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Practical Information For Environmental Professionals

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Photo courtesy of the Florida Department of Environmental Protection

A Florida Department of Environmental Protection technician draws samples of wastewater at a Piney Point mining waste impoundment. 250 million gallons has already been drained to prevent a catastrophic levee failure. DEP intends to reduce levels of phosphorus and nitrogen nutrients before draining more of the wastewater. See story below.

State officials respond to latest phosphate mining waste impoundment failure

By ROY LAUGHLIN

For the third time in as many decades, a sizable phosphate mining waste impoundment has failed.

The discovery of the levee breach at the Piney Point impoundment in Manatee County near Port Manatee in late April led to a declaration of emergency and an evacuation order that lasted about a week.

State officials headed by staff from the Florida Department of Environmental Protection responded to the breach that opened up in late March.

The breach and subsequent pumping done to avoid collapse of an impoundment levee, drained about 250,000 gallons of phosphate mining wastewater into the Gulf of Mexico through Port Manatee.

The mining waste site remains under the close scrutiny of engineers to ensure that work to plug the breach prevents continued leakage.

The situation at the impoundment may have begun as early as September, 2020. At that time, Jeff Barath, site manager for property owner HRK Holdings LLC, told the Manatee County Board of County Commissioners that water levels in the storage impoundment were nearing capacity.

On or about March 25, HRK's site manager reported the breach in Piney Point's NGS-South impoundment to DEP.

NGS-South holds acidic phosphate beneficiation wastes, a mixture of calcium sulfate, clay, sand and sulfuric acid.

By the end of April, DEP staff had investigated the breach, along with engineers contracted to evaluate the structural integrity of the levee.

Investigators discovered a substantial leak that led to a hasty evacuation order and immediate efforts to lower impoundment wastewater levels by pumping it to the Gulf of Mexico.

Some reports indicated that this most recent leak was at the same site of repairs done in 2011 to a breach that discharged 170 million gallons.

Contradictory news reports in early May indicated that an adjacent smaller impoundment holding dredge spoils and brackish water was also leaking.

DEP officials vigorously contradicted that report, and it remains an

FAILURE
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Supreme Court rules against Florida in decades-long water war

By BLANCHE HARDY, PG

After decades of litigation and hearings in lower courts, the U.S. Supreme Court ruled in early May that Georgia is not using more than its fair share of water from the Apalachicola-Chattahoochee-Flint River Basin.

Florida initiated the legal action, claiming that Georgia was withdrawing too much water from the ACF basin before the natural flow and volume of water could reach Florida.

Overconsumption upstream was identified by lawyers representing Florida as the cause of reduced flows in the Apalachicola River, which subsequently resulted in significant damage to Florida's oyster fisheries and the river ecosystem.

A Special Master was eventually appointed to evaluate Florida's claim, and the Special Master recommended that the court dismiss Florida's complaint.

WAR
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Correction

Our story about stormwater harvesting in Orange County in our April/May issue incorrectly identified the company that provided the PIPE-R reservoir systems. The correct company name is Environmental Conservation Solutions LLC. We regret the error.

EPA administrator establishes new work group to address per- and polyfluoroalkyl substances

Staff report

By the end of his first month as administrator of the U.S. Environmental Protection Agency, Michael Regan announced the establishment of the "EPA Council on PFAS."

The new council consists of senior leaders from across the agency's major departments and regions. Its co-chairs are Radhika Fox, principal deputy assistant administrator for EPA's Office of Water, and Deb Souza, administrator of EPA Region 1.

The agency noted that its ongoing work is based on the 2019 EPA PFAS Action Plan and explained that career staff developed it to promote "an agenda and actions that have yet to be realized."

The new council was tasked with rapidly advancing those action plans.

First on its list is to develop "PFAS 2021-2025 –Safeguarding America's Water, Air and Land." To prepare this document, the agency will review all ongoing efforts, propose necessary additions and modifications, identify new strategies and establish new priorities, if necessary.

The agency expects the council to make these initial recommendations within 100 days.

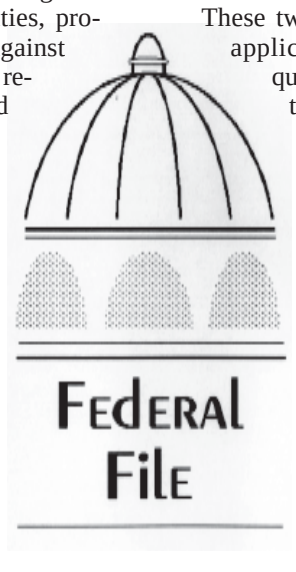
Regan also tasked the council with continuing close interagency coordination on region-specific and cross-media issues.

Assistance to states, tribes and local communities with significant PFAS contamination issues is a priority.

Proposals solicited for two water infrastructure programs. The EPA is soliciting proposals for two water infrastructure programs.

The larger of the two programs, the Water Infrastructure Finance and Innovation Act, has $5.5 billion available to loan for infrastructure projects with matching fund requirements that could create up to $11 billion in total spending on large water projects.

In the coming year, EPA is particularly interested in proposals supporting economically stressed communities, protecting water infrastructure against the impacts of climate change, reducing lead exposure and emerging contaminants, renovating aging infrastructure, and implementing new or innovative approaches including cybersecurity and green infrastructure.



WIFIA funding is available for a wide range of projects including potable water treatment and distribution, wastewater collection and treatment, nonpoint source pollution management and stormwater management and treatment.

In addition, national estuary program projects, energy efficiency at water and wastewater plants, alternative water supply projects and development that involves desalination, aquifer recharge and water recycling are also eligible.

The second program with available funding is the State Infrastructure Finance Authority Water Infrastructure Finance and Innovation Act.

Authorized by Congress in 2018, SWIFIA provides low-interest loans to state water infrastructure programs.

State programs then provide loans to water infrastructure projects in local communities.

The amount available this year is $1 billion. The agency expects that matching funds will raise the total spending to $2 billion.

These two programs use a two-stage application process. The EPA requests applicants to submit letters of interest that meet statutory and regulatory criteria as explained in the notice of funding availability.

The agency will accept these letters of interest from prospective WIFIA borrowers until July 23, 2021.

For SWIFIA, the deadline for letters of interest is June 25, 2021.

Based on these letters of interest, the EPA will select projects that it intends to support and ask its sponsors to apply.

Additional information is available online at https://www.epa.gov/wifia.

RESTORE council announces 2021 funding. The Gulf Coast Ecosystem Restoration Council announced grant funding totaling $302 million to support 20 activities in the Gulf Coast states.

These activities include large-scale programs that address water quality and quantity, habitat acquisition, conservation, coastal resilience and other ecosystem restoration efforts.

The funds approved are for the second phase of the program's third project list, supporting projects in Florida, Alabama, Mississippi and Texas.

The RESTORE Council also budgeted over $161.5 million "for priority activities that will be evaluated in the future."

In Florida, the Department of Environmental Protection received funding for four programs including the Florida Gulf Coast Resiliency Program, the Florida Gulf Coast Tributaries Hydrologic Restoration Program, the Florida Strategic Gulf Coast Land Acquisition Program and the Florida Water Quality Improvement Program.

Since this funding program began, the council has provided $477.36 million to support 124 projects in the five Gulf states affected by the Deepwater Horizon oil spill in 2010.

EPA corrects, updates risk assessment for perfluorobutane sulfate. In April, EPA updated a perfluorobutane sulfonic acid toxicity assessment that the agency characterized as "politically compromised."

"This PFBS assessment reflects the best available science, involved extensive federal, state and public engagement, and is critical to EPA efforts to help communities impacted by PFAS," said senior career scientist Jennifer Orme-Zavaleta, PhD, acting assistant administrator for the Office of Research and Development and the EPA Science Advisor.

According to Orme-Zavaleta, the new assessment fixed errors in the version issued earlier this year.

Besides correcting the errors, the risk assessment is essential for several additional reasons.

PFBS is a substitute for two agency-banned perfluorooctyl compounds used primarily in aqueous film-forming foams and some industrial processes.

The current risk assessment calculates a sub-chronic reference daily dose of 0.001 mg/kg-day. It gives a chronic reference daily dose in drinking water for PFBS of 0.0003 mg/kg-day. The corresponding chronic reference doses for perfluorooctanoic acid and perfluorooctanoic sulfate are 0.00002 mg/kg-day for both compounds, according to the EPA.

As part of the risk assessment, the agency also compared PFBS' new reference dose to potable water system measurements taken under the third Unregulated Contaminant Monitoring Rule.

According to the agency, only eight of 4,920 public water systems reported PFBS at or above the minimum reporting level of 0.09 micrograms per liter.

FKAA floats $49 million loan. Monroe County's Florida Keys Aqueduct Authority operates a potable water supply system that stretches 130 miles from Florida City south to Key West.

It is a critical drinking water supply source for tens of thousands of Florida Keys residents.

In April, the EPA announced it was awarding $49 million in loans so that the authority can enhance the climate resilience of its potable water system.

The money funds about half of a $100 million effort that consists of two primary projects.

The first is upgrading and refurbishing the reverse osmosis facility in Key West.

The second is replacing 12 miles of aging pipelines and a pump station along the line between the wellfields in Florida City and the city of Key West.

The Florida Keys' potable water supply depends primarily on water pumped from wellfields in Florida City.

The reverse osmosis facility in Key West is now used primarily as a reserve supplier of freshwater to Key West and other communities in the Lower Keys.

FKAA budgeted the entire project at $100 million. The low-interest loan, which covers up to the statutory limit of the WIFIA program, will save the utility approximately $13 million when compared to the cost of borrowing money from commercial lenders or issuing bonds.

EPA ramps up environmental justice effort. In April, EPA Administrator Michael Regan formally directed all EPA offices to demonstrably integrate environmental justice considerations into their plans and performance.

"Too many communities whose residents are predominantly of color, indigenous or low-income continue to suffer from disproportionately high pollution levels and the resulting adverse health and environmental impacts," noted Regan.

Regan directed his staff to improve protection from environmental toxins for these residents.

FEDFILE

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Exploratory well construction gets underway in Apalachicola River floodplain

Staff report

Cholla Petroleum of Dallas, TX, began construction on the first of two platform pads for exploratory oil and gas drilling on land leased within the Apalachicola River floodplain in Calhoun County.

Each drilling pad can contain one or two wells each. Up to four pads are permitted that will allow for the installation of six wells between the Chipola River, Dead Lakes and the Apalachicola River.

The Florida Department of Environmental Protection granted the permits allowing Cholla to install six deep wells into the upper Floridan Aquifer, the principal source of drinking water for much of North and Central Florida and an area critical to the state's drinking water supply.

The exploration wells could reach more than two miles below the aquifer.

