

Florida Specifier

Practical Information For Environmental Professionals

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Volusia water quality 5

Volusia County officials have asked all 16 cities within the county to work together in a effort to solve serious water quality problems in its springs, rivers and lagoons.

USGS stream study 6

According to a new study from the U.S. Geological Survey, pesticides are more likely to occur at measurable concentrations in urban streams than in streams designated as agricultural or mixed use. Urban streams are also more likely to have pesticide measurements that exceed biological benchmarks than streams in other categories.

“Significant nexus” 7

The U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers proposed expanding the Clean Water Act to include additional waterbodies currently without federal protection. The proposed rule seeks to extend CWA protection to waterbodies, including wetlands, not currently protected using the new term “significant nexus” to show their link to existing “waters of the United States.”

2014 FRC wrap 1, 9, 10, 12

For those unable to attend the 20th Annual Florida Remediation Conference, our writers provide a review of conference highlights. In addition, Steve Hilfiker weighs in with his take on the future of the state’s Petroleum Restoration Program and how the cleanup industry can best ensure success with protecting our state’s fragile drinking water supplies.

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Got a story lead?

Got an idea for a story? Like to submit a column for consideration? Fire away. And don’t forget to fill us in on your organization’s new people and programs, projects and technologies—anything of interest to environmental professionals in the state. Send to P.O. Box 2175, Goldenrod, FL 32733. Call us at (407) 671-7777; fax us at (407) 671-7757, or email mreast@enviro-net.com.

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Cleanup of naval site in Key West winding down

By PRAKASH GANDHI

Naval Air Station Key West officials have made progress with the cleanup of Truman Waterfront in Old Town.

The work is awaiting final administrative approval from state environmental officials.

The U.S. Navy gave the city of Key West much of the Truman Waterfront property as part of its Base Realignment and Closure process that began in 1995.

Initial plans called for the site to become part of the city’s port operation division, but it was later designated for use as a park and proposed assisted living center.

However, environmental officials discovered that the site had some environmental issues. In 2009, tests indicated that the soil contained lead and PCBs exceeding allowable levels. The Navy has been excavating the soil and trucking it to Miami where it is being recycled.

The Navy first began efforts aimed at cleaning up contamination to levels safe for industrial use in accordance with state Department of Environmental Protection standards, but have since decided to clean it up to the stricter levels required for recreational use.

Russell Budell, a DEP spokesman, said the department has been operating alongside the city of Key West in helping the Navy’s BRAC program at the base become an environmental success story.

Efforts to ensure an environmentally sound future for the area, especially Truman Waterfront, are currently underway, Budell said.

Once work is complete and the Navy finishes up some paperwork, the department can issue a site rehabilitation completion order indicating that the property can be used as a park.

Jim Bouquet, director of engineering for the city of Key West, said the work will not be completed until all land use controls are finalized. That may take between six and eight months, he said.

Meanwhile, the city of Key West is forging ahead with its plans for the site.

“We are proceeding with Phase 1 of our park and will start construction next summer,” Bouquet said.



Photo courtesy of FAU Harbor Branch, Fort Pierce

Dr. Brian Lapointe, research professor with the Harbor Branch Oceanographic Institute at Florida Atlantic University, has spent decades studying the impact of humans on aquatic ecosystems. Here, he is up to his elbows in drift algae in the Indian River Lagoon.

Sewage pollution in the Indian River Lagoon: Science points to proliferation of septic tanks in loss of seagrass, wildlife

By STEVE GIBBS

The Indian River Lagoon is a narrow channel of brackish water that extends nearly 160 miles down the spine of Florida’s Atlantic coast.

While not as well known to outsiders as the Everglades or Florida Keys,

the lagoon is an estuary of national significance and vitally important to many species of wildlife, including endangered manatees and sea turtles.

The estuary also contributes significantly to Florida’s economy. For those reasons, the environmental health of the IRL is, in many ways, essential to the health of Florida’s east coast.

Given the importance of the Indian River Lagoon, everyone was alarmed in 2013 when more than 162 manatees, 300 pelicans and 76 bottlenose dolphins—all in the northern IRL system of lagoons and inlets—died of unknown causes.

High casualty rates for these species have continued over the past year with another 49 manatees dead as of late August. These animals are iconic symbols of the state, much like the alligator and panther, and tourists flock to the IRL to see them.

However, their demise was more than a blow to tourism. It also indicated a much more serious problem with the waterway itself. Clearly something was wrong with the complex ecosystem,

A general liability insurance policy covers any third party damage that is not specifically excluded. Before 1972, there were no pollution exclusions included in general liability policies.

FRC
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IRL
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Wide range of talks, panels highlight 20th Annual FRC Conference

By PRAKASH GANDHI

Insurance recovery should be viewed as a major source of funding for environmental cleanups, top experts said at the Florida Remediation Conference in October.

Speaking at the 20th Annual FRC in Orlando, John Malanchuk, PhD, principal with Eisenstein Malanchuk LLP in Washington, DC, and John Fumero, Esq, an attorney with Nason Yeager Gerson White & Lioce PA in Boca Raton, discussed the need to find new ways to fund environmental cleanups.



They said it was vital for any company, city or county to evaluate the merits of insurance recovery. Both speakers said that if a policyholder fails to do this, they are leaving a major source of funding for environmental cleanups on the table.

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DEP signs performance partnership agreement with EPA for federal grants

Staff report

The Florida Department of Environmental Protection and the U.S. Environmental Protection Agency signed a 2015-2017 Performance Partnership Agreement.

The agreement applies to five EPA programs: Clean Air Act grants, Clean Water Act grants, Underground Injection Control grants, Potable Water Supply System grants and Resource Conservation and Recovery Act grants.

According to the agency, these are “tools developed by EPA and the state in the 1990s to increase funding flexibility and focus on environmental results to enhance the EPA-state partnership.”

The agreement fosters a consolidated work plan “to further promote innovative approaches and simplify grant management while increasing agency and state accountability.”

The agreement includes a list of state strategic goals and activities within the framework of the agreement over a three-year period.

Florida will provide resources to manage the work.

Keys water temp up. From July to September, marine water temperatures around the Florida Keys were about 2°F

warmer than typical water temperatures in the Keys a century ago.

Back then, water temperatures averaged about 84°F. But from July to September this year, they were 86°F, on average.

The two-degree increase in temperatures has been typical of most of the last 20 years in Keys’ waters. This temperature increase correlates with slower coral growth rates and an increased occurrence of coral bleaching.

The U.S. Geological Survey reported the temperature data for the Keys.

Smartway freight leaders.

Eleven shippers and logistics companies received the EPA’s SmartWay Excellence Awards that honor freight companies who “model environmental leadership and innovation as they move goods across America.”

The winners must be in the top five percent of SmartWay performers improving fuel efficiency, reducing greenhouse gas emissions and reducing air pollution.

Freight companies accomplish this primarily by reducing fuel consumption, increasing fuel mileage efficiency and reduc-

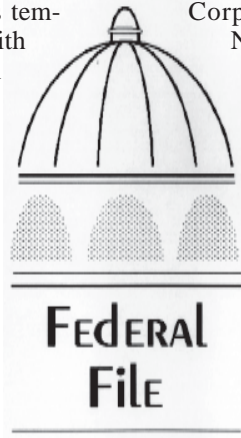
ing pollution while meeting the transportation and freight hauling needs of their customers.

The following companies received the honor this year: Hewlett-Packard, Lowe’s Companies Inc., The Home Depot USA Inc., Johns Manville, Kimberly-Clark Corp., SC Johnson and Son Inc., Nordstrom Inc., Expeditors International of Washington Inc., Menlo Logistics, Ryder Supply Chain Solutions and ShipCarsNow.

The EPA launched its SmartWay program in 2004. Clean air achievements since the program’s inception include reducing over 50 million metric tons of carbon dioxide, the equivalent of 120 million barrels of oil, or emissions from 10 million cars per year.

The program also reduced approximately 738,000 tons of nitrogen oxide and 37,000 tons of particulate matter released to the atmosphere.

In addition to its excellence awards, EPA’s SmartWay program includes a Verified Technologies program that evaluates aerodynamic technology, idle reduction technology, low rolling resistance tires and



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retrofit technologies that vehicle operators may use to increase vehicle efficiency and reduce air emissions.

DERA grants. The EPA announced a second round of grants to reduce diesel emissions at ports, under the Diesel Emission Reduction Act.

The agency plans to award \$5 billion in grant funding to support clean diesel projects that reduce emissions from marine and inland water ports located in areas of poor air quality.

The agency expects to award between two and five grants, depending on the proposals received.

The projects include modifications, updating or replacement of drayage trucks, marine engines, locomotives and cargo handling equipment.

Applicants can include port authorities, governmental or quasi-governmental public agencies that operate ports, and state and local governments with jurisdiction over air quality at ports.

An applicant may request up to \$2 million. Proposals are due by Dec. 11.

The EPA gives highest priority to projects in counties with poor air quality resulting from diesel emissions.

Florida has 12 counties on the EPA’s priority list. Eight of those are coastal counties that might qualify, including Brevard, Hillsborough, Duval, Broward and Miami-Dade counties.

In 2010, Florida participated in DERA-sponsored grants to replace or upgrade diesel school buses, and in 2009 to replace or upgrade construction equipment, but none since then.

With the recent wave of Florida port expansion, these grants could help reduce diesel air emissions due to increased activity at Florida’s ports.

Conservation grant. The Florida Department of Agriculture and Consumer Services received a \$1 million Conservation Innovation Grant from the U.S. Department of Agriculture.

The program, funded by the USDA’s Environmental Quality Incentive Program, provides funding to individual farmers and ranchers to help them become more energy efficient.

The grant encourages farmers to develop and adopt “innovative energy conservation practices.”

The USDA’s Natural Resources Conservation Service has administered the grants since 2004. This is the first time FDACS applied for a grant from the USDA.

A spokesperson for FDACS said that energy efficiency and renewable energy demonstration projects for the agricultural industry are “underserved areas.” The spokesperson said that these grants could not only help farmers and ranchers to be more energy-efficient but could help them learn more about—and implement—different energy sources.

The Florida Farm Bureau, the National Association of State Energy Officials and FDACS’ Office of Agricultural Water Policy will help create a formal application acceptance and review process that will award grants to individual farmers and ranchers.

Florida’s grant program will focus on “innovative water conservation efforts.” FDACS officials plan to visit farmers to evaluate potential needs under the program and help them apply for the funding.

In addition to the \$1 million supplied by this grant, FDACS has an additional \$2 million from farm-to-fuel funds, unspent over the last two years. That money will be combined with the current grant program that is expected to continue for three years.

Examples of energy efficient technology adopted by farmers elsewhere include variable speed drives for irrigation pumps, conservation crop rotations and tillage practices, and efficient lighting and heating in animal holding facilities.

