

Florida Specifier

Practical Information For Environmental Professionals

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State of the lab business 1,5

We take our annual dive into the state of the environmental laboratory business enterprise and provide an updated directory of Florida's top commercial environmental labs on Page 5.

Septic-to-sewer project 6

Orange County Utilities kicked off a 15-year septic-to-sewer conversion effort that will connect more than 2,000 homes to county sewer lines. The project will help eliminate nitrate discharges to the Wekiva River and Wekiwa Springs.

DeMeo on PFAS 7

Longtime Florida environmental attorney Ralph DeMeo provides his take on the impacts of PFAS contamination from a legal perspective.

Harbor Branch study 8

Researchers at FAU's Harbor Branch Oceanographic Institute spent a year collecting water samples in the Indian River Lagoon and measuring two algal toxins, examining correlations between the toxins and data on environmental conditions.

Springs council report 11

A new report from the Florida Springs Council hammers the Florida Department of Environmental Protection for its lack of progress in restoring springs in the state. The primary reasons for the lack of success, they report, are inadequate funding and pursuing irrelevant or inconsequential projects to remove nutrients and ensure adequate water supply.

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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, programs, offices, projects or technologies—anything of interest to environmental professionals working in Florida. Send to *Florida Specifier*, P.O. Box 2175, Goldenrod, FL 32733; call us at (407) 671-7777, or email mreast@enviro-net.com.

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Photo courtesy of Florida Atlantic University/Harbor Branch Oceanographic Institute

FAU Harbor Branch scientists and study co-authors Malcolm McFarland, PhD, and Nicole Stockley, PhD, collect optical data from the Indian River Lagoon using special equipment. See story on Page 8.

Florida labs recovering well from pandemic

By ROY LAUGHLIN

Environmental laboratories are the glue that connects environmental quality standards to compliance. Analytical results ensure that potable water and wastewater treatment plants consistently maintain high performance levels that protect public health.

Lab analysis is an essential element in all remediation projects, reflecting both the extent of contamination before site cleanup and any remaining contamination after cleanup.

Although environmental laboratory analysis is ubiquitous in Florida, the lab enterprise itself is virtually invisible to the vast majority of Florida residents.

This article will attempt to pull the veil aside to reveal the state of Florida's environmental labs following a year and a half of COVID-19 disruption.

Character of the enterprise

As of July, 2021, the Florida Department of Environmental Protection listed 337 NELAP-certified environmental labs in the state.

By far, the largest category of listed labs is public sector local government and utility-owned labs that regularly test drinking water and wastewater for man-

dated compliance reporting.

Industrial labs that test for environmental compliance represent another significant segment of Florida environmental labs. University-based laboratories comprise a third category whose primary focus is research.

The other half of the certified environmental labs in the state are commercial enterprises that perform client services. Of these approximately 150 certified labs, many are branch or satellite offices of laboratory services companies.

The number of environmental laboratories grew steadily from the late 1970s until 2009, driven by regulatory compliance, public health practices and real estate development requiring site assessment and cleanup.

However, economic factors after the 2008 recession stunted that growth in numbers and led to a decade of laboratory consolidation.

Many labs were purchased by national or international environmental lab networks, and some shut down due to the adverse economic conditions following the recession.

During the past five years, out-of-state labs have opened offices in Florida to funnel samples to their testing facili-

Advocates file suit over Piney Point fiasco

By BLANCHE HARDY, PG

The Center for Biological Diversity, Tampa Bay Waterkeeper, Suncoast Waterkeeper, Manasota-88 and Our Children's Earth Foundation filed suit against Gov. Ron DeSantis, Shawn Hamilton in his capacity as acting secretary of the Florida Department of Environmental Protection, HRK Holdings LLC and the Manatee County Port Authority in U.S. District Court for the Middle District of Florida, Tampa Division.

The case seeks federal oversight for the closure and cleanup of the persistently problematic Piney Point Phosphate Complex in Manatee County.

The plaintiffs hope to ensure that Piney Point is operated and closed in a manner that complies with the federal Resource Conservation and Recovery Act and resolves the danger to human health and the environment, including endangered species.

The suit claimed that, "for decades, the defendants have known that the Piney Point Phosphate Facility threatens imminent and substantial endangerment to Floridians' lives, health and environment."

Described as a "ticking time bomb" by U.S. Senator Marco Rubio, the wastewater infrastructure at Piney Point is inadequate and incapable of treating all the wastewater and stormwater accumulating on site, according to the lawsuit.

Piney Point has been in use for almost a half century, since 1966, and has

SUIT
Continued on Page 6

ties outside Florida, increasing the number of organizations involved in the enterprise.

Florida's environmental labs can be characterized as a robust enterprise whose providers are now split almost evenly between the public and private sector, providing a range of "retail service" analyses.

Emergence from pandemic

Adapting to COVID-19 protocols to protect worker health and surviving the pandemic slowdown presented immense challenges to all businesses.

However, compared to other economic sectors that were unable to adopt remote work practices, Florida's environmental labs continued operations throughout the pandemic.

However, one situation presented a particular challenge to Florida labs—hosting the site visits required for laboratory certification.

In order to certify labs, Florida Department of Health inspectors began visiting lab sites remotely, devising clever work-arounds to their normal in-person visits.

However, required lab inspections

LABS
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EPA announces funding to support seven Florida brownfield projects

Staff report

Seven local governments and planning agencies in Florida will share a total of \$2.7 million for brownfield projects. The funding will support cleanup and redevelopment projects in underserved and disadvantaged communities.

The grants, recently announced by the U.S. Environmental Protection Agency, will underwrite brownfield projects in the cities of Miami, Clearwater, New Smyrna Beach, Tampa and Titusville, and in Orange and Escambia counties.

All the projects include environmental site assessments. A few include some site remediation activities.

The sites slated for redevelopment reflect a diversity of prior usage, from a gas station to a concrete production plant.

The East Central Florida Regional Planning Council's proposed redevelopment effort is the most extensive and ambitious.

The proposed activities there will focus on sites along the Orange Blossom Trail from Eustis to Kissimmee and include Apopka and Longwood properties.

The OBT runs parallel to one of the state's oldest railroad lines in Central Florida. One of the former rail stations is

on the list of brownfield redevelopment sites for the project.

Other locations include a former hospital site in Eustis, a former dry-cleaning site in Kissimmee, a former auto repair facility and property in Longwood.

Drinking water database additions.

The EPA added eleven perfluoroalkyl substances to its Drinking Water Treatability Database.

The addition included 38 new scientific references about these compounds and treatment options related to drinking water purification.

The DWTD contains the names and pertinent chemical characteristics of drinking water contaminants of all kinds as well as scientific publications and technical reports that water treatment plant operators can use to improve operations at their plants.

The database update was spearheaded by EPA's new Council on PFAS, a group established by EPA Administrator Michael Regan shortly after he was named to the position.

With the addition of the new PFAS compounds, the agency's DWTD now contains information for a total of 37 now in commercial use and, possibly, in drinking water.

The addition of new compounds to the database is only one step the agency takes to ensure safe drinking water.

The EPA has yet to set a drinking water standard for any single PFAS—an effort confounded by many of the fluorine-containing compounds that occur in the environment, including water purified for potable supply.

WOTUS revisited. For the third time during the three most recent presidential administrations, the EPA and the U.S. Army Corps of Engineers announced their intent to revise the definition of "Waters of the United States."

The two agencies are searching for a definition of seas, bays, streams, lakes and other waterbodies under federal jurisdiction pertaining to navigation, mainly under the authority of the corps, and wa-

ter quality under the federal Clean Water Act.

The Trump administration created the Navigable Waters Protection Rule, a successor to the Clean Water Rule established but never enforced during the Obama administration due to a court-ordered suspension pending litigation.

In explaining the goal of formulating the new rule, EPA Administrator Michael Regan said that, after reviewing the Navigable Waters Protection Rule as directed by President Biden, the EPA and the Department of the Army determined that the rule was leading to significant environmental degradation.

The new rule would restore the Obama administration's 2015 Clean Water Rule defining WOTUS. In addition, the new rule will consider the latest science concerning climate change on U.S. water resources, emphasizing a "practical implementation approach."

The rule will consider the experience and input of landowners, the agricultural community, community organizations—especially those disadvantaged ones with environmental justice concerns—and the environmental and conservation communities.

The EPA's website explains the issue in more detail. See <https://www.epa.gov/wotus>.

As the new rule is developed, the EPA will remand the Navigable Waters Protection Rule, a legal process in which a government agency obtains court approval to end a rule's enforcement and legal standing without the need to repeal it.

Endangered species protections to be restored. The U.S. Fish and Wildlife Service and the National Marine Fisheries Service announced that they would rescind five regulations pertaining to the protection of endangered species.

According to a news release from the Center for Biological Diversity, the first policy to go will be the one allowing consideration of economic factors in deciding measures to protect endangered species.

The second will be the repeal of two measures relating to habitat.

A rule passed in the final days of the Trump administration limited the areas that can be protected for endangered species by defining habitat to apply only to places that currently support a species.

Under the Trump administration, the second habitat rule allowed the opening of excluded habitat including that on federal lands, based on dubious economic claims.

That rule was essential to opening up large areas of Alaska's protected federal lands for oil and mineral extraction.

In addition, two rules finalized in 2019 are also slated for revision to restore protections for endangered species.

One of the rules limited consultation between agencies to prevent harm to endangered species or their habitats resulting from federal agency activities.

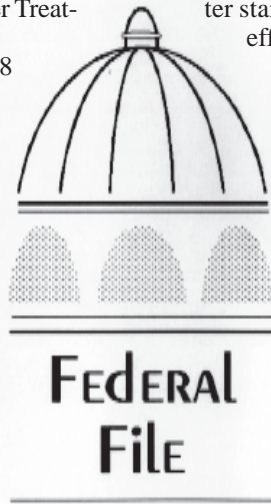
The second rule slated for revision worked hand-in-hand with the first. It curtailed the designation of critical habitat.

The Trump habitat rule was particularly onerous because it specified that federal activities must affect the entire habitat before the activity violated the rule.

For example, building a road through a stand of trees where endangered birds were nesting might frighten them from their nests, but unless the entire forest was leveled, for example, by a logging lease, the Trump administration rule provided no protection against the road, the loss of breeding birds from abandoned nests, and ensuing population decline for the hypothetical endangered bird species.

In a final proposed change, the federal government will again provide automatic protections to wildlife newly designated as threatened under the Endangered Species Act.

The Trump administration required specific protections to be designed and



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Second attempt to identify commercially viable petroleum reserves in the Panhandle fails

Staff report

Mississippi-based Spooner Petroleum Co. recently completed its exploratory oil and gas drilling effort at the Bear Creek site northwest of Wetappo in unincorporated Gulf County.

No feasible oil or gas reserves were discovered and the exploratory well has been permanently abandoned in accordance with Florida Department of Environmental Protection regulations.

This marks Spooner's second failed attempt to identify commercially viable petroleum reserves in the Florida Panhandle. Their first exploratory well was in Calhoun County.

Six additional exploratory wells are proposed in the county by Texas-based Cholla Petroleum Inc. The Cholla wells are located between the Chipola River, Dead Lakes and the Apalachicola River.

