

Florida Specifier

The Full Snow Moon

February's full Moon reaches peak illumination at 11:59 a.m. EST on Wednesday, Feb. 16, 2022. It's known as the Snow Moon due to the typically heavy snowfall that occurs in February. Other traditional Native American names for this Moon include the Eagle Moon (Cree), Raccoon Moon (Dakota), and Hungry Moon (Cherokee).

Practical Information For Environmental Professionals

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A note to readers

I'm reminded of the famous quote by Heraclitus, "No man ever steps in the same river twice, for it's not the same river and he's not the same man." The Specifier will continue to focus on quality reporting and focus on providing practical information for the environmental professional. We have many new staff members, but we hope you continue to find the paper useful.

— John Waterman,
Publisher, Florida Specifier

Business profile

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Gene Jones, the CEO of Southern Waste Information eXchange, Inc. or SWIX, is trying to change the way we think about and manage recycling and waste. SWIX was founded in 1981.

Fishing report

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Capt. Sandy Bottoms enjoys his fishing outing with Capt. Tanner Plouffe of Panacea Outfitters at Panacea and the Apalachee Bay. It's a place stuck wonderfully in the past.

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Have a story idea or lead?

Have an idea for a story? Would you like to submit a column for consideration? Please let us know. And don't forget to fill us in on your organization's new people, programs, new offices, project or technologies — anything of interest to environmental professionals working in Florida. Send to *Florida Specifier*, 2901 1st Ave. N., Suite 202, St. Petersburg, FL 33713.

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Courtesy of The U.S. Fish and Wildlife Service

The devastation of the manatee population in 2021 was so profound, it qualified as an Unusual Mortality Event under the Marine Mammal Protection Act.

Manatees starving, need help

Seagrass die-offs leave loveable sea cows in peril

By BLANCHE HARDY, PG

If you open the Florida Fish and Wildlife Conservation Commission's (FWC) 2021 Preliminary Manatee Mortality Report Table, you will find 32 pages of neatly typed tables containing the final records of 1,101 dead manatee, on average just slightly less than double the recorded manatee deaths in the past six years. At last count, early in 2019, roughly 5,700 manatees still are alive in Florida.

While boating strikes typically accounted for 20 percent of the previously

Did You Know?

Manatees are the only vegetarian marine animal.

recorded manatee deaths, not last year. In 2021, only about 10 percent of the 1,101 manatee deaths were boating related. Florida manatees are now at greater risk of starving to death in some areas. The gentle 1,000 pound sea cows are indigenous. They are as much a part of the Florida's persona as sunshine. The devastation of their population in 2021 was so profound, it qualified as an Unusual Mortality Event under the Marine Mammal Protection Act.

"This represents roughly double the average number of deaths in years prior,

and it is the most deaths ever recorded in a year," said Patrick M. Rose, a CPM, aquatic biologist, and the executive director of the Save the Manatee Club. "More than half of those deaths occurred in the northern Indian River Lagoon due to starvation and malnutrition caused by seagrass die-offs attributable to nutrient pollution and associated harmful algal outbreaks. Tragically, we face another bleak winter as many of the manatees are starting the winter grossly malnourished with very little seagrass remaining anywhere near the warmwater outfall from the Cape Canaveral power plant."

Having exhausted attempts to have the necessary actions taken to protect the manatee, the Center for Biological Diversity, Defenders of Wildlife, and the

To MANATEES Page 16

Septic upgrade plan could help Indian River Lagoon

By MATT BADOLATO

In order to reduce nutrient-rich groundwater from entering the Indian River Lagoon, Brevard County is offering incentives for eligible property owners to upgrade their conventional septic systems to advanced, nitrogen-reducing technology.

Assistance is available to residential or commercial properties with the amount of funding scaled according to the priority of the site for nutrient reduction. To determine the highest priority areas, Brevard County conducted a detailed evaluation of septic impacts to surface waters through groundwater monitoring and modeling. Brevard's nu-

Did You Know?

Individual grant amounts are prorated based on a property's modeled nitrogen loading. Homeowners are reimbursed per pound of nitrogen up to the maximum of \$18,000.

trient load modeling was performed by Applied Ecology, Inc. using the Florida Department of Environmental Protection-approved ArcGIS-Based Nitrate Load Estimation Toolkit (ArcNLET). The ArcNLET septic loading model re-

sults were calibrated with local groundwater concentration data.

Modeling showed nitrogen loading to the Indian River Lagoon (IRL) was highest from homes close to the lagoon, in sandy or rocky soils, and in low-elevation areas with a high groundwater table. These areas also had high soil hydraulic conductivity, meaning water can pass easily from septic drainfield to groundwater through porous sediment.

In Brevard, about 15,090 septic systems lay within 55 yards of the lagoon or connecting surface water. These systems load an estimated 408,863 pounds of total nitrogen to the lagoon each year. About 8,203 of these systems are in

To UPGRADE Study Page 5

Courts negate oil, gas lease sale

STAFF & WIRE REPORTS

A federal court, according to *The Washington Post*, has invalidated the largest offshore oil and gas lease sale in the nation's history. It ruled that the Biden administration violated federal law by relying on a flawed analysis of the climate change impact of drilling in the Gulf of Mexico.

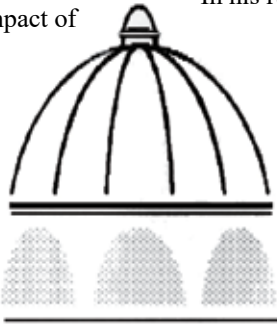
The decision in the U.S. District Court for the District of Columbia threw out 1.7 million acres of oil and gas leases that the Biden administration did not want to sell. Shortly after taking office, President Biden suspended new oil and gas drilling on federal lands and waters. But, after a Louisiana judge struck down the moratorium last summer, officials said they were forced to go through with the sale in November.

The auction took place just four days after Biden pledged ambitious climate action to world leaders at a United Nations climate summit in Glasgow, Scotland. Although the administration offered up to 80 million acres in the Gulf of Mexico for drilling leases, the Interior Department ultimately sold only a fraction of that

amount. The sale netted nearly \$192 million and ranked as the most profitable offshore auction since March 2019.

Then, environmental advocacy organizations filed a lawsuit claiming that the sale rested on incorrect assumptions.

In his ruling, Judge Rudolph Contreras concluded that the Interior Department's Bureau of Ocean Energy Management had based its decision to hold the sale on a flawed environmental analysis that miscalculated the greenhouse gas emissions associated with future oil and gas drilling in the Gulf of Mexico. Completed under the Trump administration, the analysis found that the climate impacts would be worse if the acreage went unsold because oil companies with lower environmental standards would increase their production overseas, leading to more greenhouse gas emissions.



Federal File

Wave power gains support

The U.S. Department of Energy (DOE) has announced \$25 million in funding

to support research and development of commercially viable renewable wave power technology, according to *gcaptain.com*.

The funding will support eight projects that will make up the first round of open-water testing at the PacWave South test site, located off the Oregon coast, with the goal of accelerating the commercial viability of wave energy technology and deploying it at scale to help decarbonize the power grid.

"Harnessing the unrelenting power of the ocean is a clean, innovative, and sustainable way to curtail carbon pollution — benefiting American businesses and families, especially coastal communities hit hardest by the impacts of climate change," said U.S. Secretary of Energy Jennifer M. Granholm. "Diversifying and expanding our clean energy sources will usher in a new era of energy independence that makes the grid more resilient, curbs the climate crisis, and saves American's money on their energy bills."

Wave energy converters, which capture and convert natural wave energy into carbon-free electricity, require testing in realistic conditions to be deployed at scale, but obstacles such as permitting challenges and a scarcity of available test sites has made open-water testing, at least in the United States, a challenge. •

Legislation fights for clean water in schools

STAFF & WIRE REPORTS

The Get the Lead Out Florida Coalition has urged the Florida Legislature to get lead out of school drinking water, according to *WMNF.org* and *Florida Politics*. Testing for lead in public schools is optional.

New companion bills in the legislature would ensure safe water for students. Lakey Love of Physicians for Social Responsibility Florida said more than half of Florida schools that have been tested revealed a positive test for lead.

"So, it is perfectly legal in the state of Florida to have high levels of lead in school drinking water," Love said. "And our schools are not required to test."

According to the Centers for Disease Control, there's "no safe blood level," for lead in children. The proposed legislation would install a clean water bottle filling station for every 100 students. It also would install filters for water used to cook meals for students. Federally subsidized Elementary and Secondary School Emergency Fund would cover costs.

Sen. Gary Farmer of Fort Lauderdale and Rep. Angie Nixon of Jacksonville have sponsored the legislation. The measures (SB 1648 and HB 1245) would circumvent testing.

Schools also must install similar filters on all on-campus drinking water sources before the 2023-2024 school year, including those located within a cafeteria.

"Lead is a potent neurotoxin affecting children's learning, growth, and behavior," Nixon said. "Children in schools, many low-income and Black communities all across this state, are at risk of being poisoned simply by drinking water out of a fountain they falsely assume will be safe."

Love agrees. "Our legislation goes straight to the solution," Love said. "Bypassing expensive testing because we know that there's lead in drinking water and schools, especially schools that were built before 2014."

In 2018, the *Tampa Bay Times* reported that the Hillsborough School District found high levels of lead in drinking water at several schools. The district didn't tell parents about the findings for more than 16 months, ignoring federal regulations to disclose. Lakey says people assume this issue was dealt with years ago, but it wasn't.

"This lead issue is an issue," Love said. "It's a crisis issue. And it's happening in 2022 and has not been dealt with."

Love said if the legislation doesn't get passed, the federal funding available now goes away.


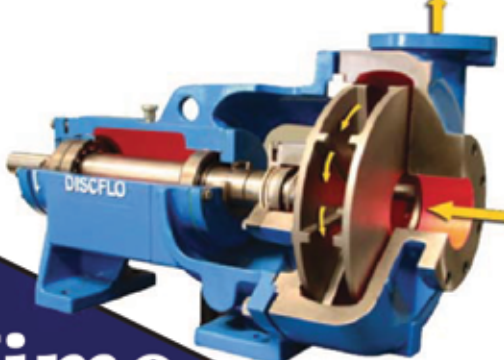
"Our legislature gets to budget that money," Love said. "This is the year. We've been waiting for decades to get the lead out of drinking water and stop poisoning our children. And this year, we get to do it without spending one dollar of state funding."

According to the Environmental Protection Agency (EPA), lead exposure — even in low levels — can prove harmful to children. It can damage the nervous system and slow development.

Proponents of the measure note many schools in Florida were built before the EPA decreased the acceptable lead standard in pipes from 8 percent to 0.25 percent in 2020.

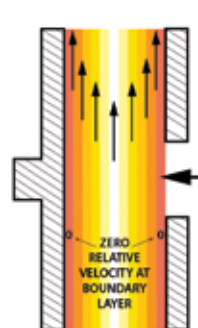
"Many people in Florida just assume their children have safe access to drinking water while in school," said Dr. Howard Kessler of Physicians for Social Responsibility Florida. "Our greatest struggle has been educating

To LEAD Study Page 6









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St. Johns Water Management District turns 50

STAFF & WIRE REPORTS

The St. Johns Water Management District is celebrating its 50th anniversary this year. The district will be reflecting on a half century of protecting the water resources in its 18-county region in northeast and east-central Florida.

The district was created in 1972 when then-Gov. Rubin Askew signed the legislation creating the state's water management districts. The district recalls that 1972 was known as "the year of the environment," when several natural resource bills were passed: the Florida Water Resources Act, the Land Conservation Act, the Environmental Land and Water Management Act, Comprehensive Planning Act, and the federal Clean Water Act.

The district's first Governing Board meeting was held two years later, and Dennis Auth was hired as the first executive director. By the end of 1974, the district had five employees. The state's population was 6.79 million.

Throughout 2022, the district and its staff will share videos and feature key dates and milestones in its history on social media platforms.

New specialty license plate offered

The Jacksonville Jumbo Shrimp have released a new specialty license plate in partnership with the St. Johns Riverkeeper. Proceeds from the sale of the specialty tag will be used by the St. Johns Riverkeeper to fulfill its mission to protect and restore the health of the St. Johns River.

