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Photo courtesy of David Pyne

For Florida water and wastewater utilities, the door is again open for cost savings through efficient use of existing facilities to meet projected water needs, supplemented by seasonal water storage underground. The aquifer storage recovery well shown above is located at the Orange County Utilities Eastern Water Reclamation Facility. The photo was taken in 2010 following completion of construction. See Page 10 for David Pyne's column on the status of the technology in Florida.

Contaminated Soils Forum reconvenes to address soil cleanup issues

By ROY LAUGHLIN

In mid-November, the Florida Department of Environmental Protection conducted its inaugural meeting in Tallahassee to formally reestablish the Contaminated Soils Forum.

The forum is intended to foster scientific and technical discussion between regulators and technical professionals.

Discussions, at least initially, will focus on soil contamination topics and how to incorporate expert consensus into risk-based standards and procedural rules formulated by DEP, and perhaps other state agencies, for remediation of soil and protection of groundwater resources.

As was the case with the original CSF, DEP will be the home base for the forum and will maintain the forum's web page.

But other state agencies will be involved this time around, according to Brian Dougherty, environmental administrator in DEP's Bureau of Waste Cleanup in Tallahassee.

He said that the intention is to involve staff members in other state agencies, as well as consultants, academics and other professionals involved with risk assessment and soil contamination issues.

Reestablishment was not entirely spontaneous. Richard Lewis, PhD, PE, principal engineer with Conestoga-Rovers & Associates in Fort Myers, who was active in the previous CSF, has been pushing to reconvene the group for the past several months.

Lewis and Dougherty said that several changes have occurred in the past year within state government that reinforced the opinion that the forum concept might again be useful.

The most significant change sparking the reestablishment of the forum was consolidation of the state's various cleanup programs under a single rule, Chapter 62.780 of the Florida Administrative Code.

The effort to revive the forum has been bipartisan so far. Participants in the first meeting included Florida agency staffers and environmental professionals outside of government and regulatory agencies.

The eight-year interval between establishment of Florida's first risk-based remediation criteria and last year's program reorganization was another motivating factor in reestablishing the forum.

Dougherty said Florida established its first risk-based criteria rules in 2005. This was several years after the U.S. Environmental Protection Agency, in particular, began advocating risk-based strategies.

Dougherty said that forum discussion will be based on the situation.

"Now that we know more from practical experience, some (of the provisions of the 2005 rule) work the way we thought they would. But some don't," said Dougherty. "It's a different world (now)."

FORUM
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Industry pushes for increased support for state drycleaning program

By PRAKASH GANDHI

More money is desperately needed to cleanup contaminated drycleaning sites around the state to prevent serious harm to human health and the environment.

That's the view of lobbyists who are urging state lawmakers to earmark more money for the state cleanup program during this spring's legislative session.

"Cleaning up these sites is far too important to be put on the back burner," said Phil Leary, a lobbyist for the Florida Ground Water Association and the Florida Association of Professional Geologists.

Funding for the drycleaning cleanup program was reduced from $10 million during its initial years to roughly half of that more recently.

In 1994, the Florida Legislature established the Drycleaning Solvent Cleanup Program to fund cleanup of the soil and groundwater at sites contaminated by perchloroethylene—the solvent used to clean garments.

State officials said that 139 sites have been cleaned up to date. Another 1,284 are eligible under the program and work is underway now at 192 sites.

The legislature provided only $5.5 million for the program in fiscal year 2013-14.

"At the current pace, it will take 100

DRYCLEANERS
Continued on Page 16

U.S. methane emissions 50 percent higher than previously estimated

Staff report

A new study says that in 2008, the U.S. released 49 million tons of methane to the atmosphere.

That updated estimate is significantly higher than the U.S. Environmental Protection Agency's estimate of 32 million tons or the 29 million tons tallied by the European Commission for the same year.

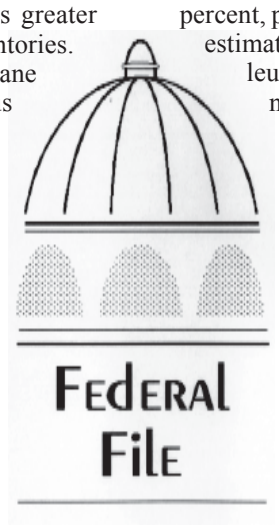
The researchers analyzed data obtained from atmospheric methane observations, existing geographically based data and atmospheric transport modeling.

The higher methane emission tally is primarily attributed to two sources in the South-Central U.S.—animal husbandry operations and petroleum refineries.

Increased extraction of methane and low molecular weight petroleum compounds by hydraulic fracturing and the extensive refinery capacity in Texas are the sources of refinery-derived methane. Methane from these extraction and refining facilities account for 45 (plus or minus 13) percent of the methane emissions in the South-Central U.S.

Methane from animal husbandry has most commonly been attributed to gastric methane production by symbiotic microbes in ruminants. This report suggests that the increasing use of manure lagoons, which create remarkably effective fermenters, is a more significant source of methane emissions than the ruminants themselves.

Regardless of the source of methane in animal husbandry, the report says that it is approximately 2.7 times greater than attributed in other inventories. These animal husbandry methane omissions account for 24 (plus or minus 3) percent of U.S. methane emissions to the atmosphere.



In a broad overview, Texas, Oklahoma and Kansas are responsible for 25 percent of the country's methane emissions to the atmosphere.

The significance of this report is evident in comparing it to other widely cited and periodically updated inventories. The data reported by these researchers is 4.9 (plus or minus 2.6) times greater than reported in the United Nation's Emissions Database for Global Atmospheric Research, which the report's authors characterize as "the most comprehensive global methane inventory."

It is also at odds with EPA's most recent annual review of greenhouse gas emissions.

The EPA reduced its estimate of methane emissions to the atmosphere by 25-30 percent, primarily because it reduced its estimate of contributions from petroleum extraction and refining. The newest recalculation challenges the validity of EPA's action.

Atmospheric methane is a problematic player in climate change assessment because it is about 20 times more effective as a heat trapping gas than CO2. Unlike CO2, however, is not nearly as persistent.

Accurately characterizing its concentration and contributions to global warming is important in establishing laws that regulate greenhouse gas emissions in order to reduce global warming.

If the report's findings stand up to expert scrutiny, expect annual emissions estimates by the EPA and EDGAR to change significantly in the next iteration of reports.

The report, "Anthropogenic Emissions of Methane in the United States," is available at www.pnas.org.

Water quality trading partnership. The EPA and the U.S. Department of Agriculture are collaborating to implement water quality credit trading.

Initially, both will identify opportunities that will allow water trading programs, a characterization that means "trading pollution credits." But that explicit term is used only sparingly in the EPA's announcement.

Together, the two agencies will initiate both policies and procedures through cooperative management and technical assistance, according to the agency press release.

The program involves the following components: communications and outreach to states, agricultural producers and regulated sources to characterize water quality trading; competent review of grants, loans or technical assistance programs engaged in water quality trading; sharing information on the development of rules and guidance that will affect water quality trading; and collaboration with states and credit providers that will guide decision-making, control costs, improve environmental performance, and ensure consistency and integrity throughout the program.

Scheduled for rollout in 2015, the program's first workshop will debut tools and resources, and propose opportunities for water quality credits.

According to the EPA's characterization of water quality trading, it is best suited to a watershed where different permittees face markedly different costs for reducing the same pollutant in their effluent.

Water quality trading is most feasible where not all emission producers are required to reduce contaminants to the maximum possible extent, leaving some room for those with higher thresholds to reduce sufficiently below those thresholds to earn credits that can be traded.

The EPA sees water quality trading as a cost-effective way for regulated entities under the Clean Water Act to meet regulatory requirements.

The EPA's announcement specifically characterized trading within a watershed. In its first announcement, they did not commit themselves to buying or selling credits.

"The purpose of this policy is to support states, interstate agencies and tribes as they develop and implement water quality trading programs for nutrients, sediments and other pollutants where opportunities exist to achieve water quality improvements at reduced costs," according to the release.

Pollution credits and water quality trading are not new to EPA, but a collaboration with the USDA is a new effort by both agencies.

It will be a couple of years before water quality trading is fully operational.

Federal funds for solar power. Go SOLAR–Florida will receive $1.6 million from the U.S. Department of Energy in a competitive award process, the SunShot Initiative Rooftop Solar Challenge II.

The DOE provides the award to foster the increasing use of and access to solar energy in Florida.

The funding will be used to improve the solar permitting process, finance solar energy options, market solar photovoltaic and solar rights, demonstrate the value of clean energy development and its related jobs, model benefits of intergovernmental cooperation, and collaborate to develop a statewide standard for connecting solar systems to the electric grid.

The organization will conduct a second Go SOLAR Fest on June 6–7, 2014, at the Greater Fort Lauderdale/Broward County Convention Center in Fort Lauderdale.

A third SOLAR Fest is planned for 2015.

Go SOLAR–Florida is a collaboration of Alachua, Broward, Miami-Dade, Monroe, Orange and St. Lucie counties, nine Broward County municipalities and the city of Venice in Sarasota County.

The Florida Solar Energy Center in Cocoa and the Florida Atlantic University are also members. The geographically extensive membership serves approximately four million Floridians.

Greener guidelines for federal purchases. The EPA is proposing draft guidelines that will help the federal government—the world's largest single purchaser—to select greener and safer products.

According to an EPA spokesperson, the draft guidelines are an attempt to help the federal government meet its existing goal of 95 percent sustainable purchases. In addition, new guidelines will also influence customers in the private sector to use and expect safer, greener products.

The draft guidelines are a joint effort by the EPA, the General Services Administration and other federal agencies.

To develop the proposed rules, the EPA held several listening sessions to obtain ideas on how federal government purchases could foster sustainability and meet

FEDFILE

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Contaminated rock to be removed from Biscayne Landing development

Staff report

The North Miami City Council has decided that 194,000 cubic yards of contaminated crushed rock placed at the Biscayne Landing development site must be removed.

The council voted to require developer Oleta Partners to dispose of the fill material that contains high levels of aluminum that exceed Miami-Dade County environmental standards.