Apalachicola Riverkeeper Georgia Ackerman, residents and environmental advocates remain strongly opposed to exploratory oil and gas drilling in the Apalachicola River basin.

Earthjustice's Apalachicola River Ecosystem fact sheet noted that more than 40 species of amphibians and 80 species of reptiles live within the basin, the highest diversity of amphibians and reptiles in the U.S. and Canada.

More than 1,300 species of plants, including 103 that are threatened or endangered, are also found in the Apalachicola basin.

Advocates hope this second failure will help characterize Florida's Panhandle as unlikely to produce commercially viable oil and gas reserves.

According to the Riverkeeper, exploratory wells risk releasing harmful chemicals into wetlands and rivers, and require the use of thousands of gallons of water per day that would otherwise support flows to the already thirsty and depleted river, floodplain and bay.

Piney Point control reverts to HRK.

In late March, the Florida Department of Environmental Protection issued an emergency order to HRK Holding LLC, the owners of the Piney Point phosphate plant, in response to the danger to the public health, safety and welfare of Florida citizens resulting from a breach in the liner at their Eastport Terminal facility.

The order has now expired, returning control of the site to HRK several months after the massive release of nutrient-loaded wastewater from the impoundment into Tampa Bay.

On March 25, 2021, HRK reported increased flow in the buried seepage interceptor drains surrounding the on-site wastewater management system.

Subsequent inspection indicated a leak at an impoundment holding 480 million gallons of mixed seawater and process water from historical fertilizer operations. The 77-acre pond's liner had failed.

Wastewater was released from the facility near Port Manatee, flowing into Tampa Bay to prevent a potentially catastrophic failure and uncontrolled release of the wastewater.

The state is requiring HRK to assure that sufficient water storage capacity and management controls will be in place to address stormwater prior to Florida's rainy season.

Both the state and Manatee County are currently monitoring HRK's efforts to control and mitigate the continuing risk of contaminated wastewater release.

Options include an injection well recently approved by Manatee County officials.

Tallahassee sustainability. The city of Tallahassee recently made new moves to address its environmental sustainability policies.

City commissioners restricted the use of single-use plastic products for food and beverage-related service for city operations and on city property, and they implemented a policy identifying restrictions and excep-

tions regarding the use of single-use food and beverage plastic products.

The new policy applies to city operations and events, vendors conducting operations on behalf of the city, and permittees operating on city property.

This is a particularly important action in Florida. Environmental advocacy group Oceana reviewed nearly 1,800 documented cases of plastic consumption and entanglement among marine animals in U.S. waters from 2009 to early 2020.

They discovered that both manatees and sea-turtles were disproportionately represented, noting that turtles comprised 48 percent of all cases while manatees comprised 39 percent.

According to the group, at least 700 Florida manatees fell prey to plastics over that period, and nearly all of them had swallowed some type of plastic.

Florida #1 in SE for clean energy. The Southern Alliance for Clean Energy's fourth annual report, Solar in the Southeast, reported that Florida surpassed North Carolina to become the region's "solar leader."

"We have been observing this convergence for several years and had predicted that Florida would overtake North Carolina in installed capacity this year," said SACE Solar Program Director Bryan Jacob.

The new report showed that Florida came up just short in 2020 with 3,909 megawatts compared to North Carolina's 3,955 MW on a full-year operational equivalent basis.

"But with the trajectories of the two states, we can confidently state that the

transition has already been accomplished in the first months of this year," Jacob said.

While individual and local point-of-service solar installations were down during the pandemic, SACE noted that utility-scale solar development had a banner year.

The report noted a significant portion of the solar added in the region in 2020 was installed in Florida.

SACE predicted that utility-based solar will "grow exponentially" in Florida over the next few years.

Solar power storage. Florida Power & Light Co. installed the first battery storage components at their Manatee Energy Storage Center in Parrish. The center is slated to become the largest solar-powered battery storage facility in the world.

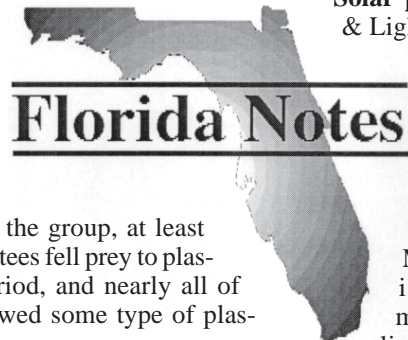
Upon completion, the Manatee Energy Storage Center is anticipated to have a 409-megawatt capacity capable of delivering 900 megawatt-hours of energy—enough energy to power approximately 329,000 homes for more than two hours.

FPL operates 41 solar energy centers across more than 20 Florida counties.

New RNG facility. TECO Peoples Gas and Alliance Dairies entered into an agreement to construct, own and operate a renewable natural gas facility.

The plant will be located on Alliance Dairies' property in the city Trenton in Gilchrist County.

The Alliance RNG facility will capture waste from approximately 6,500 cows and process it to utility grade, "pipeline-quality" gas suitable for use by standard house-



NOTES
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Corps proposes increasing Lake Okeechobee's high water level

Staff report

For much of the past decade, the U.S. Army Corps of Engineers has been rehabilitating the Hoover Dike around Lake Okeechobee.

During that time and under its current protocols, the corps maintained low lake water levels to protect the dike from failure and facilitate the rehabilitation projects. Soon the rehabilitation efforts will be completed.

Because of that—and at least one lawsuit that required the corps to modify its

water release practices to the Caloosahatchee River to protect endangered species—several changes in operations have become controversial.

For example, the proposed Lake Okeechobee System Operating Manual, the definitive guide to Lake Okeechobee water management, recommends increasing the lake's high water level limit to 17.25 feet or higher.

Higher water levels allow more water storage during high rainfall events such as hurricanes or stalled fronts.

The proposed LOSOM is a montage

of several different goal-oriented management scenarios defined as “bands” of water depth.

One of those bands includes water levels of 17.25 feet and higher for flood control and water storage. Another is the lake ecology band. It aims to maintain a water depth of 12 to 15.5 feet.

The lower water levels allow sufficient light penetration to the lake's bottom to promote the growth of benthic algae in the lake and extensive marshes of emergent vegetation on its margins.

That algae community is an essential habitat for fish. It also is sufficiently shallow

for marshes along Lake Okeechobee's margin to flourish. The ecology level aims to maintain 15.5 feet, which is also effective for navigation and ensures an adequate water supply.

During discussions at the release of the proposed LOSOM, it was noted that none of the significantly different target water levels in the more extensive proposed LOSOM are a dominant target. Nature often takes the lead to define high and low water levels.

Nevertheless, advocates for the environment wonder how often the higher water level bands will prevail in Lake Okeechobee under the proposed LOSOM.

The reconstructed Hoover Dike could reliably hold water levels greater than 17.25 feet when rainfall supplies it.

However, given the constraints within the lake, the proposed LOSOM plans for significant additional water storage capacity north of Lake Okeechobee.

The state of Florida and the corps are implementing the Lake Okeechobee Watershed Restoration Plan. It includes plans to build up to 80 aquifer storage and recovery wells along the Kissimmee River in the South Florida Water Management District.

Rather than using dispersed water management sites to store rainfall seasonally, these ASR wells will accommodate the lion's share of excess water now entering Lake O from the Kissimmee River watershed.

In 2019 and 2020, the Florida Legislature appropriated \$50 million annually to the SFWMD to “jumpstart” work associated with the closely related LOWRP.

This year, lawmakers again appropriated funds for its share of LOWRP work. This year's funding directs the SFWMD to expedite implementation of the ASR

plan and begin construction of the wells required by the LOWRP.

While the Florida Legislature led the charge to fund its half of LOWRP projects, the corps does not currently have funding for its share, usually sourced from the federal Water Resources Development Act.

WRDA selects water development projects for funding, a necessary prerequisite to be included in the federal budget. WRDA inclusion does not ensure expeditious congressional funding but, for the past few years, Congress has funded the vast majority of the projects included in WRDA.

To secure its part of the funding, the corps will most likely have to obtain expedited congressional funding and then immediately apply the money within the budget year to LOWRP projects.

But expedited funding is iffy. Congress would very likely balk at providing funding for LOWRP before the project obtains congressional approval.

The federal budget year ends on Sept. 30, 2021, and the budget process is now close to completion.

While a last-minute amendment approval of LOWRP is possible, it is more likely that the corps' LOWRP funding would have to wait for an appropriate bill to amend with funding authorization.

UF nutrient dynamics study. Red tide blooms typically start well offshore in the Gulf of Mexico and then move into shallower coastal waters.

Like all photosynthetic organisms, the dinoflagellate *Karenia brevis* blooms respond positively to plant nutrients, particularly nitrogen.

Research on recent extensive red tide blooms along Florida's Gulf Coast indicates that nutrients from land contribute to the intensity and duration of red tide blooms even though they play a much-diminished role in initiating blooms offshore.

This summer, doctoral student Amanda Muni-Morgan, with support from the University of Florida's Institute of Food and Agricultural Sciences, will conduct a study that aims to determine which forms of nitrogen contribute most significantly to red tide blooms around Tampa Bay.

Nitrogen plant nutrients include ammonia, nitrate and organic nitrogen, such as amino acids. All are present in groundwater and stormwater runoff, and may spur dinoflagellate growth.

However, not all are equally effective at doing so.

Ammonia is the most effective algal growth promoter. Nitrate is not far behind, but nitrate may be assimilated by plants as a nutrient much more slowly when ammonia is present.

Organic substances span a wide array of compounds, none of which is dominant but, in aggregate, may be the dominant form of nitrogen in surface waters.

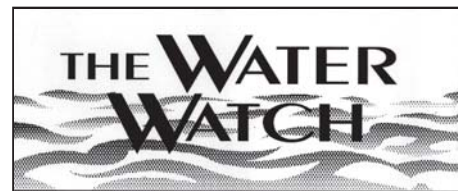
Because of this complexity, ecologists and oceanographers have only a loose consensus about the importance of the chemical form of nitrogen as contributors to algal blooms.

Work by Mary Lusk, PhD, an assistant professor of soil and water sciences at UF/IFAS, and Muni-Morgan's faculty advisor, has already shown that a variety of nitrogen compounds that leach from retention ponds are assimilated by *K. brevis*.

The purpose of the follow-up study is to determine if a specific form of nitrogen plant nutrient is the preferred one for promoting red tide blooms.

Reducing the inflows of the most active compounds entering Tampa Bay should have the highest priority in nutrient reduction efforts.

