WINTER 2013

Bay Soundings

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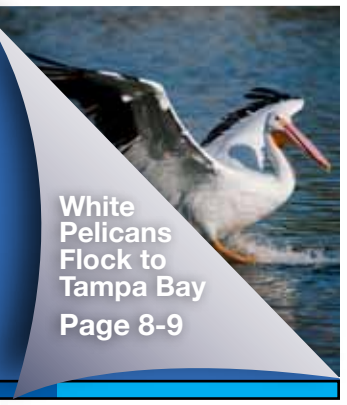
COVERING THE TAMPA BAY WATERSHED



White Pelicans Flock to Tampa Bay
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MARINE MIGHT

Tampa Bay's Oceanographic and Marine Science Sector Blazing Trails, Boosting Economic Development

Photo courtesy City of St. Petersburg

Clustered around the University of South Florida St. Petersburg (shown here southwest of Albert Whitted Airport), the Bayboro Harbor scientific research district is the largest marine research complex in the southeastern U.S.

By Mary Kelley Hoppe

From creating underwater sensors that can detect explosives on ships entering U.S. harbors to adapting marine technologies for space exploration and medical diagnostics, a cluster of businesses, agencies and organizations in and around St. Petersburg have propelled the Tampa Bay region to the vanguard of marine research and technology.

And its impact is growing, creating myriad opportunities for employment and new business development, according to local economic development officials who are gearing up marketing of the consortium dubbed the Ocean Team.

Anchored by the University of South Florida St. Petersburg, the city's Bayboro Harbor Scientific District is the largest marine research complex in the Southeast. A veritable who's who of marine science organizations, it includes the U.S. Geological Survey, NOAA's National Marine Fisheries Service, Florida Fish & Wildlife Conservation Commission, Tampa Bay Estuary Program, Florida Institute of Oceanography, and U.S. Coast Guard, as well as nearby Eckerd College and regional partners such as Mote Marine Laboratory in Sarasota.

Attracted by the potential of research and technologies developed here, it has expanded to include such heavyweights as SRI St. Petersburg, an offshoot of renowned Silicon Valley research institute SRI International, which opened a 40,000-square-foot marine technology R&D facility here in 2007.

According to a 2010 economic analysis by the Tampa Bay Regional Planning Council, the consortium's 1,622 employees generated $143 million in annual household earnings and created another 1,807 indirect jobs fueled by industry demand and household spending. Those jobs in turn contribute $251 million annually to Pinellas County's gross product.

"I think the real linchpin here is the potential for research to be commercialized," said Rick Smith, economic development coordinator for the City of St. Petersburg. "We have a concentration of marine science talent here that is unrivaled in the Southeast," on par with Massachusetts-based Woods Hole, the largest independent oceanographic institution in the U.S., Smith said.

That potential was the magnet that lured SRI to St. Petersburg.

Marine Might
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Out of Sight, Out of Mind – Underground Petroleum Storage Tanks

By Sonia C. Lavina

With the state continuing to face difficult economic times, legislators must decide on even more budget reductions. Environmental protection is usually an easy target for budget cuts, especially underground petroleum storage tanks (USTs) because they are out of sight.

"People don't think much about this, but there are tanks with 10,000 gallons of fuel underneath the ground near our groundwater. Who is watching them?" asks Jeffrey Halsey, president of Florida Local Environmental Resource Agencies (FLERA).

Since the late 1980s, local programs have been inspecting USTs annually under contracts with the state but those funds have been targeted for reductions. "We want to emphasize to the state not to cut this very important program that helps to keep our water clean," he added.

Prior to 2011, about $10 million from the Inland Protection Trust Fund was spent to inspect USTs annually. Last year, funding was cut to $7 million and inspections reduced to every other year. For 2013, only $5.9 million has been proposed for UST inspections.

Releases from USTs caused by spills, overfills or leaking tanks and piping can cause fires or explosions

Out of Sight, Out of Mind
Continued on page 5

Photo courtesy EPCHC

Funding cuts threaten regular inspection of underground storage tanks such as these.

PROFILE

"Snowbirds" Defend Their Feathered Friends

Like the snowbirds they never expected to become, Margaret and Steve Santangelo return to the same beach every winter. And like their feathered friends, who often nest in colonies to protect each other from predators, the Santangelos spend their winters defending the birds at Fort DeSoto Park.

But rather than fighting off larger birds or raccoons, the Santangelos are protecting birds from human intrusion at one of the few dedicated sanctuaries for nesting and migrating birds in the region.

Their commitment last winter played a significant role in one of the most successful years ever for Wilson's plovers at Fort DeSoto Park, according to Elizabeth Forys, a professor at Eckerd College and expert in beach-nesting birds. "We had some of our highest numbers ever in terms of both pairs nesting and fledged chicks," she said.

The fact that the Santangelos were on the beach during the week and earlier than bird stewards are usually called to work also meant that the plovers had fledged by the time Tropical Storm Debbie came through and nearly wiped out the beach where they had been nesting, Forys adds.

For the Santangelos, what began as a week-long visit has become a seven-month stay, with quick trips back to New York for holidays because their grown children – a son and a daughter – and grandchildren insist. "We always go home for Christmas but as soon as the kids walk out, we get the tree down and the car packed and we're on our way back here," she says.

She is a retired travel agent, he had a successful career as a telecommunications executive with stints in places like Moscow and England. They expected to spend a week or two on a different beach every winter in exotic locations like Hawaii, Europe and the Caribbean. Instead, they bought a small condominium in Tierra Verde to be close to Fort DeSoto.

"This is the perfect place for us," says Margaret. "We can ride our bikes down in the morning, then spend the afternoon kayaking."

Their favorite spot is at the far tip of North Beach. "You can't see anything that isn't natural, no condos, no buildings at all, but there are restrooms and a snack bar just around the corner if we need them," Steve says.

Photo: Elizabeth Kraker

Margaret and Steve Santangelo spend their winters in Tierra Verde so they can be close to the natural beauty of Fort DeSoto beach.

That's unless the weather is particularly nice and people flock to the beach – or they get a call about nesting birds that need their protection in the roped-off sanctuary. "Most of the time people aren't trying to be mean, they just don't understand that the birds need a place where they can rest in peace."

iStock Photos

Margaret Santangelo describes Wilson plover chicks as "little cotton balls with big eyes and long legs."

And the birds absolutely understand that the sanctuary is a safe spot, she adds. "You can watch the bigger birds like the skimmers on the beach. When kids are playing nearby, they'll fly up a couple of times but then it's like 'we're out of here,' and they're back in the sanctuary where they know people aren't allowed."