FEDFILE

Continued on Page 15

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State purchases substantial acreage on Sugarloaf Key

Staff report

The state approved the purchase of 925 acres known as the Johnson Tract on Sugarloaf Key in the Florida Keys.

The acquisition was funded through the Florida Forever program that provides for the purchase of environmentally fragile land.

The deal is one of the most significant land purchases in the Florida Keys in the 13-year history of the program.

The Johnson Tract is the largest undeveloped privately owned land area in the Keys' Florida Forever project area. It contains valuable natural resources and is surrounded by conservation lands.

The property contains more than 13,000 acres of environmentally sensitive land, about half of which has been acquired through the state's Florida Forever program.

DEP/Collier agreement. In October, the Florida Department of Environmental Protection finalized a stipulated agreement with Collier County, clearing the way for the county to join DEP in its lawsuit against the Dan A. Hughes Company.

The company injected a dissolving solution at high pressure into the ground to force openings in rock formations prior to state regulatory review of the procedure.

Regulatory officials were concerned that the technique could cause groundwater contamination.

The suit, filed in July, requests the court's enforcement of the requirements under the consent order between DEP and the Hughes Company.

It seeks monetary penalties of more than \$100,000 as a result of the company's violation of the terms of the consent order and other regulations.

DEP has already begun work at its own expense on numerous additional protective measures to ensure that residents are safe.

The department drilled shallow groundwater monitoring wells near the Collier-Hogan site and continues to monitor them for contamination.

In addition, it hired a team of experts to assess activities that took place at the Collier-Hogan well.

Miami parks update. The Miami-Dade County Parks, Recreation and Open Spaces Department closed the athletic fields at Colonial Drive Park due to elevated levels of toxins found in the soil.

A test by the county's Division of Environmental Resources Management found higher than normal amounts of arsenic in the soil. The closed area is expected to reopen in about six months.

The soil tests are part of a review of all 263 parks in the county. So far, the county has evaluated 215 park sites and deemed them safe for public use.

In other parks news, the Miami City Commission labeled six city parks that are contaminated with toxic soil as brownfield sites.

Under Florida law, the brownfield designation provides a statutory incentive—through tax credits, funding and liability protection—for property owners to cleanup contaminated sites.

City of Miami officials are trying to reach deals with county environmental regulators before legal challenges to the city's toxic park cleanup program can be filed.

Some nearby residents are threatening to sue the city, claiming that its cleanup plan fails to adequately protect park users and diminishes adjacent property values.

Orlando Drum. Officials are seeking tax credits and other funding through the state brownfield program to cleanup the Orlando Drum & Container Corp. site in South Orlando.

The total cost of the cleanup is expected to be between \$5 million and \$8 million.

The company hopes to get a tax credit for 35 percent of the voluntary cleanup costs and 45 percent during the final year of the cleanup.

The state brownfield program also provides \$2,500 for each job created resulting from a cleanup.

Orlando Drum provides containers for industrial use, including storage for concentrated orange juice, citric acid and petroleum products.

Landfill expansion. Orange County commissioners have approved an Apopka-area landfill expansion.

Commissioners voted to allow Hubbard Construction Co. to convert its 220-acre site from a construction landfill to a Class II landfill that can accept recyclable and reusable materials including paper, plastic and wood.

Hubbard originally asked commissioners for the change last year but were turned down. The company sued over the denial and the court sided with Hubbard.

People news. Scott Burch, PE, joined Gannett Fleming as operations manager of the firm's Florida Earth Science & Hydraulics group. Based in Jacksonville, Burch is responsible for the management, business development, strategic growth and

profitability of the firm's ES&H operations throughout Florida.

Additionally, he is charged with establishing a Center of Excellence in Florida for geotechnical engineering.

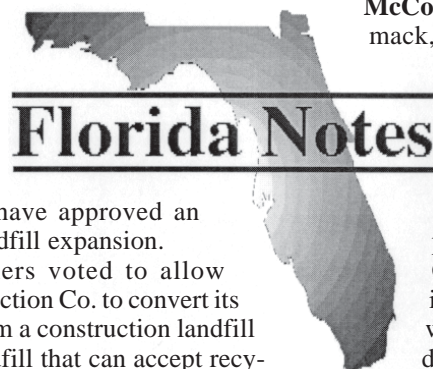
McCormack passes. Fred McCormack, an environmental attorney who served as general counsel to the Florida House of Representatives in the 1980s, passed away in October.


He was at one time a partner in Tampa's Blain & Cone law firm before working for the Florida Legislature where he was involved in drafting several water quality and growth management laws.

He later joined the Tallahassee law firm of Landers & Parsons, specializing in environmental law.

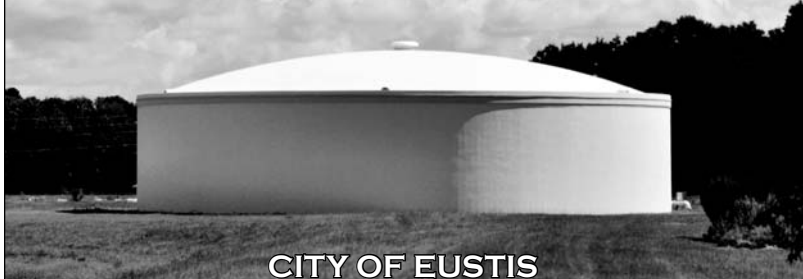
McCormack, a journalist before attending law school at Florida State University, opened his solo practice in Tallahassee in 2005.

Editor's note: Fred was a long-time "friend of the Specifier" who contributed columns, spoke at our meetings and pointed us in the right direction when we needed help. We will miss him.






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New management for IRL National Estuary Program under review

Staff report

A newly proposed independent organization that would oversee management of the Indian River Lagoon National Estuary Program is under review.

The new management group, as outlined in a draft agreement, would include representatives of the five counties along the lagoon, the two water management districts the lagoon is part of and the Florida Department of Environmental Protection.

In addition, there would be a management committee, a citizens committee and a technical committee. The management

committee would be similar to those that are part of the Sarasota and Tampa Bay estuary programs.

Currently, the Indian River Lagoon National Estuary Program is managed by the St. Johns River and South Florida water management districts. It receives \$539,000 in funding from the EPA and contributions of staff activity from the water management districts.

The proposed organization would receive about \$50,000 from each of five counties: Volusia, Brevard, Indian River, St. Lucie and Martin. The Florida Department of Environmental Protection has

committed \$250,000 and each of the water management districts will pony up \$500,000.

The federal government will likely continue to provide some level of funding.

Backers of the plan see an annual budget increasing to about \$2 million per year, a substantial bump up from its present level. The new organization would also have the ability to seek and accept donations and private funding. The proposed plan is currently under legal review by all involved.

The proposed group's stated goals will be improving water quality, restoring habitat and fish populations, overseeing a comprehensive conservation and management plan, and increasing public recreation access.

Ichetucknee, Lower Santa Fe MFLs. Administrative Law Judge Bram D.E. Canter invalidated minimum flows and levels recently established by the Northwest Florida Water Management District for the Ichetucknee and Lower Santa Fe rivers.

The decision was based on narrow technical rules and, for the most part, will likely be corrected by procedural revisions to the NWFWM's rule.

The judge ruled the MFLs invalid because technical supporting documentation was vague. Specifically, Canter found that DEP omitted the period of record when it determined the flow duration curve for the two rivers.

The judge also said that DEP left out "synthetic data used to fill gaps in data sets consisting primarily of direct measurement."

The water management district said that information is available in a technical supporting document that could be incorporated into the rule to meet some of the judge's criticisms.

DEP faced the threat of lawsuits from both local utilities and environmental activists in setting MFLs for these rivers.

Utilities that use groundwater threatened a lawsuit that resulted in DEP not including the negative impacts of groundwater pumping by utilities, agricultural operations or other users who hold groundwater withdrawal permits.

As a result, DEP included provisions in the MFL rule that require it to renew permits for up to 20 years for those users, as long as they do not request increases in allocation.

In response, the Ichetucknee Alliance, joined by Earthjustice and Paul Still with the Bradford Soil & Water Conservation District, challenged the ruling in court.

While the court ruled in the plaintiff's favor to invalidate for only one of multiple points in the lawsuit, the environmental consortium hopes that the water management district will propose a new rule that addresses groundwater with-

drawals that affect minimum flows and levels in the two rivers.

Turkey Point cooling water. The South Florida Water Management District approved an emergency request from Florida Power & Light to allow the company to pump up to 14 million gallons per day from the Floridan Aquifer for use as cooling water at its Turkey Point Nuclear Generating Station near Homestead.

Because of low rainfall and high temperatures, cooling water in a series of closed canals has routinely been as high as 102°F during July, August and September.

This summer, the Nuclear Regulatory Commission approved operation of the nuclear plant when its cooling water exceeded the usual statutory limit of 100°F.

Approval for the plan to withdraw water from the Floridan for additional cooling now awaits a vote by the Miami-Dade Board of County Commissioners.

Stuart drinking water distribution. The city of Stuart received a \$5 million loan to replace almost 60,000 feet of aging water distribution pipes, and to install flex net and smart meters.

The upgrade will allow residents to improve water conservation practices and utility staff to better isolate water leaks.

The project is primarily intended to upgrade city pipes before significant corrosion problems occur. When the new pipes are installed, in a project expected to take 18 months, it will meet the city's projected needs for the next 15 years and increase the system's capacity to six million gallons per day.

Stuart will receive \$5 million from the Drinking Water State Revolving Fund. The fund was established by the U.S. Environmental Protection Agency several decades ago and is periodically augmented.

It loans money at low interest rates for construction of improvements in public drinking water systems. As loans are repaid with interest, the revolving fund increases in size and continues to make additional loans.

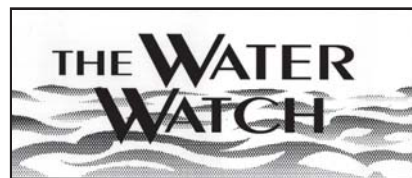
Clearwater aquifer study. This summer, the city of Clearwater and its contractor completed a one-year pilot study to evaluate multi-barrier advanced treatment process purification to produce three million gallons per day of reclaimed water that could be used for aquifer replenishment.


The treatment process includes ultra-filtration, reverse osmosis, advanced oxidation, membrane contactors and post-treatment stabilization. The final step includes dissolved oxygen removal to produce water that could be injected into anoxic aquifer strata.

The contractor assisted with data collection, review of system operations, troubleshooting and recommendations for operational adjustments and membrane cleaning, water quality sampling and monitoring, emerging constituent challenge testing and support of the city's public education outreach program.

The Southwest Florida Water Management District and the city of Clearwater funded the project.