The Jumbo Shrimp, a triple-A minor league baseball affiliate of the Miami Marlins, feature a shrimp on their logo.

For the plate to go into production, 3,000 customers must purchase pre-sale vouchers. The Duval County Tax Collector will offer the specialty tag vouchers through webpage and in person at any Duval County Tax Collector office. Vouchers also can be purchased as gifts for any Florida resident.

Biscayne Bay Commission issues report

The Biscayne Bay Commission is tasked with reviewing and consolidating existing programs and projects into a strategic plan for bay improvement. The commission transmitted its first semi-annual report to Gov. Ron DeSantis, Sen. Ana Maria Rodriguez, Mayor of Miami-Dade County Daniella Levine Cava, Mayor of Miami Francis X. Suarez, the Miami-Dade County Board of County Commissioners, and the Miami City Commission in January.

The commission's inaugural meeting was held in early January. The report marks the completion of the commission's first action item and includes information on projects and programs currently in place by partner agencies benefiting the bay.

The commission serves as the official coordinating clearinghouse for Biscayne Bay public policy and projects and works to unite governmental agencies, businesses, and residents in the area in on bay issues. In addition, the commission works to develop coordinated plans, priorities, programs, and projects that could substantially improve the bay area.

The commission also acts as the principal advocate and watchdog to ensure that bay projects are funded and implemented in a proper and timely manner. The full report is available on the commission's website.

Seagrass improves in Springs Coast

Southwest Florida Water Management District (SWFWMD) scientists have completed the latest round of seagrass mapping along Florida's Springs Coast. The results of the mapping effort show 586,511 acres of seagrass, slightly more than the previous

total of 577,920 acres in 2016. The district reports some areas show significant gains.

The Springs Coast region is one of the largest and most diverse seagrass ecosystems in the country. SWFWMD is committed to monitoring the long-term health of these habitats. Seagrasses also are sensitive

to increased nutrient pollution and other stressors like red tide and hurricanes. The district maps seagrass habitat every four years to "take the pulse" of the Springs Coast estuaries. The results are used to track trends in seagrass and to evaluate ongoing water quality improvement efforts.

DEP launches new website

The Florida Department of Environmental Protection's Division of Water Restoration Assistance Nonpoint Source Management program will launch a new green stormwater infrastructure (GSI) website at <https://gsi.floridadep.gov/>.

The site will educate what GSI is, why it matters, how to get started and how to implement projects that deliver environmental, social, and economic benefits to communities.

"This site complements our agency's ongoing efforts to protect Florida's water resources by providing case studies, technical guidance and information about funding offered by DEP for green stormwater infra-

structure," said DEP Deputy Secretary for Ecosystems Restoration Adam Blalock.

The new website will assist communities in determining which stormwater best management practices are most appropriate for an area, evaluating costs and maintenance requirements, and estimating nutrient reduction effectiveness.

US Army Corps rewards Everglades

The White House announced the U.S. Army Corps of Engineers will be allocated \$1.1 billion for the restoration and preservation of South Florida's Everglades in the current fiscal year. The South Florida Ecosystem Restoration money will come through the infrastructure bill signed into law in November. It is reported to be the single largest investment in the Everglades in history.

The corps has been allocated a total of \$17.1 billion in supplemental funding in the 2021-22 fiscal year which ends in September. Phase 1 of the Putnam County Comprehensive Water Supply Infrastructure Modernization Project also will receive \$ 5 million.

Necessary food

Manatees at risk of starvation finally started eating lettuce provided under an experimental feeding program.

Romain lettuce had been hand delivered to manatees in Indian River Lagoon for several weeks. Finally, during the third week of January, the first manatees ate the lettuce and this encouraged other manatees to join in. Scientists will continue to provide the lettuce in the hope that it will catch on as a popular meal for the manatees. •



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Fish Island hopes car wash won't affect preserve

STAFF & WIRE REPORTS

Gate Petroleum plans to build a car wash next to Fish Island Park in St. Augustine, according to *First Coast News*.

Fish Island is roughly 60 acres of land along the Matanzas River at the southeast base of the State Road Bridge in St. Augustine. During the past few years, a group called Save Fish Island fought to prevent the land from being developed into houses and condominiums. The group won the battle to make Fish Island a preserve and a city park.

The group did not win a fight to stop Gate Petroleum from building a car wash next to the preserve. The entrance to the park is just a few feet away from what will be the future entrance to the car wash.

Janet Patten, a spokesperson for Save Fish Island, is concerned about water runoff from the car wash affecting the preserve.

"We have gotten some concessions about the storm water runoff," Patten said.

According to Amy Skinner, the St. Augustine Deputy Director of the Planning and Building Department, Gate will use an existing retention pond just south of the car wash to collect some of the runoff and the company also will build an underground tank to collect the rest.

"We're grateful for that that it won't be going onto Fish Island property," Patten said.

"That was a big win," Matanzas Riverkeeper Jen Lomberk said.

Big plans for Fort Lauderdale

Two major projects in Fort Lauderdale hope to help flood-prone areas, according to *Local10.com*.

Fort Lauderdale Mayor Dean Trantalis said it was time to "bite the bullet and get this job done."

The Edgewood and River Oaks neighborhoods were identified as the two most flood prone areas. A filter marsh in the system will remove grease and oils from storm water discharge. A new storm water pump, the city's largest, also will be installed.

"We're looking at 5½ miles of pipe to a cost of \$85 million. A lot of residents couldn't even get into their homes or get into neighborhoods, so something had to be done," said Fort Lauderdale Commissioner Ben Sorensen.

Edgewood and River Oaks in the southwest are going to be the first to get the upgrade. "Then, we are going to move north

and hit all the at-risk neighborhoods in the city," Sorensen said.

The mayor said the city is using a bond and securing grants to pay for the project. It should take three years to complete the projects.

Ormond OKs wastewater treatment plant

The Ormond Beach City Commission voted 4-1 to approve a \$127,000 work authorization to Mead and Hunt for the preliminary engineering design and the preparation of a technology assessment for a second wastewater treatment plant, according to the *Ormond Beach Observer*.

The assessment, to include site planning, will examine the city's 16-acre property at the northwest corner of Airport Road and State Road 40. The property was decided to the city in 1991 for utility purposes with the creation of the Hunter's Ridge Development of Regional Impact.

Hurricane repairs still ongoing

Panama City will receive \$20 million to repair and replace about eight miles of hurricane-damaged stormwater, water and sewer lines, according to *WFSU*.

"People understand that Hurricane Michael was devastating to the area. But a lot of people don't know that even today the city has employees working around the clock to maintain lift stations and keep manholes clear," DeSantis said. "During storms that bring heavy rain, the city has evacuated residents from homes in the area because the stormwater systems are not fully functioning."

The city frequently issues boil water notices to residents.

The grant comes from the Department of Economic Opportunity's Rebuild Florida program.

Golf Club will filter water forever

The site of Bobby Jones Golf Club in Sarasota will be conserved in perpetuity, according to *WFLA*, as City Commissioners voted unanimously.

"We are finding that the development that is going out east is impacting us here because the water flows this way," Sarasota Mayor Erik Arroyo said. "Bobby Jones fil-

ters billions of gallons of water every single year before it goes into the bay. It affects our drinking water, it affects the watershed, our quality of life and this just made sense. We have been discussing a partnership with the Conservation Foundation for years. Now they will hold us accountable, and they will ensure that we use this land for its intended purposes."

Generous donation

A little more than 48 acres of land that sits beside the popular Celery Fields in Sarasota County has been set aside for conservation, according to *10TampaBay.com*.



Conservation Foundation of the Gulf Coast announced that the protection was made possible by a landowner who donated a conservation easement.

The group said the farm fields of the property are just east of the Celery Fields and might provide habitats for birds such as the eastern meadowlark and the loggerhead shrike.

"We are very grateful to this landowner for his commitment to conservation," Christine P. Johnson, president of Conservation Foundation said in a statement. "The protection of these 48 acres ensures the scenic vistas viewed from the top of the Celery Fields hill will be enjoyed for generations to come and provides valuable environmental benefits to our entire community."

The 48.44-acres also are within the Philippi Creek and Sarasota Bay Watersheds, allowing the land to filter and store water to help with flood prevention and improve water quality.

Grants bolster Lynn Haven

The city of Lynn Haven has been awarded several grants to help with its stormwater mitigation plan for this year, according to *mypanhandle.com*. The area has been prone to flooding, and the city's public works department is trying to put an end to the recurring problems.

Public Works Director Chris Lightfoot said the city has received \$1 million out of the state's budget. That will be matched by the city's half-cent tax dollars.

Lightfoot said this funding will assist in temporary fixes before engineers can design

stormwater projects.

"That project will allow us to dredge our outfalls and clean out some of the sediment there that has never been taken care of. So, we will get those taken care of so stormwater can leave the city more efficiently," he said. "Of course, it will take us years to do all these projects. But you are looking at the next 24 months with all of the grants."

Miniature facility planned

The industrial park in East Milton, Milton Interchange Park, could receive its own miniature wastewater treatment facility, or package plant, according to the *Pensacola News Journal*. The Santa Rosa County Commission has agreed to give up 80,000 gallons worth of daily capacity at the current wastewater treatment facility in Milton.

The existing plant is expected to reach capacity by the end of 2023. When that happens, there won't be enough treatment capacity for new homes, businesses and other developments to hook up to water treatment, stifling growth. The proposed package plant is a workaround that would allow the industrial park to keep taking on tenants.

Companies penalized

The Florida Department of Environmental Protection has penalized Brown Construction of Northwest Florida, Midway Water Systems Inc., and Gulf Breeze Regional Water System \$3.2 million for a water and sewer line misconnection in 2021, according to the *Gulf Breeze News*.

Fees waived

The St. Johns River Water Management District has waived any associated fees to plug eligible abandoned artesian wells within the District's 18-county region, according to *Clay Today*. Prior to the waiver, property owners paid \$600 for the District to plug a free flowing well.

An artesian well is a well that has been drilled into an aquifer where the underground pressure causes the water to rise inside the well. Many of these free-flowing wells were used by farmers decades ago but are no longer needed today. These older free-flowing wells are typically in a deeper portion of the aquifer making them susceptible to an increase in salinity. Additionally, as the well ages, deterioration of the well casing can occur, which may allow poor water quality to move into other zones of the aquifer that are used for drinking water supplies. Florida law now requires well owners to control the discharge from artesian wells, limiting flow to only the amount of water needed for an intended use.

Suction dredge helps

According to *The Gainesville Sun*, with significant financial assistance from the Southwest Florida Water Management District, volunteers with Save Crystal River have employed a suction dredge to remove benthic algae and organic sediments from areas within the canals and replanted those areas with cultivated eelgrass, first in manatee-exclusion cages, and later in open areas.

Healthy eelgrass are flourishing and expanding throughout Kings Bay and markedly improved water clarity. While eelgrass planting had been confined to the canals closest to Hunter and Three Sisters springs, plant community monitoring confirmed that eelgrass has fully colonized much larger areas in the open bay and river.

Bonita Springs rewarded

Governor DeSantis has presented the
To WATER WATCH Page 9


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Suwannee Water District OKs \$14 million for springs

By **BLANCHE HARDY, PG**

The Suwannee River Water Management District recently approved more than \$14 million for springs restoration projects in Northeast Florida. The district will fund \$10.8 million in new projects and will provide \$3.5 million in multi-year funding for previously approved projects. The funding is being allocated under the state's Springs Grant Funding.

"We are thankful to Gov. DeSantis, our legislature and the Department of Environmental Protection for their continued commitment to preserving the vital springs and water resources of Florida's Springs Heartland," District Executive Director Hugh Thomas said. "These projects further demonstrate the intent of the District's mission to protect our environmental assets and address the needs of our communities."

The project selection process considers improving water quality, increasing water flow and protecting habitat at Florida's springs. Project development for spring protection funding is coordinated with FDEP, community leaders, local stakeholders,

advocates and the other Water Management Districts.