This research, being conducted in collaboration with the Red Tide Institute at



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WATCH
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Environmental Laboratories Serving Florida - 2021

Lab name and contact information	1) Capabilities/specialties, 2) Sample types, 3) Personnel info, 4) State of incorporation	1) Certs., 2) Add. capabilities, 3) Years in bus., 4) Other locations
Advanced Environmental Laboratories Inc. 6681 Southpoint Parkway Jacksonville, FL 32216 (904) 363-9350 • Fax: (904) 363-9354 Todd Romero, Director of Client Services tromoer@aellab.com www.aellab.com	1) Seven labs across Florida providing a full range of inorganic and organic testing. In-house and in-Florida analysis of PFAS/PFOS, TOX, EPH, VPH, low level mercury and dissolved gases by RSK-175. 2) Drinking water, groundwater, wastewater, surface water, soil, sediment, industrial waste, hazardous waste and air. 3) Total: 140 Engineers/Scientists: 100 Technicians: 30 4) FL	1) TNI/NELAP, DoD ELAP and ISO 17025 2) SELECT AEL software enabling you to compare lab results to FDEP 62-777 limits, and generate FDEP petroleum summary forms and benzo(a)pyrene conversion tables. Various deliverables including CLP reports, ADR, EQUIS and ADaPT EDDs. Permit to import foreign soils. Courier services throughout Florida. 3) 27 years 4) Altamonte Springs, Fort Myers, Gainesville, Miramar, Tallahassee and Tampa
Benchmark EnviroAnalytical Inc. 1711 12th St. East Palmetto, FL 34221 (941) 723-9986 • Fax: (941) 723-6061 Dr. Dale Dixon, Laboratory Director dale.dixon@benchmarkea.net www.benchmarkea.com	1) Full analytical and sampling services are provided for government agencies, industrial operations and engineering firms 2) Surface water, marine water, groundwater, drinking water, wastewater, sediment and soil 3) Total: 36 Engineers/Scientists: 8 Technicians: 20 4) FL	1) NELAP, MBE, DBE, SBE 2) Courier, field sampling, DIEL studies, project management, custom spreadsheet reporting, ADaPT, STORET and WIN reporting 3) 29 years 4) Laboratories in Palmetto, North Port and Winter Haven
Diversified Environmental Laboratories Inc. 3653 Regent Blvd., Suite 509 Jacksonville, FL 32224 (904) 807-9625 • Fax (904) 907-9627 Frank Risk, President/Laboratory Director frank.risk@delilab.com www.delilab.com	1) Privately owned environmental laboratory with exceptional customer service. Capabilities include inorganics, metals, microbiology and petroleum testing along with the ability to provide field services. 2) Air, soil, petroleum, bulk, potable water, non-potable water, paint, ice 3) Total: 4 Technicians: 3 4) FL	1) NELAC, TNI 2) Field sampling services for permits, routine sampling or special project sampling 3) 25 years
Eurofins Environment Testing America 6712 Benjamin Road, Suite 100 Tampa, FL 33634 (813) 885-7427 • Fax (813) 885-7049 Rhonda Moll, Account Executive rhonda.moll@eurofinset.com www.eurofinsUS.com/env	1) ADaPT reporting, MADEP VPH/EPH, TPHCWG, ICP/MS, low level mercury, phosphated pesticides by GC/MS, low volume extractions, RSK 175, 1,4-dioxane, ISM protocols, microwave/microextractions, field sampling, 24/7 data access, 6PPD-quinone, PFAS including the capability to report up to 75 PFAS target analytes in potable and non-potable water as well as utilizing accurate and precise methods to support a wide range of matrices including drinking water, groundwater, surface water, wastewater, sludge, biosolids, soils, sediments, air & emissions, tissue & vegetation, food, blood and serum and commercial products by EPA methods 537.1, 537M and supporting DOD QSM Table B15. 2) Drinking water, wastewater, groundwater, surface water, stormwater, generic discharge, soil, sediment, solid and liquid wastes, air testing and textiles 3) Total: 104 (FL) Engineers/Scientists: 33 (FL) Tech/Admin: 71 (FL) 4) DE	1) NELAC, A2LA, LAB, ISO/IEC 17025, DoD ELAP, USDOE, USDA Foreign Soil Permits, USF&W Import License as well as many private audits, approvals and certifications for various industrial oil, gas, chemical, waste and automotive companies. 2) Eurofins Built Environment, comprised of Eurofins CEI, Eurofins EMLab P&K and Eurofins J3 Resources provides Industrial Hygiene and Indoor Air Quality testing services to protect the health of people in built structures from a range of potentially hazardous environmental conditions. The nation-wide network of independent laboratories that make up Eurofins Environment Testing America perform radiological, dioxin, PFAS, Methyl Hg, ISM, LEAF methods, CCR GWM, air testing, including VI, Enhance Hydrocarbon analysis, including fingerprinting, Industrial hygiene, Bio accessible Pb & As, GIS Key, EQuiS, CLP Methods. 3) 30 years 4) Labs: Pensacola and Tampa. Services centers: Delray Beach, Fort Lauderdale, Orlando and Tallahassee
Florida-Spectrum Env. Services Inc. 1460 W. McNab Rd. Ft. Lauderdale, FL 33309 (954) 978-6400 • Fax: (954) 978-2233 Katherine Kutil, Director of Sales & Marketing kkutil@flenviro.com www.flenviro.com	1) Chemical and biological analyses of a variety of matrices 2) Groundwater, surface water, drinking water, wastewater, saltwater, solid and hazardous wastes, soils, air and petroleum products 3) Total: 54 4) FL	1) NELAP certified, SFWMD SBE certificate 2) Field services, sampling supplies delivery, certified field technicians 3) 48 years 4) Ft. Lauderdale, Okeechobee, Ft. Meade and Lakeland
Flowers Chemical Laboratories Inc. PO Box 150597 Altamonte Springs, FL 32701-0597 (407) 339-5984 • Fax (407) 260-6110 Travis Wright, water/ww analytical June Flowers, environmental analytical www.flowerslabs.com	1) Full service laboratory analyzing environmental and drinking water parameters. Providing defensible data in organics, inorganics, metals, microbiology and nutrients. ADaPT reporting, field and courier services. PhD chemist on staff. Certified for Legionella pneumophila in drinking and non-potable water. 2) All water matrices, soil, sediment, waste, oil and SPLP/TCLP 3) Total: 50 Engineers/Scientists: 36 Technicians: 14 4) FL	1) Florida DOH TNI in drinking water, non-potable water, solid and chemical materials categories. 2) EDDs, microbiologicals for routine water and wastewater at four labs in Florida 3) 64 years 4) Port St. Lucie, Madison, and Marathon in the Florida Keys
Marinco Bioassay Laboratory Inc. 4569 Samuel St. Sarasota, FL 34233 1-800-889-0384 • Fax (941) 922-3874 Jason Weeks, President weeks@biologylab.com www.toxtest.com	1) Acute and chronic NPDES toxicity testing, toxicity identification and reduction evaluations, ion imbalance toxicity studies (MSIIT) 2) Domestic and industrial treated effluents, remediation site discharges, storm-water discharges, reverse osmosis reject, product testing 3) Total: 10 Engineers/Scientists: 4 Technicians: 6	1) NELAP accredited 2) Toxicity consulting, supply high quality bioassay organisms for testing 3) 31 years
Pace Analytical Services Inc. 8 East Tower Circle Ormond Beach, FL 32174 (386) 672-5668 • Fax (386) 673-4001 David Chaffman, Sales Manager david.chaffman@pacelabs.com www.pacelabs.com	1) Full environmental testing services. Monitoring for CERCLA, RCRA, NPDES, SDWA, UCMR3, RCRA/UST, PFOA, CCR, CWA and NVLAP 2) Drinking water, environmental water, groundwater, surface water, soil, sediment, air, biota, mold and fungi 3) Total: 150 (3,500 nationwide) 4) MN	1) NELAC, NELAP NAICS 541380 2) Field sampling, courier services 3) 43 years under same ownership 4) Labs in Tampa, Ormond Beach, Pompano Beach and service centers in Miami Lakes and Jacksonville
Professional Env. Testing and Consulting LLC 4650 SW 51st St., Suite 702 Davie, FL 33314 (954) 440-3537 • Fax (754) 223-3874 Dr. Carol Vassell Kreitner, Owner/Manager petc702@comcast.net www.petc-lab.com	1) Full service laboratory specializing in water testing (microbiology, wet chemistry) 2) Drinking water, wastewater, groundwater 3) Total: 5 Engineers/Scientists: 2 Tech/Admin: 2 4) FL	1) NELAP, FDOH #E861109, Minority business certification 2) Lab chemical sales - SE FL Coop Bid #20-69 3) 8 years
Sanders Laboratories Inc. 1050 Endeavor Ct. Nokomis, FL 34275 (941) 234-1000 • Fax (941) 484-6774 Jeff Walsh, Operations Manager jeff@sanderslabs.net www.sanderslabs.net	1) Surface water and groundwater monitoring, facility compliance and process control monitoring, ASR, injection well analysis and food microbiology 2) Drinking water, wastewater, groundwater, surface waters, cooling towers, soils and sediments; meat, juice/beverages, seafood, citrus, produce; materials testing; textiles 3) Total: 21 4) FL	1) NELAP: Drinking water, non-potable water, solid and chemical, ISO 17025 for food testing 2) Now offering Legionella testing. Full field sampling capabilities. Sanders Labs is the only lab in Florida with A2LA/FSMO sampling certification: Certification #3544.02. PCR molecular detection in several matrices. 3) 30 years 4) Two locations: Sarasota and Fort Myers
SGS North America Inc. 4405 Vineland Rd., Suite C-15 Orlando, FL 32811 (407) 425-6700 • Fax: (407) 425-0707 David Chastain, General Manager david.chastain@sgs.com www.sgs.com/ehsusa	1) Full service laboratory specializing in organics and inorganics by SW-846 Methodology (VOCs, SVOCs, pesticides, herbicides, PCBs, metals, nutrients, etc.) in addition to incremental sample processing (ISM), explosives, perchlorate, PFOAs, PFCs, EPA 537 and DoD QSM 5.1 in DW, AQ, and SO, 1,4-dioxane by 4 methods 2) Water, soil, air, oil, sediments and wipes 3) Total: 80 4) NJ	1) NELAC, DoD/ISO 17025 and multiple state certifications 2) Electronic data deliverables including ADaPT, EQUIS, ERPIMS, and state forms. LC-QQQ and reduced sample volume via LVI (8270, 8270 SIM, 8081, 8082, 8151, 8141, 8015, AK102, FLPRO LVI. Courier throughout Florida, rush analysis, LC-QQQ including PFCs in DW, AQ, and SO with method 537 and QSM 5.1. Sampling services, surface water, wastewater, soil and marine. 3) 24 years 4) South Florida Service Center - 7769 NW 48th St., Suite 250, Miami, FL 33166

OC launches septic-to-sewer project to protect Wekiwa ecosystem

By **BLANCHE HARDY, PG**

Orange County Utilities recently initiated a septic-to-sewer conversion project to help protect the Wekiwa River and Wekiwa Springs from nitrate discharges.

The Orange County Board of County Commissioners, the Orange County Utilities Department, the St. Johns River Water Management District, and the Florida Department of Environmental Protection will work cooperatively to connect more than 2,000 homes to county sewer lines.

The project is expected to last 15 years. "Florida's natural water resources, like Central Florida's Wekiwa Springs, are sensitive to human activity," said Sarah Lux, the county's public information officer. "High concentrations of nitrates—attributed in part to fertilizer and septic tanks from neighborhoods in the immediate area—are negatively impacting the water quality and ecosystem of the springs."

Nutrient loading from septic tanks has been the focus of water quality degradation in the Wekiwa system for over two decades.

To address pollutant loading in state waterways, the Florida Legislature created the Florida Springs and Aquifer Protection Act in 2016.

The law requires DEP to adopt strate-

gies to maintain healthy water levels in the aquifers that feed springs and to develop basin management action plans to prevent and remove pollutants from spring ecosystems.