Punta Gorda RO. The city of Punta Gorda received \$900,000 in Department of Environmental Protection funding for



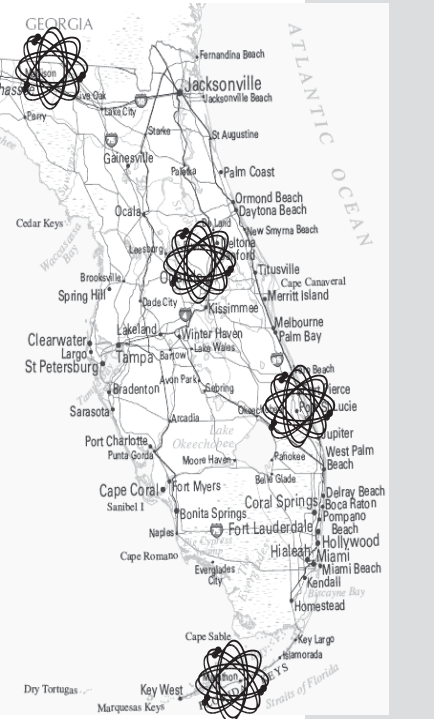


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WATCH _____
Continued on Page 5

Volusia officials press forward with water quality improvement plans

By PRAKASH GANDHI

Volusia County officials want their cities to work together in a effort to solve the serious water quality problems in springs, rivers and lagoons across the county.

The county has asked all of its 16 cities to set goals for improving water quality in its waterbodies.

So far, the county has received strong support from mayors and managers with many of the cities. Officials said they're willing to honor the county's request because they believe water quality is an important issue.

County officials are under public and state pressure to improve water quality in many waterways, including Blue Spring and other springs, Mosquito Lagoon, the Indian River Lagoon, and the Halifax and Tomoka rivers.

The county met with most of the 16 cities in a joint workshop on water quality challenges this summer.

WATCH

From Page 4
the design of a reverse osmosis water treatment plant and brackish groundwater supply project.

Currently, Shell Creek is the primary drinking water source for the city. That source is supply-limited, so taking water from it sometimes violates MFL targets for the creek.

Construction of a water well and reverse osmosis treatment plant is expected to cost \$28 million.

City officials said they plan to work with the DEP, the Southwest Florida Water Management District and other agencies to secure additional funding for construction of the water treatment plant.

GRU gets 20-year renewal. Gainesville Regional Utilities received a 20-year renewal of its groundwater pumping permit, allowing it to pump up to 30 million gallons a day from the Floridan Aquifer.

The St. Johns River Water Management District Governing Board approved the permit as part of a consent agenda.

The permit renewal was controversial because current conditions in the Lower Santa Fe and Ichetucknee rivers are below recently established MFLs, partially due to area groundwater withdrawals.

In granting the permit renewal, the water management district noted that GRU has undertaken significant aquifer recharge projects including sending water through Paynes Prairie and the Alachua Sink.

In addition, GRU pledged to implement two additional wetlands recharge projects by 2019 that will return between 0.75 - 1.5 million gallons a day to the aquifer.

The utility withdraws about 23 million gallons a day, substantially less than its permitted quantity.

When it approved the permit, the water management district reserved the right to revoke the permit if GRU's pumping interfered with other legal uses of water, or has significant adverse effects on wetlands, lakes, springs or rivers, including causing them to drop further below MFL targets.

Water monitoring network. The Northwest Florida Water Management District and the U.S. Geological Survey entered into a joint funding agreement for stage and discharge monitoring at 10 stations within the district.

The agreement covers five existing stations and the establishment of five new ones to support the district's development of minimum flows and levels for Wakulla Springs and St. Mark's River Rise.

The funding agreement includes \$170,900 in NFWMD funding for the next fiscal year, with USGS contributing \$92,500. The cost of gauges along Spring Creek will be evenly divided between the district, DEP and the city of Tallahassee.

Five new stations established under the agreement will be installed at Fisher Creek, Black Creek, St. Mark's River Sink and

A new county resolution, approved in October, includes seven goals, including identifying projects and committing funding, improving the treatment of wastewater and stormwater, and promoting clean water initiatives.

The projects are expected to include the phasing out of septic tanks in many areas and reusing more wastewater instead of dumping it into area waterways.

Volusia Spokesperson Joanne Magley said the county asked the cities to pass resolutions committing to work together on the same goals, and to partner on efforts to lobby state and federal officials, seek grants and participate in educational programs.

"The county-wide water quality workshop held this past June was significant in that nearly every city spoke of their efforts and future plans to improve water quality," Magley said.

She said Volusia County is working with cities on projects and education.

"We're also looking for grants, work-

two sites along Lost Creek. The existing stations are located at Telogia Creek, Yellow River, Spring Creek and two sites on the Apalachicola River.

The data will be uploaded in real time to both USGS and district websites.

Blountstown wastewater upgrades. The city of Blountstown received a \$900,000 grant from the Florida Department of Environmental Protection.

The funding allows the city to install an additional lift station and force main in the wastewater collection system.

Blountstown has experienced significant growth in the past 20 years, and occasionally, volumes handled by the wastewater treatment collection system exceed design capacity.

The new lift station and force main will allow bifurcation of current flow aimed to reduce the release of wastewater to surface waters.

Ware Creek project delayed. The Ware Creek widening project in Hillsborough County was temporarily suspended in late September because of a dispute between the U.S. Army Corps of Engineers and its contractor.

In response to a query in mid-October, a corps spokesperson said they had terminated the contractor at Wares Creek and were in the process of securing a new contractor to complete the work.

The time frame for doing that could be a couple of months.

The Wares Creek project is part of a stormwater management system.

ing with universities and non-profits on research and restoration needs, and actively lobbying for funds at the state and federal level," Magley said.

At the workshop, officials discussed the need to reduce the number of septic tanks, especially aging ones that may be failing.

Volusia County ranks eighth statewide in the number of septic tanks it has, according to estimates from the Florida Department of Health.

At least 98,428 homes and businesses in the county have septic systems—at least one-third of all developed lots.

County officials said it's important that the cities work with them on setting priorities and in applying for grants to help pay for projects that could improve stormwater and wastewater treatment.

The Indian River Lagoon has been among the hardest hit with poor water quality.

But the same issue has also affected Blue Spring and Gemini Springs and the St. Johns and Halifax rivers.

Volusia officials are anxious to press forward with their efforts to improve water quality and have directed staff to have an action plan ready later this year.



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USGS study: Urban streams are most polluted across the U.S.

By ROY LAUGHLIN

Pesticides—including insecticides, herbicides and fungicides—are more likely to occur at measurable concentrations in urban streams than in streams designated as agricultural or mixed use.

Urban streams are also more likely to have one or two pesticide measurements that exceed biological benchmarks than streams in other categories.

But regardless of the stream designation, just a few pesticides account for most of the exceedances in streams.

These conclusions were recently presented in a new study “Pesticides in U.S. Streams and Rivers: Occurrence and Trends during 1992-2011” from U.S. Geological Survey scientists. Their data span the years from 1991 to 2011.

The study is based on two data sets, the first obtained between 1992 and 2001 and the second from 2002 to 2011.

Aquatic-life benchmark exceedances dropped a little for agricultural streams, 69 percent during 1992–2001 versus 61 percent during 2002–2011, while mixed-use streams were similar during both periods, 45 percent during 1992–2011 versus 46 percent in the more recent time period.

Urban stream numbers increased from 53 percent during 1992–2001 to 90 percent during 2002–2011.

With respect to human-health benchmarks, trends were much tamer. Only one agricultural stream yielded a sample that indicated a health risk to humans. Specifically, urban and mixed use streams contained none of the measured substances above human health benchmarks.

Aggregate statistics can be parsed a bit more specifically to indicate that two pesticides most commonly occurred in water samples.

The herbicide atrazine, used to prevent pre- and post-emergence broadleaf weeds in crops and turf, and its breakdown products consistently occurred in 70 percent or more of samples taken from all three types of streams. It is slightly less prevalent in urban streams.

Fipronil, an insecticide that disrupts the central nervous system of insects, and its breakdown products are the most common in urban streams with a frequency of 70 percent. Carbaryl is a second urban insecticide, occurring in 50 percent of urban streams, but at much lower frequencies in agricultural and mixed-use streams.

The study’s interpretations come with a few caveats. In 2002, five analytes, in-

cluding fipronil were added to the study. Fipronil came to market in the late 1990s and rapidly replaced other pesticides. The substantial decline in the use of diazinon and chlorpyrifos likely reflects their substitution by fipronil and pyrethroids.

The report showed that generally, the occurrence of atrazine in water samples decreased slightly in the second decade of measurements compared to the first, but the decline was less marked than in the insecticide substitution cases.

The study did not measure glyphosate. Its use with genetically modified crops has swelled to 50 percent of all herbicides used in the past few years. Atrazine presence in recent samples has declined just a few percent in the recent decade when compared to the 1990s in both agricultural and urban streams and is unchanged in mixed-use streams.

Overall, the use of the pesticides measured in the study has declined in the twenty years of coverage with a much shallower downward trend in the recent decade compared to the study’s first decade. A

divergence in the use pattern of insecticides and herbicides is occurring.

Total application of herbicides is increasing substantially, mostly because of glyphosate use, while the application of insecticides is stable or on a downward trend with a very shallow slope.

The study included six streams from South Florida to the Panhandle out of 182 streams assessed in the study’s first decade, and 125 in the recent one.

Overall, peninsular Florida is one of the nation’s hot spots, showing a triangular region with its base across the state near Lake Okeechobee and its apex near the intersection of I-75 and I-10. This roughly corresponds to the state’s agricultural lands and its major population corridors.

The report should raise concerns that more can be done to reduce pesticide contamination in urban streams.

The positive news is that only a limited number of chemicals are the cause of the growing prevalence of pesticides and that may make control measures easier to implement across the country.

CCUA, SJRWMD partner on redesign of Mid-Clay Reservoir project

By BLANCHE HARDY, PG

This summer, the St. Johns River Water Management District Governing Board approved an amendment to an agreement with the Clay County Utility Authority to fund the redesigned Mid-Clay Reservoir project.

The CCUA project agreement with the district was originally executed on June 30, 2013, but it was determined that the originally proposed reservoir could not be constructed on the site. CCUA redesigned the project as a series of infiltration ponds.

The board’s decision will allow construction of a newly redesigned 135-million-gallon reclaimed water storage reservoir in Middleburg in north central Clay County.

CCUA Executive Director Tom Morris confirmed that the final design was received and is now under review.

The Mid-Clay Reservoir project is part of the district’s North Florida Aquifer Replenishment Initiative to protect and maintain regional aquifer levels by capturing water to recharge the Upper Floridan Aquifer.

The initiative is intended to benefit lakes, springs and wetlands; assist in achieving minimum flows and levels; and contribute to sustaining current and long-term water supply needs.