Four new projects have been selected to receive 2021-22 Springs Funding in the District.

The Rembert Property Conservation Easement project is in and partnered by Alachua County. The project will receive \$2 million in collaborative funding to acquire a conservation easement for the protection of 718 acres near Mill Creek Sink in the Santa Fe Basin. The project is anticipated to reduce nutrient loads and is expected to conserve about 44,000 gallons of water per day.

A total of \$1.1 million in collaborative funding will be awarded to the Telford Springs project in Suwannee County. The district will acquire 94 acres for enhanced

conservation and public access to Telford Springs, a second magnitude spring along the Suwannee River.

The Adams Spring Acquisition and Restoration project in Madison County will receive \$2.2 million in collaborative funding for the district's acquisition of about 228 acres of property in Madison County. The acquisition will prevent further development, as well as restore the natural flow of previously impounded springs. The initial project concept has not been approved by the district's governing board, but the board charged the district with continuing to work toward this acquisition in 2022.

Two grants, totaling \$2.8 million and \$4.1 million in collaborative funding will be dedicated to the High Springs Wastewater

Treatment Facility Expansion project in Alachua County. The grants will allow the two-phase expansion of the existing wastewater treatment facility and constructed wetlands, providing 230,000 gallons of beneficial recharge per day and reducing nitrogen load by 4,278 pounds per year.

Previously approved projects receiving funding in this fiscal year include the Greenville Sewer System Improvement project in Madison County and the Devil's Ear Spring Recharge Land Acquisition project in Alachua County.

The Greenville Sewer System Improvements project will receive an additional \$2.54 million. This is the third year this project will receive funding. The project will expand the central sewer system of Greenville and remove existing septic tanks. The project previously received \$4.2 million.

The Devil's Ear Spring Recharge Land Acquisition Project will receive an additional \$1 million to purchase a conservation easement within the Devil's Ear Spring Group in the Santa Fe River Basin. The property has high recharge value for springs restoration and will be monitored by the Alachua Conservation Trust. •

What's at stake

Four new projects have been selected to receive 2021-22 Springs Funding in the Suwannee River Water Management District

- The Rembert Property Conservation Easement project - \$2 million
- Telford Springs project - \$1.1 million
- Adams Spring Acquisition and Restoration project - \$2.2 million
- High Springs Wastewater Treatment Facility Expansion project - \$6.9 million

From UPGRADE Study Page 1

high hydraulic conductance soils, loading 230,362 pounds of total nitrogen.

The County's Save Our Indian River Lagoon (SOIRL) Program offers Brevard residents up to \$18,000 in grant funds to install an advanced treatment septic system on their property. The systems must be certified to reduce nitrogen by at least 65%.

Individual grant amounts are prorated based on a property's modeled nitrogen loading. Homeowners are reimbursed per pound of nitrogen up to the maximum of \$18,000. The County also can pay septic contractors directly so that homeowners do

not have to front the costs. Funds cover the costs associated with proper abandonment of deactivated septic systems and installation of the new system.

Individually engineered performance-based septic systems, some of which use the septic system effluent for drip irrigation, provide another grant-eligible septic system option for meeting 65% nitrogen load reduction onsite.

Once the septic system is installed and passes Florida Department of Health inspection, owners (or their contractors) are reimbursed for their eligible grant amount. Site restoration costs, including sod replacement with Florida Friendly Landscaping also are eligible costs.

Brevard's program is not the first of its kind. The Florida Department of Environmental Protection (FDEP) created the Septic Upgrade Incentive Program which offers subsidies, in designated areas within a county — identified and delineated by the Department as Priority Focus Areas (PFAs), in amounts up to \$10,000 to install nitrogen-reducing enhancements to an existing conventional septic system.

A testament to the success of the program and the willingness of homeowners to perform these upgrades, Citrus County's own Septic Upgrade Incentive Program was successful. According to its website, the program reached its current maximum number for the eligible grant.

Any licensed septic contractor can install these systems in Brevard, and contractors are encouraged to advertise the grant to eligible Brevard residents. Contractors can contact the County for a list of eligible properties.

The SOIRL Program was approved by Brevard voters in a 0.05% sales tax referendum held Nov. 8, 2016, after severe algae blooms caught the public's attention, causing massive fish kills and seagrass loss. County staff also have secured additional grants from the Florida Legislature and through the Florida Department of Environmental Protection to leverage local funding and increase the number of upgrades possible. •

Business owners seek cost-effective group health plans

By **JEREMY ENNS**

As an insurance professional for the past 30 years, I frequently talk with business owners looking to evaluate the options they have available for group health plans.

Whether you operate a lab or have crews in the field, business owners want cost effective plans with good coverage and a simple process for the employees to navigate. Business owners hope to reduce costs, but they've steadily increased during the past two decades; in fact, four times faster than wages. Costs increase, in part, due to a limited number of carriers leading to a lack of competition.

For businesses in the under-50 employee size, consider level-funded plans. Multiple carriers have this as an option for groups that are a favorable risk. Level-funded plans are a form of self-funding that were designed for small groups.

Health Reimbursement Arrangement's (ICHRA) could be another option. A new type of HRA became available in 2020 that

allows employers to reimburse employees for premiums that the employee paid to purchase insurance on their own.

For groups in the over-50 employee market, all these options could be available along with self-funding options. In recent years a self-funded option that has gained

more interest is reference-based pricing (RBP). These plans utilize a function of the Medicare rate for reimbursement to the providers.

If you think this can help your business, feel free to contact me to discuss. I can be reached at 813-818-8805, ext. 232. •


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Study: Septic tanks degrade IRL water by feeding algae blooms

By **BLANCHE HARDY, PG**

Scientists from Florida Atlantic University's (FAU) Harbor Branch Oceanographic Institute, Merck and the University of Vienna recently published "Septic systems drive nutrient enrichment of groundwaters and eutrophication in the urbanized Indian River Lagoon, Florida." Herron, Brewton, Wilking, Tarnowski, Vogal and Lapointe found septic tanks help feed the algae blooms devastating wildlife in the Indian River Lagoon.

According to the study, there are more than 300,000 septic systems permitted in the six counties adjacent to the 156 mile long Indian River Lagoon (IRL). The IRL covers roughly 40 percent of Florida's east coast.

Septic systems can discharge pollutants into groundwater and surface waters. They are responsible for greater than 50 percent of the wastewater disposed in Indian River County and Martin County.

The Florida legislature created the Indian River Lagoon System and Basin Act of 1990 to help protect the IRL System from package wastewater treatment plant discharges and the improper use of septic tanks. The act eliminates surface water discharge of wastewater into the IRL from domestic waste-

water treatment facilities, required existing wastewater treatment facilities to investigate the feasibility of using reclaimed wastewater to promote reuse and reduce nutrient loading, and required the centralization of wastewater collection and treatment.

As noted in the study, except for emergency situations, sewage discharges into surface waters of the IRL have been eliminated. The study team indicates the concentrations of nutrients and fecal indicator bacteria (FIB) documented by analysis of samples collected during the study, "suggest that enriched wastewater N from on-site sewage treatment and disposal systems (septic systems) could represent a significant source of non-point source N-enrichment and microbial contamination in the IRL."

To assess the potential impacts of septic systems on the IRL watersheds, ground and surface water quality was evaluated along both canals and a tributary that drain into the central IRL in Indian River County. Four sub-drainage basins associated with the St. Sebastian River (SSR) and the area's three primary relief canals (North, Main, and South) were examined.

The North Relief Canal (NRC) study area is located north of Gifford. The NRC has the lowest septic system density and is the

smallest of the study areas. The Main Relief Canal (MRC) runs along the north side of the City of Vero Beach. It is the second largest drainage basin in the study area. The South Relief Canal (SRC) study area runs south of the City of Vero Beach and although slightly smaller than the MRC, the SRC has the highest septic system density at roughly four times the number of septic systems. All four basins include natural and agricultural lands.

The study authors selected and collected samples from 20 sites in the four Indian River County sub-drainage basins. Five stations were sampled per each of the four tributary/canals. The fifth station in each set is located at the confluence of the tributary/canal and the IRL. Groundwater samples were collected at stations 2 and 3 in each series. Three stations, two in the NRC and one in the MRC, were classified as background.

Both ground and surface water samples were collected in triplicate during the wet and dry seasons to determine dissolved nutrient concentrations and aqueous stable isotope values for $\delta^{15}\text{N-NH}_4^+$ and $\delta^{15}\text{N-NO}_3$. The study found groundwater had notably higher dissolved nutrient concentrations, nutrient ratios, and more enriched $\delta^{15}\text{N-NO}_3$ than surface waters, pointing to septic system-enriched groundwater as a nutrient source to

adjacent surface waters.

Seasonal differences were observed. Generally, dissolved nutrient concentrations in both groundwater and surface waters were higher in the wet season. The report notes this is likely the result of increased infiltration, groundwater flow and stormwater runoff in the wet season. Groundwater $\delta^{15}\text{N-NO}_3$ values were significantly higher in the dry season possibly due to increased nitrification/denitrification resulting from the vertical expansion of the vadose zone in the soil. In surface waters, all dissolved nutrient concentrations were significantly higher in the wet season as rainfall flushed wastewater out of the enriched groundwater.

The authors note the serious implications of the results for nutrient loading and eutrophication. The discharge of submarine groundwater is a primary mechanism for nutrient and microbial transport to coastal waters. Findings from the study also support that Florida's sediments, such as sandy soils and porous limestone, are not suitable for nutrient removal by conventional septic systems, particularly in low-lying elevations with seasonally high-water tables.

"Humans are increasing nitrogen loading at unprecedented rates that now exceed sustainability of the Earth's vital ecosystems," said Brian Lapointe, a Ph.D., senior author and research professor at Florida Atlantic University's Harbor Branch in a statement released by FAU. "Our study illustrates that implementing advanced wastewater treatment or distributed wastewater technologies in key locations may allow for decreased nutrient loading and improved estuarine water quality and seagrass health in the Indian River Lagoon and elsewhere with similar conditions. Moreover, as sea level rise is expected to further confound these issues in addition to more extreme and frequent tropical storms and hurricanes, a better understanding of these dynamics will be essential for sustainable management of coastal resources." •



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From LEAD Study Page 2

people to let them know that most districts in Florida still have toxic levels of lead poisoning in school drinking and cooking water. 2022 is the year to catch up to people's assumptions and get the job done."

Bills under consideration include:

Senate Bill 198 and House Bill 349:

It allows the Board of Trustees to establish seagrass mitigation banks in state-owned submerged lands to offset "unavoidable" loss elsewhere of seagrass from coastal development projects. This new option could lead to more seagrass destruction from development despite research showing high failure rates in projects to plant and restore seagrass. These bills come amid severe seagrass loss in waterways due to water pollution, a cause unaddressed in the bill. Seagrass is vital for healthy marine ecosystems; its loss is the main factor behind 2021's record manatee mortality.

SB 320 and HB 6063: It removes the state preemption of local home rule on disposable plastic bags, auxiliary containers, and wrappings.

SB 366 and HB 81: It prohibits oil exploration, drilling or production on Florida land or in Florida waters; requires that all electricity in the state be derived from renewable sources by 2040 and carbon emissions be reduced to net zero by 2050; creates an advisory committee to reach these goals.

SB 380 and HB 463: It prohibits state agencies from adopting or enforcing greenhouse gas emissions limits without legislative authorization.

To LEAD Study Page 7

Testing wastewater reveals COVID infection rates

By **BLANCHE HARDY, PG**

The Centers for Disease Control and Prevention (CDC) and the U.S. Department of Health and Human Services (HHS) initiated the National Wastewater Surveillance System (NWSS) in response to the COVID-19 pandemic. Many municipalities in Florida are participating in the wastewater sampling effort. The data generated by NWSS will help public health officials to better understand the extent of SARS-CoV-2 (the virus that causes COVID-19) infections in communities.

Orange County began participating in the Wastewater Surveillance System in May 2021. The county's Sarah Lux reported that, "24-hour composites samples are taken twice a week in 50 ml conical tubes from our three water reclamation facilities and shipped to our partnering lab in Colorado. Data is received a few days later and immediately dispersed to county leadership."