The Wekiwa River, Rock Springs Run and Little Wekiwa Canal Basin Management Action Plan governs the total maximum daily load of pollutants permitted within the system. The BMAP identifies spring and aquifer priority focus areas to be designated and targeted for water quality attenuation measures.

New sewage permits on lots of less than an acre in these areas will require either an advanced nitrogen treatment system or connection to a centralized sewer system.

These requirements became effective for property owners in the Wekiwa Basin in 2018.

"There are more than 50,000 septic systems in Lake, Orange and Seminole counties impacting the Wekiwa Springs and the Wekiwa River," said Lux. "To ensure the project is as environmentally impactful as possible, Orange County Utilities identified 17 neighborhoods within the county's service jurisdiction that are in close proximity to several springs."

Agency partners intend to improve water quality within the basin and related springs by connecting neighborhoods on

septic systems to a centralized advanced wastewater treatment facility.

Phases 1 and 2 of the septic-to-sewer conversion effort will connect the four neighborhoods closest to Wekiwa Springs to central sewer.

Even though property owners may incur some cost, the project is well supported by the local community.

Orange County Utilities is contributing \$2.52 million, 25 percent of Phase 1 costs. The county secured roughly 65 per-

cent of the overall project costs from outside funding sources to minimize the costs to homeowners.

DEP is providing \$4.3 million for the project, the St. Johns River Water Management District is providing \$1.5 million, and state budget appropriations total \$500,000.

Homeowners will pay the remaining cost, estimated by the county to be about \$6,000. Homeowner can either pay their share for the project in full or finance it.

Discharges from the site into ground and surface waters, including several large catastrophic releases, have been occurring since the mid-1990s.

The lawsuit described the site's location as "within thousands of feet of the Tampa Bay Estuarine Ecosystem Rock Ponds area, the Terra Ceia Preserve State Park and Tampa Bay."

The plaintiff's lawsuit claimed that the existing impoundments store "hundreds of millions of gallons of wastewater," and "are at risk of further catastrophic failure."

Further, they alleged that the inadequate plastic liner overlaying the hazardous gypstacks is tearing, cracking, ripping and failing, creating direct pathways for dredged materials from the Port Manatee Berth 12 expansion project and precipitation to leach beneath the liner, where it mixes with radioactive and toxic waste.

The plaintiffs said they have warned regulators before that Piney Point was a disaster in the making.

April's agency-approved discharge of millions of gallons of untreated, potentially hazardous wastewater into Tampa Bay appears to have galvanized the advocate community.

The current site owner, HRK Holdings LLC, began notifying Manatee County officials about lack of capacity for additional stormwater in February, 2021.

By the end of March, operators reported a leak in the corner of the largest site pond, and within a week, the emergency release of 400 million gallons of wastewater had been authorized.

In April, the increasing instability of the wastewater impoundment prompted county officials to evacuate over hundreds of homes in the area.

The suit alleged that nutrient-laden wastewater has "triggered the beginnings of a harmful algae bloom with associated fish kills, putting Tampa Bay, neighboring waterways and all Floridians that make use of these impacted waterways in jeopardy," and that the "(d)efendants' malfeasance must stop."

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PFApocalypSe Now: The PFAS firestorm and implications for Florida

By RALPH DeMEO

Thousands of man-made compounds that fall under the “PFAS” umbrella—per- and polyfluoroalkyl substances including PFOA, PFOS and GenX—have been used over the last several decades as coatings in a variety of everyday household products, such as non-stick cookware, waterproof and stain-resistant fabrics and food packaging, as well as an ingredient in firefighting foam.

While a few of the compounds have been phased out, they do not break down in the environment and have the ability to travel through soil and water. Because of their widespread use, biopersistence and ease of transport, these compounds can now be found almost anywhere one chooses to look.

According to the U.S. Centers for Disease Control and Prevention, virtually everyone in the country has been exposed, and some level of PFAS can be detected in our blood.

While the health effects from low level concentrations of PFAS chemicals are not yet fully understood, litigation and public interest continue to increase.

State and federal agencies, including the U.S. Environmental Protection Agency and the Florida Department of Environmental Protection, have taken note and are beginning to move quickly in a conservative effort to help minimize human exposure to PFAS despite the scientific uncertainties.

Using what it terms “provisional cleanup target” levels and “screening” levels for drinking water, irrigation water, groundwater and soils, DEP is moving forward with initial investigations of firefighting training facilities, airports, wastewater treatment plants and military facilities, and may adopt new rules.

Given the desire by industry, local governments and property owners for more certainty regarding potential liability associated with PFAS-related contamination and remediation that could be required, the Florida Legislature could weigh in during the 2022 session.

In addition, there has been some activity by the EPA to begin rulemaking, including the possibility of listing PFAS as a “hazardous substance” under the federal Comprehensive Environmental Response, Compensation, and Liability Act.

As a result of the explosion of PFAS-related litigation, regulation and legislation, a virtual cottage industry has emerged in Florida and other states, keeping environmental consultants, lawyers, state and local regulators and courts occupied.

Local governments in particular, which own and operate airports, firefighting facilities, wastewater treatment plants, water plants and landfills, have felt the particular burden of PFAS-related claims.

The DEP has issued dozens of letters to these facilities pursuant to Chapter 62-780, FAC, requiring these facilities to follow the site assessment and rehabilitation procedures for contaminated sites.

This is true notwithstanding the DEP’s acknowledgment that there is no federal or state regulatory limit or maximum contaminant level for PFAS. Instead, the DEP imposes the EPA health advisory level, or HAL, for groundwater of 70 nanograms per liter.

DEP has also derived provisional groundwater and soil cleanup target levels. Complicating these matters further, few labs are equipped to reliably analyze at the level of the HAL, and there is no generally accepted cost-effective remediation technology.

Nevertheless, DEP has pressed on and these facilities have been forced to spend hundreds of thousands into the millions of dollars chasing PFAS, with no particular end point in sight.

In response to this crisis, a number of particularly impacted interests, including cities and counties, airports, solid waste facilities, deep water ports and brownfield redevelopers, have joined together to propose legislation to address these growing

liabilities and excessive costs.

During the 2021 Florida legislative session, Senate Bill 1054 was introduced to provide regulatory and liability relief to parties deemed responsible for PFAS contamination.

The bill also directed DEP to engage in rulemaking to establish state-wide cleanup target levels for PFAS in soils and groundwater. The bill further directed the department to evaluate best practices for successful cleanup programs and to submit a report to the Governor, the President of the Senate, and the Speaker of the House by Jan. 1, 2022.

Unfortunately, the bill, though it received support in the Legislature, did not pass. These same interests intend to bring this or a similar bill to the 2022 Legislature that convenes Jan. 11, 2022.

In addition, over 1,000 lawsuits have been filed against the major manufacturers of PFAS-containing materials, in particular aqueous film forming foam used in firefighting at all commercial airports in Florida and throughout the country pursuant to Federal Aviation Authority mandate.

This, notwithstanding recognition by the manufacturers and the FAA for many years that there is a risk of PFAS leaching from the AFFF into soils, ground and surface waters at levels that would trigger a regulatory response.

These lawsuits are being managed in

the United States District Court in South Carolina, under federal court “Multi-District Litigation” rules. The court has ordered that “bellwether” trials be held commencing in late 2021. The outcome of these trials may determine the direction of this litigation.

While new cases continue to be filed, at some point the court may cut off access to this particular MDL. Furthermore, plain-

tiffs’ personal injury law firms have been pursuing clients in anticipation of bringing lawsuits against facilities where PFAS contamination has migrated offsite or otherwise caused exposure. These likely cases also need to be monitored closely.

While the regulators, courts and re-

DeMEO
Continued on Page 16



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Harbor Branch scientists issue report on microalgae toxins in Indian River

By ROY LAUGHLIN

The presence of algal toxins in Florida's freshwater and marine habitats is a topic with significant knowledge gaps yet to be closed.

To close that gap, a research team at Florida Atlantic University's Harbor Branch Oceanographic Institute in Fort Pierce spent a year collecting water samples in the Indian River Lagoon and measuring two algal toxins in them.

They found two algal toxins present in the lagoon's water at least some of the time during the year.

In addition, the study's researchers examined correlations between the two toxins studied, and data on environmental conditions, including plant nutrients and rainfall data.

The goal was to identify algal toxins when they occurred and provide some insight into the environmental conditions

that could indicate when surveillance for algal toxins would be most effective.

The research group assayed two algal toxins: microcystin and saxitoxin. The researchers used enzyme-linked immunosorbent assays, or ELISA, to measure the toxin concentrations.

ELISA is a molecular biology measurement technique. A properly functioning ELISA assay is a rapid, sensitive and quickly implemented assay for biological molecules, structurally complex water-soluble ones like algal toxins that challenge liquid chromatography-mass spectroscopy analysis.

The cyanobacterium *Microcystis* produces microcystins. The dinoflagellate *Pyrodinium* makes saxitoxin.

The research group did not make the discovery that the substances were algal toxins. Their toxicity has been recognized for years. The research instead focused on obtaining data to show how much of these

two algal toxins occur in Indian River waters, where and when they are most likely to be found, and environmental conditions that cause an algal bloom that releases the toxins.

First, the researchers found measurable algal toxin concentrations in only a small number of the 40 water samples taken throughout the lagoon over a period of a year that included sampling during the rainy and the dry seasons.

Microcystins above a detection limit of 0.05 ug/L occurred in just 35 percent of the 40 samples. Only 15 percent of the samples had saxitoxin above the limits of detection, 0.02 ug/L. This frequency is consistent with the usual wet season occurrence of algal blooms in the Indian River Lagoon.

Concentrations of the two algal toxins occurring in water were distinctly different. Microcystin measured was substantially higher than saxitoxin, spanning the range from 0.01-85.70 ug/L. Saxitoxin concentrations ranged between 0.01-2.43 ug/L across the lagoon.

Geographically and temporally, the occurrence in the IRL of the microalgae responsible for the two toxins was markedly different. Microcystins were at their highest concentration during the wet season in the St. Lucie Estuary at the southern end of the Indian River Lagoon.

Microcystis is a freshwater cyanobacterium that does not fix nitrogen from the atmosphere. Algal blooms in Lake Okeechobee water releases are the source of the seeds of intense cyanobacteria blooms in the St. Lucie Estuary.

The nitrogen nutrients that drive the blooms come from stormwater runoff and groundwater leaching from the St. Lucie Estuary watershed.

Microcystis is often considered a freshwater organism. Algae blooms attributed to it have occurred throughout the lagoon. The first widespread bloom occurred in 2011.

Wildlife kills occurred after the 2011 bloom. In those blooms, microcystin measurements were not performed. Thus, a clear relationship between cyanotoxin and the deaths of fish, birds, dolphins and manatees was suspected but not demonstrated for lack of appropriate measurements.

Saxitoxin also occurred in the northern IRL during the wet season. The northern region of the lagoon where *Pyrodinium* blooms occur has some of the poorest water quality of any lagoon segment.

Until the past decade, *Pyrodinium* was seasonally abundant from July through September in the northern IRL. It is the primary dinoflagellate responsible for bioluminescence that is now abundant

throughout the lagoon, well outside its prior usual six- to eight-week season in late summer.

Pyrodinium now occurs so frequently during warm weather that night tours showcasing the bioluminescence have become a well-attended tourist attraction.