Opposition to the wells and requests to deny the permits have been made by the Apalachicola Riverkeeper, environmental advocates and area residents, citing potential adverse impacts to potable water supplies and the environment.

"Cholla's drilling pads will be located within the Apalachicola River basin and close to flowing river waters during normal high flows," noted the Apalachicola Riverkeeper. "At those times, 95 percent of the Apalachicola River floodplain is connected aquatic habitat.

"Moreover, during major flood events, the drilling pads would be surrounded by flowing water."

The riverkeeper noted more than 40 species of amphibians and 80 species of reptiles live within the basin, the highest diversity of amphibians and reptiles in the U.S. and Canada.

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

Pensacola commits to renewable energy. The city of Pensacola recently passed a resolution committing to achieve implementation of 30 percent renewable energy to power city-owned facilities and operations by 2030.

The goal was a specific recommendation from the city's Climate Mitigation and Adaptation Task Force's Climate Action Recommendations Report.

The request for the resolution was approved by a motion of the city's Environmental Advisory Board.

Progress will be monitored by the city's sustainability coordinator who is now in the process of evaluating and determining baseline energy use within city-owned facilities that will be used to measure progress toward the 30 percent target.

While Pensacola's renewables goal is less than the 100 percent usually proposed by municipal governments, the goal was assessed and determined to be achievable.

Resources available through Pensacola Energy, the city-owned gas utility, and renewable energy partnerships with Gulf Energy will be part of the program, as will incentives to reduce greenhouse gas emissions.

Conversion of the city's vehicle fleet to natural gas is one option now being considered.

South Florida solar. Advanced Green Technologies recently installed South Florida's second largest solar roof on the Costex Tractor Parts headquarters in Doral.

The 1.6-megawatt solar roof is expected to provide between 90 and 100 percent of the energy needed to power the building.

The array is one of 300 solar installations completed by AGT.

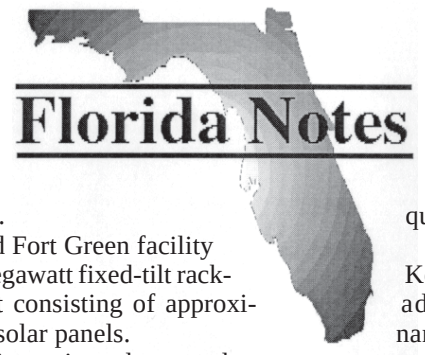
The project will serve the 18,500-square-foot CTP facility for 30 years while generating an estimated annual savings of roughly $207,000.

AGT recently acquired a 32,000-square-foot office and warehouse in the Tampa Bay area to help it meet Florida's demand for climate change solutions.

New Duke solar plants. Duke Energy Florida will surpass its three-millionth solar panel installation with the completion of two new solar generation facilities.

Duke has more than 900 megawatts of solar generation under construction or in operation, and plans to more than quadruple the amount of in-service solar over the next four years.

New solar facilities will be installed at the Fort Green Power Plant covering approximately 500 acres of a former phosphate mine in Hardee County, and the Bay Trail Solar Power Plant covering 500 acres of a future mining location in Citrus County.



The proposed Fort Green facility will be a 74.9-megawatt fixed-tilt racking system plant consisting of approximately 265,000 solar panels.

Fort Green is projected to produce enough energy to power more than 20,000 average-sized homes at peak production.

The Bay Trail plant will be a 74.9-MW facility utilizing 197,000 tracking bifacial solar panels. The double-sided panel design is highly efficient and tracks the movement of the sun.

Bay Trail will produce enough electricity to power some 23,000 average-sized homes at peak production.

Construction is expected to be completed in the first few months of 2022.

Walton County conservation. The Walton County Board of County Commissioners approved changes to the county's comprehensive plan, amending its future land use map and county development code to convert roughly 7,000 acres of residential, agricultural, public facility and town center land uses in the southeastern portion of the county to conservation.

The unanimous vote was intended to assist nonprofit conservation advocate Nokuse Education Inc. in preserving undeveloped land for natural resource and ecological preservation.

The proposed conservation-designated lands are situated among existing conservation parcels.

Nokuse recently purchased the reclassified land through a Florida Forever grant award.

Company news. New Jersey-based Komline-Sanderson Corp., a wastewater management and environmental control designer and equipment manufacturer, acquired Harn R/O Systems Inc.

The acquisition expanded Komline's product offerings by adding reverse osmosis, nanofiltration and low-pressure membrane treatment system capabilities to meet customer needs.

The acquisition is one of several the company planned to expand its product and service offerings, manufacturing capacity and geographic reach.

Harn R/O, established in 1972, is headquartered in Venice, FL.

New chief science officer. Mark Rains, CPWS, PhD, was appointed as Florida's next chief science officer.

Rains is a professor, and chair and director of the University of South Florida School of Geosciences.

Executive Order 19-12, Achieving More Now for Florida's Environment, called for the appointment of a CSO to

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Nearshore water quality improves in Key West during cruise ship absence

Staff report

Cruise ship departures and arrivals in U.S. ports were restricted by federal authorities over past year due to the pandemic. In the city of Key West, one beneficial result was cleaner water around the island.

At Florida International University, a researcher mined the university's water quality database and examined satellite photos for the interval between 1995 and the present.

The results supported the perception that water quality improved over the last year when cruise ships carrying up to 5,000 people each did not dock at Key West.

Key West officials found the improvement appealing—so much so that a local referendum item on the ballot last November proposed reducing the size of cruise ships allowed to dock at Key West and limiting the number of passengers that could disembark there.

Sixty percent of the voters approved the cruise ship limits. At the time, Key West residents believed they had freed themselves of cruise ship passenger congestion in their city.

But then the Florida Legislature got involved. Sen. Jim Boyd, R-Bradenton, sponsored a bill, Senate Bill 426, to overturn the Key West ordinance.

At a hearing in April, a petition signed by 170 independent fishing charter guides opposing the state lawmaker's override was presented during committee hearings. Two dozen environmental groups also formally opposed SB 426.

Despite the opposition, the Senate subcommittee voted to overturn Key West's voter-approved cruise ship limits.

The full Senate then passed SB 426. However, in April's ensuing weeks, the House did not take up the measure.

But in the legislative session's ninth week, the Senate attached SB 426 to a broader transportation bill, SB 1194, passed it and the House followed suit with passage by a 75-40 vote.

The language in SB 1194 is much broader than that of SB 426.

It applies to 15 seaports in the state and prohibits local ballot initiatives that restrict cruise ship entry and docking based on the environmental and health records of the ships or company, points of origin or vessel size.

SFWMD establishes emergent vegetation nursery. In mid-March, South Florida Water Management District officials announced the establishment of a wetlands plant nursery.

The nursery will grow emergent wetland plants slated for permanent growth in the expanding number of stormwater treatment areas around Lake Okeechobee and the Everglades Agricultural Area.

In March, the district began growing plants slated for placement in the C-44 Reservoir's stormwater treatment area in Martin County.

That STA will store and treat water before it's released to the St. Lucie River's estuary and southern Indian River Lagoon.

The nursery is growing specific species best suited for each STA.

The sandy soils of the C-44 STA need stabilization against potentially heavy water flow. Giant bulrush is one emergent wetland plant well-suited to the sandy soils at the STA.

The nursery will provide alligator flag, three-square bulrush, club rush, aquatic grasses and even submerged aquatic vegetation species.

Stormwater treatment areas use ecologically suitable plants to assimilate nutrients from surface water flow. The plants accumulate nutrients as plant biomass, especially in their roots, and when those plants die, the plant biomass is retained in STA sediments over the long term.

Aquatic plants increase water pH, a modification of water chemistry that favors calcium phosphate precipitation from the water.

The SFWMD refers to this STA phytoremediation plan as "putting biology to work" to remove nutrients from water with a process that has relatively low operational costs.

The first plants grown in the nursery are targeted for the C-44 STA, but several other large STA projects will follow including the EAA reservoir expected to become operational by 2022.

Lee County nutrient study grant. The Florida Department of Environmental Protection will provide the Lee County Board of County Commissioners a $130,000 Innovative Technology Grant to support a study of treatments to remove nutrients from Caloosahatchee River waters.

Scientists at Florida Gulf Coast University and the South Florida Water Management District will collaborate on the study.

The C-43 Water Quality Treatment and Testing Project Mesocosm Facility in Glades County will be the testing site.

There, wetland vegetation will be grown experimentally in 12 mesocosm tanks to evaluate phytoremediation protocols that might remove nutrients from water and effectively prevent harmful algae blooms.

The study is expected to identify the best methods for lowering nutrient concentrations so that regulatory authorities can meet total maximum daily load targets in state waterways.

Revised MFLs for two Keystone Heights lakes. In May, the St. Johns River Water Management District approved new minimum flow and level targets for two notable sandhill lakes in Keystone Heights: Lake Brooklyn and Lake Geneva.

These lakes, among the district's most studied to meet MFL targets, are not meeting their goals, based on 1997 evaluation protocols.

In the current effort to maintain MFLs in these two lakes, the water management district is proposing two categories of action.

The first is to offset water use by self-supply and small agricultural users with water supply projects. The other is to work with large consumptive use permit holders to offset their water withdrawals, typically with cooperative cost-sharing or grant projects.

Water supply efforts include the Black Creek Water Resource Development Project, a regional aquifer recharge project that's part of the North Florida Regional Water Supply Plan approved in 2017.

Additional projects will contribute to maintaining adequate water levels in the lakes.

These projects are part of a planned $230 million effort over the next decade to promote water conservation as a vehicle for protecting both the Floridan Aquifer and surface waters within the district.

Gulf County potable water grant. Communities on the St. Joseph Peninsula in Gulf County will benefit from a recently announced $300,000 grant from the Northwest Florida Water Management District.

The grant will underwrite about two thirds of the cost for a project to improve potable water storage and pumping.

Currently, residents experience reduced water pressures in public supply lines in the area.

The Lighthouse Utilities water system

WATCH

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WATCH
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served residents and businesses in the 13-square-mile area until January, 2021, when the county acquired the utility.

The improvements will benefit several communities including Jones Homestead, Indian Pass and the St. Joseph Peninsula State Park.

An engineering report commissioned by Gulf County officials recommended installing an in-line booster pumping station, a ground storage tank control valve, a diesel generator and transfer switch, as well as other repairs and upgrades to the potable water distribution system.

Damage from Hurricane Michael was a significant contributor to system problems. The hurricane damaged one of two treatment plants that provided water to the area.

As a result, a booster plant and a storage tank providing water to St. Joseph Peninsula were taken off-line. The northern part of the peninsula, in particular, has consequently experienced low water pressure.

Gulf County authorities are working to procure the necessary funding not covered by the district's grant.

Green Cove Springs WWTP upgrade. Earlier this year, the city of Green Cove Springs began construction on upgrades and improvements to its Harbor Road Wastewater Treatment Plant.

