@fleng.org](mailto:fes@fleng.org) or visit [www.fleng.org](http://www.fleng.org).

FEB. 19-20 – Course: Cross-Connection Control Conference, Daytona Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

FEB. 19 – Course: Refresher Training Course for Experienced Solid Waste Operators - 8 Hours, Daytona Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

FEB. 19 – Course: Refresher Training Course for Experienced Solid Waste Operators - 4 Hours, Daytona Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

FEB. 19 – Course: Asbestos Refresher: Contractor/Supervisor, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

FEB. 20 – Seminar: Air Quality Seminar, Port Charlotte, FL. Presented by the Florida Water Environment Association. Call (407) 574-3318 or visit [www.fwea.org](http://www.fwea.org).

FEB. 20 – Meeting: Joint Society Mixer, West Palm Beach, FL. Presented by ASCE/Florida Section, FES,

AEC Trendsetters, APWA/Florida Chapter and AWWA/Florida Chapter. Email [awra@awraflorida.org](mailto:awra@awraflorida.org) or visit [awraflorida.org](http://awraflorida.org).

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

FEB. 22-MAR. 1 – 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).

FEB. 22-29 – Course: Backflow Prevention Recertification, Miami Lakes, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

FEB. 24-28 – Course: Water Class C Certification Review, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

FEB. 25-26 – Symposium: UF 2020 Water Institute Symposium, Sustainable Water Resources, Complex Challenges, Integrated Solutions. Call (352) 294-3584, email [j.bailey@ufl.edu](mailto:j.bailey@ufl.edu) or visit [conference.ifas.ufl.edu/waterinstitute](http://conference.ifas.ufl.edu/waterinstitute).

## March

MAR. 2-6 – Course: Water Distribution Systems Operator Level 2 & 3 Training, Eglin AFB, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 2-6 – 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).

MAR. 2-6 – Course: Asbestos: 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).

MAR. 2 – Course: Asbestos: Introduction to Lift Station Maintenance, 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).

MAR. 3-5 – Course: 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).

MAR. 7-8 – 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).

MAR. 7-8 – 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).

MAR. 9-10 – Course: Backflow Prevention Recertification, 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).

MAR. 10 – Showcase: FSAWWA MAC New Technology & Training Showcase, Orlando, FL. Presented by the Florida Section of the American Water Works Association. Contact Mark McDowell at (727) 403-7614 or visit [www.fsawwa.org](http://www.fsawwa.org).

MAR. 10 – Meeting: Project SAFE, Safety Awareness for Engineers, Jacksonville, FL. Presented by

the Florida Engineering Society. Call (850) 224-7121, email [fes@fleng.org](mailto:fes@fleng.org) or visit [www.fleng.org](http://www.fleng.org).

MAR. 11-12 – Course: Backflow Prevention Recertification, Fort Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 12-13 – Course: Backflow Prevention Recertification, 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).

MAR. 14 – Course: 8-Hour OSHA HazWoper Annual Refresher, Tallahassee, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 16-18 – Course: Initial Training Course for Landfill Operators and C&D Sites - 24 Hour, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 16-17 – Course: Initial Training Course for Transfer Station Operators and Materials Recovery Facilities - 16 Hour, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 16 – Course: Initial Training Course for Spotters at Landfills, C&D Sites and Transfer Stations - 8 Hour, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

MAR. 16-17 – Course: Refresher Training Course for Experienced Solid Waste Operators -16 Hour, Crestview, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit [www.treeo.ufl.edu](http://www.treeo.ufl.edu).

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### ASBESTOS COURSES

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**Asbestos: Project Design**  
Apr. 7-9, 2020 | Gainesville, FL | CEUs: 2.4

**Asbestos Refresher: Inspector**  
Feb. 18, 2020 | Gainesville, FL | CEUs: 0.4  
Apr. 21, 2020 | Gainesville, FL | CEUs: 0.4

Course also available online

**Asbestos Refresher: Management Planner**  
Feb. 18, 2020 | Gainesville, FL | CEUs: 0.4  
Apr. 21, 2020 | Gainesville, FL | CEUs: 0.4

**Asbestos Refresher: Contractor/Supervisor**  
Feb. 19, 2020 | Gainesville, FL | CEUs: 0.8  
Apr. 22, 2020 | Gainesville, FL | CEUs: 0.8

Course also available online  
**Asbestos: Cement Piping (Class II) Initial & Refresher**  
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### WATER & WASTEWATER COURSES

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**Process Control of Advanced Waste Treatment Plants**  
Mar. 3-5, 2020 | Gainesville, FL | CEUs: 2.1