The focus on environmental factors that correlated with algal toxins indicated in a general way what is widely suspected: dissolved nutrients are the most highly correlated water quality parameter. They explained 53 percent of the microcystin variability and 47 percent of that for saxitoxin.

A multivariate analysis of microalgal assemblage composition by the researchers reinforced the significance of that finding.

The authors noted that multivariate modeling suggested that cyanobacteria, flagellates, ciliates and diatoms were a subset of microorganisms whose abundance were maximally correlated with saxitoxin and microcystins.

Two components of this study are notably novel.

First, the researchers probed the potential toxicity of water samples using several mammalian cell lines as toxicity indicators.

The cells in culture exhibited microcystin toxicity in water samples taken during the wet season from the St. Lucie Estuary. This location was the source of the water with the highest microcystin concentrations found during this study.

For saxitoxin, whose maximum concentrations were substantially lower than maximum microcystin concentrations, the researchers concluded that "(n)o significant patterns between cytotoxicity and saxitoxin were identified."

Saxitoxin poisoning is most frequently associated with paralytic shellfish poisoning in humans who eat bivalve muscles that consume microalgae filtered from the water.

Saxitoxin is bioaccumulated and perhaps biomagnified by filter-feeding organisms such as shellfish. The reputation saxitoxin has as an algal toxin is not directly a result of its water concentration or exposure to it by contact with water.

People who consume shellfish from the northern Indian River Lagoon could still be poisoned when *Pyrodinium* is present, even if its toxin is hardly detectable in the water.

The other novel aspect of the study was using genetic probes to assay the presence of biosynthesis genes for microcystins.

This finding corroborated the conclusion that organisms within the Indian River Lagoon produce the toxins found there.

Tantalizingly, however, the investigators said that the results indicated that some other algal toxins might also be present in the water they tested and those toxins may be produced by other microalgal species.

This study answered some questions about harmful algae blooms in the Indian River's brackish water, but raised others. But the study is an important step forward correlating the toxicity of one algal toxin, microcystin, to toxicity in cells in culture.

EPA reverses decision allowing phosphogypsum use in road building

Staff report

The Biden administration withdrew approval given by the Trump administration to use phosphogypsum in construction.

The retracted approval had allowed the use of toxic, radioactive waste in constructing roads in parts of the country prone to sinkholes and erosion.

In late 2020, advocacy groups sued the U.S. Environmental Protection Agency for approving phosphogypsum use in roads.

The approval would have permitted phosphogypsum to be used in roads within 200 miles of phosphogypsum storage stacks, most of which are in Florida, and would have affected hundreds of protected plants, animals and their critical habitat.



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Legislative session produces mixed bag of pro-, anti-environment bills

By ROY LAUGHLIN

The Florida Legislature closed the books on its 2021 session after passing several bills that favored the environment and environmental resources and several that privileged developers and prioritized development over local government home rule.

The latter preempted local control of resource management, favored real estate development over conservation and rational resource management, restricted local governments' ability to assess appropriate impact fees, gave the state even tighter controls over voter-initiated constitutional amendments and local referenda, and failed to set aside additional funds permanently for land conservation.

Home rule

House Bill 337 strictly limited the ability of local governments to increase impact fees.

According to smart growth watchdog 1000 Friends of Florida, "(t)his bill makes it virtually impossible for local governments to require that new development pays its own way, which will result in existing residents shouldering even more of the costs associated with new development through raised taxes, declining roads, parks and other public infrastructure, or both."

Gov. Ron DeSantis signed the bill.

Several other bills expanded property owners' rights, especially favoring property owners that are developers and business owners.

The most potentially damaging bill was HB 421. It gave developers the upper hand in legal disputes over development proposals and land use limits that local governments may impose.

Senate Bill 426 is another bill that significantly preempted local governments' ability to regulate commercial activities within their boundaries. This bill passed as an amendment to SB 1194, a broader transportation bill.

The bill preempted local control of port traffic, including the number of passengers that may embark or disembark, the type of cargo and regulations aimed at environmental protection. This bill affects 15 ports in Florida.

Small-scale developments, defined as those under 10 acres, already face fewer permitting and land use restrictions under Florida law. With the passage of HB 487, those exemptions were extended.

"Small" is now defined as 50 acres or less in urban areas, and 100 acres or less in rural areas. The bill also restricted agency oversight and regional coordination.

The measure's critics said HB 487 will open a superhighway for development sprawl beyond the reach of local and regional planning and state review.

Land, water conservation

This year, the Legislature exceeded the governor's recommendations for conservation funding for the third time.

In summary, lawmakers approved at least \$1.7 billion for conservation spending, including \$625 million for Everglades restoration, \$419 million for other Everglades projects and more than \$300 million for other conservation projects.

The Indian River Lagoon got \$25 million, one example of the 2021 budget's "other conservation projects." In addition, access to springs and habitat restoration for manatees was funded at \$8 million.

In the short term, conservation land acquisition thrives. But House Bill 1211, which would have established an annual \$100 million funding floor to fund Florida Forever, failed.

It would also have allowed the land acquisition program to issue bonds. A related bill, Senate Bill 510, would have barred Florida Forever funds for agency administrative expenses.

The use of Florida Forever funds for state agency expenses began under Gov. Rick Scott when that money was used to fund the Florida Department of Environmental Protection's budget over several years following the 2008 recession.

While selected regional water resource management programs and initiatives were this legislature's fair-haired child, other initiatives received far less favorable treatment.

For example, SB 2516 required the South Florida Water Management District and the U.S. Army Corps of Engineers to expedite development and implementation of aquifer storage and recovery wells north of Lake Okeechobee.

On the surface, this appeared to be a sound environmental management decision to reduce the level of high nutrient runoff water to Lake Okeechobee. The benefits could be fewer and less extensive harmful algal blooms in the St. Lucie and Caloosahatchee rivers and their estuaries.

But ASR is not a solution to eutrophication; it's another chapter in the century-long saga of moving contamination from one place to another in South Florida until all are thoroughly contaminated.

The Florida Legislature also passed the Wildlife Corridor Act "to create incentives for conservation and sustainable development while sustaining and conserving the green infrastructure that is the foundation of Florida's economy and quality of life."

The legislation will help create a green belt running the length of the Florida peninsula and provide wildlife access to habitat and conservation lands across 18 million acres in Florida.

M-CORES revisited

In 2019, the Florida Legislature approved construction and initial funding for three toll roads in primarily rural areas of the state.

In a surprise move this session, SB 100 repealed the Multiuse Corridors of Regional Economic Significance law. The new law left intact authorization for a Suncoast Parkway extension, but dropped support for the Southwest Central Corridor extending from Naples to Lakeland.

Extending Florida's Turnpike, the third component of the original bill, will be reconsidered before construction begins. Even though the Turnpike extension involves significant construction, it is considered to be an enhancement to an existing road.

The bill left \$2 billion in the budget to support improvements to rural roads throughout the state, including widening them to handle truck traffic.

Environmental advocates see the revision as a win, even if only temporarily, because a road through the Western Everglades, including prime Florida panther habitat, is now off the table.

Potable reuse

Finally, Floridians have the opportunity under the law to drink treated wastewater.

For the first time, HB 263 and SB 64 authorized "potable reuse water," otherwise known as toilet-to-tap water.

Under the bill, potable reuse is now considered to be an alternative source of drinking water.

The bill required domestic wastewater utilities to provide the Florida Department of Environmental Protection with a plan to eliminate non-beneficial surface water discharges by 2032. Those plans are due by November, 2021.

The bill also expanded greywater use in residential construction to meet density and intensity incentives for development. This means that water from sinks, dishwashers and washing machines may be recycled through toilets and perhaps landscape irrigation before going to a wastewater collection system.

1000 Friends of Florida criticized this bill because it downgraded less costly conservation solutions to the water supply challenges instead of prioritizing conser-

vation measures and compact development decisions.

Lawmakers also passed HB 1309, which ratified DEP rules that allow biosolids land spreading, including the Central Florida Water Initiative's rule on biosolids land spreading.

1000 Friends of Florida criticized the rule but recognized the incremental progress it marked in regulating the wastewater byproduct.

However, the increasing recognition of biosolids contamination by perfluorinated alkyl substances may make the small improvement seem irrelevant in a few years as more monitoring data show extensive areas of PFAS contamination created by biosolids spreading.

The Legislature also ratified Central Florida Water Initiative rules and instructed DEP to submit a report to the

SESSION
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PFAS in solid waste under scrutiny by team of Florida researchers

By ROY LAUGHLIN

A consortium of researchers at the University of Florida and the University of Miami are investigating perfluorinated alkyl substances in solid waste.

The study was dubbed “A systems-based approach to understand the role of waste type, management strategies and treatment methods on the occurrence, source, and fate of PFAS in landfills.”

The multidisciplinary academic research team includes engineers, toxicologists, chemists and graduate students.

The study includes four primary components.

The first component is to characterize the PFAS found in different landfills com-

prehensively. The second is to develop detailed landfill case studies to refine leachate treatment technologies for PFAS removal.

The third component is to characterize PFAS in waste streams—what materials in waste streams include PFAS and what those compounds are. The final component is to determine the long-term fate of PFAS in landfills as a function of their biogeochemical environments.

Researching garbage and trash might seem like a few levels below the pay grade for university research professors, but that is not the case.

Landfills are the final repository for everything that humans discard. Modern landfills’ most crucial long-term task is to protect the environment from any poten-

tially harmful components in the trash.

PFAS create a particular challenge for landfill operations. PFAS are not abundant in many products, except some lubricants and films, but they are present at relatively low concentrations in a broad range of discarded materials, including food containers, products designed to be persistent, textiles, coatings and many other materials and products.

Wastewater treatment plant biosolids are one waste that many landfills accept and in which PFAS may be present at the parts per million level. That’s a high concentration for PFAS as a contaminant because they are neither water-soluble nor do they have a high binding affinity for soils or organic matter.

In aggregate, biosolids are among the most PFAS-contaminated waste products.

PFAS in biosolids are believed to originate from textile treatments that are slowly released during laundering. A substantial portion also comes from materials flushed down toilets or cleaned from industrial equipment.

Nationwide, 51 percent of the biosolids produced is land applied. The majority of land spreading occurs in the eastern part of the country where groundwater is relatively close to the surface.

Landfilling accounts for an additional 22 percent of biosolids disposal and incineration weighs in at 16 percent.

In the past decade, the mass of biosolids spread on land has declined about 30 percent and the area used for land spreading has decreased by about 40 percent.

The first decade of the 21st century was the peak period for biosolids production with more than seven million tons of biosolid spread. Since 2010, the amount of biosolids beneficially used has dropped from about four million dry tons to 2.3 million dry tons.

Land used for spreading has dropped from slightly less than 1,400,000 acres to 800,000 acres, primarily because many states, including Florida, have restricted land spreading—but not eliminated it by any means.

Florida has at least ten wastewater treatment plants that annually produce between 10 million and 100 million wet tons of biosolids annually. For example, Miami-Dade wastewater treatment plants produce between 100 million and 500 million tons of biosolids annually.

Even as total U.S. biosolids production declines through new wastewater treatment technologies that include a stage that allows microorganisms to metabolize organic matter to CO₂, the mass of biosolids that goes to landfills may increase as land spreading decreases.