Orange County has continued to remain diligent as it monitors for upticks and downswings in COVID-19 rates, including any of the virus's new variants.

"We're proud to be participating in this national surveillance system," said Ed Torres, the director of Orange County Utilities. "This testing is a safe, non-invasive way for us to monitor the different variants and their impact on our community."

The county is doing an excellent job

More online

Orange County Utilities has made its data publicly available through an online dashboard. The data is updated once a week and gives users a snapshot of the testing results and process. Go to the dashboard at <https://www.ocfl.net/watergabarerecycling/wastewatersampling.aspx>.



sharing information with the public. Orange County staff update a public dashboard once a week with the most current results of analysis to help keep the community informed. They have maintained an aggressive digital media presence in the face of COVID-19 and are among the easiest NWSS participants to track.

Orange County's wastewater is processed at one of the county's three water reclamation facilities, the Southern Water Reclamation Facility, Eastern Water Reclamation Facility, and Northwestern Water Reclamation Facility. Collectively, these facilities serve about 870,000 people.

"Anyone infected with COVID-19 — whether they're asymptomatic or symptomatic — will shed viral remnants into their wastewater for approximately 21 days after contracting the virus," Torres said. "These remnants are broken down pieces of the virus, meaning they're non-contagious and pose no threat to our customers."

Once the wastewater is collected, small

samples (250 ml) are taken from each facility throughout the day and sent off to a lab two times a week. At the lab, scientists measure for any remnant levels of the virus per liter of water. Remnants are non-infectious RNA fragments that are non-viable, which means the virus cannot be spread through the wastewater. The data collected has been invaluable in helping the county better understand the spread of the virus across the region.

"The sample data allows local leaders to detect virus spikes four to 10 days before we see any changes in clinical infections within our community," Lux said. "We use this information to better allocate resources to areas with high or rapidly increasing infections. For instance, data collected as part of the surveillance program has helped Orange County strategize new locations for testing and vaccinations."

While numerous utilities continue to analyze wastewater for SARS-CoV-2, many utilities, including JEA in Duval County, stopped testing for the Corona virus when

the number of cases dropped in late 2020.

Cape Canaveral is among those municipalities continuing to participate in the NWSS. In January, the city reported detection of the virus spiked in pace with the spread of the omicron variant to the highest level detected in Cape Canaveral's sewage since the city began testing. The presence of the virus had more than doubled the previously detected highest level in the city's sewage.

Other municipalities participating in wastewater testing include parts of Longwood, unincorporated Seminole County, Maitland, Eatonville and Winter Park.

Samples collected from the Altamonte Springs Sewer Service Area in January 2022 indicated 70 percent of people within the utility service area were positive, making it the highest concentration detected for COVID-19 in the local wastewater system.

The Loxahatchee River District in Jupiter continues to conduct wastewater surveillance to monitor trends of infection rates of SARS-CoV-2 within their sewer system area, which serves about 100,000 customers.

A litany of false information has been spread about COVID. Among the misconceptions is the idea that wastewater monitoring invades people's privacy. But, as Orange County states, "monitoring wastewater in reclamation facilities enables the county to monitor levels in specific regions of the County, not in specific homes, making the system both private and safe." •

From LEAD Study Page 6

SB 548 and HB 491: It would promote the production and use of renewable energy with several measures, including a tax credit for electricity produced from a renewable energy source located on a working farm; the lease of manmade stormwater management systems for floating solar energy systems; and adoption of a renewable and energy efficiency portfolio standard.

HB 393: and SB 604: It would require the Florida Department of Health to monitor public bathing locations, notify local governments of bacterial contamination and require local governments to post warning signs.

SB 832 and HB 561: It would require implementation of additional recommendations from the Governor's Blue-Green Algae Task Force, including requiring septic tank

inspections at least once every five years, prioritizing waterway clean-up plans (Basin Management Action Plans) with the greatest impact on water quality and requiring an assessment of BMAP cost-effectiveness.

SB 834 and HB 421: It would authorize the Department of Environmental Protection to procure innovative technologies to remove harmful algal blooms from water bodies.

SB 856 and HB 309: It would prohibit the Department of Environmental Protection (DEP) from charging a fee for the inspection of an onsite sewage treatment and disposal system (septic tank) by a private provider and require inspections to be performed only by private providers. The septic tank owner would be required to notify DEP prior to the scheduled inspection. •

PlumeStop fights risk of PFAS compounds in groundwater

BY **JENNIFER MAGANA**
beyondfifteen.com

REGENESIS, one of the leaders in soil and groundwater remediation solutions and vapor intrusion mitigation technologies, has announced a major milestone in the effective treatment of PFAS contaminants using its patented colloidal carbon amendment, PlumeStop.

Scott Wilson, the CEO and president of REGENESIS, announced in a recent webinar that PlumeStop has been applied or is planned for application on more than 100 PFAS sites globally and will continue to grow in adoption due to its proven efficacy and acknowledged cost-competitiveness compared to other PFAS treatment approaches.

PlumeStop PFAS treatments have proven successful with the target PFAS compounds reduced and maintained below their regulatory clean-up levels on all applications completed to date including industrial manufacturing facilities, Department of Defense sites, U.S. and EPA Superfund sites.

Compared to ex situ PFAS treatment approaches, such as pump and treat, PlumeStop in situ treatments does not generate new waste streams that transfer the liability to landfills or incineration facilities; and PlumeStop project life-cycle costs are less than other treatment technology options.

Since the introduction of PlumeStop in 2014, environmental experts have shown interest in the science behind the innovative technology, which features the unique use of micron-sized carbon particles suspended in water through a proprietary dispersion chemistry. This innovation allows PlumeStop to



Courtesy of REGENESIS

PlumeStop PFAS treatments have been used successfully to clean up industrial manufacturing facilities, Department of Defense sites, U.S. and Superfund sites.

flow into the subsurface at low pressure and achieve consistent, reliable distribution.

Already proven to be an effective treatment method for groundwater contaminants such as chlorinated solvents and petroleum hydrocarbons, PlumeStop is now being widely adopted to eliminate the dangers of PFAS.

PlumeStop's micron-scale activated carbon technology is designed to inhibit the spread of contaminant plumes and is the only

in situ amendment effectively addressing PFAS risk. It can be applied using low-pressure injection techniques, avoiding the excessive installation, operation and maintenance costs incurred with pump and treat systems.

With the ability to remove PFAS and other contaminants rapidly from groundwater, it is ideal for sites such as airports, active industrial operations and residential communities where a pump and treat system

is either cost-prohibitive or disruptive to infrastructure.

PlumeStop involves injecting and coating the subsurface soil grains with one to two micron-sized activated carbon particles, which chemically absorb the PFAS compounds and other organic contaminants from the groundwater as it naturally flows through a treatment zone. Employing a proprietary organic polymer dispersion chemistry that prevents agglomeration, PlumeStop's activated carbon particles can pass through the smallest soil pores, achieving wide distribution in the subsurface.

This treatment process transforms the underlying geology into a purifying filter, preventing the PFAS from migrating further. PlumeStop treatments for PFAS are designed to last for decades with a single application as corroborated through independent, peer-reviewed, third-party studies.

Abinash Agrawal, Ph.D., a groundwater and soil remediation professor at Wright State University, said PlumeStop is "cost-effective, less disruptive and faster than other treatment methods currently available."

The Environmental Work Group (EWG) reports PFAS contaminants have been found in the drinking water of more than 200 million Americans

"Our commitment to developing groundbreaking environmental solutions is unparalleled in the industry and we are excited about the impact PlumeStop is having on sites where PFAS poses a risk to communities globally," Wilson said. "We expect PlumeStop to continue to grow in demand as community awareness of this pollutant increases and the regulatory community begins to establish and enforce cleanup standards." •

Three Florida utilities receive \$14 million in grants

By **BLANCHE HARDY, PG**

U.S. Department of Agriculture (USDA) Secretary Tom Vilsack and Acting State Director for Rural Development Jason Brower for Florida and the U.S. Virgin Islands recently announced that the USDA is investing \$14,371,400 to build and improve critical rural infrastructure in Florida. The Water and Waste Disposal Loan and Grant Program awards are designed to help people in rural areas access clean water.

“When we invest in rural infrastructure, we invest in the livelihoods and health of people in rural America,” Vilsack said. “Under the leadership of President Biden and Vice president Harris, USDA is committed to Building a Better America by investing in America’s rural infrastructure, expanding access to broadband, clean drinking water and resilient power infrastructure. The investments we are announcing today will drive the creation of good-paying union jobs and grow the economy sustainably and equitably so that everyone gets ahead for decades to come.”

Three recipients in Florida are receiving Water and Waste Disposal Loan and Grant Program awards.

The Okeechobee Utility Authority in Okeechobee County will receive \$8,391,000 to construct a sewer collection system to serve 503 residents that are currently on aged septic systems. The improvement is intended to correct health

and sanitary issues by reducing nutrient loading into Lake Okeechobee and the Lake Okeechobee basin.

The authority’s award will consist of both a loan and grant. Rochelle Urquhart, a public affairs specialist with the Florida State Office’s USDA Rural Development, reported that the “Okeechobee Utility Authority \$7,508,000 loan and \$883,000 grant were finalized in September 2021. Construction is projected to start during the last quarter of 2022 and anticipated to be completed December 2021.”

Holt Water Works Inc. in Okaloosa County will receive \$4,740,400 for water system improvements including construction of a new well, a new elevated storage tank, and replacement of asbestos pipes and aged meters with updated radio read water meters. The improvements will add a secondary source of water to correct health and sanitary issues.

Holt’s award also includes both a loan and grant. Urquhart said Holt Water Works

Inc.’s “\$4,000,000 loan and \$740,400 grant was finalized in September 2021. Construction is projected to start July 2022 and anticipated to be completed July 2023.”

Floral City Water Association Inc. in Citrus County will receive a \$1,240,000 loan to make improvements to the water system by extending water lines to residents that are currently on private wells and have water quality issues. The improvement will provide quality drinking water for the residents. “The \$1,240,000 loan was finalized in August 2021. Construction should begin August 2022 and is expected to be completed May 2023,” Urquhart said.

The USDA accepts application year-round for the Water and Waste Disposal Loan and Grant Program. The program assists qualified applicants who are not otherwise able to obtain commercial credit on reasonable terms. Eligible applicants include most state and local government entities, private nonprofits, and federally recognized tribes. Funding is limited to

rural areas and towns with a population of 10,000 or less, tribal lands in rural areas, and colonies.

Awards consist of long-term, low interest fixed rate loans with up to a 40-year pay-back period based on the useful life of the facilities financed. The loan can be accompanied by a grant when funding is available. Eligible projects include finance and acquisition, construction or improvement.

Funds can be used to finance the acquisition, construction or improvement of drinking water source acquisition, treatment, storage, and distribution; sewer collection, transmission, treatment, and disposal; solid waste collection, disposal, and closure; and storm water collection, transmission, and disposal. Funding also might be available for related activities such as legal and engineering fees, land acquisition, water and land rights, permits and equipment, start-up, and maintenance, as well as other costs determined necessary and eligible under the governing code.

Certain regulating criteria need to be met to qualify under the USDA’s program. For example, the applicant must have the legal authority to construct, operate and maintain the proposed services or facilities and regardless of the class of applicant, the proposed facilities must be financially feasible and for public use. As with most public funding, applicants consisting of multiple financially participating partners are strongly encouraged. •

Who got what?

Holt Water Works Inc. in Okaloosa County will receive **\$4,740,400**

The Okeechobee Utility Authority in Okeechobee County will receive **\$8,391,000**

Floral City Water Association Inc. in Citrus County will receive **\$1,240,000**



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Orlando Utilities Commission votes to phase out coal by 2025

By **BLANCHE HARDY, PG**

The Board of Commissioners of the Orlando Utility Commission (OUC) recently approved the retirement of Stanton Energy Center’s (SEC) Station Unit 1 by 2025. Unit 1 went into operation in 1987 at the SEC in east Orange County. Originally, SEC Unit 1 was considered for conversion to natural gas rather than closure. The commission also approved the conversion of SEC’s Unit 2 to natural gas by no later than 2027.