**Wastewater Class C Certification Review**  
Mar. 16-20 2020 | Gainesville, FL

**Wastewater Class B Certification Review**  
Mar. 23-27, 2020 | Gainesville, FL

**Effective Utility Leadership Practices**  
Mar. 30-31, 2020 | Gainesville, FL | CEUs: 1.35

**Microbiology of Activated Sludge**  
Apr. 7-9, 2020 | Gainesville, FL | CEUs: 2.2

**DEP SOPs for Water Sampling & Meter Testing**  
Apr. 14, 2020 | Gainesville, FL | CEUs: 0.8

**Intro to DEP SOPs for Groundwater**  
Apr. 15, 2020 | Gainesville, FL | CEUs: 0.4

**Water Distribution Systems Operator Level 2 & 3 Training**  
Apr. 20-24, 2020 | Gainesville, FL | CEUs: 3.2

### BACKFLOW PREVENTION COURSES

**Backflow Prevention Assembly Tester Training & Certification**

Feb. 21-29, 2020 | Venice, FL\*\*  
Feb. 22- Mar. 1, 2020 | Tampa, FL\*  
Mar. 2-6, 2020 | Orlando, FL  
Mar. 16-19, 2020 | Tallahassee, FL  
Mar. 21-29, 2020 | Tampa, FL\*  
Mar. 23-27, 2020 | Gainesville, FL

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

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

Mar. 30 - Apr. 1, 2020 | Gainesville, FL  
Apr. 17-18, 2020 | Venice, FL

**Backflow Prevention Recertification**

Feb. 10-11, 2020 | Destin, FL  
Feb. 22-29, 2020 | Miami Lakes, FL  
Mar. 7-8, 2020 | Bradenton, FL  
Mar. 7-8, 2020 | Tampa, FL  
Mar. 9-10, 2020 | Altamonte Springs, FL  
Mar. 11-12, 2020 | Ft. Myers, FL  
Mar. 12-13, 2020 | Davie, FL  
Mar. 20-21, 2020 | Tallahassee, FL



**Cross Connection Control Conference**  
February 19-20, 2020  
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### SOLID WASTE COURSES

**Initial & Refresher Solid Waste Courses**

Feb. 18-20, 2020 | Daytona, FL  
Mar. 16-18, 2020 | Crestview, FL  
Apr. 28-30, 2020 | Plant City, FL  
Courses also available online

**Landfill Design and Construction**  
Mar. 23-27, 2020 | Gainesville, FL

### HAZARDOUS WASTE COURSES

**8-Hour OSHA HazWoper Annual Refresher**  
Mar. 14, 2020 | Tallahassee, FL

**40-Hour OSHA HazWoper Training Course**  
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**24-Hour OSHA HazWoper Training Course**  
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# NOAA, partners initiate major coral reef restoration effort in Florida Keys

By ROY LAUGHLIN

Coral reef loss in the Florida Keys has been a continuing news item with an increasingly dire tone about the extent of reef loss. In the last few years, a new coral disease, stony coral tissue loss disease, has killed the majority of susceptible stony corals on Florida reefs.

Living stony coral coverage has fallen to its lowest level ever scientifically recorded due to a combination of disease and environmental stress.

A recent assessment in the Florida Keys found coral coverage as low as 2-15 percent, depending on the habitat zone. A healthy reef has between 25-40 percent living coral cover with a high diversity of other organisms present.

Late last year, the National Oceanic and Atmospheric Administration and a group of collaborating organizations announced a bold plan to "out-plant" hatchery-cultured, disease-resistant coral colonies at seven "iconic reefs" in the Florida Keys.

The effort involves primarily elkhorn, star, brain, pillar and staghorn corals. Three of those corals are massive corals while elkhorn and staghorn are the branching

corals that form the mental image of a coral reef to most people.

These corals are resistant to stony coral tissue loss disease. Other organisms such as sea urchins and Caribbean King crab, which help control algae overgrowth of corals, will also be placed in the reef.

Out-planting efforts are planned to continue for a dozen years with the goal of reaching 25 percent average coral coverage on restored reefs. This is expected to require out-planting 500,000 stony coral colonies.

This huge effort will involve a team of professional and volunteer divers to maintain the reef by periodic removal of nuisance species and marine debris.

The maintenance effort will also reattach corals that become detached or damaged. Strong hurricanes are a particular threat because of the damage to branching species and overturning of massive corals.

Corals to be out-placed will be cultured onshore in flowing seawater nursery tanks.

Mote Marine Laboratory & Aquarium and the Coral Restoration Foundation will culture fast-growing coral species for the first phase of the effort.

Mote Marine Laboratory and The Florida Aquarium will provide slower

growing laboratory-grown corals of other hard coral species that will be screened for disease resistance. When they are out-planted, they will increase coral diversity, an important goal of the effort.

The Nature Conservancy, SECORE International, the University of Florida, the University of Miami's Rosenstiel School of Marine and Atmospheric Sciences and Nova Southeastern University will provide additional scientific support for coral colony research.