The project marked the second of three planned phases of treatment plant upgrades that will reduce phosphorus and nitrogen discharges to the St. Johns River.

When the second phase is complete, the advanced wastewater treatment facility's capacity will be 1.25 million gallons per day.

The plant's collection system will also receive an upgrade consisting of a force main modification on U.S. 17 and State Road 16.

At the groundbreaking ceremony, a water utilities official noted that the decision to upgrade the facility would, for the time being, allow the city to comply with the latest standards for nutrients in its wastewater plant effluent discharged to the St. Johns River.

It will also provide increased supplies of reuse water that should reduce aquifer withdrawals in one of Florida's most rapidly growing regions.

The project's total cost is expected to be more than $18 million.

The city financed the work through multiple sources, including the Florida Department of Environmental Protection's State Revolving Fund, and cost-share contributions from the SJRWMD.

The project is expected to be complete in June, 2022.

Estero septic-to-sewer. The village of Estero in Lee County is in the final stages of planning for a septic-to-sewer conversion effort that will replace all septic tanks in 15 communities and subdivisions in the village.

The ambitious plan aims to phase out septic tanks by connecting all properties to the centralized wastewater treatment plant.

In late April, representatives from Woodard & Curran presented the village council with preliminary estimates for the cost of installing wastewater collection pipelines.

The majority of the 15 areas identified in the area are within a half mile of the Estero River.

A Florida Gulf Coast University study completed in March found abundant indicators of fecal contamination. A 2019 study by students at the university produced similar results.

The most recent study linked human waste specifically to fecal contamination. The study showed that certain locations had very high fecal coliform levels, and fecal coliform was routinely found during almost all seven sampling events.

The sampling indicated that fecal coliform bacteria were present in excess of Lee County standards from 20 to 80 percent of the time.

The variable but consistent occurrence of these bacterial markers does not prove that septic tanks are responsible or implicate a specific tank.

But septic tanks are generally known to be a primary source of fecal coliform in Florida's shallow aquifer and the surface waters that it feeds. In many cases, the levels found in this study are sufficient to cause illness, sores and rashes to swimmers.

The 15 areas identified in the study were also under scrutiny in an earlier study completed by Banks Engineering.

That study identified areas within the city including Estero Bay Village, Sunny Groves, Cypress Bend and the River Ranch Road neighborhood as ones with high water quality improvement payback for septic-to-sewer conversion.

The first three are trailer parks that already have a wastewater collection system installed. Connecting them to the Lee County Utilities sewer system advanced wastewater treatment plant will cost about $1.8 million.

Septic-to-sewer conversion along River Ranch Road requires installation of a wastewater collection pipeline that can be connected to the Lee County plant at a cost of approximately $2.4 million.

All of these projects could begin as soon as the second half of 2022.

Septic-to-sewer conversion in Estero Village's remaining 11 areas is planned for the future.

The total cost for complete conversion to centralized sewer could top $40 million. A few of the more extensive conversion projects could each cost $5 million.

Estero officials hope that grant funding from state and federal agencies will make the cost manageable for its residents.

The complete transition from septic to sewer could be a generational effort, but current Estero officials seem ready to start the process.

Sebastian stormwater master plan. The city of Sebastian on the west shore of the Indian River in northern Indian River County has persistently experienced flooding in some neighborhoods.

Most of its stormwater runoff, often laden with sediments, fertilizers and pesticides, flows into the Indian River Lagoon.

The city recently commissioned a new stormwater master plan to more effectively reduce flooding and runoff contamination.

The master plan will be completed by Arcadis U.S. Inc. of Orlando.

Under the terms of the $700,000 contract, Arcadis experts will evaluate the city's current stormwater management system.

Based on its findings and the use of a stormwater management model, it will recommend system upgrades, a capital improvement plan for the coming decade, and a funding strategy for applying for state and federal grants to underwrite the costs.

Half of the cost for the plan will come from Sebastian's stormwater utility to which city residents pay $10 a month.

The other half will come from Brevard County's voter-approved referendum discretionary one half-cent sales tax to benefit the Indian River Lagoon.

Offshore fish farming planned. A proposed fish aquaculture effort located 45 miles off Florida's coast, northwest of Charlotte County in the Gulf of Mexico, is now in the planning stages.

Dubbed Velella Epsilon, the relatively small demonstration net pen will be initially stocked with about 20,000 fish.

According mariculture company Ocean Era, the Gulf pilot project is based on a similar fish farm off the coast of Hawaii

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State lawmakers target Everglades, additional surface water improvements in 2021 budget

By ROY LAUGHLIN

Florida's 2021 budget, prepared by lawmakers and ably assisted by the best lobbyists money can buy, was funded to the tune of over $101 billion.

As of this writing, Gov. Ron DeSantis had not yet signed off on much of the spending for fiscal year 2021-2022 and is expected to use his veto pen to remove items less palatable to him.

DEP funding

In his proposed Florida Leads budget narrative, DeSantis said that his 2021-2022 budget plan contained more than $4 billion to benefit the environment across all departments.

The Florida Department of Environmental Protection will receive a good share of that funding, $2.2 billion.

DEP spending focused on surface water enhancements and protections, particularly against harmful algal blooms caused by nutrient enrichment.

The Florida Everglades, including Lake Okeechobee and the Everglades north of the lake, will continue to see generous funding levels in the coming year.

Everglades restoration efforts will get $322 million. Thirty-two million dollars of that will support restoration strategies.

The Comprehensive Everglades Restoration Plan is slated for $170 million; and the Northern Everglades and Estuaries Protection Program, or NEEPP, will get $47 million.

Projects in the Glades are rumored to include funding for multiple aquifer storage and recovery wells north of Lake O.

Dirty surface water pumped deep into the Floridan Aquifer will be future generations' problem. Still, it may help tidy up nutrient enrichment in Central and South Florida's surface waters over the coming decade.

NEEPP is perhaps the most visible of any funding for surface water improvement because it will help reduce harmful algal blooms in the St. Lucie Estuary, southern Indian River Lagoon and the Caloosahatchee River and its Gulf of Mexico estuaries.

This year's Everglades funding is the third installment on DeSantis' $2.5 billion commitment to improve water quality in the River of Grass.

The Office of the Governor said that the plan to complete the C-44 Reservoir and its stormwater treatment area, along with the C-43 Reservoir, is on track for completion within the next four years.

The Everglades Agricultural Area reservoir received $64 million more and is on track to be completed by the end of the governor's term.

South Florida projects top the list of surface water projects, but other water quality improvement funding was sprinkled throughout the state.

DEP will get $25 million for cost-share grant funds for wastewater improvements, including septic system conversions and upgrades.

The Indian River Lagoon is slated to receive $25 million for water quality improvements. At least $1.8 million of that funding will be used to dredge muck from the Indian River near the Eau Gallie Causeway.

Elsewhere, water quality improvements to the St. Johns, Suwannee and Apalachicola rivers' watersheds and watersheds in the Big Bend are slated to receive $25 million.

State-wide, projects supporting the total maximum daily loads program will receive $25 million.

The legislatively mandated program to protect Florida's springs is slated for another $50 million this year. That money may support septic-to-sewer conversions and other nutrient reduction projects within springsheds.

The recommendations of the state's Blue-Green Algae Task Force remain a force guiding DEP's efforts to improve surface water quality and protect the public from harmful algal blooms.

The department will again receive $10 million to support innovative technologies and short-term solutions for HABs.

Another $10.8 million will support expanded water quality monitoring, improve and maintain water quality reporting, and support the Blue-Green Algae Task Force's continuing operations.

This year, funding for the new Resilient Florida Program included $165 million, sourced from document stamp revenue collections.

The governor's office noted that this program's funding includes $12.1 million to "allow DEP to grant up to $100,000 to all remaining coastal counties, coastal municipalities and inland counties who have not completed vulnerability assessments."

In the next few years, the program will provide grants to state and local governments to help them adapt to regionally significant impacts from sea level rise, intensified storms and flooding.

The budget included $50 million for beach nourishment at Florida's critically eroded shorelines.

Shoreline erosion received even more attention with a $10 million appropriation for DEP's Resilient Coastlines Program within the Office of Resilience and Coastal Protection.

This agency primarily coordinates efforts between state, regional and local governments to address sea level rise.

Other funding will provide money for coral reefs and emergency sand placement to help fortify a coastline before a storm event occurs.

Waste management

The governor's budget had proposed the diversion of more than $80 million from the Petroleum Restoration Program in the department's Division of Waste Management.

The PRP funding was eventually cut from last year's $125 million total, receiving only $75 million from the Inland Protection Trust Fund.

But in the final days of the session, lawmakers approved a $50 million transfer from federal COVID-19 aid to restore PRP's budget to last year's level.

Elsewhere, funding for the Drycleaning Solvent Cleanup Program was set to decrease from $8.5 million to $4 million in the governor's budget. The Legislature partially restored funding for that program to $6 million. Work will continue at active drycleaning remediation sites.

The governor's budget zeroed out spending on hazardous waste contaminated site cleanup, but lawmakers partially funded it at $2 million.

Three additional small programs in the state's Division of Waste Management will receive the same funding as last year: reef protection and tire abatement, $2.5 million; solid waste management, $3 million; and waste tire abatement, $0.5 million.

The State-Owned Lands Cleanup Program received no funding—surprising because last year DEP identified more than 100 sites with perfluorinated alkyl substance contamination. A third of those were contaminated above DEP criterion levels. Many of the properties identified are owned by the state.

Additional spending

Lawmakers appropriated more than $100 million to address the recent breach at a Piney Point mining waste impoundment in Manatee County.

Appropriations approved this year toward that end may be the first of multiple years of funding that some experts said could reach $200 million to address the impoundment problems at Piney Point.

DEP's budget also included $40 million to support the alternative water supply grant program.

The Florida Forever program will receive only $50 million. This low appro-

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Forum provides the latest on techniques, technologies for dealing with PFAS contamination

By ROY LAUGHLIN

Perfluorinated alkyl substances achieved widespread notoriety over the past 20 years following several notable contamination events.

Along with the reports of contamination came news that PFAS were found in water, soil and organisms during almost every study of the past two decades. That includes human studies.

Trump administration officials promised action and even announced several "action plans." But federal action has proceeded at a glacial pace and any such plans largely laid the responsibility on states to set the standards and address the site cleanups.

Politics and the COVID-19 pandemic have kept many experts away from meetings where they could publicly present their work and discuss what they have learned in an open forum of peers.

In April, the PFAS Forum in Tampa, produced by the Southeast Waste Information eXchange Inc., broke the drought.

Two days of expert discussion brought virtual and in-person participants up to date on a year or two of scientific knowledge about these complex compounds that are widely dispersed in the environment.

This article presents a summary of some of the updates provided at the forum.