When plovers began nesting early last spring, the Santangelos moved up the beach to sit next to the sanctuary with a sign telling people to ask them about the birds. "The plover chicks were the cutest things – like little cotton balls with big eyes and long legs. They didn't understand the sanctuary though, so they kept zipping outside. Lorraine Margeson got us little signs that said 'chicks crossing' so people would be careful around them," Margaret said.

Along with the shorebirds, the Santangelos keep track of the bald eagles that nest in the cell phone tower across the street from the North Beach snack bar as well as an owl's nest in a nearby Australian pine. "You can already see the eagles working on the nest again this year," Margaret said.

When they leave Florida sometime in the middle of May, they'll go back to a home about 60 miles outside New York City and spend their summers volunteering as tour guides at a historical site in the middle of the Hudson River.

"Bannerman's Castle was built by a munitions dealer who had to leave New York City after he bought so much surplus military equipment after the Spanish American War," Steve said. "He built a series of warehouses in the shape of castles. A lot of them are in ruins now but there's enough there to talk about in an hour and a half tour."

But before they leave, they'll celebrate their 49th wedding anniversary on February 8, probably with their friends at Fort DeSoto. "We've been very blessed," Margaret says. "She's the only one who would have ever put up with me for all these years," adds Steve.

Explore Tampa Bay's magnificent waterworld and watershed with *Bay Soundings,* a quarterly news journal covering Florida's largest open-water estuary. *Bay Soundings* chronicles the news and issues affecting the bay, while profiling the people, places and creatures that make it so compelling. Thanks to generous community support, *Bay Soundings* is distributed free of charge to local and national subscribers. Interested readers may subscribe online at www.baysoundings.com or send an email to circulation@baysoundings.com. Bulk copies also are available for distribution through area attractions, schools, businesses and civic organizations.

TALK BACK

We welcome letters to the editor on topics covered in Bay Soundings as well as articles or story ideas on issues impacting Tampa Bay and the region's natural resources. Send letters to editor@baysoundings.com.

SEND US YOUR NEWS

We're always interested in news about community organizations involved in Tampa Bay, and our calendar page highlights upcoming bay-related events and activities. Send news to editor@baysoundings.com.

HELP YOURSELF

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news briefs & follow through

A ceremonial ribbon-cutting marked the reopening of the Tampa Bay Aquatic Preserves field office. From left: Suzanne Cooper, Gary Lytton, Roger Wilson, Randy Runnels, and Kevin Claridge.

Tampa Bay Aquatic Preserve Re-opens Field Office

The Florida Department of Environmental Protection officially reopened the Tampa Bay Aquatic Preserve's field office in December after an 18-month closure. The event included remarks by Gary Lytton, regional administrator for aquatic preserves in South Florida; Kevin Claridge, director of the FDEP Office of Coastal and Aquatic Managed Areas; Roger Wilson, former state representative from Pinellas County who sponsored legislation in 1969 to create the Boca Ciega Bay Aquatic Preserve, precursor to Florida's AP program; Randy Runnels, the previous and newly re-hired TBAP manager; and Suzanne Cooper, principal planner of the Tampa Bay Regional Planning Council and staff of the Agency on Bay Management.

A ceremonial ribbon cutting marked the reopening, followed by a tour of island NCM1, just south of the Honeymoon Island Causeway. This is one of many spoil islands created when the Gulf Intracoastal Waterway was dredged. Now it's part of the Pinellas County AP and a popular boating destination. Once covered by native and exotic species, it has received attention over the past few years with restoration and revegetation efforts. Over the week preceding the TBAP reopening ceremony, nine students from Ohio State University, along with their sponsor, worked tirelessly to rid the island of Brazilian pepper, small Australian pines and carrotwood, and to restore the trail system and educational markers that point out the native species and their values.

Four separate Aquatic Preserves actually make up the Tampa Bay AP: Boca Ciega Bay AP, Cockroach Bay AP, Pinellas County AP, and Terra Ceia AP. Runnels said that he is enthused by the FDEP's increased emphasis on its aquatic preserves and will be working to increase public awareness of the TBAPs and their significance to the community as well as to manage these important aquatic resources.

Runnels will continue building on TBAP's traditional focus on volunteers with a wide variety of opportunities across the preserves. For more information, email him at Randy.Runnels@dep.state.fl.us.

Legislature Expected to Revisit Fertilizer Rules

In preparation for another battle over fertilizer ordinances, the Florida Association of Counties has voted to make protecting fertilizer restrictions one of its top three issues going into the 2013 legislative session.

"We've been told it's imminent," Sarasota County commissioner Nora Patterson, said of the potential legislation to limit local control of fertilizer use, according to the *Sarasota Herald Tribune*.

The issue is whether local governments can pass tighter regulations than the state's minimum recommendations to help meet the more stringent criteria for nitrogen in surface waters recently approved by state and federal agencies.

Sarasota County passed the state's first fertilizer ordinance in 2007 with officials promising to push for repeal if they saw lawns dying for lack of nutrients. To date, only one complaint has been made but the sick grass was probably caused by overwatering, not under fertilizing.

Since then, the cities of St. Petersburg and Tampa as well as Pinellas and Manatee counties have passed ordinances that limit the use or sale of nitrogen fertilizer during the summer rainy season.

District Properties Now Easier to Navigate

Visitors will find it easier to navigate some of their favorite trails at 16 of the most popular properties owned by the Southwest Florida Water Management District. New kiosks feature updated trail maps and detailed information including global positioning coordinates.

"The new maps will help guide visitors through the property," said Carmen Sanders, the district's land use and protection supervisor. "The GPS coordinates will correspond with numbered trail intersections and make it easier for visitors to pinpoint their exact location."

The maps are part of an ongoing effort to update information at district properties. With more than 850 miles of trails, including many located near populated areas. District lands are popular for hikers as well as bird watchers, joggers, bicyclers and backpackers.

Lands are purchased and managed to protect water resources and to preserve and restore Florida ecosystems. There are more than 343,000 acres of conservation lands in the region open to the public for recreation opportunities.

Visit WaterMatters.org/Recreation for a complete list of district properties and recreational opportunities. Recreational Guides also can be downloaded or ordered at WaterMatters.org/Publications/.

Future of the Region Awards Program Scheduled

Deadline for entries in the Tampa Bay Regional Planning Council's Future of the Region awards program is Friday, January 11. The awards highlight projects and programs that exemplify regionalism, and recognize outstanding achievement and contribution that benefit the regional community.