Gina Parsons, communications and outreach manager at the Florida Keys National Marine Sanctuary, said that NOAA has more than 15 years of prior research in coral culture and out-planting at various scales and locations in the Keys.

Those studies involved multiple investigators and groups interested in coral reef ecology and stewardship.

The reef restoration plan arose from a scientific meeting involving 25 experts in coral research and restoration, and representatives of state and federal agencies.

The project, dubbed Mission: Iconic Reefs, aims to restore seven reefs from Key Largo to Key West, the entire length of the Florida Keys barrier reef tract.

The reefs are Carysfort Reef, Horseshoe Reef, Cheeca Rocks, Sombrero Reef, Newfound Harbor, Looe Key Reef and Eastern Dry Rocks.

NOAA characterized them as spanning, "the full geographic range of the region, a variety of habitats, and a diversity of human uses."

Parsons characterized this ambitious plan as the first of its kind in terms of scale.

She also said it marks a change in NOAA's efforts in coral reef stewardship because of its focus on the recovery of the

system as a whole. It is broader than the rescue of one or a few species.

If successful, it will be a model for reef restoration both elsewhere in Florida as well as globally.

The reef tract north of Biscayne Bay is managed by the Florida Department of Environmental Protection. Those near Biscayne Bay and the Dry Tortugas are national parks and administered differently

than the National Marine Sanctuary.

Both may be added to the reef restoration effort if Mission: Iconic Reefs is successful. She said that NOAA estimated a cost of \$97 million for the first phase of the work. The price covers 12 years of work.

NOAA's Restoration Center and the NOAA Coral Reef Conservation Program have awarded \$5.3 million in grants to support restoration over the next three years.

Parsons said that several of the

project funders are donor-supported with a successful track record of obtaining funding. Those organizations are likely to provide significant financial support for a project with such a large and persistent budget need.

The people and organizations involved are confident that the knowledge and timing are in the project's favor.

"Ten years ago, this project would be just a wild dream," said Ken Nedimyer, founder of Reef Renewal, quoted in NOAA's press release announcing the project. "We're at a place in time where we have the technology to undertake a project of this size and we have a window of opportunity to do so. Not only can we think about doing it, but the need to do it is overwhelming."

## Restoration grant opportunity


For researchers interested in coral reef restoration projects, NOAA announced funding through the newly instituted Ruth Gates Coral Restoration Innovation Grants competition.

The grant funding is for non-federal partners and will focus on coral resilience and improvements in shallow water coral reef restoration.

Award amounts will range from \$100,000 to \$1 million over a three-year project period. The deadline for grant proposals is March 20, 2020.

The grant is a tribute to Dr. Ruth Gates' professional legacy. She was a renowned coral researcher and the former director of the Hawaii Institute of Marine Biology.

Gates studied coral reef decline. The funding will continue this important part of her research.



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## Weeki Wachee natural system carrying capacity under duress

By BLANCHE HARDY, PG

Officials with the Southwest Florida Water Management District and Hernando County announced a

public workshop in Hernando Beach in February to present the results of the Weeki Wachee Natural System Carrying Capacity Study.

The ecologically based study was undertaken to evaluate the affects of recreational use on the river. To assure impartiality, third-party consultant Wood Environment & Infrastructure Solutions of Tampa was selected to complete the study.

District and county staff with consultant representatives will explain how the study was conducted and discuss the study results at the workshop.