Florida standards

The Florida Department of Health accepted the U.S. Environmental Protection Agency's 70 parts per trillion health advisory level for two perfluorooctyl compounds—perfluorooctyl acid, PFOA, and perfluorooctyl sulfate, PFOS.

The Florida Department of Environmental Protection promulgated surface water screening levels of 0.5 ug/l for PFOA and 0.01 ug/l for PFOS.

The U.S Environmental Protection Agency also recently established surface water screening levels to protect aquatic receptors: 1,300 ug/l for PFOA in freshwater; 37 ug/l for PFOS in freshwater; and 13 ug/l for PFAS in marine waters.

DEP moved expeditiously during the past four years to surveil Florida's environment for PFAS contamination.

To address contamination where PFAS occurs, DEP developed a set of provisional soil cleanup target levels. For soil, PFOA is set at 1.3 mg/kg residential and 25 mg/kg commercial/industrial, with 0.005 mg/kg leachability. For PFOS, the provisional SCTL is the same, but leachability is 0.007 mg/kg.

Provisional groundwater CTL for PFOA, PFOS, and the sum of the two are all set at 70 ppt or 0.07 ug/L.

Irrigation well screening levels for PFOA are 6.7 ug/L for residential and 750 ug/L for industrial. For PFOS, it is 72 ug/L for residential wells and 370 ug/L for industrial.

DEP actions affected only two compounds that are widely used in fire-fighting foams and widespread in the environment.

Recently, the EPA released a risk assessment for perfluorobutane acid and is expected to release drinking water standards for this replacement for PFOA and PFOS soon. DEP will likely follow suit expeditiously.

DEP regulatory action was closely aligned with the Trump administration, but the department's environmental surveillance was more extensive than just the two compounds mentioned above.

More than that, Florida's progress has been part of an effort at the state and federal level to develop empirically tested plans to characterize the extent of PFAS contamination, develop effective remediation technologies, and implement human and environmental protection strategies.

Analytic, environmental chemistry

Of all the advances made during the past few years, chemical analysis methods and their application dominate discoveries about PFAS in the environment.

Analytical methods for drinking water and surface waters have progressed to parts per trillion levels for more than two dozen of the most commonly measured PFAS in water.

Development and certification of similarly sensitive methods to analyze soil and tissue are advancing rapidly, and are likely to be validated within a few years.

To put that sensitivity in perspective, one forum speaker noted that one part per trillion is comparable to six inches of the 93.725 million miles between the earth and the sun.

However, that impressive sensitivity for validated methods applies to just a tiny portion of the potential 5,000-plus perfluorinated compounds that are structurally possible and the hundreds of PFAS in environmental samples.

Perfluoro compounds have been used so extensively since the discovery of commercial synthetic methods that they are now a background contaminant just about everywhere in the environment.

PFAS are abundant at solid waste landfills, near industrial sites and wastewater treatment plants, in biosolids and effluents, and in drycleaning wastes.

Fire-fighting schools emerged as the prime locations where surveillance yielded high PFAS contamination from aqueous film-forming foam use.

Fire-fighting facilities, both those that are retired and those still in use, are the most likely place to find high PFAS contamination in most communities.

AAAF contamination is also abundant at airports and where industrial facility fires were extinguished with AAAF. AAAF were typically about three percent active agent, and many kilograms were used to fight a single fire.

Although the initial PFAS contamination surveillance focused attention on octanoic PFAS in AAAF, those with alkyl chain links between four and six carbons are also widely used in industrial processes, consumer products and AAAF.

They are now routinely identified in environmental samples of wastewater effluent, primarily contributed by laundered clothes and other textiles; in biosolids from wastewater treatment plants; and in reuse water, including that applied as residential landscape irrigation.

In addition, PFAS in the air is a topic that has undergone recent intense scrutiny.

Stephen Zemba, PE, PhD, a project director with Sanborn, Head & Associates Inc., discussed PFAS in air emissions at the forum.

Waste incinerators and metal-plating plants are notable emitters responsible for environmental contamination, some of it extensive.

Contamination from such facilities has been found far from the source as compared with facilities that discharged wastes only into surface water.

Analytical methods for air sampling remain to be certified but, without a doubt, air emissions that rain out or settle to earth spread PFAS well beyond the source area and may cause high contamination levels outside the local radius of activity where the PFAS was used.

Recent investigations by forensic chemists using sensitive methods have shed some light on the limited breakdown of PFAS in the environment.

Although rates are slow, degradation occurs in soil, particularly with a modest array of perfluoro- and polyfluoro- products, a few of which have been measured at relatively high concentrations.

These "secondary" compounds may also arise as byproducts from synthesis but remained in consumer and industrial products.

Increasingly, though, many PFAS found in environmental samples are now recognized products of environmental degradation.

AnnieLu DeWitt, national technical and sales lead for the emerging contaminant and water treatment program at Clean Harbors, bought some humor to the discussion at the forum when she characterized the diversity of PFAS compounds in waste streams as "a dog's breakfast."

It was an effective prelude for her proposal to develop a less specific and less sensitive method to measure the total pool of all PFAS in waste streams and at remediation sites.

Even if a treatment process is used to

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remove just two octanoic compounds, the entire burden of perfluoro compounds that will also bind to activated charcoal in filters or affect reverse osmosis membranes may be one- or two-digit multiples of the concentration of the two target compounds.

That total burden in the influent is the first and most important information for a successful waste removal process.

The forensic chemical analysis depends on validated methods when the results are used for compliance, remediation or expert legal testimony.

EPA, ASTM International and U.S. Department of Defense ISO methods are the three primary sources of validated and accredited methods. Modified methods are allowed and are now in use.

Taryn McKnight, PFAS practice leader at Eurofins Environment Testing America, said that multiple methods now in use are confusing to many customers and those using the results.

In another talk, Ziqi He, PE, PhD, a senior engineer with HSW Consulting LLC, explained the paradoxical physicochemical PFAS behavior in the environment.

The paradox occurs because PFAS are somewhat more soluble in water than expected for organohalides and are only modestly soluble in lipids.

He also explained that a net negative charge on the abundant fluoride atoms reduces the expected solubility in lipids and adsorption to soil particles.

That net negative charge modifies the expected structure-activity comparison with chlorinated alkyl compounds.

Soil is also a hodgepodge of materials but in general there are many sources of negatively charged components in soil particles. Electrostatic repulsion between negative charges on the fluoride atoms and those on the soil particles results in weak soil-PFAS binding isotherms.

PFAS' hydrophilic functional groups, such as an acidic carboxyl or sulfate group, chaperone them into the water phase, and that substantially increases leachability.

Remediation, water treatment

When PFAS were identified several years ago in drinking water and potable water supply sources, removing them from potable water became a priority.

Filtration through deep granulated carbon beds quickly emerged as an effective PFAS removal method that was, fortunately, already part of the potable water treatment process at many plants.

Nanofiltration and reverse osmosis are also effective PFAS removal treatments already in use at some drinking water plants.

Treating drinking water with synthetic resins and other adsorbents may be effective, according to vendors, but is a minor player in the drinking water category.

In addition to Florida, four other states have established enforceable, widely varying cleanup targets for water, soil and groundwater contamination.

The inconsistency in standards has had a confounding effect on the environmental remediation industry because cleanup target levels influence the techniques used, how extensively the plumes are treated, and the disposal of any resulting PFAS-contaminated soils or cleanup media.

Worst-case sites are at this point being treated by soil removal. Contaminated water is treated by pump and treat when in-situ methods are not appropriate.

Colloidal and granulated activated carbon are frequently used for in-situ PFAS remediation of groundwater and soil. Processes that degrade PFAS in situ are currently extremely limited in capability and implementation.

Programs that clean up contaminated sites for the purpose of redevelopment are being influenced by the current disarray of national cleanup target levels and the lack of widely implemented PFAS cleanup technologies that have an empirically proven track record of efficacy.

PFAS plume mobility is another confounding factor in site cleanups. Extensive plumes often have an origin that is not on the site subject to remediation.

The current practice is to treat a hotspot that indicates an on-property PFAS source and leave a plume of low concentration alone, if consistent with redevelopment intent.

PFAS contamination is so widespread that, at specific sites, the issue becomes one of whether the co-occurring contaminant cleanup requirements must be applied to PFAS on a site that was initially listed for cleaning up another substance, dry-cleaning solvent, for example.

Sophisticated techniques such as isotope analysis and chemical spectrum analysis are increasingly employed to determine whether the PFAS found on remediation sites are from one source, particularly a hotspot on site, or whether they arrived there through the air, by rain or from subsurface plume movement.

Chemical spectrum analysis compares the structure and isotope composition of most abundant perfluoro compounds, giving clues that indicate whether the contaminants came from a presumed source on the site.

This method relies on analytical sensitivity and the ability to identify structural diversity in a PFAS mixture.

PFAS' intriguing chemistry has suddenly become part of the high-stakes games of real estate purchases, soil and groundwater remediation, and insurance coverage.

Increasingly, according to speakers at the forum, insurers are excluding PFAS from policy coverage completely. This exclusion has had a chilling effect on some projects.

A solution depends on establishing standards for the most abundant PFAS and setting background level thresholds below which no cleanup or controls are required.

Waste management

Neither the federal government nor any states have promoted extensive PFAS bans in consumer products or manufacturing, or have otherwise restricted its use.

Octyl compounds in AAAF are the exception. Chemical destruction of PFAS in solid wastes, industrial wastes, spent dry-cleaning wastes, biosolids and the reverse osmosis/nanofiltration reject water from potable water treatment plants has become a priority. But no method is ready for application yet.

To meet that priority, concentration and immobilization followed by temporary storage to await the availability of a chemically destructive treatment is the current practice.

An EPA document released last fall established temporary PFAS waste storage as the most effective measure at this time—until a destructive treatment becomes available.

Despite the lack of a major breakthrough, significant small steps within the scenario above have occurred.

Timothy Townsend, PhD, director of the University of Florida's Hinkley Center, noted that UF researchers discovered that microbubble flotation effectively concentrates PFAS from reverse osmosis/nanofiltration reject water.

In addition harvesting the foams provides a concentrated PFAS-containing liquid waste suitable for storage.

Paul Ruehl, U.S. environmental remediation coordinator at LafargeHolcim Ltd., described success with blending liquid PFAS wastes into concrete for long-term encapsulation.

The method is also effective for the encapsulation of PFAS contaminated soil. Since demonstrating effective encapsulation, Ruehl has advanced his research focus to developing beneficial uses of concrete with encapsulated PFAS.

Because of the standards impasse and uncertain remediation prospects, some landfills and waste handlers are completely rejecting biosolid wastes, industrial wastes, filtration media and other types of likely PFAS-contaminated waste streams.

Some wastewater treatment plants have stopped accepting landfill leachate with PFAS contamination due to the uncertainty of present contamination or future liabilities.