Even if PFAS were not so persistent and so widely distributed in the environment, the focus on landfills would still be an important topic.

Landfills should protect environmental quality, but PFAS have characteristics that challenge many landfill practices that work well for other substances.

PFAS are more water-soluble than chlorine-substituted organic compounds that PFAS may resemble structurally. Because of fluorine’s strong electronegativity, it prevents PFAS from binding strongly either to soil or to biosolids.

The grant to the UF team that began work in September, 2020, was part of a \$6 million program that EPA developed as part of its PFAS Action Plan.

The agency’s support for the research spans three years, beginning last August, but the UF researchers lost no time in producing results.

So far, they have contributed two papers to peer-reviewed journals. One described using a computer program to use GC/MS data to estimate PFAS burdens in extracts of waste and leachates.

The second described a clever method of creating foams in leachates and the waste stream in wastewater treatment plants that concentrate the PFAS so they can be skimmed from the liquid phase.

If the researchers can keep up the pace of the program’s early progress, the ability to remove and manage PFAS from solid wastes will be far more effective than is currently the case.

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Largo, advocacy groups settle lawsuit aimed at protecting water quality

By BLANCHE HARDY, PG

The city of Largo and a coalition of environmental advocacy groups including Tampa Bay Waterkeeper, Suncoast Waterkeeper and Our Children’s Earth Foundation reached a settlement with the goal of improving water quality in Old Tampa Bay and other local waters.

The agreement addressed wastewater infrastructure problems that have contributed to bacterial contamination in the bay and led to high levels of nutrient pollution.

The advocacy coalition’s civil lawsuit was filed in July, 2020, under the citizen suit enforcement provision of the federal Clean Water Act seeking action from the city to address its wastewater treatment infrastructure deficiencies and pollution problems.

The complaint noted a lack of appropriate action by regulatory authorities.

The plaintiffs alleged that neither the U.S. Environmental Protection Agency nor the state of Florida was diligently acting to redress the issues.

Reducing the total nitrogen load discharged to surface waters by the city was a core issue for the advocates.

The city agreed to reduce its nitrogen loading into Old Tampa Bay by completing construction on a \$53 million biological treatment project at its wastewater treatment facility by the fall of 2022.

Megan Eakins, chairman of the board at the Tampa Bay Waterkeeper, said that the city is accelerating its \$4 million annual commitment, and will expand its efforts to improve its wastewater collection and treatment systems and to reduce stormwater inflow and infiltration as well as sewer overflows.

Eakins said the city also agreed to reduce the concentration of dichlorobromomethane discharged into Old Tampa Bay as soon as possible by completing planned disinfection system improvements at its wastewater plant by Dec. 31, 2024.

The projects are expected to increase

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LARGO
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Report: High costs, inconsequential improvement plague springs restoration

By ROY LAUGHLIN

A new report from the Florida Springs Council described the Florida Department of Environmental Protection's epic failure in its mission to restore springs within 20 years, as mandated by the state.

According to FSC, the primary reasons for the lack of success are inadequate funding, and pursuing irrelevant or inconsequential projects to remove nutrients and ensure adequate water supply.

The report concluded that, under the current program malaise, no substantial restoration progress is likely at most of state's imperiled springs.

The report, 2021-2022 Springs Funding Report, has four primary criticisms of the current springs program's spending and project selection.

The first two appear to be a paradoxical complaint about funding. First, the report noted that despite billions being spent, we cannot buy our way out of Florida's water quality crisis.

At the same time, the report asks the Florida Legislature to significantly increase annual funding for springs' restoration projects.

A closer reading of the report shows that FSC prefers effective prevention measures to rescue Florida's springs from its water quality crisis rather than after-the-damage-is-done pollution cleanup.

The report endorsed legislation to "require agricultural producers and local governments to significantly reduce existing nutrient pollution and prevent future loading."

The report discussed multiple project case studies showing millions of dollars spent on projects to get fractions of a percent reduction in nitrogen inflows to the springs.

The lack of cost-effectiveness described in the report is mind-blowing.

The report's analysis begins with a statewide overview. Statewide, 2021-2022 proposed projects will remove a pound of nitrogen at an average cost of \$2,757. On that basis, it would take more than \$29 billion to reach current water quality goals for all Outstanding Florida Springs.

And that's assuming no additional sources of pollution and current costs remain stable. Neither is a remotely realistic assumption.

The report noted that nutrients from agricultural land account for 79 percent of the nitrate loading to springs in Florida. Yet, efforts to reduce agriculture's nitrogen contribution account for only four percent of Florida's spending to lower that contribution.

In addition, septic tanks have consistently ranked at the top of cited sources for springs' nutrient pollution.

For springs statewide, septic tanks account for only about 17.6 percent of the nitrate loading, but have soaked up 93.8 percent of state funding for water quality improvements.

The public health benefits of wastewater treatment plant and septic tank improvement and conversion projects are highly beneficial to the public health, so there is every reason they should be done.

But human wastes are not the primary cause of nutrient pollution to springs. Instead, wastewater treatment projects soak up a hugely disproportionate share of the funds while not addressing the primary cause.

The reason for this, according to the report, is that only water management districts can propose projects to DEP for state springs funding, a practice the council strongly encourages to end.

The report said that money for springs improvement needs to be spread to other state departments, including the Department of Agriculture and Consumer Services. In addition, the Department of Health could be added to this list to receive support for septic tanks conversions and wastewater treatment where they could be beneficial.

Some of the numbers noted by the council in its report seem astounding.

For example, the cost of state projects conducted so far for removing a pound of nitrogen from Silver Springs is \$8,333. The planned two-year funding at Silver Springs is \$3,485,072, just 2.8 percent of the total spending for all Outstanding Florida Springs.

Based on this two-year snippet of effort, it will take 2,215 years to remove enough nitrogen to meet the 20-year water quality goals and at the cost of over \$7.7 billion.

The cost per pound of nitrogen removed from Silver Springs, while eye-popping, is not so exorbitant, in fact, to be suspect of error. Wekiwa Springs' cost of a pound of nitrogen removal is \$5,882.

Weeki Wachee ranks third at \$5,000 per pound of nitrogen removed.

The Suwannee River Water Management District's proposed spending includes another lopsided example. While agriculture accounts for 92 percent of the nitrogen sources in the district, only 28 percent of the springs' projects address agricultural nitrogen inputs.

Septic and wastewater treatment plants account for only four percent of the nitrogen inputs, but they are soaking up 71.9 percent of the proposed funding.

Urban fertilizer accounts for another 12 percent of the loading but has received no state funding for prevention.

The report includes summarized case studies for ten Outstanding Florida Springs. The individual case studies are also highly illustrative of springs' funding failures and shortfalls.

The information in the report's springs case studies presents a notably consistent, clear and concise graphical presentation of reams of numerical data gleaned from DEP's water quality database and other state agency data.

The city of Newberry proposed construction of a new water storage tank at a cost of \$1,784,279. According to the springs report, the tank project was characterized as a water conservation project but concluded that "the project has no wa-

ter quality or water quantity benefits to the Santa Fe basin."

A \$4 million project in the town of Malone to extend its central sewer line would have resulted in the abandonment of 170 septic tanks. The result would be a calculated 1,421 pounds per year reduction in nitrogen released to Jackson Blue Basin at a cost of \$2,857 per pound.

But because nearly 97 percent of the nutrient loading to Jackson Blue Springs comes from agriculture, the sewer line extension would have provided just 0.2 percent of the necessary reduction to meet nitrogen loading targets for the spring.

While all septic tanks account for only three percent of the loading in the Jackson Blue Basin, they will receive 99 percent of the basin's 2021-2022 funding, an unambiguous mismatch of need and spending.

The data that the council analyzed came directly from the Outstanding Florida Springs basin management action plans established by DEP. Project data came from the 2021-2022 springs restoration funding project proposal submitted by water management districts.

The data analyzed were from four of the five state water management districts.

SPRINGS
Continued on Page 15

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LABS

From Page 1

were delayed significantly and protracted when they did occur.

Business conditions

Overall, demand for commercial lab services and resulting revenues were down in 2020. COVID-19's primary influence was to slow client activities that required testing.

Over the past 12 months, however, demand for lab services from drinking and wastewater utilities was stable. Some commercial labs even reported an increase in that type of work as some labs operated by utilities experienced personnel shortages during the pandemic.

In contrast, projects involving natural resource monitoring, real estate development, construction and some remediation projects experienced significant declines in lab service utilization until the second quarter of 2021.

In the second quarter, the environmental lab industry has recovered well. Some labs reported workloads nearing all-time peaks for this time of year.

Last year, the DEP's Petroleum Restoration Program contributed significantly to the reduction in demand for lab services.

PRP's "pause" sharply reduced new cleanup project funding in the summer of 2020. Labs continued to analyze samples

from work in progress at program sites, but at a significantly declining rate between August, 2020, and June, 2021.

As 2021's third quarter begins, Florida's environmental labs are busy, and work orders suggest they will remain that way. Lab officials said they expect further increases in demand when PRP restarts its funding of new site cleanups.

Prospects for the future

Regulations at both the federal and state levels drives a considerable portion of environmental laboratories' workload.

Two significant changes are now in play that could considerably increase the demand for lab work.

The first is the push to establish standards for perfluorinated alkyl substances in drinking water, surface water, soil and solid wastes. However, progress in establishing these standards is slow.

Last year, the U.S. Environmental Protection Agency substantially increased the number of analytical protocols for PFAS in water to at least 32 compounds.

These compounds cover a broad swath of PFAS water contaminants. Labs possessing the sophisticated equipment and technology required to analyze for PFAS are well positioned to handle analysis for additional PFAS compounds as the EPA releases new methods.

In addition, DEP completed its PFAS

sampling program across the state and began three significant projects to reduce PFAS contamination at wellfield sites in Pensacola, Zephyrhills and Stuart. No doubt other PFAS-contaminated sites will emerge.

The large number of PFAS compounds already identified in the environment could lead some experts to refer to them as "background contaminants" with the same connotation as "background radiation" or "geologically-derived arsenic levels," the desired inference being that PFAS contamination is a force of nature rather than a result of human foible.

Minimizing contact with, rather than preventing or cleaning up the contamination is the regulatory goal of this philosophy.

Either of these two scenarios could significantly increase environmental lab involvement unless the state decides to set lax standards by fiat.

The Florida Legislature created another potentially lucrative opportunity for environmental laboratory services during the 2021 session when it passed new potable reuse water legislation.

Mating "potable" with "reuse" forms a catchy phrase that obscures the intent of legislation passed in May that endorsed the use of treated wastewater as a direct potable water source—without any environ-

mental return step before utilization.

To meet public health standards, such potable reuse water will need rigorous testing to ensure that not only those substances already on the EPA standards list are within acceptable limits, but also that emerging chemicals of concern are tracked, if not regulated.

Employment challenges

Throughout the pandemic months, hiring at Florida's environmental labs may have slowed at times, but it did not stop. Labs have been able to retain staff and fill positions as necessary.

Officials we spoke with said that they continued to interview employment candidates throughout last year, and hired those with the desired qualifications.

Lab managers who provided employment details said that their staff was no longer working the split shifts that had some staff working nights or evenings to allow for social distancing. Regular day shifts are again the norm.