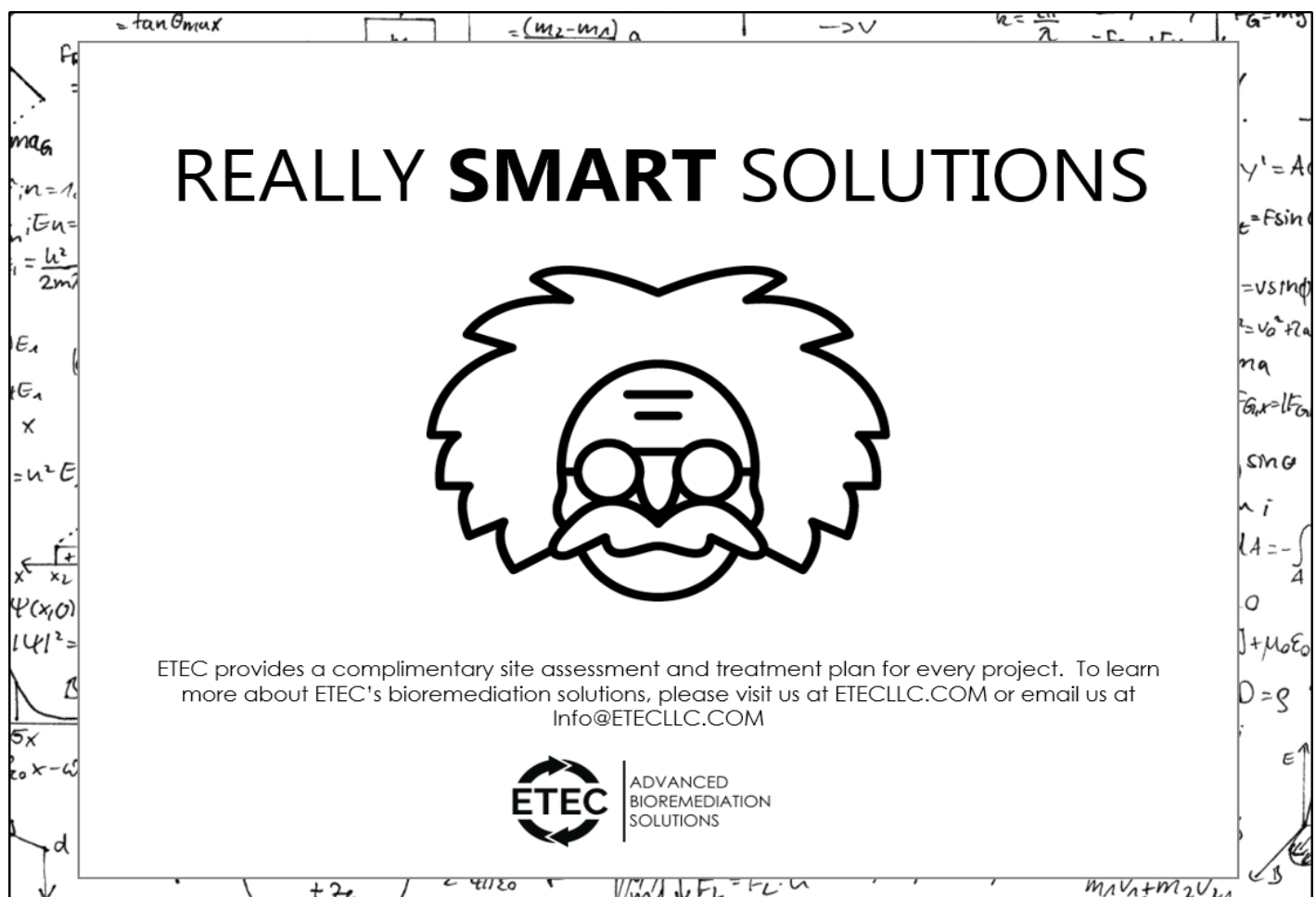
The project was co-funded by Hernando County and the Southwest Florida Water Management District with in-kind support from the Florida Department of Environmental Protection.

The \$250,000 study is the initial step in securing a potential \$6 million in restoration funding for the Weeki Wachee system.

The draft report indicated that escalating recreational use of the Weeki Wachee River, a designated Outstanding Florida Water, is detrimental to the river's water quality and ecological health.

According to district officials, activities in the water and on the river banks are causing significant impacts to the system.

The study also provided policy and management options for governing agencies with jurisdiction and authority to consider implementing to reduce recreational impacts on the river.



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**WEEKI**  
Continued on Page 16

# Key West benefitting from investment in solar power, plans to do more

By **BLANCHE HARDY, PG**

The city of Key West is getting a return on its investment in solar energy at City Hall. The city sees an average savings of approximately 10 percent of the energy use at the property, said Johnnie Yongue PE, a project manager with the city.

That translates to 5,000 kilowatts of solar energy produced each month.

"This is an overall price savings of \$600 each month and a 40-year return on investment," he said.

The solar panels were installed with the assistance of Keys Energy Services, known as KEYS.

The company contributed approximately \$240,000 of its British Petroleum settlement funding to the city of Key West to help fund the installation of the solar arrays.

The overall project cost was approximately \$700,000.

The city built the structures and provided the connecting appurtenances. KEYS provided the solar panels.

The 60 kilowatt project included installing 216 327-watt panels spanning 1,900 square feet of surface area.

The solar panels cover the top of City Hall's parking structures. They were visually unpopular at first, but people appear to have come around.

"City staff and users of City Hall like them because they hide in plain site as a shade structure, which is a valuable ben-

efit in a place where a car can be too hot to sit in most of the year, including the winter," said Yongue said.

"I have heard little grievance about them from outside city business, and most of the active community members I have spoken to are happy to see them and hope they are a sign of more advancements for our small community."

The city earned Leadership in Energy and Environmental Design, or LEED, platinum certification for the work at City Hall, one of just three in the country to have earned the honor at that time.

The Josephine Parker Key West City Hall was created from the historic Glynn Archer School, preserving the historical integrity of the structure for the future.

The solar-equipped parking structures helped Key West win the LEED designation. Energy efficiency is highly rated.