The district is strongly supporting the

implementation of aquifer replenishment projects to minimize the need for more costly alternatives such as desalinated seawater as an alternative water supply source.

CCUA and the district anticipate the new Mid-Clay Reservoir design will save \$468,200 in state funds and \$1.17 million in district property tax funds. The district will fund approximately half, up to \$1.13 million, of the estimated \$2.43 million total project cost.

Morris said the next step is to put the project out to bid, anticipating construction to begin as soon as the permitting process, studies and bid process are complete.

The project meets the district’s NFARI criteria through sustaining current groundwater supplies by replenishing the Keystone Heights aquifer recharge area and providing additional water storage capacity in excess of the 63 million gallons needed to meet the CCUA’s projected reclaimed water supply needs.

The district and CCUA have a long history of working together to protect water quality and conserve water resources by implementing reclaimed water supply projects to reduce wastewater effluent discharges to the lower St. Johns River and provide alternative supply to meet demand for landscape irrigation water from the Upper Floridan Aquifer.

The reservoir project also provides additional water to meet reclaimed water demand, further reducing demand on the Floridan. The reservoir is projected to reduce withdrawal from the aquifer by approximately 16 million gallons a year.

Additionally, CCUA’s engineers worked in conjunction with the district and the Florida Department of Environmental Protection to redesign the reservoir project to enhance water quality.

The newly designed reservoir is anticipated to result in the reduction of 19,374 pounds of nitrogen to the St. Johns River. The original reservoir design anticipated removing 9,500 pounds of nitrogen.

Implementation of CCUA’s redesign will allow reclaimed water to be stored and treated in a series of nine land surface infiltration cells. Reclaimed water will be discharged into the cells at the highest elevations, allowing water to percolate into the surficial aquifer as well as be stored in the soils beneath the site.

A portion of the water will be collected as it travels down-slope through soils into a subsurface collection system from which it will be pumped into CCUA’s reclaimed water distribution system to augment reclaimed water supply.

The system will provide a maximum storage and recharge capacity of about 2.2 million gallons per day of water that would otherwise have flowed into the St. Johns River.

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"Significant nexus:" EPA's key to protecting wetlands and streams?

By ROY LAUGHLIN

Last spring, the U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers proposed expanding the Clean Water Act to include additional water bodies and wetlands currently without federal protection.

The proposed rule seeks to extend CWA protection to streams, seasonal streams, wetlands, as well as waterbodies and streams not currently protected using the new term "significant nexus" to show the necessary link to existing "waters of the United States," and thus to qualify them for CWA protection.

"Significant nexus"

The new Clean Water Act term "significant nexus" means that a water, including a wetland, either alone or in combination with other similarly situated waters in the region, significantly affects the chemical, physical or biological integrity of a water [identified in paragraphs (s)(1) through (3) of this section]. For an effect to be significant, it must be more than speculative or insubstantial. Other waters, including wetlands, are similarly situated when they perform similar functions and are located sufficiently close together or sufficiently close to a "water of the United States" so that they can be evaluated as a single landscape unit with regard to their effect on the chemical, physical or biological integrity of a water [identified in paragraphs (s)(1) through (3) of this section].

Defining the connectedness is essential to the rule revisions because of two U.S. Supreme Court decisions that left unclear boundaries as to waters of the U.S., one essential to coverage under the Clean Water Act.

The proposed rule's primary intent is to establish a definition consistent with the court's ruling that will give the EPA and corps the authority to preserve ponds, wetlands and streams that improve water quality and quantity to uncontested waters of the U.S.

To back its position with science, the EPA assembled a Science Advisory Board that prepared a summary and synthesis of science on the subject entitled "Connectivity of Streams and Wetlands to Downstream Water: A Review and Synthesis of the Scientific Evidence."

The report characterizes the benefits of wetlands and streams to water quality in those waters that are unambiguously waters of the U.S.

A key theme in the SAB report is the substantial contribution currently unprotected water bodies, even seasonal streams and "isolated" wetlands, make to water quality, quantity and flood control and are

Milestone reached in Picayune Strand project

Staff report

In late October, the U.S. Army Corps of Engineers Jacksonville District celebrated the completion of a major construction effort for the Picayune Strand Restoration Project. The project is being conducted in partnership with the South Florida Water Management District as part of the Comprehensive Everglades Restoration Plan.

Restoring Picayune Strand includes the plugging of 48 miles of canals, removing 260 miles of roads and constructing three major pump stations, all of which will restore more than 55,000 acres of natural habitat in an area once partially developed for an intended residential area.

The corps completed construction of the Merritt Pump Station last month as part of a contract that marks a significant step forward in Everglades restoration.

The Merritt Pump Station is a key piece of infrastructure for the Picayune Strand Restoration Project that will maintain current levels of flood protection while directing fresh water to drained wetlands located downstream.

In addition to the pump station, the contract includes 95 miles of roadway that were removed and degraded, and about 10 miles of canals that will be plugged to restore the natural flow of water in the area.

thus essential to the Clean Water Act's goals.

The functional relationships described by example and technical characterization became the basis for the agency's significant nexus definition.

The SAB released its draft report in September 2013. The EPA followed with a proposed rule published in the Federal Register in April 2014.

Science in the SAB's report may hold up well under peer review scrutiny, but that peer review has yet to be released.

The SAB communicated an opinion about significant nexus in the rule before it released its report. In September, the

SAB sent a review of the proposed rule to EPA Administrator Gina McCarthy with only one significant comment: The board asked the EPA to more explicitly define significant nexus language in the rule to justify applying Clean Water Act protections to wetlands, streams, seasonal streams and other waterbodies to be included. The request specifically asked that EPA make clear that significant nexus is not a scientific term.

The SAB's report makes reference to groundwater as a pervasive conduit that establishes a significant nexus. The Clean Water Act has never before been applied to groundwater. It remains to be seen whether or not invoking groundwater, not subject to Clean Water Act provisions, to establish connections between surface waters that are protected will be widely accepted.

The EPA said the proposed rule does not protect new types of waters or broaden coverage of the Clean Water Act. The agency said its new rule includes provisions consistent with the two recent Supreme Court rulings that necessitated the proposed rule.

It will not expand jurisdiction over ditches or canals. It exempts 50 water conservation practices from permitting.

The EPA said that farmers and the agricultural community "shaped the proposal." Consequently, water conservation practices following Natural Resources Conservation Service standards are allowed without notification or permitting.

If the concept of significant nexus is

accepted and the rule passed, Clean Water Act protection could expand to an additional 20 million acres of wetlands and two million miles of streams. For Florida, the effect could be game changing.

By one estimate, about 800,000 acres of isolated wetlands in the Panhandle alone currently not subject to CWA protection may be subject to the new rule.

There remain a few items of unfinished business for this rule. The SAB has yet to publicly release its review of the scientific board's report (as of Oct. 17).

But an EPA spokesperson said that release of the SAB's review was imminent. For that reason, and perhaps some others, the agency and the corps extended the public comment period to Nov. 14.

An EPA spokesperson said the proposed rule could become law in 2015. Its development has been ongoing through both Obama administrations. It will, at least, mark the end of the recent chapter on efforts to protect water quality in waters of the U.S., even if lawsuits and modifying legislation opposing it continue.

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Thanks for joining us at the 2014



FRC From Page 1

The speakers said that if site remediation today targets contamination that started before that time, it may be possible to make a claim under an insurance policy that was in effect when the contamination occurred.

"You will find hundreds if not thousands of cases where landowners seek to recover the cost of pollution cleanups," Fumero said. "If you have liabilities or if you work for companies with liability, you should evaluate the possibility of insurance recovery."

Malanchuk said it's vital to pursue insurance recovery. "Hundreds of millions of dollars in remediation costs over the years have been left on the table by not taking advantage of insurance policies bought and paid for by policyholders," he said. "Worse, public funds—taxpayer funds—have been used for cleanups."

Traditionally, environmental coverage cases were litigated at large expense and over many years, Malanchuk said.

But these days, litigation is no longer the preferred option. Insurers have reserves to cover the costs of potential environmental liabilities. If handled properly, policyholders can obtain the funding they need to perform cleanups.

This year marked the 20th year that the conference has been conducted. From humbler beginnings, the annual gathering of environmental professionals has grown into one of the Southeast's premier forums for discussions about cleanup methods and associated issues.

The two-day conference and trade show was held this year at the Orlando Marriott World Center. Mike Eastman, FRC conference manager, praised conference chairman Nick Albergo, PE, DEE, who has played an integral role in organizing the conference since its inception 20 years ago.

"Without Nick's help, FRC would have been just another conference that likely would have fizzled out by now," said Eastman. "Instead, with his guidance, it has flourished."

"Our goal has been to promote collaboration between private and public sectors to achieve site cleanups," Albergo said in relating the primary aim of the conference.

"What sets this conference apart is that we have a wide range of people attending, from engineers and scientists to regulators and representatives from the lab community. We have a lot of diversity and that makes a huge difference from having just a bunch of geeks from the engineering world."

The luncheon address on Day One was given by St. Johns Riverkeeper Lisa Rinaman.

As the chief advocate for the St. Johns, her responsibilities include holding regulatory agencies and those polluting the river accountable; identifying and advocating for solutions that will protect and restore the river; and working with governments, businesses, community leaders and citizens to resolve problems that impact the river's health.

Rinaman was instrumental in leading the effort to develop and implement irrigation and fertilizer ordinances to better protect the St. Johns River and local waterways.

She also played a key role in securing state funding for water quality improvements.

The river is a vital environmental and economic resource. And if today's generation does not protect it, the ramifications will be serious, Rinaman said.

"Future generations are either going to celebrate the decisions we make or they will pay the price for them," she said. "It is much more expensive to undo damage done than to protect these waterways."

The St. Johns is the second largest ecosystem in Florida next to the Everglades and is the drainage basin for 18 counties.

Rinaman said a clean, healthy river is an economic driver.

"There are a lot of jobs that depend on the river. The economic ramifications are tremendous," she said.

The Riverkeeper group adamantly opposes the use of the St. Johns to augment water supplies in East Central Florida, which faces water shortages into the future. "We believe there is a water use problem rather than a water supply problem," Rinaman said.

Addition, there is a major problem with nutrient pollution in the St. Johns River. "We don't believe the river's nutrient standards go far enough," she said.

She also discussed the environmental problems facing area springs. "Our springs are a window to the aquifer and a critical fresh water supply to the St. Johns River," she said.

"We are on a mission to save the St. Johns, protect the St. Johns and work with anyone who values the river."

The conference was not limited to discussions about remediation topics affecting professionals in just Florida and the Southeast. As he has done in previous years, Albergo spoke about serious global issues, including poverty and hunger, which have a major impact on the environment.