Biosolids are a particularly complex problem.

In Arizona, when biosolids were ap-

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South Florida WMD releases annual report on district activities, decisions

By BLANCHE HARDY, PG

The South Florida Water Management District recently released its 2021 South Florida Environmental Report.

The annual SFER provides the public with the science and data used to drive decisions at the district, including details on restoration, water quality, scientific and engineering achievements within the district throughout the 2020 water year.

This year's three-volume report was complemented by the SFER Consolidated Project Report Database.

Volume I discussed findings of regional monitoring and research projects, and provided details of key financial interests during the reporting period.

Volume II provided an annual update on the status of projects during fiscal year 2020 and planning for FY 2021, including the nine annual reports required of each water management district.

Volume III expanded on Volume I, streamlining unified reporting and fulfilling related reporting requirements.

The 2021 SFER detailed the district's achievements in an important year for restoration, and scientific and engineering accomplishments in the Kissimmee River Basin, Lake Okeechobee, the Everglades and South Florida coastal areas.

SFER provided extensive peer-reviewed research summaries, data analyses, financial updates and a searchable database of environmental projects.

The report covered environmental information for water year 2020, May 1, 2019, to Apr. 30, 2020, and budget information for FY 2020, Oct. 1, 2019, to Sept. 30, 2020.

The report's Highlights for the Everglades noted progress on the governor's November 2019 budget that included funding of $2.5 billion over four years for the Everglades, the largest funding for Everglades restoration and water quality improvements in Florida history.

The report noted that construction began ahead of schedule in April, 2020, on the 6,500-acre treatment wetland component of the Everglades Agricultural Area Reservoir Project. Blasting for construction of the canals that will convey water to the EAA Reservoir began in August.

The district continued to restore historic regional flows through projects designed to move water south.

Among the projects listed in the report is removal of a 5.5-mile section of the Old Tamiami Trail in Miami-Dade County. The raised roadbed acts as a dam. Its removal, anticipated to be completed in 2022, will restore the flow of freshwater south.

The district, in conjunction with the Florida Department of Environmental Protection and local governments, completed a feasibility study for ensuring clean water flow from the Caloosahatchee C-43 Reservoir.

The reservoir will store approximately 170,000 acre-feet of water and will help reduce the need for surface water releases to the Caloosahatchee River and Estuary during the wet season and provide the water needed to balance salinity levels during the dry season.

The C-44 Reservoir and stormwater treatment area were also discussed in the report. Once complete, they will capture, store and treat runoff from the C-44/S-153 basin prior to discharge to the St. Lucie Estuary, reducing damaging freshwater discharges, decreasing nutrient load and maintaining desirable salinity regimes.

The SFER is available online at https://www.sfwmd.gov/science-data/scientific-publications-sfer.

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plied as fertilizer, some forage crops bioconcentrated the compounds, and dairy cows transferred them to their milk.

Subsequently, dairy farmers discarded their cows' milk because it was contaminated by PFAS from the biosolids.

These are the early days of establishing the necessary empirical evidence to quantitatively characterize phytoaccumulation, bioaccumulation and bioconcentration.

The available evidence leaves no doubt bioaccumulation occurs, is significant for longer chain PFAS, and poses risks to both the environment and human health.

Atmospheric emissions

During the past two years, the role of PFAS in atmospheric emissions has come into sharper focus.

The prospect of incinerating these combustion-resistant substances at waste treatment plants is the primary driver of emissions evaluation.

Preliminary research indicated the likelihood that the matrix could be destroyed by combustion—but not the PFAS contaminants in it, at least not completely.

Some of the PFAS leaves the incinerator as vapor.

More recent environmental surveys indicate that waste-to-energy plants, waste incinerators and metal plating facilities are substantial emission sources of atmospheric PFAS.

Research and a better assessment of air emission hazards lag because methods of sampling air for assessment purposes are still being developed and verified.

Environmental scientists have developed fairly sophisticated models to characterize the environmental risk of air emissions based on an organic substance's vapor pressure.

A predictive characterization of the relationship between PFAS vapor pressure and azeotrope formation remains to be developed to predict environmental compartmentalization.

Chemical manufacturers are asked to supply vapor pressure values to the EPA for product registration, and researchers presume that this has been done.

However, when that data is submitted, it is routinely labeled as "confidential business information" that is not publicly available. Generally, manufacturers cannot be forced to reveal it.

The timeline for getting verified, accurate and precise vapor pressure data and using it in atmospheric contaminant dispersion models remain highly uncertain.

Human health effects

In the past two years, human health risk assessment has been a substantial focus of the PFAS discussions.

Ronald Kotun, PhD, senior toxicologist with Tetra Tech, provided a thorough discussion of risk effect studies that yielded different risks for perfluorooctyl compound exposure in drinking water.

Kotun showed how the models used produce apparently significant differences.

The differences, he said, are due to differences in the assumed amount of water consumed and to the "target" selected as the sensitive group to be protected.

The models' output, he illustrated, will be significantly changed just by assuming a change from two liters of water per day consumed to 1.4 liters, a real distinction in two models used by risk assessments.

These assessments influenced potable water standards in two of the five states that have established standards. A choice between "adults" as the most sensitive group and "nursing infants" by another state yielded a much lower potable water standard for the nursing mother to protect the health of her infant.

The other notable point the risk assessments illustrated, according to Kotun, is that even with the difference in assumptions, risk assessment calculations compared with measured PFAS body burdens in Americans indicate that only a fifth of the PFAS present comes from drinking water.

The remaining 80 percent comes from other sources that remain unspecified. This dominant proportion from unknown sources is not a comforting finding, if correct.

Though all the news is not good, it provided a list of milestones on the path to coherent and effective management strategies for PFAS in the environment and the human food chain.

Substantial effort remains to address that challenge, but progress during the recently lost year has been significant.

Coordinated effort leads to increased funding level for PRP after "pause"

By STEVE HILFIKER

The 2021 Florida legislative session ended on time Apr. 30, 2021. Considering the status of our state budget as we entered 2021 and the important issues to address including the pandemic, population growth and pressure from essentially every environmental issue known to man, ending the session on time was quite an accomplishment.

Senate President Wilton Simpson, House Speaker Chris Sprowls and the entire leadership group should be praised for their management of this year's session.

In the end, with tourism revenues, a booming real estate market, continued increases in revenues to the Inland Protection Trust Fund, a more optimistic Revenue Estimating Conference in March and support from federal stimulus funding, lawmakers were able to move many urgent issues forward.

A substantial environmental protection budget, generally consistent with the legislative budget request of Gov. Ron DeSantis, was approved by the House and Senate on Apr. 30.

Growth management and environmental protection were predominant themes, along with COVID-19 solutions and adjustments needed to prevent or minimize the impact of any future pandemic.

Many bills were passed to protect our natural resources and follow up on what was accomplished during last year's legislative session, particularly funding for projects related to the 2020 Clean Waterways Act.

Inland Protection Trust Fund

Prior to the pandemic, strong Inland Protection Trust Fund projections formed the basis for decisions implemented in the 2020 General Appropriations Act.

The GAA of 2020 was signed before the true fiscal impact of the pandemic on the trust fund was known. The previously projected revenues for IPTF were not wholly realized, leaving a large deficit in funding for the Florida Department of Environmental Protection's Petroleum Restoration Program as fiscal year 2019-2020 ended June 30, 2020.

The pandemic-induced recession impacted the environmental assessment and remediation industry substantially during FY 2020-2021.

The Aug. 7, 2020, Revenue Estimating Conference and subsequent revenue projections indicated a substantial budget deficit for FY 2021-2022 based on reduced tourism and gas tax revenues.

On Sept. 23, 2020, DEP officials announced a "pause" in PRP operations at most sites. The environmental and economic impacts have been significant.

Many highly skilled jobs were lost and redevelopment projects were halted.

Revenue losses devastated many specialized remediation technology vendors, well drillers, laboratories, contractors and other PRP stakeholders—professionals with institutional knowledge of Florida's complex and unique geologic conditions.

Contaminant migration, springshed impacts and risks to drinking water resources increased during the pause.

Understanding this, seeing population growth continue to spike and recognizing the pending impacts to groundwater resources, environmental industry professionals prepared for the upcoming legislative session with a coordinated effort of advocacy and lawmaker education.

With many new legislators and programs posturing for limited state funds, it was evident as early as September, 2020, that this year was going to require a more organized and structured approach if the value of the state Petroleum Restoration Program, our natural resources, our unique aquifer system and the industry that protects them was to be understood.

The PRP is a robust program that serves many stakeholders in addition to consumers of Florida drinking water. Property owners, lenders, real estate professionals, environmental industry professionals and the general public rely on the program for environmental protection and economic development.

In late September, 2020, representatives from seven environmental associations in Florida formed and came to be known as the Informal Coalition of Environmental Associations, or ICEA.

PRP stakeholders watched as the program pause unfolded though fiscal year 2020-2021. And we met weekly through 2020 and biweekly in 2021 with five organized ICEA committees led by some of the state's most experienced and knowledgable professionals.

Representatives from the Florida Ground Water Association, Environmental Professionals of Florida, Florida Association of Professional Geologists, Florida Brownfield Association, Florida Engineering Society, American Council of Engineering Companies of Florida and the Florida Association of Environmental Professionals met regularly with the intent of bringing information from their membership to our meetings, and communicating the progress of our efforts back to their members.

In this way, we mobilized our entire industry.

When professionally designed educational materials for key legislators was needed, practitioners and stakeholders were ready to deliver a consensus-driven, unified message with impressive presentations to all the right people.

ICEA representatives and their lobbyists met regularly with key legislative representatives before and during the legislative session to ensure that they were aware of the dire funding situation of FY 2020-2021 and 2021-2022.

The value of the PRP, the industry that supports it and the environment it protects became well understood by lawmakers. The educational documents and well-timed communications were effective, strategic and consistent from the beginning of committee weeks through the last week of the session.

The industry that was so damaged in FY 2020-2021 can now be restored in FY 2021-2022.

Remediation professionals are needed to protect the groundwater and the quality of our drinking water resources from all contaminants. The legislative response supported and validated this need.

The House and Senate Appropriations Committees on Agriculture and Natural Resources agreed to appropriations of $75 million from the IPTF for fixed capital outlay for the PRP in FY 2021-2022.

In addition, during the final week of the session, House and Senate leaders issued the following as part of the final 2021 General Appropriations Act: "The Chief Financial Officer shall transfer $50,000,000 from the General Revenue Fund to the Inland Protection Trust Fund in the Department of Environmental Protection to offset revenue losses associated with the COVID-19 pandemic. The nonrecurring sum of $50,000,000 is appropriated to the department in Fixed Capital Outlay for Petroleum Tanks Cleanup."