The overall energy efficiency of the building and the on-site renewable energy in the form of solar panels earned City Hall high marks.

But with LEED certification in hand, the city's mayor and city commission are not resting on their laurels. They plan to consider solar energy as an option for both new and existing facilities, and they are seeking the assistance of KEYS to expand their understanding of potential alternatives.

KEYS presented a briefing on its solar energy program to the mayor and city commission late last year. The commission recognizes solar energy as an essential com-

ponent of their green energy plan.

"The city commission passed Resolution #19-328 on Nov. 19, 2019, directing city staff to provide a feasibility report for possible solar installations on all new construction and major renovations," said

Yongue.

"Whenever we construct a new building or renovate, the designer will be required to present a solar project option with recommended price and proposed production capacity."

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### FEDFILE

From Page 2

"potassium salts of fatty acids."

The EPA completed this action in time to benefit hemp farmers.

The U.S. removed legal restrictions on hemp in 2019. Cultivation of this plant is intended to provide additional financially remunerative crop options for heartland farmers.

**Application rate restrictions and overspray control for herbicides.** The EPA proposed regulations for atrazine, a widely used crop herbicide, that will reduce application rates on agricultural crops.

The agency also proposed mandatory spray drift control measures. Atrazine is currently used on about 75 million acres of farmland annually. It may be applied to both row and tree crops.

The EPA also proposed reduced application rates on residential turf.

The agency said that the proposed reductions are based on a 2016 draft ecological risk assessment and a 2018 human health draft risk assessment.

In related action, EPA proposed updating requirements for propazine and simazine, two weed control agents with modes of action similar to that of atrazine.

The agency will accept public comment for 60 days following publication of a notice in the Federal Register, expected sometime in January.

**EPA cutbacks ripple through state environmental programs.** The Trump administration continues to implement draconian cuts to federal environmental programs, research funding and staffing at the EPA, alleging that states will step in to take over the federal role in more effective and economical ways.

Between 2008 and 2018, the EPA saw funding cut by 16 percent, adjusted for inflation. By the midpoint of the Trump administration, EPA staffing reached its lowest level in the past three decades.

A new report by the Environmental Integrity Project showed that a majority of states have dropped the ball on funding.

The study examined state spending between 2008 and 2018. Over that decade, 30 states reduced funding for their state agency's pollution control programs. Twenty-five of those states reduced it by at least 10 percent.

Funding in sixteen states fell by more

than 20 percent. These figures are adjusted for inflation.

Staffing at state environmental agencies dropped even more extensively.

Forty states reduced staffing levels during the decade. Twenty-one states cut their environmental workforce by at least 10 percent and nine by 20 percent or more. That amounted to 4,400 positions eliminated across all states.

The report alleged that the cutbacks in spending and staffing cannot be attributed only to the recession that began in 2008. In Texas, Pennsylvania and North Carolina, the report pointedly noted, state funding on environmental quality dropped by as much as 35 while total state funding increased.

Enforcement compliance was one area that suffered greatly. The EIP report cited records of 2,098 contaminant emission sites across the U.S. that are currently in significant violation of pollution control laws. 1,255 of those sites have been in violation every quarter since 2015, and just over a thousand are in states whose environmental agencies have had significant staffing cuts.

According to the report, Florida is in the top 10 list of states that experienced significant staff cuts in the decade since 2008. Twenty percent of DEP's staff was cut.

Florida is also one of the states where massive reductions in environmental enforcement have occurred.

The Environmental Integrity Project's data is supported by reports during the past two years from Florida Public Employees for Environmental Responsibility.

Florida PEER also reported lax environmental law enforcement in the state.

The paradox is that Florida is in a group of three states surveyed by Environmental Integrity Project researchers with inflation-adjusted environmental spending increases, showing that cutting staff may be a primary cause of low enforcement.

The report included several policy recommendations that largely promote increased funding by state governments for their environmental programs.

The federal government might assist states modestly, the report noted, but with limits.

The EPA has suffered such significant reductions in budget and staffing that providing increased funding to states could diminish the federal agency's ability to conduct its role.

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### PRESTON From Page 10

with a Chief Resiliency Officer. Also created would be a statewide Sea-Level Rise Task Force to develop and recommend a consensus projection of anticipated sea level rise along Florida's coastline.

Baseline projections from the task force must be submitted to the Environmental Regulation Commission by Jan. 1, 2021, for review and adoption. Thereafter, those adopted sea level rise projections must be used for the development of state projects, plans and programs.

**HB 918/SB 1232.** A new DEP program would be created to address climate and resiliency research with the responsibility for assessing, predicting and responding to the effects of climate change in Florida.

The new program would include representatives from identified state agencies, NGOs and the Florida Climate Institute, as well as from each of the four regional climate collaboratives.