The awards luncheon will be held March 15 at a location that is still to be determined. For more information, visit www.tbrpc.org.

Tampa Bay's Collaborative Approach to Nitrogen Approved by EPA

The collaborative approach that helped reduced nitrogen in Tampa Bay by more than 400 tons per year since 1995 has been formally approved by the U.S. Environmental Protection Agency. The approval means that state and federal regulators agree that nutrient management strategies in place are sufficient to achieve water quality targets for the bay over the next few years.

The remaining challenge is accommodating new growth without increasing nutrient loadings. "We're 'holding the line' now but will need to implement new technologies and techniques as the region's population continues to grow," notes Suzanne Cooper, principal planner for the Tampa Bay Regional Planning Council.

Water-Wise Awards Recognize Florida-Friendly Landscaping

When Eagles Landing condominium was due for an overhaul of its 30-year-old landscape and irrigation system, the community recognized the opportunity to not only beautify the common areas, but also transform the current landscape into Florida-friendly landscaping that is sustainable and water-efficient.

The transformation was so successful that it was selected as the Pinellas County winner of Tampa Bay Water's 2012 Community Water-Wise Award. Other winners include Simon and Maryhelen Zopfi in Hillsborough County and community radio station WMNF-FM 88.5 in Tampa in the business category.

More information about the Water-Wise Awards can be found at www.tampabaywaterwise.org.

TBEP volunteers serving more than 10 years include Mike Herdegen, Sue Brandon, Dorothy Rainey, Cathy Quindiagan (not pictured Marjorie Karvonen).

Estuary Program Honors Long-Time Volunteers

Five volunteers with more than 10 years of service to the Tampa Bay Estuary Program's Citizen's Advisory Committee were recognized with a special event in their honor.

- Marjorie Karvonen has been on the CAC for 25 years – joining even before the TBEP officially existed. "When I was offered the opportunity to participate in a program affecting Tampa Bay, as an appointee of the City of St. Petersburg, I was delighted. I was anxious to see how the efforts of the nine different governmental agencies, each with a different set of problems needing to be addressed, could work together and make progress."
- Sue Brandon is the owner of www.findyourselfoutdoors.com kayak and ecotour company and has been on the CAC for 12 years. She says that serving on the CAC helps her to learn more about what's happening on the bay so she can share that knowledge and passion for protecting it.
- Mike Herdegen has served on the CAC for 10 years. "Being on the CAC has taught me a great deal about the science of the bay, and how everyday activities can have a dramatic effect on the bay, both positive and negative," he says.
- Cathy Quindiagan also joined the CAC 10 years ago and says that Give A Day events are among her favorite activities. "It's personally satisfying because I get to work with people from all over the bay area that I would never meet otherwise and get to do activities that benefit the parks, preserves and shorelines that keep the bay healthy."
- Dorothy Rainey marked a decade of service on the CAC but has spent more than two decades protecting Tampa Bay's wetland habitats as an environmental professional with Manatee County.

Grow a Modern 'Victory Garden'

By Avalon Theisen

Victory gardens were planted in World Wars I and II to supply fresh food at home because so much food was being sent to soldiers overseas. As the gardens grew, so did the people's morale. Everyone was proud because they were doing something important for themselves and their communities. Even though we have plenty of access to food today, I have started learning about the benefits of growing my own food. Recently, I started my first garden. I am going to share some of what I have learned, and hope that you will start your own garden, too!

Food tastes better when you grow it yourself!

Edible gardens are very cool because they help you live more sustainably, which helps our planet. A lot of times, food travels from an unknown faraway place to your local store, and then you travel to the store to get it. Fuel is wasted and a lot of pollution is added to the environment. When you get food from your garden, you know exactly what is in it, with no need to worry about chemicals from fertilizers or pesticides. You will also know exactly where your food comes from! Having healthy food right outside your door means you will eat more vegetables and fruits. Gardening is a fun way to get exercise and enjoy the outdoors, which means having less stress which is very helpful for all ages. Topping these benefits off, supplying some of your own food saves your family money!

One thing you need to think about is what kind of space you have for your garden. You can do your planting pretty much anywhere but a sunny or partially sunny spot is best. If you have a patio or balcony, flower pots may fit perfectly. Digging up part of your lawn for planting or installing a raised bed garden will work great for larger spaces.

Now that you have your space, what are you going to plant? If your parents always had a garden somewhere north, they'll need to rethink everything they know to be successful in Florida. Plants like traditional lettuce and greens do best in the winter but you can plant food like currant tomatoes, yard-long beans, or sweet potatoes and portulaca (summer greens for Florida) to have fresh vegetables year-round. (Learn more at the University of Florida's IFAS site online at http://edis.ifas.ufl.edu/vh021 or contact your local extension service for hands-on advice from experienced gardeners.)

You can get started with seeds, clippings (a cut-off part of an existing plant) or store-bought plants. Some food scraps, like the base of lettuce or celery, can also grow new plants. Some of my starter plants are pumpkin (seeds), cranberry hibiscus (clippings), tomatoes (store-bought) and lettuce (food scraps).

Two eco-friendly things to help your garden grow are composting and rain-water collection. In my last column, Pounds to Ounces: The Zero-Waste Project, I wrote about how I was learning to keep trash and food scraps out of the landfills, by recycling and composting. If you do not already compost, which is basically recycling organic matter, you might like to read the information I shared, because it can help you get started. Collecting rain water in rain barrels or other containers means saving your local water supply.

No matter where you live, you can grow your own food. I really enjoy watching my garden grow, and supplying some of our salad ingredients! If you decide to grow your own garden, I would love for you to share your story and pictures with me at ConserveItForward@verizon.net.

Photos: Deborah Theisen

Avalon has planted a wide variety of greens and vegetables in raised beds in her backyard. Now is a great time to start planning a spring garden to go in the ground by February or early March.

Out of Sight, Out of Mind

Continued from page 1

that threaten human safety, or contaminate groundwater. Human exposure can occur through ingestion of contaminated drinking water, inhalation of vapors, and contact with the skin. Benzene and other chemicals found in petroleum products have been shown to cause cancer.

Regulation of USTs began in the early 1980s because Florida's groundwater was at risk of contamination. Even today, the U.S. Environmental Protection Agency (EPA) estimates that Florida has more sites contaminated with petroleum than any other state in the nation. In Florida, there are over 15,450 contaminated sites, including over 2,800 in the Tampa Bay region.