The cost to remove the material could reach into the millions of dollars as the developers would have to send the waste to a landfill that accepts contaminated materials.

The developers bought the construction material for about $1.7 million from a subcontractor at the Brickell City Centre construction site.

Oleta Partners planned to use the material to fill lakes at the development site.

Oleta also requested an exception from another county agency, the Environmental Quality Control Board, to use the material regardless of the levels of aluminum. That board approved its use.

Manatee County consolidation. The Manatee County Natural Resources Department will merge with the Parks and Recreation Department. County officials expect to save about $250,000 annually from the consolidation.

The building that housed the Department of Natural Resources' Environmental Protection Division is expected to be vacated as part of the merger.

The combined parks and natural resources department will be overseen by long-time Natural Resources Director Charlie Hunsicker.

DeLand developments. Developers of the former DeLand County Club are working with the Florida Department of Environmental Protection to clean up dieldrin contamination on site.

Dieldrin is an extremely persistent organic pollutant that does not easily break down.

The chemical was used on the golf course decades ago, before it was found to be toxic and banned in the 1980s. In 2011, contamination was discovered in the soil and groundwater of several neighborhoods near the golf course.

Officials with the developers said preliminary testing showed that contamination on the site will be manageable. The site must still undergo more testing and engineering before cleanup and construction can begin.

Meanwhile, city commissioners have passed a resolution designating a brownfield district on property near the former country club.

Tailwinds Development has received final approval to redevelop the former golf course into a mixed-use development that could feature up to 237 homes, 120,000 square feet of new retail space, 20,000 square feet of office space and a 120-bed assisted living facility.

The brownfield designation will allow the developers to work with DEP to clean up the property, with the help of state grants and other forms of assistance.

Commissioners had previously designated the main portion of the golf course as a brownfield but the city later annexed several parcels of nearby land slated to be included in the project, which could break ground some time in 2014.

Landfill gas power plant sold. Lime Energy Co. has sold its 2.8-megawatt landfill gas power plant at the Charlotte County Landfill to Green Gas Americas Inc.

Lime divested several business lines recently to focus on its core business of designing and implementing energy-efficient programs for utilities to provide to small and mid-sized businesses.

The company decided to divest some of its operations after discovering in July 2012 that it had misreported large amounts of revenue in its financial statements over several years.

The problem made it difficult for the firm to raise capital for many of its operations, so it closed some businesses and sold others off.

The project won the U.S. Environmental Protection Agency's Landfill Methane Outreach Programs' Landfill Project of the Year for 2011.

Florida Notes

Power plant conversion delayed. An effort to switch from coal to natural gas fuel at Lakeland Electric's largest power-generating unit has been delayed.

A recent drop in coal costs has allowed the utility to put off its plans to convert the 365-megawatt coal-burning unit to natural gas.

In the past year, the utility has saved $7 million by switching to Illinois Basin coal from Central Appalachian coal.

The coal releases high amounts of sulfur and produces more ash, but the utility uses a spray process provided by General Electric to minimize emissions.

Changes to the unit would require modifications to the boiler that would allow the city to burn either coal or natural gas.

New regulations from the EPA are looming that limit the emission of mercury and other pollutants. The utility has budgeted $2 million to comply with the upcoming mercury standards.

The EPA is also expected to propose new guidelines for existing coal-burning units in about eight months. Guidelines will be finalized and states will have about a year to adhere to the new rules.

Pinellas erosion control. Construction will start on the Pinellas County beach erosion control project in January

A portion of the work is in response to impacts from Tropical Storm Debby's passage in 2012 and is federally funded under the Flood Control and Coastal Emergency program.

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City of Bonita Springs creates council to study water quality problems

Staff report

After a contentious public hearing last month where hundreds of East Bonita residents called for the Bonita Springs City Council to study potential water problems before allowing any more homes in the area, the council voted to create a seven-member, council-appointed task force to study the situation.

City council voted 7-0 for a one-year moratorium to give the city more time to examine flow ways, floodways, aquifers, stormwater and watershed management, wellfield protection, septic tanks and other water-related issues in northeastern Bonita Springs before approving any future development in the area.

Lake Hamilton water contaminants. Faced with the discovery of a high level of carcinogenic contaminants in the town's drinking water supply, Lake Hamilton town officials created a plan to combat the problem by flushing the water lines more often.

The installation of 12 automatic flush valves will keep the water fresher by moving it through the lines quicker, giving carcinogenic trihalomethanes less time to form.

Trihalomenthanes are formed when the added disinfectant chlorine interacts with organic matter like decaying vegetation, which does not typically occur in groundwater withdrawn from the aquifer for use as drinking water.

THE WATER WATCH

St. Augustine pipeline. A long-awaited sewer pipeline extension into West Augustine will finally begin with a $1.5 million, three-part installation of force mains at West King and North Volusia streets and a gravity sewer line at Duval and 5th Street.

The total estimated cost of the project is $23.5 million and will be funded by the Florida Department of Environmental Protection, federal agencies, Duval County and the city.

Finding the money to build the pipeline extension has been a problem for the area for the past decade.

The West Augustine pipeline is considered to be the seed of economic growth because businesses won't build in the area until it's completed.

SFWMD Everglades protection plan wins award. The South Florida Water Management District was presented with the 2013 Growing Blue Award during an awards ceremony at the American Water Summit in Washington, DC, for its plan to better distribute water throughout South Florida, including the Everglades.

During the ceremony, SFWMD presented an overview of its plan, developed in partnership with the U.S. Army Corps of Engineers, as part of the Central Everglades Planning Program.

SFWMD won the award through a competitive, live vote of its peers at the summit, an annual meeting of leaders in the water industry from both the public and private sectors.

New Swiftmud board member. Michael A. Moran was appointed to the Southwest Florida Water Management District's Governing Board. Moran filled a vacant seat representing Charlotte and Sarasota counties.

Moran is president of Insurance & Benefits Consultants. His appointment is for a term beginning Dec. 5, 2013 and ending March 1, 2015.

The appointment is subject to confirmation by the Florida Senate.

Wastewater expansion expected to spur Deltona economic development

By BLANCHE HARDY, PG

The city of Deltona has begun construction on the long-anticipated Deltona Water Reclamation Facility on 11th Avenue, off State Road 415 at the eastern edge of the city.

The $24-million, 52-acre project will expand the city's existing wastewater treatment capacity and service sewer flows for expanded economic development within the State Road 415 corridor.

The Deltona City Commission approved the project on Sept. 3, 2013, awarding the facility construction contract to Jacksonville-based WPC Industrial Contractors LLC.

The plant is scheduled to be completed in mid-2015 and is part of a larger plan to open up Deltona's eastern border to new economic development.

"The city has a lot of roof tops and residents, but struggles in the economic development realm," said Wendy Jackson, Deltona's public information specialist. "The SR 415 corridor is a prime development area that the city didn't have the capacity to pursue (before this wastewater system expansion)."

The city and Volusia County are working under a joint planning agreement to develop the corridor. The water reclamation facility is vital to the success of their efforts.

The infrastructure improvements are intended to support planned intensive retail, office, and light industrial and technical facilities. Established residential properties may be connected where requested.

There are no plans to force homeowners currently on septic tanks to connect to the municipal system at the moment, but more aggressive regulation of septic systems is a frequent topic at the state level.

"There are a lot of septic tanks that will likely be disallowed in the future," Jackson said. "The city is working to assure there is capacity within its treatment system to allow residents to connect before that is required."

The plant will provide the city with the opportunity to increase wastewater processing capacity from approximately one million gallons per day to 4.5 mgd.

"Half of the wastewater currently being treated in the city's existing Fisher Plant, which is near capacity, will go to the new plant," said Jackson. "The city has a lot of projects ongoing to connect all the systems."

Deltona has also been laying associated service lines in conjunction with the widening of SR 415 from two to four lanes. Wastewater conveyance line installation is ongoing between Doyle Road to Howland Boulevard in anticipation of construction of the reclamation facility.

Beyond assistance from the county, Jackson pointed to funding assistance provided by the St. Johns River Water Management District. The water management district and the city are cooperating on the construction of a million gallon reclaimed water holding tank and pump station, as well as projects to interconnect services and conveyances between Volusia's western communities.

Volusia County provides services to city residents in the northernmost portions of Deltona.

Deltona has been diligent in securing favorable funding for the project including securing a low interest loan from the state's revolving fund and working with local legislators to obtain a $500,000 grant from the state.

The city is also considering supplying construction and similar materials, equipment and parts themselves through direct purchase with manufacturers.

Preliminary estimates indicate greater than $550,000 may be saved using this direct purchase approach.

Vero Beach biofuel plant up and running

Staff report

Ethanol fuel is now being produced at the Indian River BioEnergy Center, site of the former Ocean Spray Cranberries Inc. plant in Vero Beach.

County Commission Chairman Peter O'Bryan said the plant created 250 construction jobs and 50 full-time positions.

"The plant also created optimism for the county and (brought) public attention to us," he said.

The facility is operated by INEOS Bio and New Planet Energy as a joint venture. It began producing cellulosic ethanol in enough quantity to begin shipping product in August.

INEOS claims that this is the first com-

BIOFUEL

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Project seeks answers to Indian River Lagoon pollution problems

By DAN MILLOTT

Florida Institute of Technology Professor Kevin Johnson has been seeking answers to why copepods will graze in one area of the Indian River Lagoon, removing algae blooms, but shy away from another.

Officials with the St. Johns River Water Management District took steps this past spring to find answers to such questions when they formed the Indian River Lagoon Protection Initiative that set up a framework that made Johnson's work a natural avenue for finding ways to help a recovery of the lagoon and river.

William Tredik, PE, a senior professional engineer at the water management district and head of the initiative team, said the first signs of serious trouble started in 2011 when the first super bloom appeared.

In 2012, a second type of super bloom was discovered followed by a still different variety in 2013.

"We are now doing an investigation to better understand what led to these conditions in a system dominated by nutrients and how these blooms have prospered," Tredik said. "There is a lot of information we have and there is a lot we don't have."