The bill would also require preparation of a climate assessment to evaluate the effects of climate change on the natural environment, agriculture, public health, disaster preparedness and the state's overall economy.

In turn, a Florida Resiliency Plan must be submitted to the Governor, Senate President and House Speaker in January, 2021, and every four years thereafter.

### Other topics

**SB 332/HB 849.** This bill would authorize and direct \$100 million of Land Acquisition Trust Fund revenue annually to the Florida Forever Trust Fund. To address the litigation issues on the use of LATF funds after enactment of the recent constitutional amendment, the bill specifies that LATF revenue may not be used to cover costs of information technology and administrative and support services at DEP, DACS, FWC and the Department of State. The deadline for retiring Florida Forever bond obligations would also be pushed out from 2040 to 2054.

**SB 1152.** The bill further enhances utilization of the ongoing brownfield site rehabilitation program by allowing potential brownfield sites owned by state or local governments impacted from perfluoroalkyl and polyfluoroalkyl substances to be eligible for participation in a Brownfield Site

### IMPOUNDMENTS From Page 7

tained a settlement that required Dominion Energy, the current owner of the Wateree Station, to excavate 3.5 million tons of arsenic-contaminated coal ash from coal ash impoundments along the banks of the Wateree River.

That excavation was completed at the end of 2019. By the time the coal ash was completely removed, groundwater arsenic levels dropped by 90 percent.

As a result of the lawsuit against Dominion Energy's predecessor company, South Carolina Electricity & Gas, SCE&G agreed to remove coal ash from all unlined coal ash impoundments in South Carolina.

Subsequently, all South Carolina utilities made public commitments to excavate and abandon all unlined waterfront coal ash impoundments in the state.

### AL program

The Alabama Department of Environmental Management regulates coal ash impoundments in the state under the Alabama Pollution Control Act

In mid-July, 2019, Alabama Power Co. submitted detailed plans for addressing five of its wet storage coal ash impoundments near major rivers.

The utility intends to dewater coal ash at the five plants adjacent to rivers. In some cases, the plans propose installation of barriers deeper than 30 feet to prevent leaching from the impoundments to the rivers.

At selected impoundments, dewatered coal ash will be consolidated further away from the rivers.

Dewatering substantially reduces coal ash volume. When dewatered, the impoundment will be capped and covered with soil and vegetation.

Alabama Power decided to take these

Rehabilitation Agreement. The bill would also increase economic incentives associated with brownfield projects including the total amount of contaminated site rehabilitation tax credits that may be granted each year from \$10 million to \$12 million.

**SB 492.** As you know, Section 403.077, Florida Statutes, regarding public notification of pollution incidents was enacted in 2017 and is being implemented by DEP. This bill would expand the definition of a "reportable pollution release" to include a measurable level of PFAS-related compounds. (*Preston note: Good luck determining what a "measurable level" of such substances may be.*)

The bill would also include the release of any other physical, biological, chemical or radiological substances under pollution notification requirements if a water system impact would result in a violation of water quality standards adopted by DEP or FDOH.

### The red zone

Obviously, there are several other environmental and land use-related bills working through the legislative process that may or may not make it across the goal line before the final whistle is blown. If you are unable to make it to the 4<sup>th</sup> floor of the Capitol before then, you can check that progress and the details of any legislation that may be of particular interest to you from the convenience of your own electronic device. Check out the Florida Senate and House websites for current status, any committee or floor amendments, staff bill analyses and other related information.

It is always hard to predict where things will stand during that last frenetic week of the Legislature.

You can expect lots of posturing between House and Senate leaders, as well as penalty flags flying.

But again, as noted at the top of this column, members know it doesn't look good come November if they could not finish their work on time.

So, it will remain to be seen which type of goat this Legislature will be portrayed as during the run-up to November 3—the grass-grazing type or the Greatest of All Time.

*Bill Preston practices Florida environmental law from his office in Tallahassee. Contact him at bill@wprestonpa.com.*

actions after being fined \$1,250,000 for groundwater contamination at five of its facilities.

PowerSouth Energy Cooperative was also fined \$250,000 for similar violations. Arsenic was the coal ash-derived contaminant in question.

Alabama required the utility to submit mitigation plans for monitoring and groundwater contamination prevention.

Unlike in North Carolina, lawsuits have contributed little to enforcement actions in Alabama. The few successful cases that have been filed have not led to statewide settlement terms.

Environmental advocates are critical of Alabama Power's proposals. The plans require much less excavation than those underway in other states for impoundments with similar siting issues and contamination histories.

Florida's neighboring states have taken divergent paths to coal ash impoundment management. None has completely ignored the problem, but the level of stringency differs greatly and a continued commitment to long-term monitoring remains to be characterized by experience.