Albergo, now a senior engineer with Conestoga-Rovers & Associates in Tampa, made a strong case supporting the argument that the world will not be able to sustain itself within the next 35 years.

"The number of babies being born is sorely taxing the ability of the world to feed them," Albergo said.

Chronic malnutrition affects millions of people around the globe, he said, as people lose their land and their jobs. Even in America, about 50 million people—or one in six of the nation's population—go hungry every night.

The world's population is expected to reach 10 billion by 2050, with the soaring growth occurring mostly in Africa, where about one in four people already suffers from hunger each day.

"There are constraints on the amount of food the earth can produce, in addition to limits on the availability of drinking water," Albergo said.

On a political note, Albergo, who has traveled the world and visited some of the hardest-hit nations, said a lot of countries where hunger is endemic are run by brutal dictators who intercept food supplies and sell them at huge profit to themselves.

"For the first time in our history, we face the real risk of a global decline," he said. "I hope that as scientists and engineers, we can develop strategies to face the challenges that lie ahead."



Florida Remediation Conference

FRC in review:

Progress made, challenges ahead for the state's petroleum program

By ROY LAUGHLIN

The state's Petroleum Restoration Program has gone through almost two years major changes—changes that have been tough on companies doing their best to protect the state's fragile drinking water resources.

The PRP now operates on a budget about half of what is generated through petroleum industry taxes for the state's Inland Protection Trust Fund.

Program contractor numbers have declined markedly and the lowest bid is now the program's highest priority for contractor selection.

The petroleum cleanup industry in Florida faces a contracting process very different from several years ago when it was considered one of the nation's showcase cleanup programs.

Early this year, program administrators began a new wave of initiatives that included requirements for data reporting using ADaPT, the use of a new algorithm to rank state contractors when awarding contracts, and much stricter and detailed invoicing procedures since adopting the state's electronic contracting system.

The current status of the PRP was the topic of a well-attended panel discussion during this year's Florida Remediation Conference in Orlando.

Panelists included moderator Glenn MacGraw, PG, vice president with the FGS Group in Tallahassee; and Florida Department of Environmental Protection representatives Valerie Huegel, PRP program administrator; John Wright, PE, professional engineer III; and Rickey Beasley, planner III.

One piece of good news announced is that the program had finalized a memorandum of understanding with the Florida Department of Transportation for petroleum remediation on FDOT right-of-ways throughout the state, increasing remediation project opportunities.

The MOU is available on line at http://www.dep.state.fl.us/secretary/comm/articles/2014/DEP_DOT_MOU.pdf

For the most part, the panel discussion was a fast-paced, extensive conversation about the PRP's new process and procedures.

Several experienced contractors said current issues with the new program can be broadly classified as: 1) the process for selecting contractors, 2) the handling of change orders and 3) approving invoices for payment, with approval dependent on accurate and complete invoices that meet new guidelines and procedures.

Questions and discussions during the panel discussion largely addressed these three topics.

One of the first items Huegel mentioned in her opening remarks was the Rapid Process Improvement document that PRP staff had refined as a final plan just before the conference.

It addresses, at least from PRP's perspective, many of the issues of program

contractors.

One experienced contractor who closely reviewed the plan said that its strengths included a list of action items, the appointment of a point person and deadlines that can be tracked.

The memorandum is available on line at <http://www.dep.state.fl.us/Waste/categories/pcp/pages/announcements.htm>.

With establishment of a one-buyer system centered on the new PRP-approved contractor list, contractors are now almost entirely dependent on the PRP to assign site cleanup work.

Since early this year, the department has been using an equation, the Relative Capacity Index, to select its contractors:

$$RCI = \frac{BondingCap^{0.85}}{(EncBal \times \frac{EncBal}{600,000})^{0.65} + SchRank^{3.0}}$$

Bonding Cap - amount of bonding capability a contractor has. The state has set a value of \$5 million for contractors. This term is a constant for contractors who meet the state's requirements.

EncBal - encumbered balance a contractor has with PRP. This term increases with the number and size of contracts a contractor has with PRP.

SchRank - integer ranking (1,2, etc.) of a contractor for the contract's requirements. Contractors, according to information provided at the panel discussion, increase their ranking when they have the lowest costs for the contract's specific work components submitted on their bids.

According to Mara Berger, public information specialist with DEP, this equation was developed "by department staff as a way to implement an objective queuing algorithm using measures of the relative capacity of a company to do work."

It has been revised once, revisions that changed the fractional exponent for the numerator and the term including encumbered balance. The denominator in the encumbered balance term was also increased.

The primary criticism from contractors regarding the algorithm is that it is too sensitive to the encumbered balance term. According to sources familiar with the program, several contractors new to the program received contracts, while those with current contracts—and a track record of proven performance—bid, but did not receive, new contracts.

Contractors we spoke with said that the algorithm would be fairer for all involved if it placed a higher value on a prior record of good performance as well as cost.

The modified algorithm shown above was adopted in October, so its use has been limited so far. Whether it improves opportunities for contractors with moderate encumbered balances has not yet been extensively tested. PRP officials said the intent of the RCI is to select the best value for the taxpayer and to spread the contracting work around the contractor pool.

Wright led DEP's responses to participant comments about change orders, a second part of the process that many contractors would like to see streamlined. The problem occurs routinely because the first step after contract award is for the con-

PRP
Continued on Page 10



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contractor to update information about the site's status and recent characterizations may not be available for some sites.

Site assessment can result in a change of work order when a contractor discovers a change in conditions that substantially impinges on the original scope of work.

Current procedures give the contractor two days to reply. Some contractors would like that to see that increased to two weeks. If the change order is not handled according to explicit contract provisions, the contractor may not get paid. If nothing else, the process can delay the start of

work.

The largest number of comments focused on invoicing procedures. Most contractors are not being paid following their initial invoice submission.

Several sets of numbers were presented during the discussion, two of which indicated that over 90 percent of invoices were returned for various reasons.

The week following FRC, DEP's Berger provided updated numbers on invoice returns since February, 2014. For the interval from February 15 through September, PRP returned 637 out of 745 (69 percent) of invoices for revision without payment. For August alone, PRP returned 163

out of 172 invoices or 94.8 percent.

In September, following a DEP workshop in August to help contractors understand the new invoicing requirements, only 163 out of 235 invoices (69.4 percent) were returned as defective, without payment.

The numbers, at times, have been extraordinarily high, reflecting changes in procedures, definitions and requirements across the board for data reporting using ADaPT, a system that environmental laboratories have used for years but that is unfamiliar to many contractors.

When asked by a conference attendee if the reduction in return rate from 95 percent to 69 percent was acceptable, Huegel responded, "Absolutely not."

DEP's Beasley pointed out some of the more common reasons for invoice returns include missing or incorrect information, such as inaccurate values for contract dates and term of contract, and failing to submit invoices on company letterhead.

Whether the invoice needs major or minor changes, contractors must make the revisions and resubmit the entire corrected invoice. The DEP accounting office will not ask for one or two additional items to complete the invoice and their staff will

not change invoices after contacting contractors about apparently minor discrepancies. Huegel said she supported this policy.

Beasley said that if contractors submit invoices correctly, DEP will pay in just a few days.

One contractor contacted for this story, who has not had a problem with invoices being returned under the new system, said that his invoice review has taken about six weeks, far longer than under the prior program, but that a week or less elapsed between approval and receipt of payment.

Most petroleum cleanup contractors have struggled with the new program since its inception. Program funding has fallen by about 50 percent, resulting in a number of layoffs and company closings. The new rules have further reduced those interested or capable of participating and the number of approved program contractors has declined from 254 to 72.

If the PRP can award work to contractors in a fair manner, streamline the change order process and more expeditiously approve invoices, cleanup contractors will have a chance to reverse the down trend in business and get back to using trust fund dollars for their intended purpose.

At press time...

Valerie Huegel resigned as program administrator of DEP's Petroleum Restoration Program in late October. The search began immediately for her replacement.

During the interim period until a new program administrator is selected, John Coates is the primary contact for overseeing the administration and day-to-day decisions for the program.



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The Florida Petroleum Restoration Program: Let's unite and make it work

By STEVE HILFIKER

A few things need to be said about the state's new Petroleum Restoration Program.

First, the impact on the cleanup industry resulting from the 2013 legislative session was extensive. 2013 was a rough year and the fallout is still happening.

The new program is now in place. Some like it; some don't. But at this point, we don't have time for anything other than a cooperative effort aimed at improving it.

The program is far from perfect but it is still new. We need to make it work. To do so, all parties need to communicate and focus on solutions. We are all in this together and need to cooperate to achieve our common goals.

Industry should not expect any new program to be free of glitches, and DEP should receive the knowledge that committed professionals are willing to provide to help resolve issues.

We have three months to work on assembling data before the next state legislative session in the spring. Worthy goals are to be sure that access, change orders and invoicing are no longer problems. If issues are not resolved, workable solutions must be developed and then communicated to our legislators to demonstrate functional competence.

Some issues may need to be resolved through amendments or new legislation. If so, DEP and industry should be in agreement regarding their resolution.

All parties need to be on the same page so we do not have another controversial session.

The cleanup industry cannot afford yet another program shutdown—we must work with DEP to make this program successful. We have time if we work together.

DEP staff has been working long hours trying to achieve this goal. We as an industry need to help them however we can, including making sure that all documents are correctly prepared on our end.

Likewise, DEP must continue its efforts to minimize project delays. While quality assurance is important, delays could be

minimized if fewer people reviewed each scope, deliverable, change order and invoice.

Invoices and change orders must be processed faster because our firms need to make payroll and we cannot afford to lose even more talent than we already have.

If DEP staff is overloaded, perhaps it would benefit the program if they hired additional staff or outsourced more of the work.

DEP officials have said they want to do more webinars. This could alleviate some of the current inconsistency issues. Constructive, two-way communication is a good idea. In any operation, administration and production teams must communicate well to advance. And we must communicate regularly.

Hopefully, the recently revised Relative Capacity Index formula can release enough work over the next three months to allow for a diligent evaluation of project distribution.

DEP has remained willing to review the data and make changes that they feel are in the best interest of the program. Contractors need to see how the new formula will distribute work, so they can adjust, if necessary.

More data and more changes may be needed for the sake of a healthy industry and a successful cleanup program.

The changes being made to the PRP will be successful in the long run if sites are cleaned up. This program is vital to maintaining Florida's drinking water resources and protecting human health and the environment.

The intense focus on price must not cloud the perspective of our citizens' health and property remediation. We can't lose sight of these fundamentals. Remedial performance will be the key to our success.

We are in the midst of what may be the most important three months in the program's history. We need to do all we can to be as functional as possible going into session.