Enter the ongoing work of Johnson along with his students. Because the research effort is time-consuming and intensive, some financial help was needed to accelerate the work.

So the water management district signed a $250,000 contract with Johnson to fast-track his research.

The contract is for three years and Johnson will be concentrating on the Brevard County portions of the Indian River. That work will cover the Banana River, the Indian River Lagoon and Mosquito Lagoon.

"We will be looking at the impact of nutrients from fertilizers, pesticides, runoff, sewers and septic tanks—and how they contribute to the problem," he said.

The bottom of the lagoon has a buildup of muck from all sources. "That's where it starts," he said. "But on the other side of the blooms, there are tiny iconic microscopic grazers who feed off the algae."

They are called copepods and Johnson explained them in simple terms: "Copepods are grazers on single-celled microalgae, like cows are grazers on grass."

The life of the copepods is pretty simple. "They are very important in oceans, coasts, lakes and estuaries because they help to keep the algae blooms in check. As the algae come up, the copepods graze them down," he said.

The unanswered question, one that Johnson and the district are seeking, is why the grazers have not been attacking the super blooms. Because they are not, the recent super bloom arrivals have gone unchecked.

Johnson said there are some possibilities as to why they don't want to graze on the current lineup of super blooms.

"Maybe the super bloom species are ones the grazers are not equipped to handle," he said. "Or maybe they just don't like the taste."

The first step in the study is to identify the potential grazer, their abundance and what they eat.

In their sampling of Indian River waters, they will identify the critters and find out what they eat and what they don't eat.

"The contract will permit us to sample multiple locations every two weeks," he said. "We gather two dozen samples at a time. That doesn't sound like a lot, but they have to be sorted and counted under a microscope and that takes many hours."

Tredik said this particular project will review some the bigger problems.

"The hope is to make all these pieces fit together so we will better understand what happened and make the right choices for the future so it won't happen again," he said.

ECUA plans to convert waste to energy at water reclamation plant

By SUSAN TELFORD

The Emerald Coast Utilities Authority issued a request for qualifications to construct a facility at its Cantonment Water Reclamation Facility that will turn waste into energy.

The primary objective described in the RFQ is to squeeze energy from the 85 wet tons of sewage sludge produced by the Cantonment plant daily.

The project's goal is to turn the sludge into fuel to produce steam or biogas, which could then be used to provide electricity to power the facility.

Authority officials characterized the project as a good deal for both the environment and ratepayers.

According to ECUA Executive Director Steve Sorrell, the plant could save ratepayers up to $1 million annually.

Part of the savings will result from a reduction of the $2 million in tipping fees that ECUA currently pays to Escambia County for trash hauled to the county landfill.

But county officials fear that the loss of revenue from the fees could force the landfill to be shut down—at a very high price.

"We really want to see what alternatives are available," said Sorrell in a news release.

He said that ECUA would like to find a way to convert the unprocessed sludge directly into energy using yard waste, sewage, fats, oils and greases, and refuse-derived fuel.

The fuel would then be used to drive industrial processes at the plant, fuel the ECUA's fleet of vehicles, or be sold back to Gulf Power Co.

Escambia County also plans to build a waste-to-energy plant and recently signed a 15-year contract with Southern Waste Recovery to construct the facility.

Construction has not yet begun and was contingent on finding a market for the facility's fuel.

Throughout the past year, the county and ECUA have been at odds over the authority's decision to convert solid waste collected in Escambia County into derived fuel.

County officials have threatened to sue the utilities authority for breaching the county's flow control ordinance.

County officials also question the project's viability and the implications it will have on the county-owned Perdido Landfill.

Another issue the ECUA will have to contend with is a county ordinance that was passed into law in 2007, mandating that all trash collected in the county, except recyclables, be hauled to the county-owned landfill.

BIOFUEL

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mercial-scale production in the world using the company's gasification and fermentation technology for conversion of biomass waste into bioethanol and renewable energy.

In simple terms, by using natural occurring bacteria, the process converts gases from biomass into ethanol.

The Indian River plant is the first ethanol production operation in Florida.

Based on consumption reports, 800 million gallons are purchased annually in the state. Currently all the ethanol used in Florida is produced outside the state.

The Renewable Fuels Association, a Washington-based trade group, reported that 99 percent of ethanol produced is derived from grain starch. The group said there are 204 ethanol plants in the U.S. producing 800 million gallons annually.

Momentum growing for funding of statewide water-related projects

By PRAKASH GANDHI

State lawmakers must take a statewide approach to solving Florida's water problems rather than adopting "parochial" attitudes, according to one of the state's top elected officials.

Rep. Steve Crisafulli, R-Merritt Island, wants lawmakers to work to solve water issues affecting the agricultural industry and problems facing Florida's freshwater springs, the Apalachicola River region in Florida's Panhandle and the northern Indian River Lagoon.

Crisafulli said he wants a premium placed on water issues that benefit the entire state. His action-oriented focus will be on getting tangible projects underway rather than instituting new policies.

In a recent newspaper column, Crisafulli wrote that water policy is often either overlooked or tackled "in a parochial manner."

Neither approach, he said, is right. "To ignore the growing demand for and the quality of our supply leaves our state incredibly vulnerable," Crisafulli wrote. "Focusing on one community at a time in a piecemeal approach can lead to new problems in another down the road."

He wrote that there is a need to guard against "tunnel vision" and "focusing exclusively on one problem to the detriment of others."

"As we deliberate on water issues, we must do so through the lens of a comprehensive statewide approach to protect the long-term health of Florida's water ecosystems," he wrote.

Eric Draper, executive director of Audubon of Florida, said he is encouraged that the state's elected officials want to focus so much on water issues during this year's legislative session.

"We have a confluence of people concerned about the estuaries and springs," he said. "I think there is enough of a public outcry about springs and estuaries that it's reasonable to expect the Legislature will do something this year.

"We are hoping that we will see some regulatory improvements, particularly dealing with sources of pollution," he said. "We also want to see the water management districts get additional authority for recovery strategies for minimum flows and levels."

Draper said he would like to see a stronger emphasis placed on water conservation when water withdrawal permits are being considered.

"There has to be a stronger relationship between environmental compliance and permits both for agricultural and the public water supply," he said.

More than $10 million was budgeted for freshwater springs in the 2013 and more is expected to be budgeted this year.

The Florida Department of Environmental Protection has included in its budget proposals $75 million for Everglades restoration efforts, $40 million for environmental land acquisition and $15 million for springs restoration.

FORUM

From Page 1

The forum will provide practitioners and regulators with an opportunity to discuss semi-formally how procedures and rules can be made more effective moving forward.

Forum organizers drew up a list of eight topics for discussion at the first meeting in November, including: soil–direct exposure; background contaminant levels; exposure scenarios; toxicity values and other CTL revisions; development of revisions of selected guidance; institutional controls; surface water; and brownfields.

To facilitate consideration of this broad range of topics and focus it with respect to aspects of professional practice, four discussion groups were organized within the forum to address related topics.

The four discussion groups include: direct exposure, institutional or engineering controls and leachability; determination of background and associated regulatory issues; Chapter 62.777, FAC / CTL information about toxicity and other parameters; and ecological risk.

Remediation programs currently have some criteria in place to address each of these general topics. But with a stronger motivation to use risk assessment to determine which sites should be funded for cleanup, clearer guidelines for risk assessment interpretation have become a significant issue.

The case of arsenic is a familiar poster child in determining the need for cleanup. Background arsenic is often near or just above the environmental criterion value. A clear distinction between what is considered "background" and what is considered "contamination" is needed.

Many risk assessment professionals would like a clearer characterization of the remediation effort required and its desired efficacy when a contaminant's background concentrations are typically close to or slightly above what is deemed a risk to human health.

New toxicity information has expanded dramatically in the last eight years and incorporating it into risk assessments and remediation practices has been a perennial item in any discussion of risk-based standards that are more than a few years old.

The toxicity group will try to sort the wheat from the chaff in toxicity studies during the decade since 62.777 was established.

Ecological risk assessment is not as commonly used in Florida as human health risk assessments. Dougherty noted that most remediation standards are based on human health exposure and sensitivity.

But there is a need to develop a framework for ecological risk assessments in Florida because "we get into it more and more frequently," said Dougherty.

The forum will also address "contaminated media" as an umbrella for discussion of organoleptic contamination, substances that impart taste or color to groundwater and originate from soil—possibly contaminated soil.

These are usually substances dealt with in secondary drinking water standards that do not have direct human health effects.

In the past, remediation projects have cleaned up to secondary drinking water standards. The discussion forum will address the need to remediate below secondary standards, and how to incorporate those secondary standards into unconditional closure and non-corrective action closure rules.

This particular topic will be discussed by members of two of the established groups because state regulations also recognize background organoleptic concentrations as *de facto* standards even where pristine water might be highly colored or emitting a noticeable aroma, a common condition in Florida's shallow groundwater.

Now that a list of topics has been circulated and discussion groups formed, the Contaminated Soils Forum will operate via a combination of face-to-face meetings, teleconferencing and webinars.

By the time you read this, the forum expects to have met for the second time in mid-December.

A meeting more closely resembling a conference may be held in late spring, with Central Florida being considered most strongly as the location.

In the meantime, ongoing schedules, updates and events will be posted online at http://www.dep.state.fl.us/WASTE/categories/csf/default.htm.

Forum meetings will be noticed in the Florida Administrative Register.

About 50 people participated in the first forum meeting either in person or by teleconferencing. All, according to Dougherty, were Florida-based, but there is no restriction that prevents people outside of Florida from participating.

The first Contaminated Soils Forum was active for over three years, from 1998 until 2001. According to Dougherty, its activities had no direct input into DEP's 2005 adoption of risk assessment criteria for remediation.

Nevertheless, he said discussions that occurred when the forum was active made valuable contributions to establishing risk-based remediation criteria in Florida.

The situation is similar today.

The reestablished forum is not intended to foster a specific new rule. But the discussions are likely to influence interpretations and implementation of existing rules.

Dougherty was noncommittal about the longevity of the forum and its work groups this time around.