This action will help restore vitality to the soil and groundwater cleanup industry beginning in July.

Of the thousands of issues that could have been supported by federal stimulus dollars, restoring the PRP and the remediation industry that supports it was one of approximately 33 initiatives funded.

It was great to see our essential industry prioritized in this way.

In the end, the GAA of 2021, as approved by the House and Senate, matched the GAA of 2020 with a PRP fixed capital outlay budget of $125 million.

Feedback from members of the Florida House and Senate indicated that the educational approach taken by the coalition was effective.

Our five committees produced substantial information by the beginning of committee weeks to effectively demonstrate the economic and environmental impacts associated with the PRP pause in funding.

By the second full committee week,

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Calusa Waterkeeper releases water quality report for SW Florida counties

By BLANCHE HARDY, PG

The Calusa Waterkeeper recently released Water Quality Impairment Status and Trends of Southwest Florida Counties, 2018-2020. The report summarizes water quality impairment over the past two years in nine southwest Florida counties including Collier, Lee, Charlotte, Sarasota, Manatee, Hillsborough, Pinellas, Hendry and Glades.

The report was developed using Florida Department of Environmental Protection assessment criteria gathered from its annual list of impaired waters.

DEP updates its comprehensive water quality database annually as new monitoring data become available.

Most parameters representing impaired waters in the nine-county region were grouped into four categories: fecal bacteria, metals, dissolved oxygen and nutrients. Nitrogen and phosphorus were considered the defining impairment nutrients.

"Understanding factors contributing to water quality impairment in Florida is important in determining sources and eventual restoration planning," said Calusa Waterkeeper John Cassani, the report's primary author. "Assessing water quality impairment on a geographical basis, for instance by county, is relevant as most state mandates such as basin management action plans are implemented by local government stakeholders."

Each county was evaluated and ranked using six metrics that define or contribute to water quality impairment.

Trends were determined according to any change in impairment status over the study period. Manatee County exhibited the highest water quality threat-level of the counties assessed.

Not surprisingly, the report identified urban development and the increase in impervious surface area as major contributing sources of pollutants to receiving waters.

Rapidly increasing impervious areas resulting from high growth rates and development were found to accelerate stormwater runoff, a common contributor to water quality degradation.

The report's poorest ranking counties, Manatee, Lee and Hillsborough, showed the greatest trend towards impairment and worsening water quality.

The three counties also recorded among the highest levels of population growth.

Lee County ranked first in the rate of increase in impairment followed by Collier and Manatee counties. Manatee experienced the greatest individual increase in impervious surface area resulting in its high threat-level score.

For the most part, population was found to be independent of county land area. For example, Collier County has the largest land area but the lowest population density while Pinellas County has the smallest land area yet the second highest population density.

All seven coastal counties assessed included significant portions of urban land uses.

The riverkeeper's study found that population increase drastically raised the probability for increased water quality impairment

Because agricultural land uses are frequently a dominant source of nutrient contamination, agriculture activity was considered when determining pollutant potential.

The report identified nutrients as a standard study target for determining the cause of low dissolved oxygen levels and noted that nutrients have become the basin management action plan proxy parameter for dissolved oxygen.

The top three agricultural counties are Hendry, Glades and Manatee. Again, Manatee's combination of impairment sources, including both agriculture and urban development, contributed to the county's highest overall impairment ranking.

The report provided a baseline for evaluating the effectiveness of restoration activities by determining the change in impairment over time.

"This report provides a 'big picture' view of the overall health of the waterways in the region and, moreover, shows decreasing trends in water quality over time," said Jen Lomberk, current chair of Waterkeepers Florida. "It uses scientific data to show that our current approach to dealing with water pollution is not working and something needs to be done."

State urged to set standards for HAB toxins

Staff report

Conservation groups recently called on Florida officials to set water quality standards for harmful algal bloom toxins that threaten the health of the state's residents and wildlife.

The request came after the Florida Department of Environmental Protection announced in early May that, even as a 500-square-mile algae bloom spread across Lake Okeechobee, it would not set legal limits on cyanotoxins.

Fourteen organizations including the Center for Biological Diversity, Sanibel-Captiva Conservation Foundation and Calusa Waterkeeper, called on Gov. Ron DeSantis to declare a state of emergency. So far, the governor has refused to do so.

Florida's lakes, rivers, springs and estuaries routinely have some of the nation's worst algae blooms. Along with endangering public health and wildlife, the blooms cost local economies hundreds of millions of dollars.

The blooms stem from nutrient pollution from domestic, industrial and agricultural wastes, and are worsened by climate change and water-management decisions.

The state's Blue Green Algae Task Force has weighed in, recommending the adoption of standards for cyanotoxins.

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members were already aware of the urgency of protecting this valuable and essential industry. That made their decision-making process easier, particularly once federal funds were available to supplement general revenue.

Throughout the fall of 2020 and winter of 2021, the coalition communications with DEP were cordial, productive and intentional to promote a spirit of cooperation.

Coalition industry veterans plan to continue the dialog and make sure that DEP remains aware that we, as professionals volunteering our time through industry associations, are always here to help.

Teamwork has never been more important. The representatives of the ICEA want to emphasize our desire to remain a resource to assist Florida government officials in addressing environmental policy as our beautiful state continues to grow.

On behalf of all ICEA association-appointed leaders, lobbyists, committee volunteers and participants in coalition activities, we extend our gratitude and support to Florida government officials.

Steve Hilfiker is president of Environmental Risk Management Inc. in Fort Myers. He is Environmental Committee chair of the Florida Ground Water Association, a member of Environmental Professionals of Florida and the Technical Committee of the Florida Brownfields Association and the coordinator of ICEA. He can be reached at steve@ermi.net.

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Seabin device collects debris from marinas, nearshore marine waters

By ROY LAUGHLIN

Plastic pollution of the oceans arises from so many different activities that the technology for correcting it has diversified over the past 10 years.

One product for environmental plastic retrieval from marine environments is the Seabin, a floating plastic collector designed to collect floating trash and debris at marinas, and in recreational lakes and other locations.

The Seabin Project was established in 2015 by Australian surfer and ocean-lover Pete Ceglinski who dreamed of having completely plastic-free oceans for future generations.

With that in mind, he quit his day job and created the Seabin, a receptacle capable of capturing up to three and a half pounds of waste a day.

The Seabin works like a swimming pool skimmer, resembling a floating trashcan with an electric impeller beneath it. When the impeller is turned on, it pulls the bin's top lip down into the water, creating a water cascade at surface level.

The water pump may move as much as 25,000 liters of water per hour through the collecting bin. When the impeller is turned off, the Seabin rises above the surface, ensuring that trapped plastics don't float out again.

It retains debris larger than a 1/16th of an inch, including Styrofoam beads, leaves, water bottles and almost anything else floating.

Objects larger and deeper in the water, such as Sargassum or other algae, are less likely to be collected.

A Seabin can also trap fuel and oil with an absorbent pad placed in the bin.

The Seabin can be mounted in a stationary configuration, the one most easily maintained. Alternately, it can be tethered on a line to move in a radius of 150 feet around the electrical outlet that powers it.

It can also be temporarily positioned at locations where it's needed, for example, near a stormwater outfall during the rainy season.

One target application is marinas where a stationary Seabin might be the most practical configuration. Typically, a medium-sized marina could require up to six devices, depending on particular conditions at the marina, according to the company.

Seabins can collect about 40 pounds of debris before filling to capacity.

Where trash is abundant, Seabins need to be emptied twice a day or more. An alternative is to use more of them at a facility such as a marina.

The devices cost about $6,000. According to the project's website, Europe is their primary market, though Seabins have been sold in more than 30 countries.

Florida is among the first places in the U.S. to see extensive Seabin placement.

Maia McGuire, PhD, associate director for extension and education at Florida Sea Grant, heads up an effort to evaluate Seabin trash collectors in Florida.

In mid-April, Marineland Marina in Flagler County installed a Seabin for evaluation. After a month, marina staff reported that the device had captured about 30 pounds of debris.

The majority of the collected material was marsh grass, but the inventory of plastic collected included a large amount of plastic debris, plastic films, plastic bottle caps and cigarette butts.

McGuire said that she's looking for volunteer students who are interested in

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WATCH
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that has produced 500 tons of fish annually over the past 15 years with no effect on adjacent Hawaiian reefs due to poor water quality.

The Sanibel-Captiva Conservation Foundation raised concerns that increases in nitrogen and phosphorus resulting from fish farm operations could increase red tide in the region.

Red tide blooms originate offshore, and currents and waves bring them closer to shore.

Higher nutrient levels nearshore do not often cause blooms, but they do influence their persistence and areal coverage.

The SCCF's position is not one of open opposition to aquaculture plan. But it wants the U.S. Environmental Protection Agency, now conducting a study of the aquaculture effort, to closely evaluate the prospects that the project could increase red tide.

The EPA is responsible for granting an aquaculture permit in Gulf waters beyond the range of Florida's statutory authority.

The agency is expected to issue its report by June 1.

Permitting could occur soon after that, and Ocean Era might need half a year more to situate its net pen and stock it with fish.

Peace River erosion control. The Florida Fish and Wildlife Conservation Commission and the U.S. Fish and Wildlife Service collaboratively completed a pair of high-priority erosion control projects along the Peace River.

In an earlier assessment of 300 miles of the river and its tributaries, ecologists found several areas of eroding banks that were creating critical sedimentation problems.

One was a 450-foot bank just south of Zolfo Springs. In addition, south of Arcadia, investigators flagged a thousand-foot span of eroding riverbank on both sides of the river.

Sedimentation of a streambed by erosion along its banks is a leading cause of habitat destruction in Florida.

FWS attributed the erosion to development within the Peace River's watershed, changes in flow rates and patterns, and the loss of shoreline vegetation.

At both sites along the river, the banks were recontoured using heavy equipment to establish a natural channel.

First, layers of logs and other woody debris were put in place to build out a shore along the eroded shoreline. The logs were covered with sand and soil.

Then the shoreline was covered with coconut fiber, grass seed was sown and hundreds of native plants were planted, stabilizing the new bank and providing a habitat for additional vegetation to grow.

SFWMD online data tool. The South Florida Water Management District has one of the most extensive water quality and water management databases in the country.

Accessing that data, especially by members of the public, just got easier using the district's new DBHydro Insights database tool.

According to the district, the online tool will make it easier to retrieve complex sets of data, and find provisional water quality data and nutrient loading data.

DBHydro "seamlessly" integrates information from several databases to make it available to suit a single user, the district said.

The system includes filters and other tools to narrow the scope of any search.

It uses a map-based interface to find information about sites, stations or structures when a location is known.

The retrievable information includes charts of data and current hydrologic/water quality conditions at any structure within a watershed. The menu on the main page also lists scientific publications and the district's environmental reports.