The states that had pre-existing laws before the EPA's recent delegating authority to state-run SWMPs are the ones already on a path to the strictest controls to prevent coal ash contaminants from leaching into groundwater and surface waters.

Some critics of state delegation of SWMP plans see it as adulterating the effectiveness of the EPA's 2015 rule's protections.

Whether state delegation weakens federal protections will depend in fact on how carefully the EPA ensures compliance with their approved plans including the requirement for groundwater monitoring and follow-up when contamination occurs.

# EPA approves new analytical method for PFAS in drinking water

By ROY LAUGHLIN

The U.S. Environmental Protection Agency now has an approved method, Method 533, for the analysis of 25 polyfluorinated alkyl substances in drinking water.

In combination with their first approved method, Method 537.1, 29 perfluoro aliphatic substances that might contaminate drinking water are subject to analysis with approved EPA methods.

A robust analysis method is an essential prerequisite for any effective EPA drinking water standard. In the absence of such a drinking water analysis, the agency has yet to promulgate more than a health advisory level for any PFAS.

The new method relies on solid-phase extraction liquid chromatograph-tandem

mass spectrometry, LC-MS/MS. All subject analytes are polyfluorinated and some have a limited number of chlorine or hydrogen substituted carbons in the compound.

The carbon chain length of specific compounds varies from three to 12 carbons, including ethers of five carbons.

The list includes at least one compound with intervening carbon lengths, which is alkyls of four, five, six, seven, eight, nine, ten and eleven carbons.

The analyte list is available online from EPA document describing the new method.

The method requires a 100-125 milliliter water sample. Before analysis, it is fortified with C<sup>13</sup> isotopically labeled analogs of the analytes. The use of isotope dilution standards increases accuracy.

Solid-phase separation on polystyrene divinylbenzene with a positively charged die amino ligand is the first separation step. After sample filtration, sequential washes using aqueous ammonium acetate follow.

The addition of methanol plus ammonium hydroxide to the column elutes the trapped PFOA compounds.

The extract is concentrated to dryness with nitrogen while in a heated water bath. The extract volume is adjusted to one milliliter with 20 percent water in methanol.

Before analysis by LC-MS/MS, three isotopically labeled isotope performance

standards are added. Additional details of the analysis are available from the EPA.

The lowest concentration minimum reporting levels for each of the 25 analytes tested range from a low of 1.4 nanograms per liter to a high of 14 nanograms per liter. With one exception, the remaining LCMRL values were less than six nanograms per liter.

The method is also evaluated for finished groundwater and a surface water matrix, characterized as water treated with the clarifier and before granular activated carbon in a filter within the EPA's laboratory.

The laboratory method also evaluates holding times. Some loss of all compounds occurred with up to one-month storage.

When the tested compounds were present at about 40 nanograms per liter on day zero, 14-day declines ranged from 1.9 percent to 12 percent with prevalent values being between five and seven percent.

By day 28 of storage, losses ranged from two percent to 22 percent. For most but not all of the compounds, the loss appeared to asymptote it 14 days with little additional loss thereafter.

Method 533, along with Method 537.1, significantly expands the range of PFAS subject to an EPA-approved analysis method. It is an essential first step to setting EPA drinking water standards under the Safe Drinking Water Act.

A technical document of EPA method 533 is available online.

## PEER: EPA political appointees violate science integrity rules

Staff report

In preparing one of the U.S. Environmental Protection Agency's most consequential actions, its political appointees excluded both key scientific information and its own experts, according to a complaint filed today by Public Employees for Environmental Responsibility.

The complaint summarized the ac-

counts of current EPA employees and is co-signed by 44 former and current federal employees, including three former regional administrators, as well as experts from the U.S. Army Corps of Engineers and the U.S. Fish & Wildlife Service.

The complaint charged that Adminis-

PEER  
Continued on Page 16

## WAR

From Page 1

Army Corps of Engineers' operational rules or reasonable modifications that could be made to those rules; and

(5) whether such additional streamflow in the Apalachicola River may significantly redress the economic and ecological harm that Florida has suffered.

The Supreme Court also required Florida to clearly demonstrate the requested apportionment would substantially outweigh the harm that might result.

"Thus, the complaining state must show some real and substantial injury or damage," said Kelly.

The special master found Florida had not proved that the collapse of the Apalachicola Bay's oyster fishery and harm to the oysters resulted from "the action of Georgia."

One of the keys to the judge's position is non-drought conditions in the river and bay.

"I note that Florida has not provided any evidence of harm during years with normal or more than normal rainfall. Georgia highlighted this fact on remand," said Kelly. "Florida has not argued otherwise and, from my own review of the record, I do not find clear and convincing evidence of harm during periods with average rainfall."