"We don't have an established time frame. Some issues can be addressed in a short time frame. Others will take more time," he said. "It would be artificial to put an end date on it. We are looking for the broadest possible audience. And our intent is to be science-based."

The reestablishment of the forum is one more example of how the administration of soil and water cleanup programs in Florida is changing. It also represents a chance for environmental professional to have an input into those changes.

Cleanup pilot underway at Gainesville site

By PRAKASH GANDHI

Residents living near a controversial Superfund site in Alachua County are finally starting to get some relief from decades of pollution.

The company primarily responsible for cleanup of the Koppers portion of the Cabot-Koppers Superfund site, Beazer East, has been conducting a pilot project in the Stephen Foster neighborhood west of the main site.

The work involves removing and replacing contaminated soil on one particular piece of property.

The project received the backing of county environmental officials who see it as a promising harbinger of things to come.

"This is a step in the right direction," said John Mousa, pollution prevention manager with the Alachua County Environmental Protection Department. "It's good that they are beginning to do the remediation off-site."

The U.S. Environmental Protection Agency recently issued a record of decision regarding the Koppers site. Soil removal and replacement is part of the remediation effort included in that decision.

Beazer East is legally responsible for cleaning up both the polluted Koppers property and the adjacent properties that have been affected.

The pilot project will allow the company to implement the remediation process on a single property located at 436 NW 30th Avenue to determine its viability for the larger effort.

"They removed some old trees and bushes and replaced the soil with clean soil and landscaped the entire property," Mousa said. "They are trying to get permission from property owners to do a survey of the property and work up a plan with the property owners. Once the property owners agree to the plan, they can start the remediation work. They are hoping to do more remediation in late January."

Around 72 off-site properties require cleanup. Soils were tested and found to be contaminated by dioxin above the state threshold of seven parts per trillion.

Only the top six inches of soil were tested, but a foot of soil will be removed and replaced with new, uncontaminated soil. The whole process will take several months to complete.

"With the recent record of decision, we did not get everything we wanted but we did get a lot of things that the community asked the U.S. Environmental Protection Agency for," Mousa said. "We think it is a win for the community that they are going to try to meet the more strict dioxin standards off-site."

Chris Bird, director of the county Environmental Protection Department, said officials there are pleased that Beazer has embarked on this pilot project.

"This has been an issue for years," Bird said. "We think it was a wise decision for Beazer to undertake one of these projects.

"We are hoping that after the first of the year, they can start cleaning up some of these properties. There are definitely some environmental benefits to how they are redeveloping this property."

The county EPD is monitoring the pilot project and will do the same for the primary remediation phase. The EPA has the main oversight responsibility for the cleanup work.

The Cabot-Koppers property was added on the federal Superfund list about 30 years ago. The site is located in the heart of Gainesville and covers a total of about 170 acres.

The primary contaminants are dioxins, creosote compounds, benzene, naphthalene and chromated copper arsenate.

In 2011, EPA issued a second cleanup plan for the site. The plan finalized cleanup activities for the Koppers area of the site and revised the requirements included in a 1990 record of decision.

Statewide cost reduction initiative lowers landfill operating costs

By NEIL HORNICK

The Florida Department of Environmental Protection has shifted its focus from simply enforcing environmental laws to ensuring that those laws actually protect the environment and are met, while simultaneously finding ways for businesses and individuals to reduce costs.

One example of agency cost reduction for the regulated community came out of the DEP's Northeast District Solid Waste Section. District staff conducted an 18-month, three-phase Landfill Cost Reduction Initiative, saving more than $3.6 million for regulated facilities.

Phase I of the initiative began in the fall of 2011 with an effort to locate potential cost savings in the permit renewal process for solid waste facilities. One area under consideration was closed landfills.

Since gas production at closed landfills decreases over time, it seemed unlikely that any problems would develop at those with a history of no gas migration. Therefore, monitoring requirements at these landfills could be modified.

By eliminating or reducing unnecessary gas monitoring requirements for nine facilities in Northeast and North Central Florida, a first-phase five-year savings of approximately $125,000 was realized.

Phase II of the initiative identified facilities that had been closed and monitored for at least 10 years and had no history of groundwater impacts or gas migration issues, as well as no erosion or other environmental problems.

It was deemed that these facilities no longer presented an environmental concern and could be released from monitoring requirements.

By eliminating semi-annual and sometimes quarterly groundwater and gas monitoring requirements for numerous wells and probes at five facilities, Phase II resulted in a five-year savings of more than $1 million.

Phase III of the initiative was a detailed review of groundwater and gas monitoring data for those facilities that could not be released from the ongoing monitoring requirements in Phase II.

It included review of 28,000 samples from more than 1,000 groundwater and gas monitoring wells at 42 facilities, with a minimum five-year time frame.

As a result of the review, monitoring requirements were reduced for 34 facilities and eliminated for two others.

By instituting a groundwater and gas monitoring regimen that is in accordance with the environmental concerns and safeguards at each of the 42 facilities, Phase III resulted in a five-year savings of more than $2.6 million.

In total, the Landfill Cost Reduction Initiative is saving solid waste disposal facilities more than $3.6 million over a five-year time frame. For some local governments, which in many cases are responsible for operating landfills, the savings are even more significant.

For example, Dixie County, which is mostly rural, is saving approximately $92,000 per year. On a per capita basis, this would be the same as the city of Jacksonville saving more than $20 million over five years.

The department's district offices have adopted this approach in reducing landfill operating costs across the state. Landfill operators who have not taken advantage of this opportunity should contact their district regulatory office and request a facility assessment to identify any potential cost savings.

Visit http://www.dep.state.fl.us/secretary/dist/default.htm to identify the appropriate district office to contact.

The Landfill Cost Reduction Initiative is one of the many ways in which the DEP is working hard to reduce regulatory costs while ensuring the protection of Florida's environment.

Neil Hornick is a professional geologist I in the Northeast district office of the Florida Department of Environmental Protection in Jacksonville.

New treatment technology offers alternative to chlorine for disinfection

By KWOK-KEUNG AD, PhD

For decades, wastewater effluents have been effectively disinfected with chlorine. It is the most common disinfection process for municipal wastewater in the U.S.

While the use of chlorination in disinfection has been successful and plays a significant role in protecting public health, there are concerns associated with its safety, toxicity and especially the formation of harmful disinfection byproducts.

Even at very low concentrations, residual chlorine can be highly toxic to aquatic life. Further, chlorine can react with some organic matter in wastewater and form harmful disinfection byproducts such as trihalomethanes.

Recent evidence suggests that the chlorination process can create other types of emerging contaminants such as nitrosamines, which are a thousand times more toxic than trihalomethanes.

These concerns have resulted in new regulations that often make the use of chlorination/dechlorination methods too expensive or impractical for many municipalities.

Ultraviolet systems have been widely implemented as an alternative to chlorination, but high capital costs, complexity and water quality limitations have made these systems impractical for many plants in North America.

To address these issues of safety and cost-effectiveness, FMC Water Treatment developed VigorOx® WWT II wastewater disinfection technology, a peracetic acid-based, environmentally responsible and economically minded alternative to chlorine and other disinfectants.

The formulation is based on peracetic acid, a powerful oxidant that results from the reaction of hydrogen peroxide and acetic acid. Peracetic acid has a broad spectrum of antimicrobial activity and is an effective bactericide, fungicide and sporicide.

While peracetic acid technology is a relatively new disinfection technology for municipal wastewater in the U.S., it has been widely used in food and pharmaceutical disinfection applications for decades.

Compared to existing disinfection technologies, VigorOx WWT II offers a variety of safety advantages. Its application does not result in the formation of disinfection byproducts such as THMs and its residual decomposes quickly into environmentally benign compounds—water and vinegar—that pose very little to no toxicity to aquatic life.

Using VigorOx WWT II technology entails limited capital costs to the plant owner and can help avoid expansion or modification of contact tanks.

Given that it utilizes a liquid chemical disinfectant, VigorOx WWT II requires only a tank, metering pumps and analyzers to be implemented—very similar to the common sodium hypochlorite feed systems in use around the country.

It is simple to retrofit into existing infrastructure that uses the chlorination process.

Users of the technology can be assured of the reliability of supply, as VigorOx

DISINFECTION
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State-funded study underway to characterize sinkhole formation

By PRAKASH GANDHI

State officials have embarked on a major study to find out more about a geological problem that affects many people in the state—sinkholes.

The focus of the study by the Florida Geological Survey is on Suwannee, Columbia and Hamilton counties in north Florida.

But officials are hoping their research will yield important data that can be applied statewide.

Jonathan Arthur, PhD, PG, director and state geologist with the office of the Florida Geological Survey within the Florida Department of Environmental Protection, said the study's goal is to create a map illustrating the state's vulnerability to sinkhole formation.

"It is important to understand the geological character of the ground below us," said Arthur. "This project will provide a map of the relative vulnerability to sinkhole formation in Florida as an important hazard mitigation planning tool."

The project is a three-year study that will produce two maps—one for the pilot area and the other statewide.

The pilot study is slated to end this May at which point the statewide portion of the assessment will start.

The purpose of the project is to provide the Florida Department of Emergency Management with a map to help in creating more efficient hazard mitigation strategies.

The project will last three years with a total budget of $1.1 million, the bulk of it funded through Federal Emergency Management Agency and the balance from other state agencies.

Suwannee, Columbia and Hamilton counties were chosen because of their high geomorphic diversity. The three counties have a mix of high and low concentrations of sand over limestone, or sand and clay over limestone.

The maps will be used by state and county hazard mitigation planners to create strategies to reduce the impact to Florida residents and property from future sinkhole disasters.

The maps will also help enhance the state hazard mitigation plan that is coordinated by the Florida Division of Emergency Management's mitigation section.

A modeling method will be chosen during the pilot study encompassing the three counties, Arthur said.

During years two and three, model refinements based on what is learned from the pilot study will be extended to apply the model to the entire state.

The total project cost is $1,080,161. 75 percent will be funded by FEMA and the rest by the DEP and the Florida Geological Survey.

Over 30 interested parties representing counties, cities and private businesses attending a meeting in Live Oak in November.