“Today’s official adoption by our Board of Commissioners is further proof of our commitment to meet our goal of Net Zero CO2 emissions by 2050 with interim targets of 50% by 2030 and 75% in 2040,” OUC General Manager & CEO Clint

Bullock said. “The retirement of Unit 1 also is a significant milestone toward fully eliminating coal-fired generation no later than 2027. As we continue our transition to clean energy, operational flexibility is key to maintaining the reliability, resiliency and affordability our customers expect.”

OUC announced their Strategic Plan, including the goal to reach Net-Zero Carbon Emissions in 2020. The path to achieving net zero CO2 emissions is outlined in the utility’s Electric Integrated Resource Plan (EIRP).

The 12-member OUC Advisory Council, an independent group representing Orange County, the City of Orlando and the City of St. Cloud, considered the results of a rigorous public outreach program to rank the four key attributes of the EIRP: affordability, reliability, resiliency and sustainability. The Advisory Council also determined how the EIRP’s key attributes should be considered when scoring potential energy portfolios. OUC was tasked with striving to maintain competitive rates for customers while achieving the strategic goals.

The EIRP plan calls for significantly reducing coal-fired generation and subsequently eliminating it, using coal-to-natural gas conversion as a technology bridge. Both SEC Station Units were slated to be retired no later than 2040 at that time.

To reach the plan’s goals, OUC has accelerated solar and energy storage programs as primary strategies. Energy storage technologies are under development to provide supply reliability by overcoming the challenges of cloud cover and partly sunny days. OUC also is continuing to monitor cost and performance developments for new and existing clean technologies, such as hydrogen and small modular reactors.

The advisory council recommended leveraging future clean technologies to ensure diversity for reliability. The recommendation provides a roadmap to diversify

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To COAL Page 15

Groups conserve water in Weeki Wachee Springshed

By **BLANCHE HARDY, PG**

Creekside Nursery, a sod farm in Pasco County, was able to save about 30,000 gallons of water a day and achieve an about 350 pounds of nitrogen reduction in one year by participating in the District's Facilitating Agricultural Resource Management Systems (FARMS) program.

The FARMS program focuses on groundwater withdrawal savings throughout the District as well as water quality and natural systems improvements in targeted Water Use Caution Areas and priority watersheds.

Creekside Nursery is within the Weeki Wachee Springshed. Weeki Wachee Spring is a classic Florida Attraction famous for its mermaid show. The first order spring, and the mermaids, are now part of a Florida State Park. The springs form the headwater of the Weeki Wachee River and are home to the deepest freshwater cave system in the U.S. The system's vertical extent has yet to be found.

Gene Altman, a Senior Professional Engineer with the Southwest Florida Water Management District (District), works in the District's FARMS program which identifies

cost sharing projects to implement best water management practices with the agricultural industry. Altman worked with Zenen Valdes, the owner of Creekside Nursery, to accomplish the noted water conservation and nutrient achievements.

"Definitely, we use a lot less water," Valdes said. "The project was brought to my attention by Gene Altman. We discussed what type of best management practices he wanted to include in the project."

Altman noted, "We included soil moisture sensors, salinity sensors which will tell you where your moisture is in your soil column and your fertilizer within your root zone, and we put in some automation systems."

The nutrient reduction components of the Creekside Nursery project will provide water quality improvements to the Weeki Wachee Springshed, the spring itself and the Weeki Wachee River.

Did You Know?

The project partners installed high efficiency overhead irrigation guns and cost shared a weather station that communicates with the soil moisture sensors and the irrigation system. When it rains, the automated system directs irrigation to shut down.

The project partners installed high efficiency overhead irrigation guns and cost shared a weather station that communicates with the soil moisture sensors and the irrigation system. When it rains, the automated system directs irrigation to shut down.

"It has a tremendous amount of importance.

I have always been a conservationist in the aspect of not using too much water, we know it is a valuable resource and then of course putting too much nitrogen into the ground obviously hurts the water source." Valdes said. "Without the district's help, I don't think I would have achieved the success that I have with this program. I would definitely recommend it to other farmers."

FARMS is a public/private partnership developed by the District and the Florida Department of Agriculture and Consumer Services. The program focuses on Upper Floridan aquifer withdrawal savings through-

out as well as water quality and natural systems improvements in targeted Water Use Caution Areas and priority watersheds.

To qualify for FARMS program funding, proposed projects must be located in the district and must incorporate at least one or more BMP strategies that includes utilization of an alternative water supply or technology to reduce groundwater use or improves irrigation water quality and watershed ecology by reducing reliance on poorer quality groundwater.

The partner growers manage their projects and obtain all related permits. Projects typically last five to 10 years. The partner grower is reimbursed for approved expenses up to 75 percent of total project costs with water quality and groundwater quantity savings and conservation BMPs; and up to as much as 50 percent with water quality or groundwater quantity savings and conservation BMPs. District authorization is required prior to incurring any reimbursable project costs.

The district's intent is for the approved projects support the District's Regional Water Supply Plan, SWUCA Recovery Strategy, Strategic Plan and the Springs Management Plans. •

From WATER WATCH Page 4

city of Bonita Springs with a \$16.8 million check to fix drainage issues in areas hard hit by Hurricane Irma, according to *NBC2*. The funding came from a Department of Economic Opportunity Community Development Block Grant.

Money given to Lake Butler

More than \$3.5 million has been awarded to Lake Butler to make improvements to the city's wastewater collection and pumping system to further mitigate infrastructure damage from future storms, Florida Gov. Ron DeSantis announced, according to *News 4 Jacksonville*.

It's part of the Florida Department of Economic Opportunity's Rebuild Florida Mitigation General Infrastructure Program, which allows local governments to develop large-scale infrastructure projects to make communities more resilient to future disasters.

The multi-year and multi-phased wastewater collection system repair and replacement in Lake Butler will improve and harden a master pump station, wastewater force main and provide emergency generators for six pump stations.

Canal No. 84 progress continues

Monroe County is underway with its water quality improvement and restoration project on Canal No. 84 in Rock Harbor in Key Largo, according to the *South Dade News*.

The work includes organic material removal and backfill of the deeper areas and is funded by a Florida Department of Environmental Protection Keys Stewardship grant.

The organic removal process removes the decaying material on the canal's bottom that

continually removes oxygen from the water and causes a strong sulfur (rotten egg) odor. Backfilling is the process of raising the canal bottom to an optimum depth (about 7 feet deep) to allow for maximum flushing and tidal flow in and out of the canal.

These restoration techniques will increase the amount of oxygen in the canal, increasing its health and the amount of marine life in it.

In addition to the project, the residents will install and maintain an air curtain to keep seaweed from re-entering the canal once the project is complete.

The County also received a Hurricane Irma grant from the State.

Bubble curtains fight algae

Cape Coral will use 10 bubble curtains in 10 different canals to fight blue-green algae, according to *Wink News*.

"We've been permitting with the Army Corps of Engineers for some time now. You know, it is taking a little bit longer than the city would like the process to take," said Michael Ilcyszyn, the public works director for the City of Cape Coral.

Ilcyszyn said each bubble curtain will cost \$75,000.

Money allocated

Money for several projects in Alachua and Marion counties to protect springs and the aquifer has been allocated by the Florida Department of Environmental Protection, according to *The Gainesville Sun*.

Among the projects within the Suwannee River Water Management District are grants of \$2.8 million and \$4.1 million for improvements to the High Springs municipal wastewater treatment system.

Water use is the focus of an on-going Marion County project that will get an additional \$1.1 million to develop an alternative

water supply to Ocala's municipal system that is expected to increase aquifer flow to Silver Springs.

Also funded in Marion County are septic to sewer conversions at the Don Garlits Museum and county's 4-H farm.

Grant recommended

As part of the Florida Statewide Flooding Resilience Plan, Miami Beach is recommended to receive \$20,110,259 for First Street flood mitigation and sea level rise

adaptation, according to *Miami Today*.

Land purchase

The Governing Board of the Southwest Florida Water Management District has approved the purchase of 589 acres of land within the Weekiwachee Preserve, according to *WMNF.org*.

SWFWMD said it will buy the Southworth Tract for about \$4.6 million. The funds come from the Florida Forever Trust Fund. •



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Future could be cloudy for residential solar energy in Florida

By RALPH A. DeMEO
Guilday Law Firm

Solar energy is a rapidly growing renewable source of energy. According to the U.S. Department of Energy, Office of Energy Efficiency & Renewable Energy, solar power is more affordable, accessible and prevalent than ever before.

Since 2010, the average cost of solar photovoltaic panels has dropped more than 60% and the cost of a solar electric system has dropped by about 50%. This decline is happening as residential consumers are demanding more renewable energy options to power their homes, businesses are demanding renewable energy options for their stores and office buildings, and investment firms are looking for ways to invest in solar facilities to capitalize on the growing market.

The State of Florida has a solar energy-friendly regulatory climate. Indeed, section 366.92, Fla. Stat., expressly states that “(it) is the intent of the Legislature to promote the development of renewable energy; protect the economic viability of Florida’s existing renewable energy facilities; diversify the types of fuel used to generate electricity in Florida; lessen Florida’s dependence on natural gas and fuel oil for the production of electricity; minimize the volatility of fuel costs; encourage investment within the state; improve environmental conditions; and, at the same time, minimize the costs of power supply to electric utilities and their customers.

“In 1975, the Florida Legislature created the Florida Solar Energy Center (FSEC) — a research institute of the University of Central Florida (UCF) — which serves as the state’s research institute. FCES’s main responsibilities are to conduct research on issues such as energy efficiency and Florida-made energy, test and certify solar systems, and develop education programs. Additionally, Florida encourages the use of renewable energy with cost incentives, as evidenced in the Rule 25-6.065, Florida Administrative Code, which allows customers who own renewable energy equipment, such as solar panels, to

The bill amends the legislative findings, under Florida Statutes 366.91, relating to renewable energy, to state that:

- The continued development of renewable energy resources in a fair and equitable manner to all public utility customers is in the public interest.
- A net metering rule redesign is supported by the development and maturity of the industry, the decline in solar panel costs, and increased customer-owned/leased renewable generation.
- Customer owned/leased renewable generation is not available to public utility customers lacking financial resources or otherwise residing in multi-tenant buildings.
- The industry’s growth has resulted in increased cross-subsidization of electric service costs onto the general body of ratepayers.
- The redesigned net metering rate structures must ensure that customers who own or lease renewable generation pay the full cost service.

The bill requires the PSC to propose a revised net metering rule by Jan. 1, 2023, which must meet the following:

- Rate structures and billing must ensure that customers owning or leasing renewable generation pay the full cost of electric service and are not subsidized by the general body of ratepayers.
- Ensure that all energy delivered by the public utility is purchased at the applicable retail rate.
- Ensure that all energy delivered by customer generation to the public utility is credited to the customer at the public utility’s full avoided cost.
- Net metering may include fixed charges, base facilities charges, electric grid access fees, or monthly minimum bills, to ensure that the public utility recovers the fixed costs of serving those customers and that the general body of ratepayers does not subsidize customer renewable generation.

use their equipment to produce energy for their personal use and thereby reduce their utility bill — a concept called net metering.

In addition to building their own solar facilities to offset energy demand and costs, modern local governments are also facilitating customer-owned renewable generation — meaning an electric generating system located on a customer’s premises that is primarily intended to offset part or all of the customer’s electricity requirements with renewable energy. Above and beyond the benefits to using renewable energy, the concept of “net metering” is another significant benefit. Net metering is a billing mechanism that credits solar energy



system owners for the electricity they add to the grid. For example, if a residential customer has a PV system on their roof, it might generate more electricity than

the home uses during daylight hours. If the home is net-metered, the electricity meter will run backward to provide a credit against what electricity is consumed at night or other periods when the home’s electricity use exceeds the system’s output. Customers are only billed for their “net” energy use. On average, only 20 to 40% of a solar energy system’s output ever goes into the grid, and this exported solar electricity serves nearby customers’ loads.