Ultimately, we need an effective

HILFIKER
Continued on Page 11

Calendar

November

NOV. 3 – Course: Backflow Prevention Recertification Review, Altamonte Springs, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 3 – Course: Unidirectional Flushing Workshop, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 3-6 – Conference: 2014 AWRA Annual Water Resources Conference, Tysons Corner, VA. Presented by the American Water Resources Association. Call (540) 687-8390 or visit www.awra.org.

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

NOV. 4 – Course: Backflow Prevention Recertification Exam, Altamonte Springs, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 4 – Course: Lift Station Maintenance, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 5 – Course: Asbestos Refresher: Inspector, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 5 – Course: Asbestos Refresher: Management Planner, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 6 – Meeting: Environmental Roundtable for EHS Managers, Daytona, FL. Presented by the Florida EHS Roundtable. Call (321) 543-4414 or visit www.ehsroundtable.org.

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

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NOV. 7 – Course: Water Distribution System Pipes

HILFIKER From Page 10

cleanup program that achieves site closures and is beneficial to the citizens of the state. It is going to take patience, understanding and cooperation from all of us to achieve this goal.

Steve Hilfiker, MS, LEP, is president of Environmental Risk Management Inc. in Fort Myers. He can be reached at shilfiker@ermi.net.

Editor's note: These personal observations were prepared by Steve and are based on his interviews and communications with both DEP and industry peers.

The above statements are not intended to represent the views of any specific association or corporation.

and Valves, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 8 – Course: Backflow Prevention Recertification Exam, Bradenton, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 8-16 – Course: Backflow Prevention Assembly Tester Training and Certification, Jacksonville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 9-12 – Meeting: 35th Annual Meeting of the American College of Toxicology, Orlando, FL. Call (703) 547-0875 or visit www.actox.org/am/am2014/

NOV. 12-14 – Symposium: 2014 International Symposium of the North American Lake Management Society, Tampa, FL. Visit www.nalms.org.

NOV. 13-14 – Seminar: Liability of Engineers: How to Stay Out of Trouble, Doral, FL. Presented by the American Society of Civil Engineers. Call 1-800-548-2723 or visit www.asce.org.

NOV. 14 – 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.

NOV. 15 – 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.

NOV. 17 – Course: 8-Hour OSHA HazWoper Annual Refresher, Tallahassee, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 17 – Course: Backflow Prevention Recertification Review, Destin, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 18 – Course: Backflow Prevention Recertification Exam, Destin, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 18 – Course: Initial Training Course for Spotters at Landfills, C&D Sites and Transfer Stations – 8 Hour, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

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

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NOV. 18-19 – Course: Initial Training Course for Transfer Station Operators and Materials Recovery

Facilities - 16 Hour, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

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

NOV. 18-20 – Course: Initial Training Course for Landfill Operators and C&D Sites – 24 Hour, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 18-20 – Course: Respiratory Protection, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

NOV. 18-21 – Course: Water Distribution Systems Operator Level 2 & 3, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 19 – Course: Initial Training Course for Spotters at Landfills, C&D Sites and Transfer Stations – 8 Hour, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

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NOV. 19 – Course: Refresher Training Course for Experienced Solid Waste Operators – 4 Hours, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570.

NOV. 19-21 – Course: Initial Training Course for Landfill Operators and C&D Sites – 24 Hour, Gainesville, FL. Presented by the University of Florida TREEO Center. Call (352) 392-9570 or visit www.treeo.ufl.edu.

NOV. 19-21 – Seminar: National Clean Water Law Seminar, St. Pete Beach, FL. Presented by the National Association of Clean Water Agencies. Call (202) 833-2672 or visit www.nacwa.org.

NOV. 21- DEC. 6 – 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.

NOV. 30 - DEC. 4 – Conference: 2014 Fall Conference of the Florida Section of the American Water Works Association. Call (407) 957-8448 or visit www.fsawwa.org.

December

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

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

DEC. 4-5 – Seminar: Stormwater Treatment Using Detention Ponds and Commercial Devices, Tampa, FL. Presented by the American Society of Civil Engineers. Call 1-800-548-2723 or visit www.asce.org.



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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. The opinions expressed on this page are those of the authors.

A common sense approach to post-closure landfill monitoring requirements

By ROY LAUGHLIN

One of two panel discussions at the 2014 Florida Remediation Conference focused on balancing the risks and costs of post-closure landfill monitoring.

In a twist, it was staff at the Florida Department of Environmental Protection's Northeast Florida district office that led the effort to reduce requirements. So far, at qualifying sites, it has been lauded by both

industry professionals and regulators.

Emerson Raulerson, PE, a professional engineer for DEP in Jacksonville, led off the panel discussion by describing the background of the review effort within the DEP district office. He explained the requirements for landfills to qualify for the reduced level of monitoring.

First, they must be Class I or Class III landfills that have been monitored for at

least 10 years, post closure. In addition, the monitoring has to be up to date and it has to indicate "no exceedances."

A closed landfill that meets those requirements is eligible for consideration. Raulerson noted that DEP has always had authority to under 62-701.620 (3), Florida Administrative Code, to reduce monitoring requirements post closure. But it has not been requested often by site owners. He initiated a survey within his district to determine how many closed landfills might qualify.

Neil Hornick, PG, a professional geologist in the DEP's Jacksonville office, performed the survey and summarized the data.

He found that 42 landfills qualified for some level of reduction based on initial screening requirements. Of those, 70 percent (34 facilities) would qualify for some reduction in monitoring.

Two facilities were completely released from any monitoring requirements. The cost savings were significant—about \$2,600,000 over five years, or about \$62,000 per landfill.

In a phased examination, if a particular analyte was consistently 50 percent or less of the criterion value, monitoring requirements for it were likely to be reduced or suspended.

If a site qualified for reduced monitoring, the frequency of well samples might be reduced or the sampling could be

changed to an "even-odd" well sampling of the original schedule. In addition, some sampling wells might be permanently retired.

In the best-case scenario for the site owner, a closed landfill is completely released from any further monitoring requirements. Although complete release is rare, some reductions in monitoring requirements can result in substantial cost savings.

In the near future, landfills across the state will pass their decade anniversary and qualify to petition for reduced monitoring requirements. It is the responsibility of the landfill's owner to petition for any reductions.

In a post-conference interview, Raulerson suggested that site owners and their consultants look at qualification requirements and have a conversation about prospects for post-closure monitoring reduction with staff in their local DEP district offices.

If those conversations end on a positive note, then it might be worthwhile for the landfill owner to prepare a formal petition with supporting information for reduced post-closure monitoring, or perhaps even release from post-closure monitoring requirements.

"Anything that decreases long term monitoring requirements will help and keep our rates down," said Mark Hudgins, BSCE, Conestoga-Rovers & Associates, Orlando, who moderated the FRC panel.

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Power plant near Seminole reservation nixed by Appeal Court decision

By BLANCHE HARDY, PG

In September, the Second District Court of Appeal in Lakeland ruled in favor of the Seminole Tribe of Florida on appeal, overturning a 2012 Circuit Court decision that would have allowed Florida Power & Light to construct a regional power plant in close proximity to the tribe's Big Cypress Seminole Indian Reservation.

The original decision considered the ability to complete rezoning outside the normal local comprehensive plan process by utilizing the uniform consolidated standards for power plant siting approval under the state's Power Plant Siting Act.

The recent Court of Appeal's decision agreed with the Seminole Tribe of Florida as the Hendry/FPL zoning application had been processed prior to application by FPL for the siting of a power plant.

Because the zoning was addressed prior to the PPSA process, the zoning was found to be subject to challenge as inconsistent with the county's comprehensive plan by the Seminole Tribe of Florida or other adversely effected parties, as stated by the tribe's attorneys, Lewis, Longman & Walker PA.

FPL Spokesperson Sarah Gatewood said they are disappointed, but plan to continue to work with Hendry County and local stakeholders to secure the necessary approvals needed to build a plant in the future.

Lewis, Longman & Walker attorneys also made note of a potentially more encompassing point: "The decision may have lasting ramifications on the manner in which FPL elects to rezone and entitle property for current and future project," as many large projects beyond power plants seek zoning and land use approval prior to submitting detailed plans for the exact measured site layout of each aliquot of proposed allowable use.

The PUD zoning granted in this case allows utility uses, however the county's comp plan differentiates "utility" from "electrical generation." An electrical gen-

eration plant was not specifically listed as an allowable use in the PUD.

Discussion of water and environmental concerns were not allowed, as the court's decision was solely concerned with zoning and land use allowance issues, not whether or not water, environmental or archeological preservation requirements would prevent a listed land use from being viable as is determined by the studies typically completed in conjunction with the more specific site plan and, in some cases, plat.

Although the PPSA process is unique, the effort by applicants for large developments to make sure, at a minimum, the desired land use and zoning are obtainable prior to incurring the cost of executing the full set of studies, detailed engineering plans and approved agency permits required for site plan approval is fairly common.

Gatewood said that FPL has "no specific plans to build a plant, if anything, at this time," further explaining that they "want to have the zoning and land use approval for potential use in the future."

Both a solar plant and, more recently, a larger-scale gas-fired plant have been discussed as options. Gatewood said they will want to talk about concerns that stakeholders may have before they make any decision.

Numerous concerns have been presented publicly and in a series of articles published in the Seminole Tribe's *Seminole Tribune*.

According to the tribe, among the issues mentioned that need to be addressed are: the proximity or inclusion of 30 possible archeological sites, eight of which may be eligible for listing on the historic register; the cultural/spiritual significance of the land as established by the Seminole Tribe of Florida and their predecessors; the potential to impact 850 acres of natural preservation area; the potential withdrawal of 22 million gallons a day of groundwater; the loss of existing habitat for the endangered Florida panther, crested caracara, eastern indigo snake and wood stork; and the potential for air quality impacts.



Research study claims cellulosic ethanol is not carbon neutral

By ROY LAUGHLIN

Ethanol made from the leaves and stalks of corn may do little, if anything, to reduce carbon dioxide accumulation in the atmosphere when compared to gasoline.

A group of researchers from the University of Nebraska-Lincoln concluded this using a life cycle analysis of corn production in the Great Plains of the U.S. Their computer model analysis compared the amount of carbon fixed by photosynthesis into corn plants to the amount of carbon dioxide released by corn stalks and leaves, called stover, which was harvested for cellulosic ethanol production.

When corn turns carbon dioxide into carbohydrates during photosynthesis, some is incorporated into starch in the grain, and most into cellulose, the structural carbohydrate polymers in leaves, stems and roots.

The current practice is to harvest grain to ferment into fuel alcohol and return the major mass of the plant biomass into the soil. That biomass turned into the soil is supposed to remove carbon dioxide from air for at least a few years.

But that "left over" biomass in the soil is not permanently entombed. Decay slowly turns it back into carbon dioxide. Turning in biomass in crop fields, at best, may delay carbon dioxide return to the atmosphere and the rate of return is affected by annual temperature and soil type.