The Inland Protection Trust Fund was created in 1986 to pay for the cleanup of petroleum contaminated sites and prevent future spills. Today, drivers are charged about four cents a gallon – for a total of about $133 million a year – to clean up contaminated sites and prevent leaks.

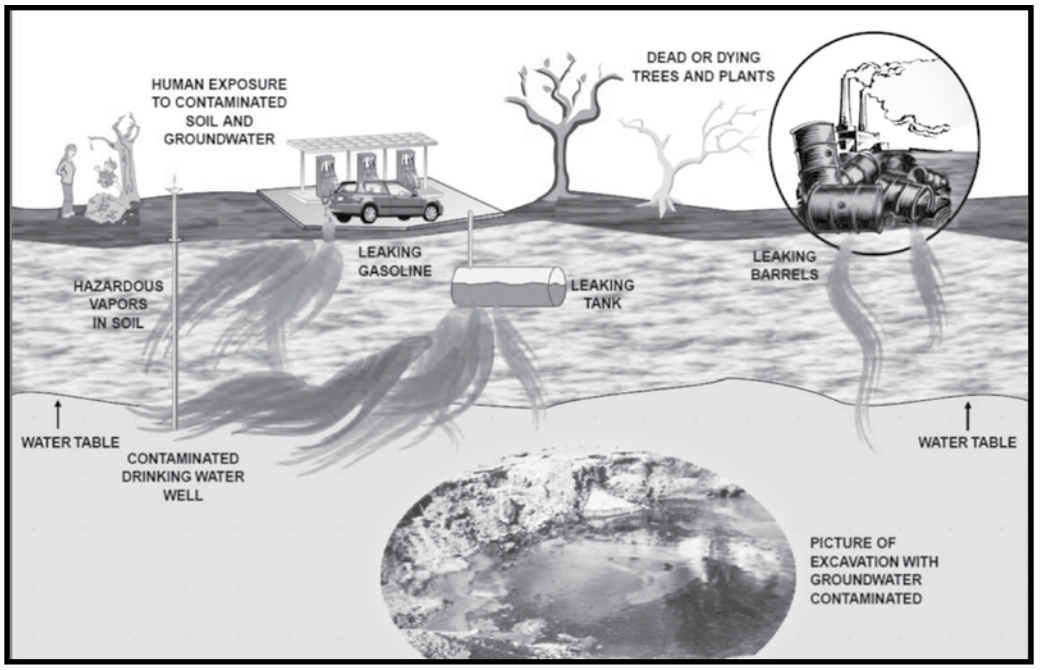
Last year, $8 million of the funds collected for tank inspections and cleanup programs was taken by the Legislature to help balance the state's budget. "Based on the amount of the fund, the Legislature can decide how to allocate the funds," said FDEP Bureau Chief Robert Brown.

"At FLERA, our legislative policy is that the money that is collected at the gas pump for inspection and cleanup should not be used for any other purpose," said Rick Tschantz, past president of FLERA and director of legal and administration at the Environmental Protection Commission of Hillsborough County (EPCHC).

While legislation in the early 1990s required gas stations to install double-walled tanks to reduce leaks, 10 of 19 discharges reported in Hillsborough County last year were from double-walled systems, according to EPCHC. That's because double walls don't address other system components that account for a large portion of discharges.

"A number of the leaks come from the spill buckets, the piping sumps or liners. That's all part of the compliance inspection and why it's important to do inspections annually," said Andy Schipfer, manager of petroleum cleanup at EPCHC. "We've seen them [spill buckets] break and crack within a couple of years," adds Monica Sylvain, the agency's compliance manager.

Spills can also occur when the delivery truck hose is disconnected. Although these spills are small, repeated small releases can cause big environmental problems. "When you go to a gas station and see a tanker truck filling up the tanks, there's a bucket that captures anything that spills over. But if the bucket is cracked, it doesn't do the capturing and spills into the ground contaminating the soil and groundwater below," said Schipfer.



Graphic courtesy FDEP

Leaking petroleum storage tanks can contaminate groundwater as well as expose people and plants to hazardous vapors.

Photos courtesy EPCHC

Above left, a cracked spill bucket on a double-walled tank allows petroleum to escape. Right, a failed double-wall tank is removed, highlighting the need for annual inspections.

"One of the things we look at during inspections is the spill containment buckets because they tend to deteriorate easily. That's a very important part of our inspection. It is through the vigilance of the yearly inspections that many spill bucket problems are detected," he added.

"Even if it's not seeping all the way into the groundwater, by the time they come along and check the tanks, it's more difficult to clean up the petroleum that gets into the soil. That makes it more expensive and difficult," said State Rep. Michelle Rehwinkel Vasilinda, (D- Leon Co.) a member of the Agriculture and Natural Resources Appropriations Committee that will recommend the budget for inspections.

Preventing just one release could save $400,000 -- the average cost to clean up a contaminated site. "Not having inspections done often is being 'penny wise and pound foolish.' I think the most cost-effective thing to do is to have the tanks inspected once a year," she added.

The storage tanks inspection program in Hillsborough County has been administered by the EPCHC under contract from the FDEP since 1988. Hooshang Boostani, director of waste management at EPCHC explains that there are two contracts: a yearly inspection contract to ensure that the tanks are operating properly and a contract to oversee contamination cleanup. Before a tank is installed or removed, EPC staff review the plan to certify all state regulations are met. Inspections are performed during all phases of construction to verify the installation or removal was performed correctly.

"It is more efficient to oversee cleanups locally," notes Hillsborough County Commissioner Kevin Beckner who also serves as chair of the EPCHC. "Economically, it makes sense to keep the monies spent locally where the environmental impacts are occurring as well. We are local, we are knowledgeable on local conditions, and we can be more efficient based on proximity to the issues."

The FDEP proposed a budget of $125 million for fiscal year 2013, which starts July 1, 2013, for the cleanup of spills that the department has prioritized based on proximity to drinking wells. Additionally, $5.9 million is proposed for local programs to inspect the 20,000 USTs across the state.

Prior to 2011, the Legislature granted FDEP $10 million for compliance inspections. In 2011, the legislature reduced the funding to $7 million, a 30% reduction. The budget submitted for the storage tank inspection contracts for 2012 proposed to cut the budget further to $4.5 million, an additional 36% reduction.