Lab workloads are increasing as 2021 progresses. Consequently, hiring is also occurring at a higher rate in the third quarter.

According to the 2021 U.S. Department of Labor survey of testing laboratories, a survey that includes environmental laboratories, employment opportunities in these labs are expected to grow much faster than the average of all occupations in the country.

According to the Labor Department's Bureau of Labor Statistics, the median wage across the country is \$73,230.

Florida wages for laboratory technicians with postgraduate degrees or training are typically between half and two-thirds of the national figure.

While Florida's pay rates are unlikely to reach national levels in the next decade, they could begin to approach those levels.

Costs, supply chains

In 2020, solvents, for example propanol used to disinfect, experienced price increases of two to five times, sometimes more.

Even labs with annual supply contracts that insulated them from the worst price spikes now encounter considerably higher costs for all expendables, including labware and plastics. It is at least as much of a problem this year as it was last year.

Supply chains have been the most difficult challenge of the past year for some labs, with backlogs of several months common.

Delays in supplier inventories and shipping is expected to continue through the rest of the year and into 2022 as long as COVID-19 continues to affect Asian labor markets and port facilities.

Increasing costs for materials and expendables are especially tough on companies whose work comes through the bidding process.

Bidding is the dominant practice for labs that service government clients. Competitive bidding constricts potential revenue increases while other factors nudge costs up.

The influence of low revenues is not pernicious yet, but larger and better capitalized labs have an edge over smaller, specialized labs over time.

Industry surveys conducted early in 2021 predicted revenue increases of 6.3 percent in 2021 for analytical and testing laboratories overall. One unknown is how much inflation will impact revenues.

If actual revenue growth at the end of the year is only 6.3 percent, it may not even offset inflation and pricing increases.

Our past annual reporting on Florida's environmental lab industry described the confluence of events, trends and significant changes that affected the enterprise. In contrast, a non-financial, non-technical force, COVID-19, became the dominant factor affecting the business this year.

The good news is that the laboratory enterprise survived the pandemic's crippling effects in better shape than many expected last summer.

Certainly, the damage was not nearly as bad as many feared. The pandemic challenge has not yet subsided but, for environmental labs, business is improving and is now on a trajectory to recover substantially by the end of the year.

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DEP issues warning letters to parties responsible for barge coal ash release

By **BLANCHE HARDY, PG**

The Florida Department of Environmental Protection issued a warning letter to Dann Ocean Towing Inc., Moran Towing Corp. and Applied Energy Services Puerto Rico LP, noting possible violations resulting from the grounding of the Bridgeport barge off the coast of Atlantic Beach.

In late March, DEP was notified of the barge grounding within state waters. The barge discharged an unknown quantity of material identified as coal combustion fly ash and bottom ash that goes by the trade name Agremax, said Russell Simpson, ombudsman with the Northeast District Office of DEP.

Coal ash can contain contaminants such as mercury, cadmium and arsenic.

The coal ash was on its way to Georgia when the grounding occurred.

The barge was being guided by Moran Towing during rough weather when it hit jetties approximately one mile south of the mouth of the St. Johns River.

Initial estimates indicated that more than 9,000 tons of coal ash spilled from the barge, which remained aground from March until late June.

DEP and the Florida Fish and Wildlife Conservation Commission developed a

scope of work for immediate response efforts to ensure that any environmental impacts from the release were appropriately assessed.

The scope included increased sampling and monitoring in the area. DEP relied on the results of the sampling to determine the need for restoration activities at the site.

The environmental assessment was conducted by Research Planning Inc.

U.S. Coast Guard reports indicated that 44 test locations were sampled in the vicinity of the Bridgeport's grounding. Of these, only four found Agremax.

No deposition in the soil was found, there were no signs of aquatic smothering, and coal ash was not found in any of the samples from local beaches.

The samples were analyzed for an extensive list of metals. Concentrations of contaminants where detected were reported to be below risk-based ecological screening levels for marine sediments.

Barium and boron were detected above risk-based screening levels for marine waters in both near-barge and background locations.

The presence of these contaminants in background samples indicates that the concentrations may be reflective of baseline levels in the area.

microplastic pollution in the ocean's surface waters.

The technique relies on NASA's Cyclone Global Navigation Satellite System, originally designed and employed in 2016 to measure wind speed at the ocean's surface using radar.

These satellites have been in use for several years to study the wind speeds of hurricanes and trade winds.

While reviewing the data, UM researchers noticed that the ocean surface was smoother than the measured wind speeds indicated it should be.

Researchers know that seawater with floating material such as floating algae is often smoother due to the material.

They hypothesized that floating microplastics might also stifle wavelet formation by the wind.

They gathered data from current modeling to indicate where waves and currents might concentrate microplastics. Surface water smoothing was evident where the model predicted microplastic accumulation.

Microplastics are formed by the fracturing and pulverizing of larger plastic pieces floating in the ocean.

Most microplastic occurs in central ocean gyres even though the plastic originates on land and is carried into the ocean.

As a result, microplastic pollution is most abundant thousands of miles from where the plastic originally entered the ocean.

Using the proposed method, UM researchers found that global microplastic concentrations in the ocean vary by season. They peak in the North Atlantic and Pacific during the northern hemisphere's summer months.

In contrast, in the southern hemisphere, January and February are the peak months for concentrations of microplastics in surface water.

The researchers proposed that in the winter in each hemisphere, stronger currents disrupt plumes of floating microplastics.

In addition, winter storms and waves increase vertical mixing, sinking microplastics further below the surface so that they don't affect the ocean's surface smoothness as much as they do in the summer months.

Satellite surveillance with this method is also effective on smaller scales. For example, satellite data indicated several transitory spikes of microplastics at the mouth of China's Yangtze River, an often-cited globally significant source of microplastics in ocean gyres.

The research was published in the June 2021 issue of *IEEE Transactions of Geoscience and Remote Sensing*.

"Analysis confirmed the Agremax on this barge is not classified as toxic, hazardous waste," said Simpson. "A shoreline assessment was also conducted, and no coal ash was found present at any of the

beach testing sites."

Similarly, the U.S. Coast Guard re-

BARGE
Continued on Page 16

Environmental Services

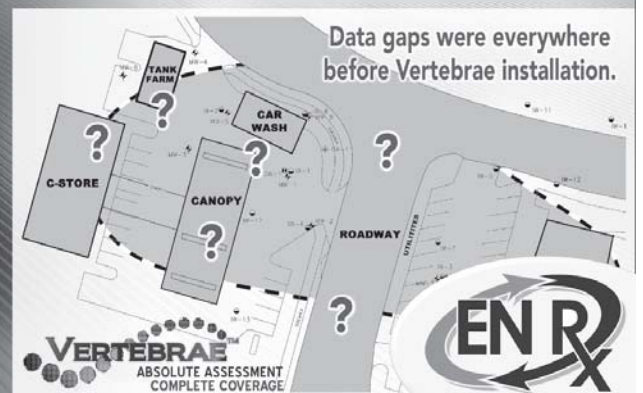
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Mote Marine Laboratory, is funded for two years.

Stormwater runoff most likely to promote algal blooms results from episodic events such as tropical cyclones and heavy rainfall events.

Therefore, the investigators intend to present preliminary data and findings at the end of each rainfall season so that they might constructively influence responses to heavy rainfall that prevent or reduce harmful algal bloom intensity.

Lake Munson microalgae control project. Earlier this summer, the Northwest Florida Water Management District began a pilot study to determine how well a mobile cellular algae removal process could help lower nutrient levels in Lake Munson in Leon County.

Lake Munson is a 255-acre lake south of Tallahassee. Several previous projects focused on reducing trash and sediment inflow from stormwater, and improving stormwater quality before it flows into the lake.

Unfortunately, the improvements have been insufficient to prevent algal blooms.

The new algae-harvesting project that began in June relies on AECOM's Algae Harvesting Hydroneucleation Flotation Technology.

At its core, the process depends on microbubble flotation and surface aggregation of microalgae cells, followed by surface skimming to collect them.

A part of the biomass supporting an algal bloom is taken from the water by removing algae cells. Nutrients that are recycled to increase the duration of the algae bloom are also removed.

AECOM has performed demonstration projects of its flotation technology throughout Florida and in other states, including a demonstration of barge-mounted units in Lake Okeechobee.

Company officials noted that one characteristic of its process is that it removes microalgae without harming other plankton or small fish. The Northwest Florida Water Management District is particularly interested in a microalgae control method that minimizes collateral damage to other organisms.

Removal of nutrients from Lake Munson is more significant to regional water quality goals than the small pond itself.

Lake Munson drains to a sinkhole that feeds the Munson Slough, then the Upper Wakulla River and Wakulla Springs.

Wakulla Springs is designated as an Outstanding Florida Spring and a special focus area because of impaired water quality due to excess nutrients.

Polk to test potable water reuse. For the first time, the Florida Legislature passed a bill endorsing potable water reuse—a euphemism describing the treatment of wastewater to drinking water standards and then sending it directly to a public potable water supply.

The Legislature said that direct potable reuse allows local utilities to claim alternate water supply credits that provide state funding to develop the resource.

In mid-June, Polk County officials approved construction of a potable reuse water refining plant as a pilot study of its reliability and effectiveness.

The cost is \$1.5 million for the plant at the county's new Cherry Hill Water Production Facility in Lakeland now under construction.

The reuse water purification plant construction will begin next March and will require 14 months to complete.

Reuse water will not be provided to its drinking water customers for eight to ten years, according to the county's preliminary plan. After that, some state and perhaps federal agency approvals will be required.

Venice stormwater management. The city of Venice commissioned a water quality study of its stormwater system, focusing on the levels of total suspended solids, nitrogen, phosphorus and fecal coliform at

stormwater drainage outfalls.

The city has a total of 28 outfalls, 10 of which release water directly into the Gulf of Mexico. Ten of the 28 outfalls provide some level of treatment to improve water quality, but that treatment is not the same for each.

After a 2018 red tide bloom, the Venice City Council commissioned a study in collaboration with Taylor Engineering to characterize water quality at the outfalls.

The findings indicated that high nutrient levels were the most significant issue with the quality of the runoff water.

The study's primary goal was to create a stormwater management protocol across the entire city to prioritize outfall upgrades. The city commission wanted to focus first on the outfalls that would produce the greatest contaminant reduction per dollar spent.

Venice began building its stormwater management structures in the 1990s. However, a severe red tide bloom in 2018 made it clear that it needed to take a different approach that considered not only the quantity of stormwater released but its quality as well.

Though it may take several years, the city is now on a path to restrict or eliminate algal bloom-causing nutrients from its stormwater runoff.

Lee County acts on HABs. Lee County hired Solitude Lake Management in a "pre-positioned contract" that allows the county to immediately call for assistance in the event of another harmful algal bloom, such as the one that occurred in 2018.

The county also hired a consultant to help develop a master plan for wastewater management that includes emissions from on-site septic systems, recommended treatment and alternatives for septic systems.

The study will also examine the development of wastewater management facilities.

The information gleaned from the study will be part of septic-to-sewer conversions in unincorporated areas of Lee County, particularly those areas that have a significant impact on impaired waters.

In addition, the project will dovetail its efforts with those in municipal areas, particularly North Fort Myers where many failing septic systems have already been identified.