The opening interface is sparse but populated with links that allow a user to burrow through several layers of web pages hierarchically listing data categories to locate information about water management in South Florida.

The user can direct DBHydro to provide the broadest summary or examine the data entry by entry.

The site is still under construction.

BUDGET

From Page 6

priation is a substantial and continuing erosion of the will of the voters who approved the 2015 Amendment One proposition.

FWC funding

When DeSantis first announced his budget proposal in January, the Florida Fish and Wildlife Conservation Commission was slated for a funding reduction from $418.7 million last year to $386.9 million in 2021-2022.

Proposed reductions occurred throughout their budget: Habitat And Species Conservation was slated to lose $3 million, Law Enforcement to lose $10.7 million, Marine Fisheries Management to lose $16.7 million, and Hunting and Game Management to lose $4.6 million.

FWS' only proposed budgetary bright spot appeared to be a $4.2 million appropriation to "continue supporting the Center for Red Tide Research and to support the Blue-Green Algae Task Force."

But by the end of April, the Legislature approved an FWC budget of $429.5 million budget, restoring most of the governor's proposed reductions and including $8 million for manatee habitat restoration and increased red tide research.

The governor initially submitted a budget totaling $96.6 billion. By early April, the Florida Senate had approved a $95 billion budget, while the Florida House had approved a $97.1 billion budget.

In the weeks leading up to the end of the session, the Legislature added $6.3 billion of federal COVID-19 relief funding to this year's budget and set aside $3.6 billion of that aid for reserves.

The result is a record-setting $101.5 billion budget for the next fiscal year, nearly 11 percent more than last year's state budget.

FEDFILE

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The measures include strengthening the enforcement of violations of cornerstone statutes and civil rights laws in pollution-burdened communities.

In addition, EPA will take immediate and affirmative steps to incorporate environmental justice considerations when assessing the impacts of pollution on underserved and tribal communities.

The agency was also tasked with improving its engagement with pollution-burdened and underserved communities in matters concerning rulemaking, permitting and enforcement decisions and policies.

Lastly, in making grant awards, the EPA will now prioritize direct and indirect benefits to underserved communities to the maximum extent allowed by law.

FDACS rejects Aldicarb application. In January of 2021, the Trump administration's EPA gave Florida citrus growers a parting gift when it approved the insecticide Aldicarb for use on citrus crops.

But in April, the Florida Department of Agriculture and Consumer Services declined to approve AgLogic Chemical LLC's application to register the insecticide.

FDACS rejected the application because the manufacturer did not comply with the Endangered Species Act in its registration submissions.

Related to FDACS' decision is a lawsuit filed on March 3 by the Center for Biological Diversity, the Farmworker Association of Florida and the Environmental Working Group.

The three groups sued the EPA because they said the agency's quick approval in January violated the Federal Insecticide, Fungicide and Rodenticide Act, as well as the ESA.

Orange County to receive federal resiliency assistance. Central Florida's Orange County is one of only four communities selected nationwide to receive technical assistance through the EPA's Building Blocks for Sustainable Communities program.

The program provides tools developed by EPA that provide technical assistance related to resiliency and climate change.

The tools include guidance documents, computer programs and consultations with trained advisors.

The EPA assistance is designed and implemented to be quickly available, closely aligned with specific topics germane to resilience and climate change, and intended to stimulate discussions about implementing sustainable approaches to growth and development.

As post-pandemic growth resumes, Orange County wants to include sustainability goals in its resilience plans for hazard mitigation, climate vulnerability, comprehensive plans and economic development planning.

The effort is expected to result in an action plan that will advise streamlined county-wide implementation and funding strategies for absorbing climate refugees.

Orange and Osceola counties were primary destinations for at least 200,000 U.S. citizens who left Puerto Rico following Hurricane Maria's destructive aftermath in 2016.

Orange County will also increase its community resilience to climate threats, including hurricanes and a climate cycle that provides both too much and too little rainfall.

CDC to study cyanotoxins in South Florida. The U.S. Centers for Disease Control and Prevention launched a new cyanotoxin human health effects study in the areas where Lake Okeechobee surface water is drained.

The study, "Cyanotoxins in Air Study," will investigate cyanotoxin exposure in people who live in the areas around Lake Okeechobee, the St. Lucie and Caloosahatchee rivers and Cape Coral canals.

Human health effect studies of cyanotoxins have persistently vexed public health researchers.

A cyanotoxin symptom is unambiguous in humans who contact the toxin while swimming, boating or otherwise come in contact with water where a bloom has occurred. Exposure to the toxin can result in rashes, upper respiratory irritation, and occasionally tightness of breath due to lung irritation.

Reports from people who live in the area of a cyanobacteria bloom are also frequent.

"Previous research and personal reports show that people exposed to cyanotoxins in the air may experience symptoms of upper respiratory irritation, such as wheezing, coughing, chest tightness or shortness of breath," the CDC said in its announcement of the study.

The agency is currently recruiting volunteers for the study.

If there is a May-October algal bloom, volunteers will be asked to complete a survey about their symptoms, provide nasal swabs and urine specimens, perform an at-home lung function test and provide blood specimens.

The blood specimens will be analyzed to determine changes in liver and kidney function. The CDC will also work with participants to record air quality measurements and time spent outdoors.

CDC said that it would begin enrolling participants when signs of forming cyanobacteria blooms occur.

Funding for beach water quality monitoring to continue. The EPA will provide the Florida Department of Environmental Protection with $470,000 for beach water quality monitoring and public notification this year.

The funding continues to support beach monitoring for fecal indicator bacteria, and maintaining a public notification system to identify local pollution sources.

If contamination at beaches becomes a public health risk, the program posts beach warnings or closing notifications. The data are also reported to the EPA.

Funding is provided through the federal Beaches Environmental Assessment and Coastal Health Act, initially passed in 2000.

In most states, this program is considered a seasonal summer effort. But in Florida, beach monitoring occurs throughout the year.

Environmental Services

FAILURE
From Page 1

open question as to whether additional wastewater was released from Piney Point Creek to Bishops Bay.

From late March until April 9, about 250 million gallons of water from the impoundment was released to the Gulf of Mexico through Port Manatee.

DEP subsequently reported almost 200 million gallons remained in the NGS-South impoundment.

Since April 9, engineers and construction teams temporarily filled the breach in the levee wall, patched the impoundment liner and covered the patch with a metal plate.

Engineers also conducted underwater surveillance with divers and remotely operated cameras to ensure that the patch remained sound and no new ruptures developed.

DEP reported as late as the second week of May that sand was still being used to control the leaking.

Curiously, DEP officials have released no information to the public explaining why or how the breach occurred.

Since its construction in 1966, the Piney Point facility has had a history of failures followed by releases of phosphate ore beneficiation wastewater.

The plant's original owner, Borden Chemical Co., was cited numerous times for releasing phosphate wastewater through Piney Point Creek to Bishop's Bay within its first four years of operation.

In 2001, the state took over site management while its owner, then Mulberry Corp., was in the midst of bankruptcy proceedings.

In June of 2003, rains overfilled the impoundment. The state used barges to transport a reported 250 million gallons of wastewater offshore to dump it.

The state then repaired the leaks to a stable but not reliably long-term condition.

In 2006, HRK Holdings purchased the 700-acre site, including its 300 acres of impoundments through bankruptcy proceedings.

Subsequently, state officials expected HRK to complete renovations to the impoundments and provide appropriate maintenance to ensure structural integrity that would reliably prevent any further uncontrolled discharges.

Florida officials apparently assumed that a private owner with a profit motive would accomplish what the state had failed to do, motivated by its responsibility to protect public health and safety.

In 2011, the gypstack experienced another failure, releasing 170 million gallons of wastewater that eventually found its way through Bishop's Bay to the Gulf.

After that breach, DEP officials began working closely with the Tampa Bay Estuary Program on an intensive water quality monitoring program in and adjacent to Manatee Harbor and offshore between the mouth of Tampa Bay and off Sarasota County.

Beyond the phosphate wastes' mixing zone, nutrient phosphate and nitrogen concentrations have consistently been reported within the range of usual variation.

Three water quality measurements of Piney Point mining wastewater are well above deleterious levels: total phosphorus at 156 mg/L, ammonia at 201.6 mg/L and pH at 4.2.

All samples were taken from water released to a canal leading to Port Manatee. These values are representative of the typical characteristics of the wastewater.

The pH increased from 4.2 to 7.8 as the water moved through the drainage canal to Port Manatee. Mixing rapidly increased the discharge water to pH 8 in Manatee Harbor.

Ammonia behaved like pH. It mixed, was diluted and perhaps was quickly assimilated by phytoplankton and algae. Ammonia at water sampling stations in the Gulf of Mexico did not exhibit persistent high levels.

Orthophosphorus concentrations behaved differently. The water quality of this soluble nutrient phosphorus was above the historic mean level for nine stations in a transect proceeding west and south from the location of the Piney Point discharges during the three weeks during and following the latest discharge.

By the fourth week of April, phosphate measured at all stations had declined and only two samples remained above the historical range of the TBEP dataset.

No fish kills were reported in the daily updates provided by DEP. The effects on other organisms are less certain.

"At this time, we are not aware of any effects to oysters, clams, barnacles, etc.," said Maya Burke, assistant director of the Tampa Bay Estuary Program. "We did collect benthic samples with our partners at the Environmental Protection Commission of Hillsborough County, but those results will not be available for quite some time.

"We've also been working with Angela Collins at Florida Sea Grant to collect tissue samples from some of the commercial aquaculture operations in the vicinity of the spill. To my knowledge, no adverse effects have been reported at this time."

The primary concern now is that the slug of phosphate and ammonia released will lead to harmful algae blooms, especially red tide.

From Hillsborough County south to Lee County, the red tide organism Karenia brevis has been present.

Sporadic fish kills over small areas were reported in April and the first half of May.

The Florida Fish and Wildlife Conservation Commission reported in mid-May that K. brevis was observed at very low concentrations in Pinellas County, very low to medium concentrations offshore of Hillsborough County, and background to low concentrations in both Manatee and Sarasota counties.

The fish kills reported for the week of May 14 were in the Gulf further south of Sarasota County.

The red tide blooms across the broader region are likely not directly linked to the phosphate or nitrogen discharges at Port Manatee.

Environmental monitoring by TBEP began in early April and continued into the second week of May, as this article was prepared.

Long term management plan

DEP's latest management plan has two significant differences from its 2001-2011 plan.

First, the state solicited consultants and environmental technology firms for proposals to provide "innovative treatments" to reduce or remove nutrients from the wastewater so that remaining wastewater levels could be drawn down substantially further.

DEP continued to include this statement in its daily status reports, but has not publicly identified any specific innovative treatment being considered or used.