FLERA representatives talked to Legislators last year to explain the need for maintaining the funding at $7 million. The Legislature ultimately agreed and left the funding in place, but only $5.9 million has been distributed to local programs, according to the FDEP. The remaining $1.1 million may be redistributed to local programs after the first half of the fiscal year if the FDEP determines that the additional funds are needed.

The FDEP also had proposed to eliminate the role of the local governments by hiring private contractors and state staff. "We pointed out this had not worked in the past," added Tschantz. "The FDEP dropped the idea, and instead merged the larger counties into the smaller counties."

The Hillsborough team now oversees Manatee County's program and Pinellas County checks Pasco County's USTs – but with fewer staff. "We used to do about 1500 inspections with nine inspectors, but we are now doing 800 inspections with four inspectors and we sometimes have to do reinspections," said Boostani.

As part of the 2012 budget cuts, when FDEP reduced tank inspections from once a year to every other year, there was even talk of going to every three years, according to Tschantz. Although the EPA's Energy Policy Act of 2005 requires that USTs cannot go more than three years without being inspected, Florida has been inspecting USTs yearly since the program started. "When you reduce oversight and compliance inspections, you increase risk. Anytime you increase risk, we are concerned," said Boostani.

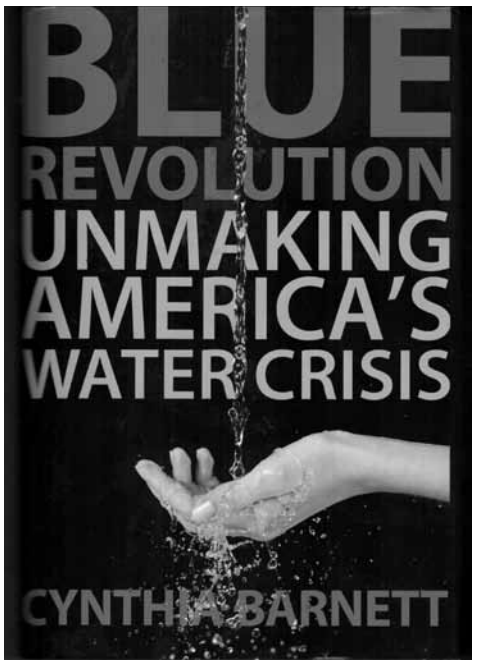
As the Legislature considers its options this March, officials urge residents to contact their local legislative delegation to raise awareness of the importance of underground storage tank inspection funding. "The more citizens are involved, the better job we do because we know someone is watching and interested," said Rep. Rehwinkel Vasilinda.

"We want decision makers to understand the value that all the local programs bring to the table and understand the impacts if they are cut," adds FLERA President Halsey. "From a statewide perspective, this is one of the most important issues facing local environmental agencies."

New Year's Resolutions to Help our Planet

By Victoria Parsons

If you've already given up on all those admirable resolutions to lose weight, exercise more and eat less junk food, consider making new resolutions that will help get our planet into better shape. Here are three books that take in-depth looks at the issues and then offer suggestions on ways you can make a difference.



In **"Blue Revolution,"** long-time Florida Trend reporter Cynthia Barnett takes readers on a trip around the world, looking at how communities have revolutionized water ethics. From the watery Netherlands to drought-stricken Singapore and Australia, she skillfully blends hard facts with intriguing anecdotes in her latest book on water conservation.

Her conclusion: it will be impossible for humans to continue to find "new sources" of water to meet growing demand but the right ethics and pricing will reduce water use so we can all have what we need.

Although water conservation hasn't gotten the same celebrity attention that is focused on energy technology and conservation, she writes, it will eventually become an important issue – perhaps even in our lifetimes.

She shares the story of a friend who is an environmental historian who cites the transformation of America's littering habits. While the population continued to grow, researchers found 61% less litter in 2009 than in 1969. Psychological research indicates that the top reason for the transformation was an ethical belief that littering was wrong.

"Someday, you may not want to be the only one with bright green grass," she writes.

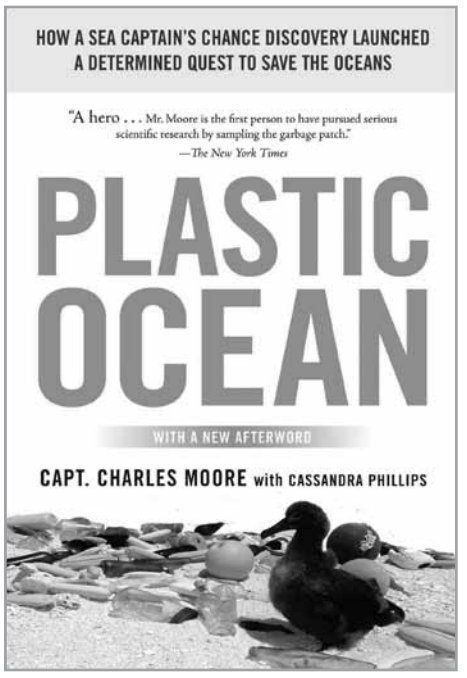
Of course, regular readers of Bay Soundings know that Tampa Bay's per capita use is already below state and national averages – about 100 gallons per day compared to 158 for the state and 150 for the nation. The so-called "water wars" of the early 1980s forced the region to look at alternatives to cheap underground water that hasn't happened in places like Nevada where the average consumption tops 200 gallons per day and costs remain low.

Still, in Tampa Bay and across the country, lawns are the largest national "crop" requiring 19 trillion gallons of water daily to survive. "In that spirit, the blue revolution begins in our own backyards," Barnett writes. "Just as it's no longer possible to give all the large water users as much as they want, any time they want, it's no longer possible for every one of us to use 150 gallons a day from our ailing aquifers and rivers. It's a lot like America's bank accounts: we are seriously overdrawn for luxuries we didn't even need."

"Plastic Ocean" by Capt. Charles Moore is also less a "how to" book than a call for revolutionary thinking about how and why plastics are used. Known as the man who discovered the Great Pacific Garbage Patch, he reminds us all that plastic is made from petroleum, doesn't biodegrade in any meaningful time frame – and when it does, it decays into fragments and then into nanoparticles that may pollute for centuries to come.

Horrified by the plastic fragments he had glimpsed on a recreational sail across the Pacific, he returned several years later with a contingent of scientists and a plan to randomly sample the area known to sailors as the "doldrums." While the air is calm, the sea works somewhat like a fast-running drain in a sink, capturing water and moving it downstream – but also concentrating pollutants like plastics.