The stakeholders meeting provided public officials in Suwannee, Columbia and Hamilton counties with information regarding sinkholes and presented an overview of the project.

The next meeting to inform public officials of the status of the project will occur in March, 2014.

Arthur said there's a lot of interest in the study.

"There is national interest in our innovative approach to this project, and we are excited to begin the work of developing input data layers for the model," he said.

WHO panel formally links air pollution to lung cancer incidence

By ROY LAUGHLIN

An expert panel of the World Health Organization has formally linked air pollution to lung cancer and backed up that assertion in a recently released scientific monograph.

The report released by the WHO's International Agency for Research on Cancer, links air pollution to increases in cancer incidence across the globe. It claims that air pollution caused 3.2 million premature deaths globally in 2010.

The deaths were due primarily to cardiovascular disease spawned by impaired lung function.

The report attributes 223,000 of the 3.2 million premature deaths directly to lung cancer.

In the past, scientific researchers, including many of those on this United Nations advisory panel, have linked specific air pollution components such as diesel exhaust, a prominent air pollutant, to cancer.

This is the first documented linkage of air pollution, in general, in outside air to increased morbidity and mortality levels.

The expert panel based its conclusions on a thorough review of the scientific literature. They found sufficient evidence that exposure to outdoor air pollution causes lung cancer and exhibits a positive association with an increased risk of bladder cancer.

The report panel evaluated airborne particulate matter separately and also classified it, as a class, as "carcinogenic to humans."

The IARC is the World Health Organization's lead intergovernmental agency for cancer studies. This report, however, brands air pollution as a hazard to human health beyond just cancer.

A spokesperson for the agency characterized air pollution as "a major risk to health in general."

It is a risk in all regions of the world, but particularly in developing countries. More than half of the deaths attributed to air pollution occurred in China and East Asian countries.

IARC officials characterize the report as "the first time that experts have classified outdoor air pollution as a cause of cancer."

Health experts familiar with the effects of air pollution on human health will not consider the expert panel's findings revolutionary.

But this review of over 1,000 studies worldwide, a large component of which were epidemiological studies, makes the monograph a go-to reference for public health professionals.

Aquifer storage recovery technology poised for FL revival after EPA letter

By DAVID PYNE, PE

After 13 years of stagnation, aquifer storage recovery is ready to resume its former role as a viable, cost-effective, environmentally-friendly water storage option to help Florida "get the water right."

A Sept. 27, 2013, letter from EPA provided the Florida Department of Environmental Protection with the discretion to manage permitting of ASR wells in a manner that best meets Florida's unique water management needs while remaining consistent with federal Underground Injection Control regulations.

A copy of the EPA's letter has been posted on the *Florida Specifier* website, http://www.enviro-net.com. This letter is the culmination of twenty years of effort by Florida water utilities, water management districts, DEP and others to find a way to resolve permitting issues in Florida that have severely limited ASR implementation, particularly since 1997 when arsenic mobilization was first documented in several ASR wells in southwest Florida.

A look back at early efforts

In 1983, the first operational ASR project in Florida began storing drinking water for Manatee County, just prior to a severe drought that lowered the water level in Lake Manatee to barely above the water treatment plant intake. Recovery of the stored water helped to address regional water supply issues during that drought, demonstrating the value of ASR.

The project won a major national award because of its potential significance for the water supply industry. Publicity from that award sparked nationwide interest in storing drinking water underground to ensure reliable, sustainable water supplies at relatively low cost, and with essentially no adverse environmental or water quality effects.

By 2001 there were about 10 operating, fully-permitted ASR wellfields in Florida and a total of about 50 additional projects under development. ASR provided a useful new water management tool for storing large volumes of seasonally available water at low cost.

All of the operating ASR projects from 1983 to 2001 had conducted extensive water quality monitoring of the injected water and the recovered water, demonstrating compliance with drinking water standards at the wellhead. At the time the standard for arsenic was 50µg/l. For these early ASR projects, the primary focus was on the quality of water injected and recovered, with the goal of achieving high recovery efficiency since drinking water was being stored in brackish aquifers. The issue of mobilizing naturally occurring arsenic was not yet on the radar screen.

High recovery efficiency was achieved by performing approximately five cycles to "flush" the brackish water from the storage zone around each well, prior to obtaining DEP compliance samples at the end of Cycle 5 recovery to support the issuance of an operating permit.

Compliance samples typically included primary and secondary drinking water standards, including a metals scan. Water recovered during these early cycles was usually discharged to waste. Arsenic was never identified at any of these locations.

Enter arsenic

In 1997, a sample was obtained by the Florida Geological Survey during Cycle 1 recovery at a new ASR well in Tampa, arsenic results from which exceeded the drinking water standard. That set in motion an intensive effort to characterize arsenic concentrations at other ASR wellfields, including those that had been operating for many years and others in early stages of cycle testing.

In general, the older wellfields had acceptable arsenic concentrations (less than 50µg/l) while the newer wellfields, particularly those still conducting cycle testing, did not.

In 2005, the Florida drinking water standard for arsenic was lowered to 10µg/l. A 2005 review of operating results from 13 ASR wellfields indicated that arsenic mobilization did not appear to extend very far from an ASR well, typically less than about 200 feet, even though the stored water extended much further. Furthermore, arsenic concentrations declined with time, with distance from the ASR well, with increasing storage volume and with successive operating cycles.

Based upon these early results, the Southwest Florida Water Management District installed about 30 monitoring wells at ASR wellfields to gather information on the occurrence, mobilization and attenuation of arsenic.

Three research investigations were then conducted, funded by SWFWMD and the South Florida Water Management District in 2007 and 2008. Results confirmed earlier findings, provided greatly improved understanding of the subsurface mechanisms involved in arsenic mobilization and attenuation, and provided a review of alternative measures to control arsenic mobilization and an aquifer simulation model to project arsenic concentrations resulting from different operational strategies.

Alternative measures that were considered included pretreatment processes to remove oxygen from the recharge water and thereby prevent arsenic mobilization.

Also shown to be effective at controlling arsenic mobilization was the formation and maintenance of a buffer zone surrounding an ASR well, separating the stored drinking water from the surrounding ambient groundwater.

Wells that had sufficient water remaining in storage to support at least 70 days of recovery at the design production capacity of the well did not have elevated arsenic concentrations in the recovered water. Conversely, those wells with little or no water in the buffer zone were more likely to have excessive arsenic concentrations in the recovered water.

The TSV operational approach

The "Target Storage Volume," or TSV, operational approach was then developed for ASR wells, building upon the success of the early ASR wellfields with achieving high recovery efficiency in brackish aquifers and with controlling arsenic.

The TSV is the sum of the stored water volume that is required for recovery, plus the buffer zone volume. The stored water volume is stored and then recovered, typically each year.

The buffer zone volume is stored once and is never recovered. It is best stored upfront, prior to beginning cycle testing, and may be considered the final step in ASR well construction. The buffer zone is usually formed during summer months when service area demands are low, water supplies are plentiful and the marginal cost of the water is minimal, including just power, chemicals and residuals disposal.

This low cost operational approach to managing arsenic concentrations works well, except in situations

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

Letter to the Editor:

Additional thoughts on the new audit process for Florida environmental laboratories

Editor:

As a follow up to the article published in the November 2013 *Florida Specifier* regarding changes to the laboratory certification program, I would like to offer some additional thoughts.

At the time the governor's office began discussions about privatizing our laboratory certification program in 2011, several laboratory owners formed an organization of laboratory stakeholders, the American Environmental Laboratory Association, to examine the pros and cons of taking over the management of the certification process.

Research indicated that we could successfully form a responsive, streamlined organization that would improve on the program in place with minimal additional financial impact.

Unfortunately, AELA was unable to garner legislative approval needed to make the change and the state instead chose to subcontract the auditing portion of the process to outside companies while still maintaining the backroom duties.

This change will have the effect of virtually doubling the cost of staying NELAP certified. I personally welcome changes to the existing program and believe they will ultimately improve laboratory quality and bring a more objective view to the auditing process that has been lacking in the past. But I also feel the approach chosen will prove to be unnecessarily expensive and cumbersome for many.

As one of only a handful of labs in Florida to have undergone the rigorous and costly auditing process and approval for DoD ELAP and ISO 17025 certification, I well understand the additional expense and technical challenges the changes to the program will have on a number of municipal and smaller, owner-operated laboratories.

Suddenly placing such a burden on these entities is both unfair and shortsighted. Municipal labs are already operating under tight budgets and some smaller labs may not be able to justify the additional expense. In addition, audits have moved away from the existing NELAP standards and have adopted the more vigorous TNI standards, which may be an additional challenge to those labs not already ELAP compliant.

Although the new auditing process creates an new financial hurdle, I anticipate that it will work to weed out marginal labs, large and small, who have had long standing quality issues and moreover will make the accreditation body a more professional and accountable organization.

The old days of having labs wait months to receive on-site inspections for final approval of new methods, the subjective and contradictory auditor interpretations of policies and procedures, and the occasionally unsupportive attitude of some auditors will hopefully become a thing of the past.

Unfortunately, it is also clear that the cost of paying for contract auditors plus the continued cost to have DOH maintain the certification paperwork (until an administrative rule change can be enacted) will prove too much for many small and municipal laboratories to absorb and they will be forced to close.

I cannot imagine that this was the intent of the Legislature but without input from the laboratory community, politics usurp the realities of our industry even to the point of ignoring the fact that the existing accreditation program was financially self-sufficient.

The majority of full-service labs certified to operate in Florida continue to make large capital investments in their businesses and provide many highly skilled, stable jobs throughout the state. We provide a professional service—not a commodity—and, as such, I believe it would greatly benefit all Florida laboratories to join together in a professional state-based organization to represent and protect our interests and take a more proactive role in planning our future.

Glynda Russell, President
Jupiter Environmental Laboratories Inc., Jupiter, FL
grussell@jupiterlabs.com

Recent Georgia projects address water woes

By SUSAN TELFORD

Late last year, Florida asked the U.S. Supreme Court to decide how much water Georgia can take from the basin formed by the Apalachicola, Chattahoochee and Flint rivers before causing further harm to the oysters in Florida's Apalachicola Bay.