Florida’s net metering rule was estab-

lished in 2008, requiring IOUs to offer a standardized interconnection agreement for expedited interconnection and net metering of customer-owned renewable generation up to two megawatts. The rule’s purpose is to:

Promote the development of small customer-owned renewable generation, particularly solar and wind energy systems; diversify the types of fuel used to generate electricity in Florida; lessen Florida’s dependence on fossil fuels for the production of electricity; minimize the volatility of fuel costs; encourage investment in the state; improve environmental conditions; and, at the same time, minimize costs of power supply to investor-owned utilities and their customers.

In 2008, there were 577 customer-owned renewable generation interconnections. As of December 31, 2020, Florida electric utilities reported a total of 90,552 interconnections, of which 90,518 were solar; and 71,567 interconnections were for IOU customers, of which 71,541 were solar. Less than one percent of Florida’s electric customers have installed renewable generation equipment as of 2020, according to *Report.40*. In comparison, there were 10,504,960 electric utility customers in Florida, as of January 1, 2021.

The Sunshine State is a national leader in the generation of electricity from renewable resources, particularly solar energy. Net metering has allowed customer owned renewable generation. Notwithstanding the success of such a policy, there is an effort before the 2022 Florida Legislature that has the potential to reduce, if not eliminate this practice. Interested persons, which include residential electricity customers, local governments, and the solar installation and manufacturing industry, should watch closely as this develops.

Before the 2022 Florida Legislature is a bill relating to renewable energy generation that could have a substantial chilling effect on residential and commercial customers who generate their own electricity from solar power. SB 1024 amends s. 163.04, Fla. Stat., relating to energy devices based on renew-

To SOLAR Page 11

Jones, SWIX shift recycling, waste paradigm

DANIEL J. TORRES

Only about 9 percent of all plastics ever generated have been recycled. Studies show that more than 40 percent of plastic items are used once, then thrown away. The working life of a plastic shopping bag, in essence the time from when groceries are bagged to the moment they are put away, is only 15 minutes.

According to *Ourworldindata.org*, two



Gene Jones, CEO, Waste Information eXchange, Inc. (SWIX)

million plastic bags are used every minute worldwide. This year, every person on the planet will consume an average of 300 pounds of single-use plastic. Despite the throw-away nature of plastic, almost every piece ever

made still is on the planet in some form or another.

Gene Jones, the CEO of Southern Waste Information eXchange, Inc. or SWIX, a 501(c)(3) non-profit, is trying to change the way we think about and manage recycling and waste. SWIX, founded in 1981, is designed to assist industry and municipalities with waste issues, essentially providing a mechanism to act as a clearinghouse, and to convey information about recycling and waste management within the state of Florida.

SWIX was initially a cooperative agreement between the Florida Chamber of Commerce, Florida State University, and the then Department of Environmental Regulation, now the DEP. Jones has been involved

PROFILE IN INDUSTRY

cal research at FSU.

“My major was marketing and sales,” Jones laughed. “Learning about the industry, that there is a business side to the environment, I stuck with it, and I’ve been doing it ever since.”

SWIX hosts a number of cleanups and organized recycling and collection events throughout the Sunshine State. This includes medicine collection events, in conjunction with the DEP and DEA, twice yearly in Tallahassee. “These were in conjunction with Earth Day before communities had their own waste collection centers,” Jones said.

Ammunition collection events, a spin off of past electronic collection events, are one of the latest forays for SWIX.

“Munitions were triaged out for either reuse, refurbishment, or recycling. We collected three hand grenades,” Jones said. “Old vets from World War II and Vietnam. It’s amazing what grandpa has lying around in his closet.”

The Fire Marshall’s office assisted with the bomb squad in the disposal of the more volatile items being relinquished, while lead, brass and other metals associated with munitions were recycled.

SWIX also began performing marine debris cleanups two years ago, starting with coastal cleanup in the aftermath of Hurricane Michael, soliciting volunteers to help with the program. When the stage is as vast as the ocean, there are no small roles. Nine million tons of plastic ends up in the world’s oceans each year. This number is expected to double by 2025.

According to a 2018 study published by *Nature.com*, more than 1.8 trillion pieces of plastic float around in the ocean, with some estimates exceeding five trillion pieces, with a large majority of this debris coming in the form of microplastic — pieces of plastic debris broken down by sunlight until they become bits smaller than one-fifth of an inch in diameter.

In March, the 35th annual Southeast Recycling Conference & Trade Show will be conducted. Roughly 85 to 90 percent of the attendees are involved in the recycling of materials, whether through brokering or the actual recycling process. The event attracts 500 to 600 people a year and, like the rest

To JONES Page 15

Florida Specifier

Jeff Navin
Editor

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

Apalachee Bay wonderfully still stuck in time past

By CAPT. SANDY BOTTOMS

We sat on my tailgate, peeling Satsuma oranges Sara brought from a neighbor's tree, watching the dark waters roll by in the morning mist.

"I can't see across the river it's so foggy," I told my good friend, who made the jump from Tallahassee to meet me at a boat ramp on the St. Marks River. "Good thing we're going with a guide who knows this place."

Soon we were idling downstream to the Gulf, dodging crab traps while diver ducks zoomed by in the fog. Capt. Tanner stuck us next to an oyster bar where we pitched live shrimp on jigheads to hungry black drum and reds for an hour.

It was "should've been here yesterday" for seatrout, but no complaints from our group. The collection of 3-pound black drum in a slurry of ice looked like a fine future of fish tacos.

The Apalachee Bay region — right in the armpit of the Big Bend — is won-

derfully stuck in a time past. Seafood markets with fading, hand-painted signs dot the highway into the small town of Panacea. No-frills motels offer a cheap sleep for the wandering angler. White rubber boots still are in high fashion.

A drive-through St. Marks National Wildlife Refuge speaks to the soul of the ecologically-enlightened angler, revealing the complex system driving such a productive nearshore fishery. Old growth pine forests butt right up to the edge of breathtaking marsh vistas as far as the eye can see. Fiddler crabs, thousands upon thousands, cross dirt roads and flip you the claw. Giant striped mullet, like salmon in reverse, flee the tidal creeks as winter bites, heading offshore to cast their spawn.

Tides connect it all. Redfish can start their morning in crystal-clear Gulf of Mexico water, then be miles up a freshwater creek



by noon chasing killifish beneath the pines in a 3-foot wide ditch. The incoming water covers the bare, black mud of those endless marshy ditches, then nourishes the Gulf with nutrients and forage as it departs.

Mullet are a big deal up here. Big numbers populate the brackish creeks and bays. Mullet festivals are a thing. Smoked mullet dip is advertised at nearly every market. A leaping mullet — the region's charismatic symbol of commercial fishing.

They are truly a force of nature. Mostly herbivorous, mullet deliver one of the shortest links from the sun's energy to larger marine predators. They carry the marsh to the sea.

Cast netting is most productive, but one hasn't truly lived until hook-and-lining a 3-pound striped mullet on light tackle. A niche fishery if there ever was one, locals visit certain tidal creeks and culverts during

incoming tide. Their secret rig? Small pieces of fresh worm pinned to a small hook a foot below a cork. Keep the mono 6-pound test or less to fool their cautious eyes.

To the snobbish and ignorant, they're a muddy baitfish. Yet, to the wise and cultured, they're a delightful blessing. Their flesh so flavorful, nary a speck shall be wasted — even the backbones are served fried at local diners. Butterflied and roasted outdoors over a woodfire, the fatty layer under the skin melts into the flesh, giving the taster a buttery mouthfeel akin to Copper River king salmon. Add a couple good friends to that campfire beneath the

Want to partake?

To experience Big Bend fishing at its finest with a third-generation north Florida native fisherman, call Captain Tanner Plouffe of Panacea Outfitters at 850-778-6769.

State should inform people if water could compromise health

By HOWARD L. SIMON

The Florida Legislature has had a tough time maneuvering through the politics of clean water to effectively curb pollution and protect public health.

The Legislature enacted the "Clean Waterways Act of 2020" with great fanfare, but though penalties were increased, the law was light on enforceable regulations to curb pollution. Instead, it continues to rely largely on voluntary and presumed compliance with state regulations. It also ignored many key recommendations of Gov. Ron DeSantis' Blue-Green Algae Task Force.

But during its 2022 session the Legislature will have another opportunity — thanks to state Sen. Lori Berman and state Rep. Yvonne Hayes Hinson. The two Democratic legislators have introduced the "Safe Waterways Act" (Senate Bill 604 and House Bill 393).

The proposal's most important feature would require (rather than simply authorize) the Florida Department of Health to issue health advisories and — through its network of county health departments — post and maintain warning notices at public bathing places where the water has been found to contain fecal bacteria, either fecal coliform, *Escherichia coli* or enterococci bacteria.

It also would require the Florida Department of Health to notify a municipality or county if such a health advisory is issued

within its jurisdiction. The department would be required to maintain such signage until state water quality standards are met.

Currently, the state health department monitors and posts advisories at some coastal beaches and public swimming areas under the Healthy Beaches Program, but as the law currently stands, there is no requirement that any state, county or municipal agency warn people before they swim or launch their kayak.

It is inconceivable that unsuspecting Floridians and tourists could be recreating in water contaminated with fecal bacteria. The Legislature must act on this urgently needed proposal.

It is alarming that fecal contamination of Florida's rivers and streams is so widespread. Based on years of monitoring, the Florida Department of Environmental Protection says nearly 9,000 miles of streams and rivers designated for recreation are impaired by fecal bacteria.

High bacteria counts are dangerous. Swimming or wading in contaminated water can cause a host of illnesses and infections, including gastrointestinal distress, rashes and eye irritation.

The sources of contamination are numerous. They include untreated stormwater, leaks from aging or poorly functioning sewage treatment plants, leaching septic tanks, and runoff from fields that contain animal waste. The Blue-Green Algae Task

Force also urged health advisories "to inform the public about the potential health impacts associated with exposure to algae and/or algae toxins."

Requiring the government to warn the public of a health threat should not be a heavy lift: tornado watches and storm warnings are routinely issued by the National Weather Service.

Curbing pollution at its source, rather than dealing with its consequences, clearly is more effective and cost efficient. But absent

enforceable pollution-control measures, the least the state can do is provide warnings to the public so people can make an informed decision about whether to wade into the water and risk their health.

For information on the campaign for a "Right To Know," go to right2knowfl.org.

Howard L. Simon served as executive director of the American Civil Liberties Union of Florida from 1997 to 2018. He is president of Clean Okeechobee Waters Foundation, Inc.

From SOLAR Page 10

able resources, to allow governing entities with a deed restriction, covenant, declaration, or similar binding agreement affecting the alteration of residential dwellings or condominiums to prohibit the installation of solar collectors in locations outside of specifically designated parameters. The bill also amends s. 366.91, F.S., relating to renewable energy, requiring the Public Service Commission (PSC) to revise its rules on net metering of customer renewable generation.

The bill amends s. 163.04, Fla. Stat., relating to energy devices based on renewable resources, to allow governing entities with a deed restriction, covenant, declaration, or similar binding agreement affecting the alteration of residential dwellings or within the boundaries of a condominium to prohibit the installation of solar collectors in locations outside of specifically designated parameters.

Under the bill, the PSC must require a public utility requesting a change in base rates under s. 366.06, F.S., to report the net

metering impact on the public utility's revenue and cost of service.

The bill allows customers who own or lease renewable generation before Jan. 1, 2023, to continue under the existing net metering rate design and rates for 10 years from that date. This provision also applies to customers who purchase or lease real property with renewable generation systems installed for all or part of the 10-year period.

The draft for the bill acknowledged that there might be an indeterminate impact on the solar installation and manufacturing industry if fewer customers purchase rooftop solar as a result of the redesigned net metering rate structure.