The project's name was changed from the original Countywide Septic Conversion Plan Study to the Countywide Wastewater Management Plan to reflect the broader focus.

The name change indicated that the focus is not limited to nonperforming septic systems and could be refocused as necessary to address other sources of nutrients that cause algae blooms.

One such focus may be how to provide septic treatment to developing areas that cannot connect to a central sewer system in the county.

Task force technology review. At its meeting in late June, Florida's Blue-Green Algae Task Force reviewed its list of innovative technologies used to prevent or reduce the impact of harmful algae blooms as a prelude to opening this year's project solicitation process.

The program selects and supports projects submitted by government entities.

At the meeting, Edward Smith, the program's director in the Office of Ecosystem Projects at the Florida Department of Environmental Protection, characterized the types of projects his office supports.

First, he said they are most interested in projects with the potential to prevent HABs. So far, funded projects have focused on preventing nutrients from reaching waterways, or reducing the nutrient loads already present, the internal nutrient loading component that contributes to HABs.

The program is also partial to technologies that are mobile so they can be moved to where HABs occur.

The reviewers also prefer projects that

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WATCH
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create a byproduct that is potentially monetizable as a beneficial product. The sale can ensure a more sustainable maintenance effort.

Over the last two years, 20 projects were funded. Eight were located along Florida's eastern coast, two in Lake Okechobee and two along the Caloosahatchee River.

Seven of them are nutrient reduction efforts. Nine others are algae reduction/removal projects. The remaining four focus on more effective HAB prediction.

The prediction studies focus on data integration, detection methodology and data analysis used to understand the likelihood of an HAB occurrence.

Florida initiated a third round of grant solicitation on July 15.

Water quality in Boca Ciega. In June, St. Pete Beach City Commissioners approved several projects to improve water quality in Boca Ciega Bay.

First, they approved a contract to install a baffle box at 36th Avenue that will collect grass clippings, trash and sediments that can contain nutrients.

Periodic emptying of the baffle box and disposal of its contents keeps contaminants out of the bay.

Roland Inc. was selected to install the baffle box at a cost of \$147,833.

The baffle box installation is being coordinated with a Florida Department of Transportation project to install check valves immediately downstream of St. Peter Beach's new baffle box. The valves will prevent high-tides from flooding into stormwater inlets at the intersection of 36th Avenue and Casablanca Avenue.

The city of St. Pete Beach is implementing this project instead of paying a DEP fine for sewage spills into Boca Ciega that occurred several times from August through October, 2019.

DEP estimated that the spills discharged 661,726 gallons of untreated sewage into a storm drain leading to the bay and fined the city \$40,000.

DEP approved the installation of the baffle box as a payment-in-kind project, waiving the fine.

Titusville contests fines. The city of Titusville and the Florida Department of Environmental Protection are at odds following a sewage release from the city's Osprey Wastewater Treatment Plant on Buffalo Rd. near Sandpoint.

The spill occurred in December, 2020.

A ruptured pipe running through Sand Point Park released raw sewage that then flowed through several ponds and into the Indian River.

Although the exact amount of effluent discharged to the river is unknown, water samples from the lagoon near the outfall exceeded water quality criteria for *E. coli*—the violation that led to the fine.

The Osprey WWTP has a recent history of falling out of permit compliance.

Early in 2020, DEP concluded a consent order with the city to complete construction improvements at their Osprey plant by November, 2022.

That consent order followed a September, 2019, DEP inspection that revealed that the plant failed to meet permit limits for fecal coliform and suspended solids—the most recent of several noncompliance findings over the past five years.

Consequently, DEP added \$61,675 to the proposed base penalty for the more recent violations.

DEP assessed Titusville \$200,000 for the spill, including \$1,000 to support the investigation of the spill event.

The department also established several deadlines for the city to complete sewer system improvements.

The city has 180 days to respond with a detailed plan to prevent future spills.

City officials want the fine reduced, based on having already spent \$377,163 responding to the spill at Sand Point Park.

More than half of that covered the cost of hauling away 3.3 million gallons of sewage-laden water from the park.

WPB establishes algae panel. The city of West Palm Beach formed a technical advisory committee consisting of water quality and research experts who will advise the city on operating its utilities to avoid the adverse effects of blue-green algae blooms.

West Palm Beach is unique among neighboring cities in Southeast Florida because it relies on surface water rather than wells for its potable water source.

Since finding *Cylindrospermopsis* in late May, the city utility department is testing its drinking water regularly and has stepped up testing frequency beyond that required by state regulations.

The city will conduct algae monitoring and develop strategies to effectively control the risks of cyanobacteria blooms in the future.

Their primary focus will be on identifying cyanobacteria blooms that might release toxins to the city's public drinking water sources and controlling the potential for future elevated cyanotoxin levels in the source water.

A water advisory was issued in late May after testing showed the presence of the *Cylindrospermopsis* in the city's source water. The advisory, intended to protect children and seniors, lasted a week.

High levels of exposure to the cyanotoxin can cause hemorrhages in the lungs, liver, kidney, small intestines and adrenal glands. It can be deadly if ingestion is pro-

longed or the victims are sensitive to the toxin.

MRC evaluates IRL. The Marine Resources Council gave the Indian River Lagoon a grade of 58 of 100 in its annual evaluation of the coastal lagoon's environmental condition. Though quite low, the score reflected a modest improvement from the grade of 52 it received in the council's previous assessment.

The grade incorporates data on water quality, chlorophyll *a* and other indices of biological health collected by state, local and research project monitoring programs.

The data span the years from 1975 until 2019, the most recent available. The data

SPRINGS
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Only the South Florida Water Management District was excluded because it has no Outstanding Florida Springs within its boundaries.

One caveat the FSC report noted was that nitrogen reduction contributions for a project are calculated in pounds per year of loading to groundwater at the project site. In contrast, the report noted, the total maximum daily load water quality goals in Outstanding Florida Spring BMAPs are based on nitrogen loading at the spring vent.

Therefore, the report noted that "it is illogical to believe that a project could have

for 2020 that included the epic summer 2020 algae bloom will appear in the council's next report card.

Though water quality data improved somewhat, the score remained in the F grade range because seagrass has not recovered.

In a seminar to discuss this year's grading exercise, MRC Executive Director Leesa Souta, PhD, pointed out that over the most recent 20-year period, nitrogen and phosphorus in the river have been elevated at relatively stable levels.

Reflecting the lack of progress on improving the Indian River's ecological conditions, the MRC report's summary stated that, "Bottom line is, we need to do more."

a greater benefit to water quality at the spring vent than the loading reduction to groundwater at the project site. For this reason, these projects may overestimate the actual nitrogen reduction at the spring vent from a given project or suite of projects."

This observation may explain why so many of Florida's surface water bodies, including springs, are experiencing denser, more frequent and longer-duration algal blooms despite the alleged reduction in nutrient inputs based on TMDL predictions and sometimes water quality data.

If no progress is evident after 15 more years of springs spending, readers may return to this report to confirm that the FSC provided ample warning.



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Legislature identifying economic barriers that may result from the new CFWI rules.

Those will be due by December, 2025.

Beneficial bills that failed

SB 336, which proposed a large-scale agricultural pollution reduction pilot program, failed. The DEP would have conducted the study working with dairy farms. The bill also included a \$1.3 million appropriation.

Senate Bill 1237, which also failed, would have imposed a 12.5 cents per gallon tax for each gallon of water pumped from aquifers for bottling. The funding collected would have been deposited in the wastewater treatment and stormwater management revolving loan trust fund.

The failure to pass the law is a good example of special interest influence on the Legislature. The tax would have benefited everyone at minimal expense to consumers and no cost to water bottlers, who

BARGE
From Page 13

ported that their test results indicated "no adverse impacts to the environment, wildlife, or human health."

With this initial assessment complete, DEP is moving forward with its regulatory review of the incident.

The letter issued by DEP in July to the

would have passed the levy along to consumers.

Elsewhere, local wastewater treatment utilities evaded an onerous new requirement when SB 1058 failed. That bill would have required wastewater treatment utilities to repair or replace its sanitary sewer laterals.

Individually, a leaking lateral isn't such a significant source of sewage contamination. In older neighborhoods, however, the aggregate contribution of nutrients and bacteria is a substantial source of surface water and groundwater contamination.

For now, ensuring that laterals are working properly remains the whim of property owners in Florida. The need still exists to repair laterals, but an effective means to that end does not.

Last year's Clean Waterways Act implemented many recommendations from the state Blue-Green Algae Task Force.

SB 1522, which failed this session, required DEP to develop and implement a

responsible parties involved with the Bridgeport barge incident is the first step in that review.

DEP has a number of compliance and enforcement tools available to address any potential violations.

Along with the possibility of fines and penalties, enforcement can also require restoration and remediation action.

septic system inspection monitoring program.

It would also have required DEP's basin management action plans to prioritize restoration projects to give the highest priority to those with the greatest water qual-

LARGO
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the resilience of the city's environmental infrastructure while reducing the risk of sewer overflows throughout the city.

In addition to the infrastructure improvements, the city will support local ecosystem restoration efforts through a contribution of \$100,000 to the Tampa Bay Estuary Program.

The funds will be used to support projects in Old Tampa Bay for nutrient reduction, habitat restoration and water quality improvement.

"The city of Largo remains committed to improving water quality in the local area and making the necessary planned corrections to its wastewater treatment and collection system in order to meet the Florida Department of Environmental Protection's consent order deadline," said Largo City Manager Henry Schubert.

The full agreement is stated in the settlement lodged in federal court in the matter of Tampa Bay Waterkeeper, et al. v. City of Largo, Civil Case No. 8:20-cv-01742-CEH-AAS, M.D. Florida.

ity improvement potential.

Finally, the bill would have mandated assessing the cost-effectiveness of the different technologies that DEP uses to reduce harmful algae blooms, ensuring that the money is well spent.

"Florida's coastal waters are essential to life in our state, and so much of our economy depends on clean water and healthy aquatic ecosystems," said Tiffany Schauer, founder and board president of Our Children's Earth Foundation.

DeMEO
From Page 7

sponsible parties attempt to sort out the challenges brought by PFAS contamination, the public has been bombarded by both credible information and misinformation about the risk to public health and the environment occasioned by the presence of PFAS in various environmental media.

Until this is sorted out by the regulators and the courts, responsible parties and their legal and scientific representatives will continue to struggle to understand and address their responsibilities.

Ralph DeMEO is a shareholder with Baker, Donelson, Bearman, Caldwell & Berkowitz, PC in Tallahassee. He can be reached at rdemeo@bakerdonelson.com.

NOTES
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hold appliances.

The facility is expected to produce 105,000 metric million BTUs of RNG, enough to serve about 4,400 homes annually.

TECO Peoples Gas is a subsidiary of Emera Inc. servicing roughly 425,000 customers in Florida.

Company news. Montrose Environmental Group Inc. acquired Vista Analytical Laboratory. The lab focuses on the analysis of polyfluoroalkyl substances, dioxins and other persistent organic pollutants.

Vista's leadership team will join Montrose, and the business will operate as part of Enthalpy Analytical LLC, a subsidiary of Montrose.

Durham, NC-based AQUALIS acquired the assets of Onsite Wastewater Management LLC, a Florida-based company headquartered in Riviera Beach delivering wastewater, stormwater and pumping services to commercial and industrial markets.

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