Instead, the department applied for a permit from Manatee County to drill a disposal well deep into the lower Floridan Aquifer. The permit was quickly approved by the county.

DEP would like to drill the well and begin operations by the end of the year. Such a well would ensure a wastewater disposal route independent of discharge to surface waters.

In early April, Gov. Ron DeSantis vowed to close the site completely, including removing all or most of the gypsum and any remaining phosphate and radioactive substances that remain trapped within the gypsum.

As early as mid-April, DeSantis announced that he was administratively redirecting $15.4 million of DEP's budget to pay for pretreatment to remove nutrients in Piney Point wastewater.

The funding will also support plans to "mothball" the site, a term the governor used at a news conference on April 13. The term was widely interpreted to mean razing the Piney Point gypstack and storage lagoons to permanently end the possibility of further phosphate wastewater discharges.

The Florida Legislature was in session when DeSantis declared the state of emer-

FAILURE
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Suit filed to protect wetlands under "right to clean water" amendment

By BLANCHE HARDY, PG

Speak Up Wekiva President Chuck O'Neal recently filed a complaint against the developer of Beachline South Residential LLC and Florida Department of Environmental Protection Secretary Noah Valenstein in Circuit Court of the Ninth Judicial Circuit in Orange County.

The suit was filed in an effort to stop a proposed mixed-use residential and commercial project.

O'Neil filed suit on behalf of Speak Up Wekiva, himself, Wilde Cypress Branch, Boggy Branch, Crosby Island Marsh, Lake Hart, Lake Mary Jane and all other affected Orange County waters.

The decision, if favorable to the plaintiffs, could change the way future developments proceed in Orange County.

The proposed 1,923-acre Meridian Parks Remainder project is in eastern Orange County, south of State Road 528 and east of State Road 417.

The developer applied to the U.S. Army Corps of Engineers and then DEP for a dredge and fill permit authorizing the filling of 115 acres of wetlands within the project's footprint.

O'Neil filed the complaint under the terms of the Orange County Charter Section 704.1 – Right to Clean Water, Standing and Enforcement amendment granting named rivers and all other waters with the county's boundaries a right to exist, flow and be protected against pollution to maintain a healthy ecosystem.

The amendment granted Orange County citizens the right to sue in court to protect waters of the county against pollution without requiring demonstration of personal harm.

"On matters of water pollution, the charter trumps ordinances passed by cities and towns within the county," O'Neal said, "Even though the city of Orlando annexed the subject property, Orange County's charter prevails in matters of water pollution."

State laws preempting local jurisdiction control of natural systems are likely to come into play in this case.

> "If mankind is to achieve a sustainable existence on this planet, it must achieve a realistic balance between nature and commerce that ensures nature exists, thrives and evolves."
>
> *Speak Up Wekiva President Chuck O'Neal*

DEP Sec. Valenstein was enjoined in the suit to prevent him from issuing the requested Meridian Parks Remainder dredge and fill permit under Section 404 of the federal Clean Water Act.

The suit also seeks a declaration from the secretary stating that Orange County Charter Section 704.1 will be applied before issuing any wetlands dredge and fill permits.

As an Orange County resident and an advocate for the preservation of environmentally sensitive lands, O'Neal believes that systems beyond the plaintiff waters are threatened by development of the Meridian Park Remainder property.

"Hydrologically, the ecosystems of Wilde Cypress Branch and Boggy Branch serve to filter and convey water from Wilde Cypress Swamp to Crosby Island Marsh that feeds into both Lake Hart and Lake Mary Jane," he said. "The water from these lakes drains via canal into the Kissimmee River and ends up in Lake Okeechobee.

"Unlike Las Vegas, what happens in Orlando doesn't stay in Orlando. Our actions here impact the entire state."

According to the complaint, the proposed development violates the right to exist of the Crosby Island Marsh, Lake Hart and Lake Mary Jane by cutting off and/or restricting sufficient flow of clean water into these waters, therefore violating the right of the plaintiff water bodies to flow naturally from Wilde Cypress Swamp and Boggy Branch on the north to Crosby Island Marsh and from Lake Hart and Lake Mary Jane to the south, subsequently obstructing flow southward into the Kissimmee River.

The suit also contended that the Meridian Parks Remainder project application violated the rights of Orange County waterways to be protected against pollution by filling in wetlands to build stormwater ponds near the plaintiff waters.

The suit noted that the combined impact of runoff from rooftops and roadways will cause pollution that will progress downstream through the plaintiff water systems into the Kissimmee River, Lake Okeechobee, the St. Lucie Estuary and the Caloosahatchee River.

"Our ecosystems are being systematically degraded and destroyed under the legal fiction that corporations are people and nature is property." O'Neal said.

"If mankind is to achieve a sustainable existence on this planet, it must achieve a realistic balance between nature and commerce that ensures nature exists, thrives and evolves.

"We hope that future generations will see lawsuits filed on behalf of ecosystems as commonplace and not an aberration."

FAILURE

From Page 14

gency in early April and local authorities ordered evacuations.

The Legislature immediately added a $3 million state appropriation to cover initial cleanup and environmental stewardship work at Piney Point.

By the end of the session, lawmakers had upped that appropriation to $100 million, rolling it into a $1 billion state emergency fund from dollars in the federal COVID-19 assistance grant.

Potentially $200 million could be available over multiple years to close Piney Point's abandoned facility.

Responsibility

DEP officials and the governor's office have only languidly mentioned seeking responsible party financial support from HRK to help pay for the damages, cleanup and potential mothballing.

An April 13 DEP news release noted that the governor had directed DEP to take any and all legal actions to "ensure HRK and any other actors are held fully accountable."

Florida taxpayers will likely be on the hook for the Piney Point facility for a while, and it will not come cheap. In 2001-2006, Florida spent $144 million for its efforts to protect the public interest from the site's contamination threat.

When the liner breached in 2011, HRK declared bankruptcy. In the prolonged bankruptcy process, HRK sold off the most valuable parcels, including several acres of property containing a chemical manufacturing facility.

Since then, HRK has reportedly depended on a line of credit from Regions Bank. But in the past year, the bank sued for foreclosure on the property based on the performance of HRK's loans.

Neighboring property owners have filed lawsuits against HRK seeking damages for economic losses and emotional pain due to of the conditions that caused the evacuation order.

The Pensacola personal injury law firm of Levin Papantonio Rafferty filed the first suit in early April on behalf of one resident. The firm expects to recruit additional lawsuit participants.

For its part, HRK has been unusually quiet since DEP's involvement expanded during the last week of March. The company's Piney Point website has not been updated to include the usual conciliatory messages to surrounding residents.

WAR

From Page 1

The court disagreed with portions of the Special Master's findings and directed the Special Master to make definitive findings and recommendations on several issues.

Among the issues remanded to the Special Master was determining "whether Florida had proved any serious injury caused by Georgia; determining the extent to which reducing Georgia's water consumption would increase Apalachicola River flows; and the extent to which any increased Apalachicola flows would redress Florida's injuries."

The Special Master recommended denial for Florida's claims, concluding that "Florida failed to prove by clear and convincing evidence that Georgia's alleged overconsumption caused serious harm either to Florida's oyster fisheries or to its river wildlife and plant life."

Florida's exceptions to the Special Master's Report were overruled, and the case has now been dismissed.

The Supreme Court found that Florida had not proved, by clear and convincing evidence, that the collapse of oyster fisheries in Apalachicola Bay was caused by overconsumption in Georgia.

Florida had alleged that Georgia's "unreasonable" agricultural water consumption reduced river flows and resulted in increased salinity within the bay.

The higher salinity concentrations were blamed for attracting saltwater oyster predators and disease, further decimating the oyster population.

Among the arguments against Florida's allegation is Georgia's assertion that the collapse of the oyster population occurred in conjunction with a severe drought in 2012.

Georgia alleged that Florida's mismanagement of its fisheries—not reduced river flows—led to the decline.

Records and witness testimony indicate Florida allowed unprecedented levels of oyster harvesting in the years leading up to the fishery collapse.

Other nonconsumption-related considerations included actions taken by the U.S. Army Corps of Engineers, multi-year droughts and changing rainfall patterns.

The exact cause of the collapse of Florida's oyster fisheries has not been determined and remains a topic of debate.

There is no question that increased salinity in the bay and increased predation were significant contributing factors.

But the court ruled that Georgia's consumption had, in essence, not caused the increased salinity and predation.

The unanimous court decision written by Justice Amy Coney Barrett stated that "Florida has not met the exacting standard necessary to warrant the exercise of this Court's extraordinary authority to control the conduct of a coequal sovereign."

Barrett emphasized that Georgia has an obligation to make reasonable use of basin waters in order to help conserve that increasingly scarce resource.

"But in light of the record before us, we must overrule Florida's exceptions to the Special Master's Report and dismiss the case," she wrote. "It is so ordered."

SEABIN

From Page 12

documenting a detailed inventory and analysis of the debris as the Marineland Marina pilot project proceeds.

McGuire said that Florida Sea Grant just obtained another grant to purchase a second Seabin.

"We are offering them on indefinite loan to Florida Clean Marinas that are willing to install and maintain them, as well as providing data about the weight of debris collected," she explained.

In Florida, Seabins are part of a larger concept about the most effective way to reduce plastics in the ocean.

NOTES

From Page 3

coordinate and prioritize scientific data, research, monitoring and analysis needs to ensure alignment with current and emerging environmental concerns most pressing to Floridians.

The CSO will lead the Office of Environmental Accountability and Transparency, also established by Executive Order 19-12.

The office coordinates agency resources including scientific expertise, data and research to solve complex challenges. The office will help to ensure that key water quality objectives are clearly communicated to the public.

OEAT was instrumental in developing the Protecting Florida Together website, the state's online resource that provides public access to a comprehensive multi-agency dashboard for water quality data and initiatives.

OEAT also created an education center that allows Floridians to sign up for blue-green algae and red tide email notifications.

More people news. Miami-Dade County Mayor Daniella Levine Cava recently announced the appointment of Roy Coley as the new director of the county's Water and Sewer Department.

WASD is the largest water and sewer utility in the Southeast U.S., serving nearly 2.3 million residents and thousands of visitors annually.

Coley noted that he was attracted to the job by the opportunity to work toward the mayor's goal of being a leader in the "one water approach" to conserving and reusing water.

David Vanlandingham, PE, was named as the new director of Broward County's Environmental Engineering Division.

The division houses the county's regulatory framework for surface water, wetland, tree, wastewater, contamination cleanup, brownfield redevelopment and waste regulation programs. After a recent reorganization, the division now includes the hazardous material licensing and storage tank compliance assistance programs.

With over 25 years of experience in environmental cleanup and waste regulation, Vanlandingham will seek to strengthen the county's regulatory programs with an emphasis on smart and sustainable growth, while furthering its reputation as one of the premier environmental agencies in the state.

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