The legal action may have motivated Georgia officials to better address their water consumption issues.

Last month, Georgia Gov. Nathan Deal's administration won approval to invest $45 million in water projects, including three reservoirs, which will presumably allow more water to flow downstream to neighboring Alabama and Florida.

Close to $40 million in funding has been allocated for the Glades Reservoir project in Hall County, Indian Creek Reservoir in Carroll County, and Richland Creek Reservoir in Paulding County.

An additional $5 million will fund a project testing desalination in coastal Georgia.

Historically, Georgia's state government would lend local governments money to build reservoirs that met local needs. The decision to invest in water projects signifies a shift in how Georgia's state government funds future water projects.

"What we are purchasing is the ability to store that water and have access to it in times of drought," said Kevin Clark, executive director of the Georgia Environmental

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Calendar

January

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

JAN. 10-18 – Course: Backflow Prevention Assembly Tester Training and Certification, Fort Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 14-15 – Conference: Green Infrastructure in Growing Metropolitan Areas, Tampa, FL. Presented by the Patel College of Global Sustainability at the University of South Florida. Contact Bessie Skoures at (813) 974-1256 or skoures@usf.edu.

JAN. 14-16 – Course: Introduction to Electrical Maintenance, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 14-17 – Course: Water Class C Certification Review, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

JAN. 21-23 – Conference: 17th Annual LMOP Conference and Project Expo, Baltimore, MD. Presented by the EPA Landfill Methane Outreach Program. Visit www.epa.goc/lmop.

JAN. 22-24 – Course: Process Control of Advanced Waste Treatment Plants, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 22 – Course: Lead Refresher: Inspector, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 23 – Course: Lead Refresher: Risk Assessor, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

JAN. 23 – Conference: 2014 SWANA/RFT Joint Summit, Orlando, FL. Presented by the Florida Sunshine Chapter of the Solid Waste Association of North America and Recycle Florida Today. Call (727) 940-3397 or visit www.swanafl.org.

JAN. 24 – Course: Backflow Prevention Recertification Review, Fort Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 25 – Course: Backflow Prevention Recertification Exam, Fort Myers, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 27-29 – Course: Asbestos: Inspector, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 28-29 – Course: Initial Training Course for Transfer Station Operators and Material Recovery Facilities-16 Hour, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 28-30 – Course: Initial Training Course for Landfill Operators and C&D Sites- 24 Hour, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

JAN. 28-29 – Course: Refresher Training Course for Experienced Solid Waste Operators-16 Hours, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

JAN. 28 – Course: Refresher Training Course for Experienced Solid Waste Operators-8 Hours, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 28 – Course: Refresher Training Course for Experienced Solid Waste Operators-4 Hours, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 28 – Course: 8-Hour Training Course for Spotters at Landfills, C&D Sites and Transfer Stations, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 28-30 – Course: Initial Training for Operators of Landfills and Waste Processing Facilities, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 29 – Course: Refresher Training Course for Experienced Solid Waste Operators-8 Hours, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 29 – Course: Refresher Training Course for Experienced Solid Waste Operators-4 Hours, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 30 – Seminar: Integrated Water Resources Seminar, Orlando, FL. Presented by the Florida Water Environmental Association. Call (407) 574-3318 or visit www.fwea.org.

JAN. 30-31 – Course: Asbestos: Management Planner, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

JAN. 31 – Conference: 23rd Annual Southwest Florida Water Resources Conference, Ft. Myers, FL. Hosted by the Florida Section of the American Water Resources Association, the Florida Section of the American Society of Civil Engineers, the Calusa Chapter of the Florida Engineering Society and other professional and environmental organizations. Visit awra.caloosahatchee.org for more information.

February

FEB. 1 – Course: Backflow Prevention Recertification Review, Tampa, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 1 – Course: Backflow Prevention Recertification Exam, West Palm Beach, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 2 – Course: Backflow Prevention Recertification Exam, Tampa, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 3-7 – Course: Backflow Prevention Assembly Tester Training and Certification, Lake Buena Vista, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 4-5 – Course: Water Reclamation & Treatment Processes, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

FEB. 6 – Course: Backflow Prevention Recertification Review, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

PROJECTS

From Page 10

Finance Authority. "This is not a politically motivated decision," he said in a news release. "This is a key project."

Georgia, Alabama and Florida have been in a two-decade-long battle over regional water consumption, with neighboring Alabama and Florida alleging that Atlanta uses too much water upstream, leaving too little for downstream residents, businesses and the environment to subsist.

Alabama Gov. Robert Bentley's office said that his state "could not support new reservoirs unless they were part of a comprehensive agreement."

The U.S. Army Corps of Engineers is currently studying water supply in the region.

Research team studies role of nitrogen, phosphorus in coral loss

By ROY LAUGHLIN

Coral reefs are an iconic part of the image of a tropical island paradise. But over the past 40 years, particularly in the Caribbean, reef-forming corals have declined at an alarming rate and species composition is, in some places, sharply lower.

No single cause is responsible for hard coral loss. Possible causes may include coral bleaching (loss of symbiotic photosynthetic flagellates); microbial disease, including some whose cause is unknown; and even the over-harvesting of fish and invertebrates that control coral predators and competitors.

An interdisciplinary research team, with members from Florida to Oregon, recently published the results of a three-year study that suggest that elevated nitrogen and phosphorus levels cause increases in at least one coral disease, dark-spots disease.

The disease causes discolored spots or markings in the tissue of reef-building corals.

The researchers established test plots on a coral reef off Key Largo. For two years, they used a commercially available slow release fertilizer, Osmocote, to enrich an area of about nine square meters around a diffuser.

Inorganic nitrogen and phosphorus nutrient levels were elevated to levels characteristic of many reefs in decline.

The researchers found that on a specific coral species, Siderastrea siderea, one of the common hard corals on reefs in the Florida Keys, the incidence of disease doubled from its 8 percent background rate.

Another hard coral in the experimental plots, Agaracia spp., exhibited a 3.5 percent increase in the extent of coral bleaching compared to untreated controls.

Coral bleaching occurs when stressed corals eject symbiotic photosynthetic flagellates from their gut tissues. Coral bleaching is most often observed in late summer, when water temperatures are at a maximum.

One notable aspect of the experimental observations reported in this research is that coral bleaching occurred in early summer and at temperatures well below the range usually correlated with coral bleaching.

Experimental treatments came to an early end in September of 2012 when Hurricane Isaac blew through the Keys and obliterated the experimental set up.

Afterward, researchers continued their quarterly census and observations on the former experimental plots.

They found that, within 10 months following the hurricane's passage, formerly blighted coral colonies had recovered.

The first signs of recovery—not statistically significant when first observed but now evident as the beginning of a significant trend—occurred within a few months after the end of elevated nutrient exposure.

One reason this research is getting a lot of attention is that it is among the few experimental studies demonstrating a link between nutrient exposure and coral disease.

The experimentally elevated nutrient concentrations measured were similar to those that typically occur in Caribbean habitats where coral reef decline is occurring.

It has been hypothesized for some time that excess nutrients contribute to coral reef decline and, around existing disease, excess nutrients make that disease more aggressive. In surveys, more disease was noted in places where nutrients were expected to be prevalent.

But these researchers claim they have, perhaps for the first time, an experimental characterization of the role of nutrients for at least one disease—dark-spots disease—and for coral bleaching that is not confounded to other co-occurring conditions or factors.

The unintended opportunity to observe recovery strengthens their case for a causal relationship between increasing incidence of coral disease and elevated nutrient concentration.

The research team intends to continue their studies. Dr. Rebecca Thurber, assistant professor in the College of Agricultural Sciences at Oregon State University, will be identifying specific organisms whose increased numbers or ability to cause disease is influenced by elevated nutrient levels.

Deron Burkepile, assistant professor in the Department of Biological Sciences at Florida International University, plans new experiments that may distinguish between the role of nitrogen and phosphorus in coral loss.

Well more than half the hard coral abundance in the Florida Keys has vanished since the mid 1970s. Overt influence of ocean acidification will occur in the second half of this century.

If corroboration of a significant role for modestly elevated nutrient levels can be established, prospects for effective recovery of hard coral abundance is possible and attainable in the relatively short term.

Gulf restoration program announces plans for project funding

By ROY LAUGHLIN

If plans are approved as proposed, Florida will receive up to $105.5 million From BP to fund 30 environmental restoration projects to compensate for damage caused by the Deepwater Horizon well blowout.

Florida's proposed projects include the Florida Fish Hatchery, at $18.8 million; Florida Artificial Reefs, at $11.5 million; and the Norriego Point Restoration and Recreation Project, at $10,228,130.

Florida had the most projects in the plan, but will not receive the highest level of funding.

The total proposed funding for this phase, Phase III, is $625,998,000. That will support 44 proposed projects.

Louisiana will receive more than half of the total funding in Phase III. The Louisiana Outer Coast Restoration, one project category, will receive up to $318,363,000, more than half of all restoration funding this time around.

Texas will receive about $17 million for five restoration projects. Mississippi and Alabama are slated for four and three projects, respectively.

Mississippi's projects total $85 million, while Alabama's total $93 million. Alabama's funding is dominated by a single project, Gulf State Park Enhancement Project at $85,505,000.

The U.S. Department of the Interior noted in its announcement that $397 million is for ecological projects, while the remaining $230 million is for "lost recreational use" projects.

NOAA announced Phase III plans in early December and opened a 60-day public comment period. Ten public meetings are scheduled and the final two will be held in Pensacola and Panama City on Jan. 28 and 29, 2014.

Comments may be posted online at the Gulf Spill Restoration's web page.

"The list not a done deal or we would not be putting it out for public comment," said Nancy Regalado, a spokesperson for the Department of the Interior. "Trustees of the restoration program and BP have agreed that it can go forward. BP has agreed to fund it if it makes it through the comment process and final plan."

Some projects may be approved quickly and, according to Regalado, work could begin as early as summer 2014. Others may be delayed a little longer.

After the oil spill, BP set up a $1 billion fund for early restoration. So far, $71 million has been spent in Phases I & II.