"On land," Moore writes," it's soothing to think that all those bottles and wrappers, all that cheap plastic stuff we handle every day,



winds up in a landfill, safely sequestered for polite society. But here in mid-ocean, we're finding hordes of escapees from imperfect collection systems."

While it's nearly impossible to track plastic back to its source once it has broken into tiny pieces, Moore contends that much of the trash found in the Pacific gyre is land-based. Technologies for recycling plastic have not kept up with technologies (and demands) for new and increased uses.

He also was among the first researchers to take plastic from ugly litter to harmful pollutant, showing that small bits of plastic "adsorb" other pollutants. The doubly toxic plastic bits are consumed by small fish at the base of the food web as well as filter-feeding whales, sea turtles and seafaring birds like albatrosses.

There will come a tipping point, hopefully in the near future, he writes. "Pointless competition and unthinking consumption will be replaced by mindful acquisition of goods that are needed and will last."

Finally, if you're ready to take real-world steps to make a difference, check out **"Cooler Smarter: Practical Steps for Low-Carbon Living"** written by a group of researchers from the Union of Concerned Scientists. (And since a large portion of the contaminants in Tampa Bay come from fossil fuels, you can see a direct impact in your own back yard.)

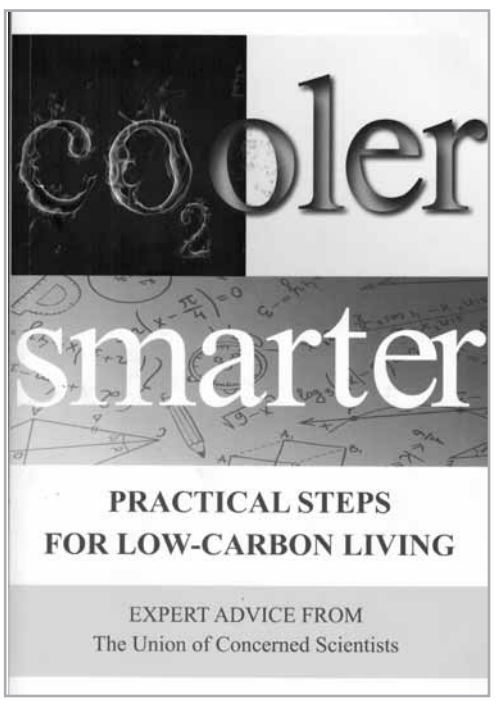
The nicest thing about reading this book was its very clear focus on impacts. For instance, we all know that turning off lights when we're not in a room is a smart way to save electricity. However, replacing old-fashioned incandescent bulbs with newer CFLs or LEDs has even more impact. Because the CFLs result in savings of about 75%, you'd have to turn your lights off for three of every four days to achieve comparable savings.

Another interesting comparison: leaving on computers, laser printers, coffee pots, digital cable boxes – anything with a clock or a light that glows to show it's ready to run – may draw up to 500 watts of power, the equivalent of five 100-watt lights burning day and night.

Automobiles, of course, offer major savings in emissions but so do less expensive items like refrigerators, particularly if your family keeps an older model in the garage. The newer models are 20% larger and use 70% less electricity. You may be able to reduce your heating and cooling expenses by 15-25% with nothing more than a couple bucks worth of caulk to seal leaks.

Even saving water can make a difference in fossil fuel consumption. One study indicates that energy used to deliver water to homes in Southern California equals one-third of the household's total use. Food choices are another often-ignored way to minimize emissions. Emissions from beef and pork are nearly 18 times higher than those from pasta.

I missed seeing that kind of comparison with solar or wind power, but the focus on easy-to-implement conservation methods more than made up for that loss. And it's not only easy, it's important. "If we improved the energy efficiency of residential buildings in this country by just 10% (a goal easily met by existing technology), Americans would save about $20 billion. Small individual improvements in energy efficiency can make a very big difference."



Planned Highway Becomes Haven for Wildlife

If all had gone as planned, Honore Avenue would be a bustling six-lane highway running south from Manatee County to Englewood.

Instead, the 2.5 mile section just south of busy Fruitville Road is a two-lane road bordered by bioswales and punctuated with roundabouts that accommodate nearly as much traffic as a four-lane highway. Not only do the bioswales collect a significant percentage of pollution, neighbors love the design – and it cost $2.3 million less to build than the county had budgeted for a more traditional alternative.

"It's important to accommodate automobiles but there needs to be a balance," says Jon Thaxton, who served on the Sarasota Board of County Commissioners for 12 years before being term-limited out. "There is a balance here: there's room for automobiles but there's also a comfortable space for pedestrians and bicyclists – and the environment."

In fact, the bioswales collect so much nitrogen that they played an important role in "delisting" nearby Roberts Bay. It's one of the few estuaries in the nation where water quality improved so dramatically that it is no longer considered impaired, notes Jack Merriam, the county's environmental manager for integrated water resources at the time the Honore Avenue project was built.

Another environmental advantage: the original plan called for clear-cutting about 17 acres of natural forested area to mitigate for drainage from a four-lane road with no bioswales. The final plan required just 1.2 acres of clear-cut land, protecting a mesic hammock and increasing the buffer area for two active bald eagle nests.

Molly Williams, then the lead stormwater engineer for design-build contractor Stantec, worked with the county's forestry experts, walking the property slated for clear-cutting to identify trees that needed to be saved. What started out as a 17-acre block of land ended up as a series of smaller parcels connected by meandering swales that protected nearly all of the healthy trees. In some areas along the road, boardwalks were used instead of sidewalks to save trees and allow pedestrians to enjoy welcome shade.

Four detention ponds originally planned were reduced to just two, Williams said. Like the bioswales, they're surrounded by plants that remove nutrients from the water before it gets to creeks that lead to Roberts Bay.

From a traffic perspective, the road with roundabouts keeps cars moving because they don't need to stop for red lights along the 2.5-mile section. Capacity is about 85% of a traditional four-lane but the number of serious accidents has dropped dramatically because there are no intersections.

"Roadways are like hourglasses," Thaxton explains. "It doesn't matter how much capacity you have at the top and the bottom, the volume is determined by the size of the connection in the middle." Roundabouts slow traffic down but don't require that cars stop at traffic lights or for left-hand turns. They also nearly eliminate the potential for t-bone crashes that can cause serious injuries.

"Someone would almost have to want to get hurt to have a serious accident on this road," he said.