In the study, Professor Adam Liska and colleagues simulated declines of organic carbon in crop fields based on the amount of organic carbon turned in each year. The amount of organic carbon turned in could be a surrogate for the amount of leaves and stems harvested from usual yields and used to produce cellulosic ethanol.

Cellulosic ethanol is alcohol produced by fermenting cellulose, a plant's primary structural carbohydrate polymer. Both cellulose and starch polymers yield glucose when broken down, and that is the primary carbohydrate that yields alcohol.

The authors found that using stover for ethanol could put substantial carbon dioxide back into the atmosphere within months of harvest.

Their simulation showed that turnover rate varies across latitude and soil type. Soils in the South, for example, have poor organic carbon retention, as any gardener in Florida's sandy warm soils knows.

The study raised a storm of criticism that largely ignored the study itself, focusing rather on its conclusion that cellulosic ethanol production does not meet the technical specification for carbon sequestration to qualify for federal subsidies.

The 2007 Energy Independence and Security Act stipulated that, in 2014, cellulosic ethanol production would contribute 1.5 billion gallons of ethanol for blending with gasoline. Anemic production of cellulosic ethanol led the U.S. Environmental Protection Agency to set a target of just 17 million gallons from this source in 2014.

The EPA has reduced the cellulosic ethanol target five times in its annual exercise to set ethanol blending targets using its authority under EISA. EISA-qualifying ethanol producers will receive a \$1 per gallon subsidy.

In spite of past performance, cellulosic ethanol industry spokespeople say that ethanol production is poised to take off. But that may not matter now. All the gasoline that can be blended with ethanol to produce 10 percent blends is now being blended, and the ability of most cars on the road to use higher ethanol blends remains contentious.

Suggestions that cellulosic ethanol doesn't qualify for subsidies is poorly timed for the technically challenged and production-delayed cellulosic ethanol industry.

The Associated Press reported that the EPA's model was adjusted by increasing yield assumptions from average corn yields from 180 to 230 bushels per acre. The AP writers also reported that increasing corn prices led to increased corn acreage by 1.2 million virgin acres in Nebraska

and the Dakotas in 2006.

That conversion to cropland has two effects. First, it causes dramatic release of SOC as carbon dioxide. Second, as prices have risen for corn production, the expansion into marginal lands has likely lowered average per acre yields, not increased them to 230 bushels per acre.

Clearly, the writers allege, the EPA model for determining greenhouse gas emissions is too flawed for useful comparisons.

Few people care to discuss the report on the record, including the author himself, who did not return calls for comment.

At this time, an important question about the role of organic carbon sequestration remains open and an industry that expects to reap billions in federal subsidies remains in a position to receive them—even if cellulosic ethanol fails to provide the expected benefit of lower carbon dioxide intensity as a fuel.

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Water farm pilot projects aim to eliminate nutrients from surface water

By PRAKASH GANDHI

South Florida Water managers have come up with an innovative way to reduce pollution in the St. Lucie River and Indian River Lagoon.

Officials have started pilot projects for what they describe as "water farms" to rid surface water of nitrogen and phosphorus otherwise headed for the waterbodies.

Supporters of the initiative said that water farming helps store water for dry season use, recharges groundwater supplies and improves estuary water quality by removing nutrients.

"Managing water on privately owned land is one tool to reduce the amount of polluted stormwater discharged into waterbodies and coastal estuaries," said Randy Smith, a spokesperson for the South Florida Water Management District. "Water farming is a potentially cost-effective approach for retaining runoff and reducing the excessive nutrient loads that affect many of Florida's watersheds."

To assess the benefits and efficiency of the practice, the district entered into cooperative agreements with three landowners

to conduct pilot projects.

Under the agreements, the district will cooperate with landowners to evaluate and document the implementation costs and environmental benefits of each project. After construction is completed, each pilot project will operate for two years.

Two of the pilots are in Martin County, at Bull Hammock Ranch Grove and the Caulkins Citrus Co. A third pilot will be tested in St. Lucie County at the Evans Properties Grove.

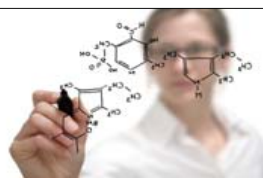
These pilots are expected to have positive impacts on the St. Lucie watershed and Indian River Lagoon, said district officials.

In February, the first of the pilot projects became operational on property owned by Caulkins Citrus Co.

Since it began operations, the Caulkins site has pumped 3.5 billion gallons from the C-44 Canal, which collects rainwater runoff from Martin County farmland east of Lake Okeechobee and dumps it into the river at the St. Lucie Lock and Dam.

The project is supported by the Indian River Lagoon Citrus League, the Florida Farm Bureau Federation, and other state and local grower associations.

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something serious enough to kill wildlife and perhaps threaten the safety of the humans who live, work and play in the area.

"What is a scientist after all? It is a curious man looking through a keyhole, the keyhole of nature, trying to know what's going on." – Jacques Cousteau

Dr. Brian Lapointe, a research professor for Florida Atlantic University's Harbor Branch Oceanographic Institute in Fort Pierce, has studied marine environments since the early 70s. Much of his work over the past four decades has involved the impact of humans on aquatic ecosystems, specifically the effect of sewage on fish and plant life.

His research has taken him from the Keys to the Florida Gulf Coast to the IRL and all around the Caribbean region.

In 2011, he began looking through the keyhole at the Indian River Lagoon. The basis of his research in the IRL was rooted

in nutrient science developed in the Florida Keys back in the 80s.

"The process I developed in the Florida Keys involved the use of stable nitrogen isotopes to fingerprint different sources of nitrogen," said Lapointe, who grew up in South Florida and received his PhD in marine biology from the University of South Florida.

"This is vital to determining the source of the problem because it allows us to identify whether it is agricultural nitrogen from farms or sewage nitrogen that is being discharged locally," he said. "What the nitrogen isotope studies have told us so far is that there is a very strong wastewater nitrogen signal (in the IRL)."

High nitrogen concentrations can come from a variety of sources: agricultural runoff from farms in Lake Okeechobee; urbanization in the Orlando area and, closer to home, land and shoreline development in the six counties that comprise the Indian River Lagoon area.

Many of the developments and indi-

vidual homes in these counties rely on septic tanks for the treatment of wastewater, especially in the northern IRL.

Septic tanks typically work well for wastewater treatment, but are not ideal in this situation, for a variety of reasons.

The sandy soils in Florida, especially in the coastal areas, are more porous than most soils and do not filter contaminants well. When septic tanks are used in high densities, they create a significant amount of improperly treated wastewater that contains high levels of nitrogen that mixes with groundwater and can eventually make its way into the nearest body of water—in this case, the tributaries of the IRL.

High nitrogen levels, combined with lower amounts of phosphorus, produced unusually large phytoplankton super blooms and brown tides in the northern lagoon in 2011, 2012 and 2013. These phytoplankton blooms reduce the amount of light that penetrates to the bottom of the estuary, causing widespread seagrass die off.

The loss of seagrass results in a loss of fish habitat, which has cascading effects throughout the IRL food web. Furthermore, macroalgae commonly referred to as "seaweed" replaces the seagrasses in the low light, high nitrogen conditions.

Lapointe suspects the manatee deaths could be attributed to a dietary shift from eating macroalgae, which he and his colleagues have found contain toxic compounds. Likewise, E. coli bacteria in the lagoon may have contributed to the deaths of the dolphins and, perhaps, the pelicans as well.

Lapointe's studies indicate that human waste is the primary source of the nitrogen in the algae blooms in the IRL estuary. Common sense also points to sewage contamination.

The six counties that comprise the Indian River Lagoon estuary—Volusia, Brevard, Indian River, St. Lucie, Martin and Palm Beach—grew in population by more than 250,000 between 2000-2012. In the northern IRL, Volusia and Brevard counties alone have more than 170,000 septic tanks, many of which are located near the estuary.

Lapointe noted that high concentrations of septic tanks located in urbanized areas of the IRL watershed pose a significant threat to the environment.

"The terrain is very flat and the water tables are high," he said. "In many cases the drain fields (for the septic tanks) are literally sitting in the groundwater during the rainy season. I think the severity of this problem is only just now being recognized."

For years, local and state agencies have developed basin management action plans in an effort to reduce land-based nutrient loading to achieve the state's total maximum daily load targets for the IRL.

"Based on my research, it's possible that whatever benefits have been gained through the BMAP programs to reduce nutrient loading to the IRL from stormwater runoff have been offset by increased nutrient loading from the newly permitted septic tanks that have been largely ignored in the BMAP process," he said. "The bottom line is that there are inadequate facilities for collecting and treating human sewage from the expanding populations along the watersheds of the IRL. The task now is to reverse the trend and try to get the local ecosystem in recovery."

"We protect nature not for nature's sake but for our own sake because it's the infrastructure of our communities."

– Robert Kennedy, Jr.

The problems unfolding in the Indian River Lagoon system are not unique, which should bring hope to the residents there who rely on and enjoy the ecosystem of the IRL.

In the 1990s, civic leaders, public works officials and scientists faced a similar situation in the Phillippi Creek area of Sarasota County on Florida's gulf coast. Near Phillippi Creek, 14,000 houses were served by septic tanks.

In 1997, after three years of study, it was found that fecal coliform pollution

from septic tanks had reached a level that made the creek unsafe for humans and unhealthy for aquatic life. Clearly, something had to be done to stop the flow of sewage into the groundwater and, ultimately, into Phillippi Creek.

They recognized the need for a sewer conveyance and treatment system, but faced enormous challenges with funding and installation.

Public works officials in Sarasota County studied the situation and evaluated various sewage treatment options. Like much of Florida, the terrain is flat and the water table high. That meant the trenches for gravity sewer lines would be, by necessity, deep and difficult to dig.

In addition, a gravity sewer system would require a number of lift stations to transport sewage to the nearest treatment plant.

Instead of traditional gravity sewers, the engineers recommended a vacuum sewer system from AIRVAC, a recognized leader in the technology.

Vacuum sewers were determined to be an excellent solution for wastewater collection in about 80 per cent of the service area. Vacuum sewer lines require relatively shallow trenches, the lines don't leak and only a few vacuum stations are needed to convey sewage to the treatment plant.

Their first system went into operation in 2003 and the county has since installed eight more vacuum systems with only a few remaining areas to be connected.

Thanks to the efforts of the Sarasota Bay National Estuary Program and community stakeholders, data now show that Sarasota Bay is much cleaner and safer than the IRL.

"Seagrasses in the creeks and bay are recovering nicely and aquatic life has made a significant comeback," said Lapointe. "I am convinced that this is a direct result of management actions that reduced nitrogen loading to the bay, including the elimination of septic tanks at Phillippi Creek. A similar success story is unfolding in Key Largo and Marathon Key where a new vacuum sewer system is helping to reduce nitrogen and bacteria levels that were threatening the coral reefs."