Some of that was spent in Florida for sea turtle nesting studies.

Phase III will spend the lion's share of the funding if all projects are approved. But there will still be about $300 million

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where aquifer confinement is minimal or absent. In these circumstances, upconing of brackish water from below during ASR recovery tends to nullify the effectiveness of the buffer zone.

As approved in the EPA letter, the TSV approach for controlling arsenic mobilization is described as a "consistent operation to maintain constant volume."

As a precaution to ensure that any mobilized arsenic would not migrate laterally in the storage aquifer and potentially contaminate an adjacent well, DEP began requiring new ASR cycle testing programs to recover all stored water during each cycle. This virtually eliminated the opportunity to form and maintain a buffer zone around each well, except as a result of conducting a very large number of operating cycles, during each of which a small portion of the stored water would mix with previously stored water, slowly increasing the volume of the buffer zone over a period of many years.

DEP cycle testing permits were accompanied by consent orders and administrative orders, setting up the need for commitments by water utilities to implement potentially expensive remedial measures if arsenic concentrations exceeded drinking water standards.

The effect of these AOs and COs was to put a significant damper on the willingness of water utilities to fund ASR development programs, particularly since no ASR operating permits had been issued by DEP since 2001.

Also, the inability to form a buffer zone set up the need for pretreatment to remove oxygen from the recharge water, increasing the complexity and approximately doubling the cost of ASR.

Demand drop slows ASR growth

With the beginning of the economic collapse in Florida and nationwide in 2007, growth in population and associated water demand stopped, as did the need for capital investment to increase water supply capacity.

Interest in ASR further waned, focused increasingly on the use of ASR wells for storing reclaimed water in deep, saline aquifers, accepting the resulting reduction in recovery efficiency in exchange for the greater likelihood of getting operating permits issued.

Under UIC regs, aquifers containing water with a total dissolved solids concentration less than 10,000 mg/l are considered to be "underground sources of drinking water," entailing increased regulatory protection from potential contamination. The Florida drinking water standard for TDS is 500 mg/l.

Reservoirs versus ASR

The clear need for additional storage to meet Florida's water management needs, and the apparent non-viability of ASR after 2001, caused growing interest in construction of surface reservoirs, a few of which were constructed during this period.

The intense hurricane activity in Florida during 2004, including two hurricanes that traversed Lake Okeechobee, caused a reappraisal of engineering design criteria for surface reservoirs slated for construction as part of the Comprehensive Everglades Restoration Program.

As a result, the projected capital costs for these reservoirs increased substantially. Subsequent U.S. Army Corps of Engineers' investigations of the relative economics of surface reservoir storage and ASR storage indicated that ASR averages about one-sixth the cost of surface reservoirs to achieve the same storage volume objectives.

However, construction of surface reservoirs in Florida could be permitted whereas it appeared that ASR wells could not.

Several subsequent investigations of ASR economics have indicated unit capital costs of about $1.00 per gallon per day of recovery capacity, within a range of about $0.50 to $2.00. High-yield wells, multiple wells and shallow wells tend to have the lowest unit costs. Compared to other water supply alternatives, these costs are very low.

Even if the costs are doubled as a result of adding deoxygenation pretreatment, the costs are still relatively low. However if operating permits for ASR wells cannot be obtained, the favorable economics have no value.

ASR use surges elsewhere

Meanwhile, ASR implementation was progressing rapidly in other states and many other countries. As of September 2013, a reasonable estimate is that about 134 ASR wellfields and at least 544 ASR wells were operating nationwide in 23 states. Many more are in various stages of development.

To date, 27 different applications of ASR have been identified. The most common applications are seasonal, long-term and emergency storage; deferring expansion of water treatment facilities; and maintaining distribution system flows and pressures.

Emerging new applications include meeting disinfection byproduct regulations, reflecting the natural attenuation of trihalomethanes and haloacetic acids during ASR storage. They also include augmentation of low flows in rivers and estuaries, and phosphorus reduction.

Back to the present

With the release of the recent letter by EPA, DEP now has greater discretion to permit ASR wells to meet Florida's unique water management needs, constraints and opportunities.

DEP recently demonstrated its commitment to ASR by issuing operating permits for several new ASR projects during the past year, without the AO and CO requirements.

The TSV approach for arsenic control is once again acceptable, providing the time and distance required for natural underground processes to occur around an ASR well that enable us to meet water quality goals.

We can once again rely upon storing water underground where it will not be lost to evaporation, transpiration and seepage. This can be achieved without adverse effects upon the environment or groundwater quality, saving billions of hard-earned tax dollars and ensuring water supply reliability and sustainability.

For Florida water and wastewater utilities, this opens the door for cost savings through more efficient use of existing facilities to meet existing and projected future needs, supplemented by seasonal water storage underground.

For the Everglades and other potential environmental applications of ASR, this opens the door for low cost water storage with negligible impacts upon the surface environment, and also with estimated 90 percent phosphorus reduction. It also opens the door for augmenting low stream flows and maintaining lake levels at low cost.

David Pyne, PE, is the president of ASR Systems LLC in Gainesville, FL, and an internationally recognized guru on ASR technology and applications. He can be reached at dpyne@asrsystems.ws.

Activist pressure, financial viability combine to shelve Palm Beach wind project

By DAN MILLOTT

A changing energy market, marked by the rising use of cheaper natural gas as a fuel for producing electricity, was a major factor in the cancellation of a proposed wind farm just east of Lake Okeechobee.

Developers of the project, St. Louis-based Wind Capital Corp., announced plans in 2011 for the wind farm. The project called for erecting 124 towering wind turbines over agricultural land in western Palm Beach County.

Wind Capital established a subsidiary operation in Jupiter to handle the project called Sugarland Wind.

In March, 2012, the wind farm project received its first green light. The Palm Beach County Commission gave their okay to move forward with the project.

The group then started work to obtain approvals from the U.S. Army Corps of Engineers, the Florida Department of Environmental Protection and other governmental entities.

The project was greeted with enthusiasm by business interests around Lake O as a potential economic boost for an area with long standing economic problems.

But environmental groups, most notably Audubon Florida , the Sierra Club and the Everglades Law Center, raised questions about the wind farm with its spinning turbines being a threat to the migratory bird population.

The proposed location was in the flyway of seasonal bird migrations.

When Palm Beach County officials gave approval to the project, they agreed with environmental interests that the developers of the wind farm would have to take measures to protect wildlife.

Lisa Interland, an attorney with the Everglades Law Center, said Sugarland officials had agreed with her suggestion that bird-detecting radar be installed at each turbine when operating.

Meanwhile, other environmental groups were working to make sure their interests were recognized.

In June, Eric Draper, executive director of Audubon Florida and Dr. Paul Gray, science coordinator for the Northern Everglades Program, sent a 14-page memorandum to Leah Oberlin of the U.S. Army Corps of Engineers.

Their memo disputed conclusions reached in a wildlife risk assessment prepared for the Sugarland Wind Project.

While agreeing with some of the risk assessment, Audubon said the burden of proof was in the hands of Sugarland Wind. They asked the corps to defer action until that proof was at hand.

Since the initial action by Palm Beach County in March, 2012, the wind farm had received a series of approvals from the corps and DEP, the latter coming in November.

But project developers begin having second thoughts about the viability of the wind farm this past spring.

Geoff West, then the environmental project manager for Sugarland, said the proposed wind farm was on its way out when the company decided to close its Jupiter office in May, 2013.

West later joined Normandeau Associ-

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numerous federal requirements for sustainability and environmentally preferable products and services.

The agency noted specifically that "the draft guidelines were designed to assist federal purchasing decision-makers in more consistently using existing non-governmental product environmental performance standards and eco-labels."

The guidelines assess key characteristics of environmental standards and eco-labels that are already in use on products in the marketplace.

The credibility of the development process and the efficacy of criteria for environmental performance were scrutinized. The most desirable guidelines, according to the EPA, will be "flexible enough to be applied to standards and eco-labels in a broad range of product categories."

The agency released its proposal in mid-November and will be accepting comments for 90 days. EPA expects to issue the final rule in late 2014.

DERA funding for diesel engines. The EPA announced a second round of rebates offered through the Diesel Emission Reduction Act.

The agency will offer a total of $2 million in rebates to public and private construction equipment operators so that they can either retrofit or replace older diesel construction engines that do not meet current diesel exhaust emission standards.

To be eligible, public and private construction equipment operators must be in counties facing "air quality challenges."

The rebates must be used to replace or retrofit construction equipment engines. The EPA is accepting applications until Jan. 15, 2014, and anticipates awarding rebates in February, 2014.

Congress reauthorized DERA in 2011. This is the second round of rebates offered since reauthorization.

In addition to rebates, the program provides grants and revolving loans that will support replacement and updating of existing diesel vehicles and engines used where people are exposed to unhealthy air.

The initial funding, more than $500 million, focused on diesel powered vehicles. The EPA is now addressing diesel exhaust from other classes of diesel engines.

EPA releases draft climate change plans. In November, the EPA released a planning document, "Climate Change Adaptation Implementation Plans," for public review and comment.

The planning document anticipates the effects of changing climate, including increased extreme weather, floods and droughts. Those weather events directly affect the EPA's mandate to protect clean air and water.

The planning document explicitly outlines how EPA will integrate climate adaptation planning into programs, policies, rules and operations.

Its goal is to ensure that the agency's efforts will remain effective even as climate changes.

The EPA's draft plan complies with President Obama's broader order to plan for climate change, binding on all federal agencies and administered by the Federal Interagency Climate Change Adaptation Task Force.

The agency began development of its Climate Change Adaptation Plan in February, 2013, and followed that with a review and comment period. This draft will be open for public comment until Jan. 3, 2014. The agency expects to release the final rule by the fall of 2014.

NSF funds Chesapeake Bay studies. The National Science Foundation funded a five-year study of four Chesapeake Bay watersheds that will evaluate best management practices to reduce nutrient inputs into Chesapeake Bay.

Scientists at the University of Maryland's Horne Point Laboratory in Cambridge will regularly monitor nutrients in four streams that drain substantial watersheds of the Chesapeake Bay.