ELEPHANT BITES

This is the first in a series of stories called "Elephant Bites," that will look at innovative designs local government and developers are using to capture nutrients before they enter surface waters. Although necessary for life, excess nutrients cause algae to bloom, clouding valuable seagrasses and consuming oxygen other creatures need to survive. Unless these nutrients can be controlled, growth in the Tampa Bay region will be stymied. Learn more at http://www.baysoundings.com/Stories/elephant.asp.

Stantec's senior traffic engineer, Francisco Domingo, also lives in an adjacent neighborhood so the project was particularly near to his heart. He walks the road several times a week, checking for tire marks on the curbs of the roundabouts that might indicate that a driver took the curves too quickly. "People caught on to how to use them even more quickly than we expected," he said.

And with bioswales built between the road and the sidewalk, pedestrians are protected from careless drivers. "I never thought I'd see it happen, but people come from all over to use this sidewalk to teach their youngsters how to ride a bike," Domingo said.

At some point, the county may have to compensate a builder who owns land that can't be developed because of the minor loss of road capacity when compared to a traditional four-lane highway, Thaxton notes. Still, the county saved millions in capital costs and will save even more in maintenance cost over the life of the road. "Nothing is maintenance free, but this is as close as it gets," Thaxton quips.

No studies have been done to determine exactly how much pollution the Honore Avenue bioswales remove, but some data can be extrapolated from a previous study, Merriam said. Comparing older neighborhoods with grassy swales to newer neighborhoods with curbs and gutters indicates that the swales collect more than 90% of the nutrients. "And those were just the old-fashioned swales with grass that gets mowed," he points out. "These are planted with native plants and, in some cases, have specific media designed to hold water long enough to collect nutrients."

Above, Frank Domingo and Jack Merriam enjoy the shade of a small hammock that was saved because the design/build team was able to build a boardwalk through it. Left, Honore is truly a multi-modal connection between neighborhoods, schools and parks.

An aerial view of Honore Avenue shows how roundabouts are placed to slow traffic without bringing it to a halt.

"Honore on Steroids"

The success of Honore Avenue helped persuade Sarasota and the Southwest Florida Water Management District to take the concept a step forward with the redevelopment of Dearborn Street in downtown Englewood. Like Honore, Dearborn will incorporate features like bioswales, rain gardens and pervious paving. It will also be the first-ever project in the county with built-in water quality monitors to document the impact of the construction technology.

The main street through historic Englewood, Dearborn's redevelopment has been somewhat stymied by the cost of businesses complying with water quality regulations enacted over the last 30 years, Thaxton notes. "What we've done is build a collective low-impact development system that allows businesses the (water quality) credits they need to increase their footprint."

It's a win-win situation, he adds. "Businesses can afford to grow and the county wins because we have a thriving downtown district with increased property values."

White Pelicans are Show-Stoppers in Tampa Bay

While Tampa Bay attracts birds – and birders – from around the world, few sights are more spectacular than the white pelicans that spend their winters here.

Photos by Curtis Frey and Elizabeth Kraker

Photo by Curtis Frey

Photo by Elizabeth Kraker

The white pelicans are clearly related to our native brown pelican, but their enormous size, stark-white plumage and tendency to travel in large flocks makes them a show-stopper for nearly everyone who sees them.

Weighing up to 30 pounds with wingspans extending up to nine feet, white pelicans are among the largest birds native to North America. They nest in colonies of 5,000 birds near brackish or freshwater lakes in isolated areas from Manitoba, Canada and Minnesota west to northern California. The American white pelican migrates to its winter grounds in the Fall – the original snowbirds.

Unlike brown pelicans, that capture prey by diving into the water, the white pelicans are more likely to "herd" fish. Working in groups of a dozen or more – and sometimes assisted by other species – the white pelicans corral fish into a small area where they are easier to eat. Once the fish are concentrated, the pelicans use their pouches as fishnets, submerging their heads and necks to scoop up the fish. They've even been known to steal food because they're large enough to bully smaller birds.

Photo by Curtis Frey

White pelicans can be seen in many locations across Tampa Bay, from Fort DeSoto Park in Pinellas County to ponds in suburban Hillsborough. They're voracious eaters – consuming about four pounds of fish daily – so they typically swoop into a pond, catch the easy prey and continue to a better spot. They historically roost at Tarpon Key near Fort DeSoto and can be seen there most evenings between October and February.

To learn more about the latest sightings of white pelicans, visit www.pinellasbirds.com, join the Bird Brain listserve at http://listserv.admin.usf.edu/listserv/wa.exe?A0=BRDBRAIN or follow Hillsborough County Birds on Facebook. Or read about some of the region's best spots for all kinds of birds in the Winter 2009 issue of *Bay Soundings*.

Photos by Curtis Frey

Above, far left, a lone white pelican gently splashes as it comes in for a landing. They're most often seen in large groups as shown below "herding" prey. Top photo this page, like their brown cousins, white pelicans use their enormous beaks to scoop up small fish. Above, a white pelican's 9-foot wingspan and 30-pound body make them one of the largest birds native to North America. Below right, white pelicans dip their beaks underwater to scoop up small fish.

FLY- FISHING
Fom page 16

That is because fly fishing is not easy. It's a far cry from slinging a live shrimp on a swivel into the water and waiting for a hungry redfish to inhale it. You have to learn how to fly cast, to make your wrists and forearms and elbows do what is necessary to cast 60 feet of slick fly line with a 9-foot graphite stick, effortlessly, and with a tight loop. You have to practice – a lot.

I practiced in my backyard in Tampa, on the street in front of my house (to the amusement of my neighbors), and in the park at the end of my street. I practiced tying fishing knots while watching TV at night. I learned to tie a Clouser minnow – probably the best all-purpose fly in the world -- by myself.

For some reason I still can't explain, I stuck with it. I am not particularly persistent and I'm certainly not athletic. But I loved being outdoors, on the water, I loved the active nature of fly fishing, and I loved the idea that I was doing something most other people, especially women, weren't. Most important, I discovered the sheer joy of catching fish on a fly rod.

I began by fly fishing for trout out West and was amazed to discover that people actually fly fished in saltwater, in my own Tampa Bay! Who knew? I joined the Tampa Bay Fly Fishing Club 11 years ago and never looked back. I pestered the guys (there are about 125 men and five women in the club) to give me lessons and take me fishing. Much to my everlasting gratitude, many of them did. One of them became my husband. Our wedding vows included my promise to "always help clean the boat."

Our honeymoon began with two days of fly fishing for giant redfish in the marshes of Louisiana, where I promptly broke another wedding vow: not to gloat when I caught bigger fish than he did. He still reminds me of that.