For both the Florida Keys and Phillippi Creek in Sarasota, the issue at stake was not just the environment; it was also the economy, along with human health and real estate values. When fish and plant life die off and water becomes unsafe for human interaction, real estate values plummet and local jobs dry up. What was once a vibrant outdoors-oriented upscale community becomes a polluted, unhealthy waste land.

This could be the future of the Indian River Lagoon area. Left untreated, nitrogen and bacteria from sewage contamination will continue to choke out plant and marine life and make the local waterways unsafe for humans.

"For if one link in nature's chain might be lost, another might be lost, until the whole of things will vanish by piecemeal." – Thomas Jefferson

There are two hard issues facing residents of the Indian River Lagoon watershed area. One is reversing the rising level of pollution that is apparently killing seagrasses, manatees, dolphins, pelicans and other aquatic life.

The other, and perhaps more difficult issue, involves raising the level of public awareness of the problem and funding a solution. No one wants to pay for a new sewer system. And few people are eager to endure the disruption and hassles associated with a major construction project in their front yard.

It takes significant political capital and some political courage to champion issues such as septic tank abatement and sewer installation, which are unglamorous and often expensive. Plus, it is a long-term solution that can take several years to implement. Taxpayers can be impatient when waiting to see results.

"The cost and inconvenience associated with infrastructure progress can be

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Annual St. Johns River report notes progress to date, challenges ahead

By DAN MILLOTT

The seventh annual report on the health of the Lower St. Johns River Basin released late this summer was both encouraging and concerning, with progress to date noted as well as caution flags raised.

Dr. Radha Pyati, chair and associate professor in the chemistry department of the University of North Florida and a co-author of the report, said each of the reports to date has helped establish an annual baseline.

While the reports do not suggest specific actions that need to be taken, they have influenced a number of decisions made and projects undertaken by utilities and industry that release effluent to the slow moving river.

The reports are funded by the Environmental Protection Board of the city of Jacksonville and the River Branch Foundation, and are a collaborative effort that includes contributions from Jacksonville University and Valdosta State University.

The latest report indicates that water quality in the river is now satisfactory and improving somewhat, based on turbidity.

But in the long term, the level of salinity, while currently uncertain at best, is trending upward.

Scientists conclude that the presence of fecal coliform, dissolved oxygen levels, algal blooms and nutrients were all unsatisfactory.

The report did indicate that nitrogen levels were improving, but are still at an unsatisfactory level.

For dissolved oxygen, conditions are worsening in the tributaries but were unchanged in the main section of the St. Johns.

Contaminants are still a big problem. The presence of metals, hydrocarbons, PCBs and pesticides with chlorine in the sediments were all labeled as unsatisfactory.

Conditions were generally unchanged from previous reports, except for hydrocarbons where conditions were improving in the northern part of the river basin but uncertain in the southern basin.

The loss of wetlands is also of great concern. It was noted that from 2004 to 2009, a third of a million acres of U.S. coastal wetlands were lost.

That rate was 25 percent higher than it was over the previous five-year period.

"Although the river is healthy in many ways, important problems such as algal blooms persist," said Pyati. "Also, salinity conditions are worsening over the long term and require careful observation in the near future."

Salinity conditions are highly variable over time due to weather conditions and other factors. That, scientists said, limits the understanding of salinity dynamics at a critical time. In short, salinity conditions are worsening.

As for aquatic life, the report said submerged aquatic vegetation and the presence of non-native aquatic species were both at unsatisfactory levels.

Non-native aquatic species including lionfish were specifically mentioned and researchers noted that the situation is worsening.

On the brighter side, threatened or en-

dangered species are in a satisfactory state and the trend is improving.

The report noted that most of the species of fish in salt and fresh water areas of the river are doing well. The only exception was the fresh water catfish.

Many different sources of information were examined in the development of this annual report including data provided by the Florida Department of Environmental Protection, St. Johns River Water Management District, the Florida Fish and Wildlife Conservation Commission, the city of Jacksonville, individual researchers and others.

"The Lower St. Johns River Basin has long been recognized as a treasured watershed, providing enormous ecological, recreational, socioeconomic and aesthetic benefits," Pyati said.

With direction taken as a result of the annual report's conclusions, it is hoped that those benefits will be enjoyed by generations to come.

Editor's note: The complete report on the St. John River is available on-line at <http://www.sjrreport.com/>.

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mitigated, to some degree, by doing the work in stages, as they did in Phillippi Creek and in the Keys," said Lapointe. "With the right funding and scheduling in place, the cost and hassle factor become very manageable and certainly well worth the results. It is entirely possible for Indian River Lagoon to be healthy again. We just have to have the political will and patience to make it happen."

The choice becomes maintaining the status quo, which could mean the continued demise of wildlife and contamination of a vital body of water, not to mention the decline of property values and a hit to the local economy. Or, leaders and residents can take action to solve the problem, which will involve some cost and inconvenience.

"Right now we are at the point where people are finally getting it," Lapointe said. "Everyone has to look at themselves in the mirror and say, 'what can I do to help solve this problem?'" We need to educate people about the situation and discuss the possible solutions. We have to deal with septic tanks and sewage in general in a better way, up and down the lagoon. Once we do that, we will begin to see a healthier situation in the lagoon and for the wildlife there."

A healthier Indian River Lagoon is not only better for seagrasses, manatees and dolphins; it also protects property values and jobs for everyone in the region.

Steve Gibbs is a freelance writer in Memphis, Tennessee. He has written about public works issues for more than 25 years.

FEDFILE

From Page 2

Delay in tri-state suit. At the request of the Supreme Court, U.S. Solicitor Gen. Donald Verrilli filed a brief in a long-standing lawsuit pitting Florida and Alabama against Georgia over water management of the Apalachicola-Chattahoochee-Flint River basin, urging delay for another year.

Verrilli's brief proposed that the Supreme Court delay until the U.S. Army Corps of Engineers finishes revisions of its Master Manual for the ACF, expected to be complete by September, 2015.

This suit is the most recent in a succession of legal actions dating back to two suits filed by Florida and Alabama in 1990. A series of suits have followed.

Florida and Alabama won a few of those and Georgia appealed. In the most recent court decision in 2011, the city of Atlanta won, allowing it to pump substantial amounts of water from Lake Lanier to augment its municipal water supply.

The most recent lawsuit, filed in 2013, alleges that in withdrawing that water, the city of Atlanta is harming fisheries in Apalachicola Bay and other economic activities in northern Florida.

Verrilli submitted his brief in late September. The Supreme Court has not taken any action on the case since the submission.

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High nitrate levels in Floridan Aquifer may have cancer implications

By SUSAN TELFORD

Robert Knight, PhD, director of the Howard T. Odum Florida Springs Institute in Gainesville, has been studying water most of his life and knows a bit about the state's springs and natural resources.

There's one ugly piece of information that he is aware of about the Floridan Aquifer that he wants all of us to know.

"Existing elevated nitrate concentrations throughout much of the Floridan

Aquifer may be harmful to humans in addition to their deleterious effects on the ecology of springs," Knight said. "The concerned public and their elected officials should demand that the federal, state and local public health organizations conduct a comprehensive epidemiological study of the effects of groundwater nitrate levels on human health in Florida."

Knight has good reason for his concern.

A study released in 2001 indicated that drinking water contaminated with nitrates from fertilizers or human and animal

wastes may cause bladder cancer in women—nitrates at levels far below current government ceilings.

The U.S. Environmental Protection Agency states that nitrate levels are safe below 10 parts per million. However, the study showed that levels as low as 2.46 parts per million may nearly triple the risk of bladder cancer.

"There have been a few studies that looked at nitrate in drinking water and a variety of cancers," said Peter Weyer, PhD, associate director of the University of Iowa's Center of the Health Effects of Environmental Contamination and author of the study. "And while some have found an association with such diseases as non-Hodgkin's lymphoma, there has only been one study done in Spain, published in 1993, that showed an association between nitrate, a municipal water supply and an increased risk for bladder cancer."

Bladder cancer is the sixth most common cancer in the country.

Weyer and his colleagues used data from more than 41,000 women, aged 55 or older, in the Iowa Women's Health Study.

"We were looking at women who were using the same water supply for more than 10 years. That turned out to be about 22,000 women. 16,500 of them were using the municipal water supplies from 400 municipalities," he said.

The level of exposure to nitrate was based on data collected from municipal water suppliers. No nitrate data was available for women using private wells. The research team checked the cancer incidence data from the Iowa Cancer Registry from 1986 to 1998.

"What we found was a positive association for an increased risk of bladder cancer in women who used municipal water supplies," wrote Weyer in the study. "For women on municipal-supplied (water), if the nitrate level was greater than 2.5 parts per million, those women had an almost three-fold risk for bladder cancer compared to a group of women who we used as reference who were exposed to less than 0.4 parts per million."

The 2001 study was adjusted for risk factors such as smoking, nitrate in the diet and vitamins E and C that impact how nitrate is reduced in the body. According to Weyer, nitrates are reduced to carcinogenic N-nitroso compounds in the body. And nitrates are found everywhere.

"It's present naturally in the soil. It can seep into groundwater from nitrogen-based fertilizers, from both agricultural and farming, as well as from the single family

home-owner," wrote Weyer. "Nitrates are a by-product of livestock facilities, human waste, municipal wastewater treatment plants and septic tanks."

According to the American Cancer Society, the findings from the 2001 study are potentially important. Harmful concentrations of nitrate are substantially lower than what the government claims will prevent toxicity.

In its 2008-09 Annual Report of the President's Cancer Panel, "Reducing Environmental Cancer Risk - What We Can Do Now," published in 2010 by the U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute, authors Dr. LaSalle Leffall Jr. and Dr. Margaret L. Kripke implored President Obama to take action by warning the public about everyday exposure to carcinogens.

In 2009 alone, approximately 1.5 million American men, women and children were diagnosed with cancer and 562,000 died from the disease. With the growing body of evidence linking environmental exposure to cancer, the public is becoming increasingly aware of the unacceptable burden of cancer resulting from environmental exposures that could be prevented through appropriate national action.

Of particular concern to the research panel was that the true burden of environmentally induced cancer has been grossly underestimated. With nearly 80,000 chemicals on the market in the U.S., many of which are used by millions of Americans on a daily basis, exposure to potential carcinogens is widespread. And children are far more vulnerable to environmental toxins and radiation than adults.

The panel expressed concern that significant harm from cancer-causing products had not been addressed adequately by the National Cancer Program and that the American people, before they are even born, are bombarded continually with myriad combinations of these dangerous exposures.

The panel implored the president to use the power of the office to remove carcinogens and other toxins from our food, water and air that needlessly increase health care costs, cripple our nation's productivity and devastate American lives.



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