The research group already has 13 years of observations on the four watersheds they plan to study, but NSF funding will increase the intensity of sampling and data analysis.

Concomitantly, the research groups will question the areas' residents about opinions and observations of best management practices. This is expected to give insight into prospects for social and economic sustainability for BMPs that reduce nutrient runoff.

The study will run in parallel with EPA's plans to establish total maximum daily load models for the bay.

Maryland's plans to reduce nutrient inputs into the Chesapeake Bay, North America's largest estuary, bear many similarities to Florida's decades-long efforts to reduce nutrient enrichments in the Everglades, and more recently, to use numerical nutrient standards to improve surface water quality across the state.

EPA appoints new scientific integrity official. Dr. Francesca Grifo is the EPA's new scientific integrity official.

She will be responsible "for coordinating and carrying out EPA's scientific integrity policy and chairing a standing EPA scientific integrity committee."

Grifo began work at the agency at the end of November.

In appointing Grifo, EPA Administrator Gina McCarthy reiterated that scientific integrity is integral to the EPA's efforts and credibility.

Throughout her career, Grifo has been involved with scientific research, academic management and science policy. She left the Union of Concerned Scientists to take the EPA position.

FWS, NOAA report reflects substantial loss of coastal wetlands in U.S.

By SUSAN TELFORD

The U.S. is losing wetlands in coastal watershed areas at an alarming rate.

A recently published report authored by the U.S. Fish and Wildlife Services and the National Oceanic and Atmospheric Administration indicates that wetlands are shrinking at a disturbing speed in the Pacific, Atlantic and Gulf coasts.

The report, "States and Trends of Wetlands in the Coastal Watersheds of the Conterminous United States 2004 to 2009," examined recent trends in wetland extent and habitat type throughout the conterminous United States between 2004 and 2009. It concluded that recent past trends of reducing wetland losses had been reversed and losses of certain wetland types had increased.

The report said that over 80,000 acres of coastal wetlands on average are lost each year—an increase from the previously recorded 60,000-acre loss per year from an earlier study.

Wetlands were found in all 48 contiguous states and in every physiographic region of the country as part of this study.

Of the freshwater wetland population contained in the national sample, ponds were the most prevalent wetland type found in urban areas, whereas freshwater emergent wetlands were the least common type.

On agricultural lands, there was a fairly even distribution of wetland types with forested, emergent and ponds represented. Land predominantly in silviculture had the highest percentage of forested and shrub wetland.

"Wetlands are essential to fish and shellfish, and are integral to the health of the nation's multi-billion dollar commercial and recreational fishing industries," said Mark Schaefer, NOAA assistant secretary for conservation and management in a news release.

"The three most valuable species that depend on habitats supported by our wetlands—crab, shrimp, and lobster—had combined values of $1.6 billion in 2012," he wrote. "The disappearance of this habitat could be detrimental to our nation's seafood supply."

The hardest hit wetlands were the communities along the Gulf Coast at 257.150 acres lost, accounting for nearly 71 percent of the total.

The Atlantic Coast lost 111,960 acres and the Pacific Coast lost 5,220 acres.

The watersheds of the Great Lakes area had a net gain of 13,610 acres in wetland area.

"When a study shows that an area four times the size of Miami is disappearing every year, it underscores the importance of strengthening our collective efforts to improve wetlands management, to reduce losses and to ensure coastal infrastructure and resources are protected," said Secretary of the Interior Sally Jewell.

Wetlands are vital to the survival of diverse fish and wildlife species, and help to sustain the country's multi-billion-dollar coastal fisheries and outdoor recreation industries, improve water quality and protect coast communities from the effects of hurricanes, flooding and severe storms.

"For decades, USDA conservation efforts have contributed a great deal to protecting and restoring our wetlands," said Ann Mills, USDA's deputy undersecretary for natural resources and environment. "Today's report to Congress underscores the value of these conservation programs."

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The U.S. Army Corps of Engineers awarded the construction contract to Weeks Marine Inc. to include renourishment of Treasure Island and Long Key beach segments.

The corps anticipates that the contractor will start mobilizing equipment in early January and complete construction in July.

The beach renourishment project includes placing about 550,000 cubic yards of beach-quality sand along 15,000 feet of beach at an estimated cost of $16.2 million.

Dredging work continues. In other Army Corps news, dredging operations are continuing without delays on the St. Lucie Inlet navigation project.

The work is in response to impacts from Hurricane Sandy in 2012, and is federally funded under the Flood Control and Coastal Emergency program.

The corps awarded the $6,465,000 contract to Cashman Dredging & Marine Contracting Co. LLC in July.

Cashman started dredge operations in mid-November. The dredge is operated 24 hours a day with a mid-February anticipated completion date.

Cashman is dredging 200,000 cubic yards of sand from the inlet and the adjacent settling basin, barging the beach-quality material via the Intracoastal Waterway, and then placing it on the beach at the Hobe Sound Natural Preserve.

PBC beach project. Beach erosion control work is also on-going in Palm Beach County.

In total, crews will dredge and place about two million cubic yards of beach-quality sand on about 6.5 miles of Palm Beach County beaches at an estimated cost of $20 million.

The U.S. Army Corps of Engineers' Jacksonville District is placing a total of 7.5 million cubic yards of sand on 38.5 miles of eroded beaches as part of the Flood Control and Coastal Emergency program.

The corps awarded two contracts for four segments within Palm Beach County that will be renourished.

The first contract is for the Jupiter/Carlin segment and is federally funded under the FCCE program.

The second is a combined contract for the Ocean Ridge Delray Beach and North Boca Raton segments. These segments are jointly funded by the FCCE program and cost-shared with the local sponsors for each segment.

All work is scheduled for completion at the end of April. Once sand is piped onto the beach, crews are using equipment to move the new sand until it matches the design profile.

Beach renourishment in Pinellas. Elsewhere, the corps' Jacksonville District, announced that construction operations will begin for the Pinellas County Beach Erosion Control Project in January.

A portion of the work is in response to impacts from Tropical Storm Debby's passage in 2012, and is federally funded under the Flood Control and Coastal Emergency program.

The corps awarded the Pinellas County construction contract to Weeks Marine Inc.

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ates, a New Hampshire-based environmental firm with a Gainesville, FL, office, where he now serves as senior regulatory specialist.

West said that wind power and other alternative sources of energy began to lose favor in Tallahassee during the 2012 session when HB 7117 passed, repealing legislation that allowed utilities to recover costs for renewable energy production.

"Without the previous law, renewable energy—not just wind energy —would not be competitive with natural gas," he said. "Without that legislation, the (Public Service Commission) will not approve projects that are above avoided costs."

In simple terms, the ground rules had changed and it was now a given that it would cost more to produce energy from wind than from natural gas.

"Alternative energy is crucial for Florida sustainability, but it has to be the right kind in the right place," said Jane Graham, Everglades policy associate with Audubon Florida.

"Hundreds of whirling blades on Statue of Liberty-sized turbines on a key flight path for Everglades and migratory birds would have posed an unreasonable risk," she said.

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remaining in early restoration funding. How it will be spent has not been decided.

Regalado noted that early restoration program funding from BP has been very valuable.

Usually, she said, restoration work begins only after a natural resource damage assessment is completed.

But that assessment in the Gulf is so complex, it will take years to complete.

"Early restoration funding lets us begin earlier than usual in the natural resource damage assessment process," she said.

This time around, many Florida projects are candidates for funding.

DISINFECTION
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WWT II is produced in the U.S. and delivered to plants through a national network.

Its purity and stability results in a 12-month shelf life under normal storage conditions and the complete offering includes chemistry, storage and dosing equipment, instrumentation and process control, training, maintenance and regulatory support services, and a true process performance guarantee.

VigorOx WWT II is U.S. Environmental Protection Agency-registered disinfection technology specifically formulated for wastewater treatment.

It has been used in the U.S. for more than two years as a primary disinfectant in municipal wastewater plants with consistent results.

As more municipal wastewater treatment plants look for safer, more cost-effective ways to treat wastewater effluents, VigorOx WWT II offers a proven chlorine alternative that can meet their treatment needs.

Kwok-Keung (Amos) Au, PhD, is the technology application manager for water treatment at FMC Global Peroxygens.

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years to clean the sites up," Leary said. "We really have our work cut out. We need $25 million to $40 million a year (to make progress)."

While that level of spending is highly unlikely to be approved by state lawmakers anytime soon, Leary said his goal is to restore funding for the program back to $10 million a year.

Besides reducing the pace of cleanup work, the funding cuts also affect environmental professionals who depend on the work for their livelihoods.

"A number of companies took a pretty big hit with the loss of work in the drycleaning program," Leary said.

The state's slowly improving economy makes the prospects better for increased funding. "It looks like this year is shaping up to be a year where there will be a lot of focus on water issues. This program falls right in line with that," Leary said.

He said cleaning up contaminated drycleaning sites is very important because of the environmental hazards associated with the pollution.

"You can't see it or smell it, and there is no immediate impact," he said. "But studies have shown that some of the chemicals from the drycleaning sites are linked to childhood leukemia. This stuff goes through concrete. It makes petroleum look like Kool-Aid."

Leary believes there is a lack of knowledge and understanding about the program.

"I believe that both the drycleaning and petroleum cleanup programs are critically important to protecting our groundwater. We have a long road ahead of us," he said.

"We have to educate legislators about the potential disasters that could happen if the public water supply is affected. We are talking about just a few million dollars to get the program back to where it was a few years ago."

The Florida Department of Environmental Protection has requested $6 million in fiscal year 2014-15 for the program.

Mara Burger, a spokesperson for department, said it is difficult to estimate the average time for a site cleanup.

"Site times vary significantly with the degree of contamination present," she said. "That variability, combined with the range of geologic settings in Florida, make cleanup vary considerably. Natural attenuation strategies can extend cleanup times and technological advances can shorten them."

Burger said a site may qualify for natural attenuation monitoring under some conditions or may require active cleanup.

In any event, Leary believes the time for action is now. "Contamination from drycleaning sites is a serious matter," he said. "If it gets into potable groundwater supplies, it is deadly toxic."

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