Florida residents who are interested in continuing the practice of net metering should watch carefully the developments in the 2022 legislature as the pending bill could have a chilling effect on it. This would include residential customers, local governments, and the private solar industries. This could also curtail Florida's standing in the country as a leader in solar energy. •

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Photos courtesy of Dr. Laura Kellow & Dr. Charlotte Cournoyer

CROW removes fishing hook, saves turtle

A juvenile Kemp's Ridley sea turtle (No. 21-6362) was admitted from the Sanibel Lighthouse Fishing Pier to the Clinic for the Rehabilitation of Wildlife facilities Dec. 28 after it was hooked by a fisherman.

Upon initial examination, veterinarians found a monofilament line protruding from the female turtle's mouth. Radiographs revealed a hook lodged in the turtle's stomach, but no other obvious abnormalities.

Veterinarians scheduled a procedure to remove the hook. Veterinarians used the monofilament line to pass a tube over the fishing hook to move the hook up from the stomach and into the esophagus. They were then able to perform surgery and extract the hook.

After surgery, veterinarians and hospital staff spent more than nine hours breathing for the turtle before she started to breathe on her own. The turtle was then placed in a dry pool for the night with a damp comforter.

The next day, the turtle was markedly improved. She was placed in the facility's

The Clinic for the Rehabilitation of Wildlife is a teaching hospital and visitor education center dedicated to saving wildlife through state-of-the-art veterinary care, research, education and conservation medicine.

outdoor turtle tanks in shallow, fresh water. Rehabilitation staff continued to monitor her under supportive care, where she received supplemental medications.

After seven days in care, the Kemp's Ridley was moving well in deep water, eating well and the surgery site had healed. After tagging the turtle in accordance with Fish and Wildlife's Florida Sea Turtle Stranding and Salvage Network, the Kemp's Ridley was gently released back to the waters of Sanibel by the veterinarians who saved her. •



Florida hopes 2022 hurricane season similar to mild 2021

By CHRIS BONANNO

The 2021 Atlantic hurricane season, which officially ended Nov. 30, featured a bevy of activity with 21 named storms forming in the basin. Despite that, Florida was fortunate in that no hurricanes made landfall in the state during the season.

Still, Florida and in particular the Gulf Coast of the Sunshine State did see some impact with three tropical storms ultimately making landfall along with the northern Gulf Coast of the state. Portions of northwest Florida also saw impact from other storms.

"The steering currents did work out for us," said Kevin Rodriguez, a meteorologist with the National Weather Service in Melbourne. "The way the Bermuda high pressure sets up across the central Atlantic and the western Atlantic really does impact us here in terms of where these systems will track because there's always tropical waves coming off Africa every few days."

Rodriguez added that the setup that was prevalent with the high pressure also was seen during the 2020 hurricane season as well.

"That's a common occurrence in the summertime and fall as the monsoon season there gets going so wherever that high pressure sets up, in the last two years in 2020 and 2021, for the most part it's toward the middle and latter part of the season," Rodriguez added. "It's been building westward or it has built westward. So, it's basically pushed the storms either out to sea very early in their life cycles, where they come off of Africa and they turn right away. Or, they get pushed into the Caribbean and then they track into the Gulf of Mexico so they could still impact the Florida panhandle."

Tropical Storm Elsa made landfall in early July in Taylor County as a strong tropical storm, according to *weather.gov*. The storm briefly reached hurricane status after it passed near the lower Keys but then lost it prior to landfall. It still made landfall as a strong tropical storm, with the vast majority of its impact felt to the north and east of the center.

"Elsa's path was pretty well forecast. Stayed south of the islands, went between Jamaica and Cuba and then crossed western Cuba and then kind of up the far eastern Gulf of Mexico parallel to Florida," Rodriguez said. "It did strengthen a little bit into a hurricane, but that was probably the hardest thing with Elsa was the strength. It did not

strengthen as much as we thought it was going to. It's always good when they don't."

Rodriguez also noted the copious amount of rainfall that southwest Florida saw in particular from the storm with isolated amounts as high as a foot with other areas receiving 8 to 10 inches. An area stretching from east of Tallahassee to west of Jacksonville saw amounts ranging from 3 to 5 inches, with some isolated amounts perhaps higher than that.

Tropical Storm Fred made landfall just to the southwest of Apalachicola in mid-August. Fred, which made landfall with a 991 mb central pressure and maximum sustained winds of 55 knots (which translates to just more than 63 mph), regenerated after it had been downgraded to remnants as it impacted portions of the Caribbean but was able to re-strengthen in the Gulf of Mexico.

Tropical Storm Mindy also made landfall in the panhandle area, just a bit farther to the west than where Fred did so in early September as a minimal tropical storm. The storm formed not too far off the coast of Florida and only existed from Sept. 8 to Sept. 10.

On a whole, the season will largely be remembered for the impact that Hurricane Ida, which was a Category 4 storm, had when it made landfall in southeastern Louisiana in late August. According to *noaa.gov*, Ida was tied for the fifth strongest hurricane to ever hit the United States.

Though not hit directly, Ida did bring torrential rainfall to extreme northwest Florida, with several reporting stations recording rainfall amounts of more than 6 inches from near the Florida and Alabama border. The storm also brought gusty winds and a water rise along the coastline with a 2.43-foot peak inundation reported in Pensacola Bay from the storm per *weather.gov*.

Tropical Storm Claudette, which made landfall in southeastern Louisiana in June, also brought rain and wind to the panhandle, with the storm prompting tropical storm warnings to be posted for an area of coastline on the western portion of the panhandle.

The active season on a whole, which combined with 2020, featured the first-ever back-to-back seasons where all tropical cyclone names for the basin were exhausted, was in part fueled by a phenomenon known as La Nina, which is a cooling of waters in the eastern equatorial Pacific Ocean that has traditionally been known to promote active hurricane seasons in the Atlantic. •

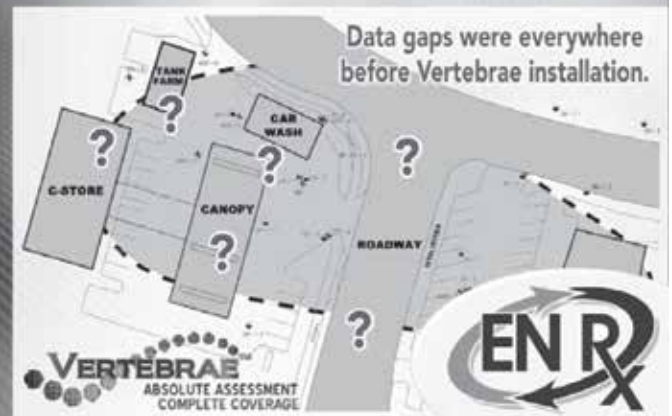
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Habitat loss, land development threaten Florida's exotic falcon

By DANIEL J. TORRES

It wasn't long ago that the unmistakable crested caracara could be seen perched atop the medical complex on Spyglass Court in Melbourne or hopping about in a nearby field.

The crested caracara stands roughly 2-feet tall, with a bright orange face, and black plumage atop its head that would make even the most unabashed wearer of toupees blush. Sadly, however, as more open grassland and cabbage palm habitat is cleared for land development, these sightings have become few and far between. In fact, aside from the occasional trip to the Brevard Zoo, I had gone many years without encountering one of these magnificent birds of prey in the wild.

While officially listed as a "least-concern species" by the International Union for Conservation of Nature (IUCN) due to relatively common sightings in Texas, and steady numbers throughout South America, the crested caracara is considered a threatened species in Florida, garnering protection under the U.S. Migratory Bird Treaty Act and the Federal Endangered Species Act. Estimates based on genetic analysis place the crested caracara population in Florida at roughly 1,000, though this number could potentially be far lower, as habitat loss and a gradual loss of genetic diversity threaten the long-term viability of its existence in the Sunshine State.

"Nobody knows what's happening on private land," said renowned conservation biologist Dr. Joan Morrison, a professor who recently retired from Trinity College in Connecticut, and a crested caracara expert, having worked with these birds for 30 years. "We have no way of evaluating that level of impact. We can keep track of federal changes and state changes to the land, so in some cases the decline is probably worse than we think."

Once you have a habitat problem, it is very rare that it ever gets reversed. The Florida crested caracara is considered an isolated population, genetically cut off from its counterparts in Texas and Arizona. The Florida crested caracara is a year-round resident— no individuals are coming and going, and so there is no genetic diversity being introduced to bolster the numbers.

A similar problem nearly brought the Florida panther population to the brink of extinction when, in 1995, no more than 30 Florida panthers remained in the wild, and many of those that did suffered from genetic defects as a result of inbreeding. Desperate for a solution, state officials introduced eight female Texas cougars to breed with the remaining males and, while the Florida panther still is listed as an endangered species, the experiment effectively rescued them from extinction.

According to Morrison, however, an animal "gets in trouble with habitat before it gets in trouble with genetics." The real problem for Florida's caracaras is habitat loss. Eventually, suitable habitats become completely saturated when every appropriate nesting site available is being used.



Daniel J. Torres. FLORIDA SPECIFIER

The caracara has one extant species, the crested caracara; and one extinct species, the Guadalupe caracara.

Morrison likens it to a fish bowl, one that is "getting smaller and smaller and pretty soon will be so small that they can't function as a population anymore." While relocation is typically the only option available, it is not an option for the crested caracara, and it is not always certain what happens after an animal has been moved. Much of the time there is no place for a species to be relocated. More and more crested caracara habitat has been destroyed by development: four of the 21 known nesting pairs in Brevard County have officially been classified as incidentally "taken," meaning the nest site was removed, by U.S. Fish and Wildlife due to development pressure and, although none of the birds were intentionally harmed, they had been identified as being "in the path of progress."

The situation only appears to be growing more dire. A 2021 U-Haul study listed the Melbourne-Palm Bay region of Brevard County as the third-fastest growing market in the country, jumping up 20 spots since cracking the U-Haul Growth Index in 2020.

While many birds, such as bald eagles and cooper hawks are thriving — expanding across North America and even into cities and other urban settings, the crested caracara is not going to reside on someone's roof. While they reproduce well, a housing development is not where they are going to nest and, as habitats radically change into a highly developed, dense urban environment, they will not survive.

So what can we do? As development in Florida expands, is the crested caracara just doomed to extinction? Well, Morrison believes that the solution is "bigger than individual people."

"People need to be aware of what is going on. Protection of land is the main thing that can be done for many species in Florida."

Morrison was asked if it was a matter of public education or perhaps a redistribution of funds. "Vote," Morrison said. "Vote for people who believe in and support protection of habitat." •

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Non-native lizards pose significant threat to Florida ecosystems

By DANIEL J. TORRES

Barring an ice age, Brevard County, and much of Central Florida, will eventually come to resemble the Florida Keys: Burmese pythons, Argentine white tegus, lionfish and Cuban treefrogs are just a few of the invasive species damaging the indigenous landscape of Florida. Add the Peter's rock agama (*Agama picticauda*), a large lizard native to Sub-Saharan Africa, to an ever-growing list of non-native species released into Florida in the 1970s via the pet trade.

The Peter's rock agama can grow up to 18 inches in length, with males boasting a dark gray or black body and bright orange head. While females are not as colorful, they can grow to roughly the same size as their male counterparts.

"This particular species doesn't take over a niche that is being filled by a native species, think green anoles and the invasive brown anole. Although what we have found in South Florida with iguanas, for example, is that they are voracious herbivores and are decimating native and exotic vegetation at a significant rate," said Christopher Koeppel, an environmental specialist with Brevard County Natural Resources that has been tracking exotic and non-native species within the county. "If an exotic was an omnivore or carnivore, then the carnage is carried over to anything native, and smaller than the predator." This is precisely what is happening with Cuban Tree frogs, which are annihilating entire amphibian ecosystems in Florida. Very few predators have adapted to eat these frogs due to their disagreeable secretions.

Brevard County is not the only part of Florida that is concerned by the Peter's rock agama's growing presence. Sightings have

been noted all along the Treasure Coast, and as far north as Jacksonville and other parts of Duval County, with sightings growing increasingly frequent in the past year.

"I noticed a correlation between landscaping materials and plants from South Florida and where the rock agama was showing up," said Koeppel, also noting reported sightings throughout Central Florida by various landscaping outlets in 2021. Each outlet reporting a sighting receives its materials from South Florida.