Georgia claimed the collapse of Florida's oyster fisheries was caused by mismanagement. Georgia agrees Florida's oyster fisheries sustained significant harm, but as a result of drought and the subsequent low flow of fresh water into the river and bay—not as a result of Georgia's overconsumption of water.

"I agree and conclude that Florida has not shown by clear and convincing evidence that the harms in the bay resulted from Georgia's consumption," said Kelly.

Georgia's case hinged on the overharvesting of oysters in the period leading to and after the oyster collapse.

Georgia claimed that fear of the Deepwater Horizon oil spill contaminating oyster beds and the subsequent lifting of "various harvesting restrictions in the bay" resulted in overharvesting of oysters in Apalachicola Bay.

Georgia noted that the harvesting of oyster increased in the years following the spill and the size of oysters harvested were at times smaller than legally allowed.

This was a "use it or lose it attitude" as described by the special master.

Georgia also claimed that intense harvesting seriously degraded the oyster reefs that were then inadequately reshelled to compensate for the loss of oyster substrate habitat.

"I do not recommend that the Supreme Court grant Florida's request for a decree equitably apportioning the waters of the ACF Basin because the evidence has not shown harm to Florida caused by Georgia," concluded Kelly. "The evidence has shown that Georgia's water use is reasonable; and the evidence has not shown that the benefits of apportionment would substantially outweigh the potential harms."

The Florida Gov. Ron DeSantis' office has not yet released a statement regarding any action on the special master's decision.

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**PEER**

From Page 15

nation's waters by disregarding the established connectivity of ground waters and by failing to protect ephemeral streams and wetlands which connect to navigable waters below the surface. These changes are proposed without a fully supportable scientific basis, while potentially introducing

substantial new risks to human and environmental health." The complaint demanded that science be the basis of any future WOTUS rule, and that agency experts have meaningful input. The complaint also asked that responsible political appointees be disci-

plined for violating the Scientific Integrity Policy and undergo remedial training. The environmental and public health implications of these violations cannot be overemphasized, but another casualty is the public's confidence in EPA science, noted Bennett.

of the vessel traffic was composed of kay-

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**WEEKI**

From Page 12

Measures to control recreational activities were taken at Weeki Wachee State Park in 2018. The park reverted to its 2011 management plan restricting paddling in the park to a significantly lower total of 280 individual users each day.

The carrying capacity study was undertaken as part of the Weeki Wachee River's Surface Water Improvement and Management program.

The study is intended to provide information required for governing agencies to maintain proper oversight of the Weeki Wachee natural system, including the Outstanding Weeki Wachee Florida Spring, and to make informed management decisions in the future.

In order to accommodate variations in the river's environment, the district divided the river into three distinct segments.

Weeki Wachee Springs State Park, the

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plined for violating the Scientific Integrity Policy and undergo remedial training. The environmental and public health implications of these violations cannot be overemphasized, but another casualty is the public's confidence in EPA science, noted Bennett.

**NOTES**

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ing to county staff.

The city of Lake Worth Beach will serve as the fiscal agent for the proposed assessment contract with the selected consultant.

The county reported that the Florida Department of Environmental Protection's Florida Resilient Coastlines Program awarded the group two grants to fund the work: \$72,000 in fiscal year 2018/2019 and \$75,000 in FY 2019/2020.

Palm Beach County will contribute \$20,000, an amount approved for the FY 2020 supplemental request.

Participating municipalities will contribute the remaining funds according to an agreed upon cost-sharing methodology.

**Walton County conservation easements.** DEP and non-profit Nokuse Education Inc. secured 4,569 acres of conservation easements in the Seven Runs Creek Florida Forever Project in Walton County.

The easements are intended to create a habitat connection between Eglin Air Force Base and the Choctawhatchee Wildlife Management Area.

The easements will facilitate ecological restoration of timber-harvested lands. Future harvesting will be conducted in a manner conducive to the restoration of the native longleaf pine forest.

"The conservation easement will allow Nokuse and DEP to continue the legacy of

M.C. Davis and his commitment to preserving land in Northwest Florida," said Matt Aresco, PhD, director of Nokuse Plantation.

"By protecting over 4,500 acres for longleaf pine restoration, we're protecting critical habitat for black bears, gopher tortoises and many other rare species, which is what he would have wanted," Davis said.

**Blalock joins DEP in key role.** Adam Blalock is DEP's new deputy secretary for ecosystem restoration, replacing Drew Bartlett who assumed the role of executive director at the South Florida Water Management District.

Blalock formerly served as a natural resource legislation and environmental permitting expert at Tallahassee-based Hopping, Green & Sams.

Blalock will be responsible for overseeing the state's water supply, restoring and protecting Florida's aquatic ecosystems including the Everglades; managing aquatic research, monitoring and laboratory analysis; funding water and wastewater infrastructure and governing coastal protection and resiliency.

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