"In their native range of East Africa, they are mostly insectivorous but have also been observed eating small mammals, birds, small reptiles, and vegetation such as flowers, grasses and fruit," states the University of Florida Institute of Food and Agricultural Sciences. This and other omnivorous species have the high potential to impact native species, as most native herpetofauna are too small, and easily preyed upon by exotic, non-native species.

One major concern is the threat this invasive lizard poses to the Miami Blue Butterfly — a small butterfly once common throughout coastal Florida, which is now considered a critically endangered species. In fact, this species of butterfly was believed to be extinct. After Hurricane Andrew swept through



Daniel J. Torres. FLORIDA SPECIFIER

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the state in 1992, there were no confirmed sightings of the Miami Blue for seven years. A very small population of wild Miami Blue Butterfly still exists in the wild, but researchers are concerned the Peter's rock agama could pose a significant threat.

In short, Florida is under an onslaught of exotic predators. Researchers now estimate that non-native lizards outnumber natives three to one, with Florida already home to

more than 50 non-native species.

"Imagine what would happen if a lounge of lizards came upon an endangered Least Tern colony on a supermarket rooftop" postulates Koeppel. "It would be a complete loss of a bird colony, including offspring, and possibly adults." A complete non-native takeover would drive away reproductive adults in the least, resulting in colony failure at that site, leading to relocation, which is typically suboptimal. Reproductive pressures like this generally lead to colony collapse, ultimately impacting many more animals than the few whose nests were decimated.

While researchers are aware of Peter's rock agama in various locations throughout the state, they urge citizen scientists to report sightings using the EDDMapS online mapping tool, found on eddmapp.org.

"This particular species doesn't take over a niche that is being filled by a native species . . . they are voracious herbivores and are decimating native and exotic vegetation at a significant rate."

— Christopher Koeppel
environmental specialist
with Brevard County Natural Resources

From JONES Page 10

of the world, has had to adapt to the post-COVID world — running hybrid events as, understandably, some attendees remain concerned about travel.

For Jones, this is an opportunity to discuss methods, and to explore evolving technologies. One development involves the ability to optically scan materials.

"Essentially a cart is emptied into a container which is then emptied into a processing line," Jones said. "Conveyor belts can optically scan materials and then separate them based on source material. We are seeing huge advances in that arena.

"People start throwing lithium batteries into the trash," Jones said. "Those batteries can cause potential fires. Technology can

now scan piles of materials and, if something starts to heat up, it can be immediately addressed robotically and can be doused with a water stream or chemical stream that is fire retardant." With large fires occurring somewhat frequently at MRFs (Material Recovery Facilities) across the country, this technology is greatly needed.

"Mulch film is another area where we are seeing some advancements," Jones said. "An exemption in the Solid Waste Act in the state of Florida allows farmers to burn mulch film, made of low density polyethylene (LDPE), in place at the end of the growing season.

"We generate roughly 40,000 tons of agricultural mulch film in the state of Florida. At the end of the growing season a large majority of that film is burnt in the field —

the same field where crops are grown the next season."

One such technology seeing advancements is that of chemical recycling, where, through a gasification process, plastics can be used to create a synthetic gas, which can in turn be used to power a generator and generate electricity, or one can take the syngas, further refine it and condense it, and

put it back into a plastic monomer.

"So you go back into the manufacturing of plastics from that material," Jones said. "Cradle-to-grave recycling."

The 35th Southeast Recycling Conference & Trade Show will be March 13 to 16 at the Hilton Sandestin Golf Resort & Spa in Miramar Beach. For information, go to SoutheastRecycling.com.

From COAL Page 8

the utility's generation by incorporating technologies, such as wind-by-wire generation, to reduce dependency on solar and storage.

OUC plans to invest in renewables including the installation of 270.5 megawatts of solar energy by 2025. The utility intends to lead the state in solar watts per customer in the target year. Additional measures include a continued commitment to increase energy efficiency programs as part of annual kWh sales, the investment of \$45 million in innovative transportation electrification programs to reduce CO₂ by 450,000 tons and reach 100,000 EVs on central Florida roadways by 2030, and investment of \$90 million in energy storage including hydrogen and large-scale battery storage to secure solar stability.

The retirement of SEC Unit 1 became possible with OUC's purchase of the Osceola Generating Station (OSG) in the fall of 2021. The 510-megawatt (MW) simple-cycle OSG natural gas-fired power plant is in Harmony in Osceola County. The nearly \$100 million deal to purchase and upgrade the inactive plant from Tex-

as-based private ownership group Geneva did not change OUC's commitment to reach net zero CO₂ emissions as outlined in the EIRP.

OUC will continue to aggressively increase its power generation using solar energy. The OSG will allow the utility to mitigate solar production fluctuations to maintain system-wide electric reliability. Currently, the facility is undergoing renovations and testing and will be fully operational by no later than 2025.

The utility notes acquisition of the Osceola Generating Station provides OUC with an extra layer of resiliency because it is equipped with emergency backup fuel, a critical resource to have on hand in case of fuel supply disruptions and is more cost effective for OUC's customers than converting and operating Stanton Unit 1.

"As we move forward with our clean energy transition, ensuring operational flexibility is essential to maintaining reliability, resiliency, and affordability for our customers," Bullock said. "We are also committed to continued investments in solar and energy storage." •



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From MANATEES Page 1

Save the Manatee Club filed a 60-day Notice of Violations of the Endangered Species Act with the U.S. Environmental Protection Agency (EPA) on Dec. 20, 2021. The notice charges EPA with Failing to Reinitiate Consultation Concerning the Unusual Mortality Event for Manatees in the Indian River Lagoon.

The advocates want EPA to initiate section 7 consultation with FWS in light of the now significant information undermining EPA's and FWS's conclusions that the Clean Water Act estuary-specific numeric nutrient criteria for the Indian River Lagoon are not likely to adversely affect any federally listed species or their critical habitats, including the manatee and its habitat.

Defenders of Wildlife's Jake Bleich said, "An unprecedented die-off of more than 10% of the current Florida manatee population occurred last year, largely because nutrient pollution in the Indian River Lagoon killed off seagrass. This caused hundreds of manatees to starve to death. The U.S. Environmental Protection Agency must ensure that the lagoon's water quality standards are sufficiently protective of threatened and endangered species like the manatee, and it has failed to do so."

The advocates also filed a 60-day Notice of Intent to sue the Department of Interior, including U.S. Fish and Wildlife Service (FWS) in August 2021, over violations of the Endangered Species Act and Administrative Procedure Act. In this case, the advocates are seeking action to address the failure to provide the habitat needed for preservation of the Florida manatee as required in FWS's response to a 2008 petition.

The advocates have been here before, they are all signatories of the 2008 petition. The initial petition requested revision of manatee critical habitat as defined at the time. FWS found the requested revision was warranted in 2010, but delayed implementation due to funding constraints. FWS then



Courtesy of The U.S. Fish and Wildlife Service

Originally listed as endangered under the Endangered Species Act in 1973, manatees have never truly recovered, as they must contend with a barrage of human threats that include boat strikes, cold snaps and algae blooms.

downgraded the manatee from endangered to threatened in 2017. The current notice states FWC has not revised manatee critical habitat or implemented the related rulemaking revisions found warranted in 2010.

The notices are the legal salvo that starts the federal government's clock to proactively respond with corrective measures prior to the filing of the formal lawsuits, "necessary to provide these imperiled marine mammals life-saving protections, to enhance their recovery, and to reduce the risk of their extinction."

Elizabeth Forsyth, Senior Attorney, Biodiversity Defense, Earthjustice, said, "If EPA does not act within 60 days, we will initiate a lawsuit. Together, the Clean Water Act and the Endangered Species Act are supposed to prevent this type of tragedy from happening. We want EPA to step in and ensure that the water quality standards are adequate to pre-

vent this from happening in the future."

"Under the Clean Water Act, the EPA is required to approve of Florida's water quality standards that impact areas such as the Indian River Lagoon" Jake Bleich of Defenders of Wildlife said. "Before it may do so, to comply with the Endangered Species Act, the agency must first consult with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service to ensure that the proposed standards are sufficiently protective of species listed under the Endangered Species Act. Although the EPA engaged in this consultation process several years ago, the act legally requires the EPA to reinitiate consultation on the impacts of Florida's water quality standards on listed species, including the manatee, when new information, such as last year's die-off, comes to light.

Jaclyn Lopez of the Center for Biological Diversity said, "EPA, but not FDEP, must

consult under the Endangered Species Act to ensure actions it authorizes do not jeopardize listed species or adversely modify their critical habitat."

Florida legislators are acting. U.S. Representatives Buchanan and Soto introduced a bipartisan bill to upgrade the manatee to the endangered classification in December 2021.

Florida Power & Light Company subsequently announced allocation of more than \$700,000 through their charitable arm NextEra Energy Foundation to support manatee rescue and rehabilitation and to restore manatee habitat. FPL's facility is a manatee gathering spot for its warm water discharges in winter. The grants are part of the company's comprehensive response to the 2021 Florida manatee Unusual Mortality Event.

As noted, these procedures are slow and time consuming. The Defenders of Wildlife provided the following actions individual Floridians can take to save the manatee.

- Support efforts to secure, conserve and restore manatee habitat — contact elected officials and request they support meaningful funding for Florida Forever land and water conservation funding programs.

- Demand regional, state and federal efforts to reduce nutrient pollution flowing into manatee habitat. Contact elected officials and demand they reduce water pollution that is killing manatees and other wildlife.

- Endorse efforts to reduce manatee deaths from boat collisions through designation and enforcement of manatee protection zones and information efforts about protecting manatees while on the water. Here are ways boaters and others can help manatees: Check out <https://defenders.org/sites/default/files/2020-06/Manatee%20Safety%20Card.pdf>.

- Advocate for and contribute to official, scientifically-sanctioned federal and state funding programs to help rescue, rehabilitate and feed manatees, such as through the Fish and Wildlife Foundation of Florida <https://wildlifeflorida.org/marine-mammal-fund-2/>.

Tampa Bay continues fight to improve water quality

By RACHEL ARNDT
Tampa Bay Watch

Tampa Bay is an international example of how a community can come together to address rampant development within the watershed resulting in historic water quality improvements.

The Tampa Bay community has been able to eliminate widespread dredging and filling

projects, require advanced levels of treatment of wastewater and industrial discharges, and treat upstream stormwater runoff in new and older communities. All of these activities have greatly improved water quality, especially a reduction in nutrients discharged into the bay resulting in water quality not seen since the 1950s.

As water quality recovers, critical seagrass communities respond to these improvements and have returned across the bay, supporting

the renewal of commercially and recreationally important fisheries.

However, Tampa Bay is potentially at a new tipping point. During the past five years, the bay has received increased nutrient load from the Upper Tampa Bay watershed, wastewater discharges from ailing infrastructure, and the huge release of industrial process water from the Piney Point phosphate plant. These systematic impacts result in increased algae blooms and more frequent

red tide events ---- impacting the environmental and economic health of the Tampa Bay region.

Tampa Bay Watch continues to work with local and state governments, the Tampa Bay Estuary Program and other organizational partners to address many of these immediate concerns. Tampa Bay needs to continue to move forward by restoring many of the natural communities that buffer the bay from nutrient inputs and climate changes for the long-term.

Tampa Bay Watch facilitates multiple large-scale living shoreline projects each year to stabilize shorelines with oyster reef balls (ORBs), oyster shell bars, and coastal wetland plantings. Living shorelines are re-created coastal habitats that provide a similar form and function as nature. Tampa Bay Watch has been working along MacDill AFB since 2000 and has developed living shoreline techniques that endure huge vessel wakes from transport ships entering and leaving Port Tampa. Installation of ORBs, oyster shell bars, and native species anchor the shoreline while providing critical habitats and water quality benefits to the estuary. The current focus of attention for the next two years includes a new living shoreline project at Lassing Park in St. Petersburg and 2D Island in Hillsborough Bay, the continuation of the MacDill AFB shoreline stabilization, and a new project on the Alafia River. •

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