I vividly remember the day many years ago when I caught my first snook on fly, a little 15-inch fellow in Cockroach Bay. I still have the photo of me standing in the water with a huge grin, holding the snook, with a massive rat's nest of tangled fly line swirling around me.

Fishing in Tampa Bay is excellent in general, especially when you consider how developed the bay watershed is and the intense pressure bay fisheries receive . (The Tampa Bay area ranks second only to Dade and Monroe counties in the number of registered boats, and fishing is the most popular form of water recreation here.) Improving water quality in the bay has reaped rewards in increased numbers of trout, redfish and other popular species (snook are still recovering after the bitter freeze of 2010). Tarpon, the hard-fighting "silver kings" of the salt, have made an impressive comeback in Tampa Bay, and are the most coveted quarry of avid fly anglers.

Left, writer Nanette O'Hara proudly displays a snook caught at Cockroach Bay. Above, a box of flies highlights the diversity of options available to fly fishers.

Just about any fish that can be caught with conventional tackle can be caught with a fly rod, with the exception of deep-water grouper and snapper.

Despite this, the number of fly fishers compared to spin or live bait fishermen remains small. According to the Recreational Boating and Fishing Foundation, there are about 6 million fly anglers, and about 20% of them are women. By contrast, about 33 million people engage in spin or bait fishing annually.

Fly fishing will always be a bit of an elitist sport by its nature, but it appears to be gaining steam in Tampa Bay, with good reason.

"Tampa Bay has a multitude of species that can be caught on or near the many shallow water flats, such as snook, redfish, speckled trout, tarpon, ladyfish and jacks," said Capt. Bryon Chamberlin, a fly fishing guide in Tampa Bay. "These species are the typical ones that come to mind when people think about fly fishing in the waters of Tampa Bay.

"On the other hand, Tampa Bay also has open-water pelagic species that invade its waters on a seasonal basis which can be targeted with a fly rod. These species include Spanish mackerel, king mackerel, cobia, triple tail and little tunny. All provide great sport on a fly rod, so the argument could be made that there is a little bit of everything for everyone to enjoy."

Rick Fender, a member of the Tampa Bay Fly Fishing Club, notes that Tampa Bay and its tributaries "provide a wide variety of options that don't exist in such close proximity in very many places elsewhere in Florida."

For example, you can catch bass and bream in the Hillsborough or Alafia River, snook and reds in Cockroach Bay or Bishop Harbor, and little tunny or tripletail just offshore in the Gulf.

And, while the bay can get very crowded on weekends, "if you can get out during the week it is possible to have a number of great fishing spots all to yourself," Fender said.

Because fly fishing is a sport of finesse, not brute strength, women can compete on an equal playing field with men. The world's long distance fly casting champion for 17 years straight was a petite woman named Joan Wulff, who once cast a fly line 161 feet!

So, if you're one of those guys or gals who have always wanted to give the "long rod" a try, don't hesitate – even if you've never held a fishing rod before. In fact, it's almost better if you haven't: You won't have to unlearn old habits.

Join a local fly fishing club, or go to a local fly shop (see listing below). Fly fishers are an amiable lot, prone to exaggeration like all fishermen, but glad to help those new to the sport.

And, while top-notch fly tackle is seriously pricey ($1000-$1500 for the very best fly rods, reels and line), you can get a good, entry-level set-up for $200-$300. Then, once you know you're going to stick with the sport, you can upgrade.

Fair warning: Once you're hooked, it's an obsession. Our house now boasts "His" and "Hers" rolling fly rod racks, and our vacations almost always involve fishing (in fact, they are often exclusively about fishing).

But I wouldn't have it any other way. Hope to see you on the water soon!

Where To Learn To Fly Fish

Fly Fishing Clubs

Tampa Bay Fly Fishing Club (Hillsborough-Pasco-Polk)
Meets first Wednesday of the month at Compton Park Recreation Center, Tampa Palms
www.tbffc.org

Suncoast Fly Fishers (Pinellas)
Meets third Thursday of the month at Walter Fuller Recreation Center, St. Petersburg http://www.suncoastflyfishers.com/

Mangrove Coast Fly Fishers (Manatee-Sarasota-Charlotte)
Meets fourth Tuesday of the month at Twin Lakes Park, Sarasota
http://mangrovecoastflyfishers.com/

Fly Shops

Tampa Bay On The Fly
4230 El Prado Boulevard, Tampa
(813) 443-0660
www.tbotf.com

Flint Creek Outfitters
13425 Fishhawk Boulevard, Lithia
(813) 681-1888
http://www.flintcreekoutfitters.com/

Bill Jackson's Shop for Adventure
9501 U.S. Highway 19 North, Pinellas Park
(727) 576-4169
http://www.billjacksons.com/

Swann's Fly Fishing
3650 U.S. Highway 98 Bypass, Dade City
(352) 567-6029

CB's Saltwater Outfitters
1249 Stickney Point Road on Siesta Key, Sarasota
(941) 349-4400
http://cbsoutfitters.com/

Angler Joe Costadura tangles with a giant tarpon while Capt. Nick Angelo records the battle.

Photo by Bryon Chamberlin

Continued from page 1

USF Courts Silicon Valley

SRI first visited USF in 2004. What they found was compelling: top-flight engineers at USF's Center for Ocean Technology who were turning researchers' ideas into devices designed to function in harsh marine environments, eager to commercialize their inventions.

See pages 12 & 13 for Related Stories:
Probing the Deep & Spotlight: SRI St. Petersburg

Larry Langebrake, an electrical engineer by training, had been recruited to USF in 1995 by Peter Betzer, dean emeritus of the College of Marine Science and president of the St. Petersburg Downtown Partnership. Betzer appointed Langebrake director of COT in 1999. Working closely with USF marine scientists, he built the COT into a staff of about 80, designing autonomous underwater vehicles and marine sensors capable of detecting explosives and contraband attached to the hulls of ships entering harbors.

In SRI International, Betzer and Langebrake saw the potential to bring cutting-edge technologies to market that would help solve pressing real-world problems. A leader in commercializing breakthrough technologies, SRI has been responsible for developing everything from the ubiquitous PC mouse (1968) to Siri, Apple iPhone's voice-activated virtual personal assistant (2007).

> **"I think the real linchpin here is the potential for research to be commercialized. We have a concentration of marine science talent here that is unrivaled in the Southeast."**
> – Rick Smith, City of St. Petersburg

Discussions quickly evolved from using SRI as a technical advisor to having SRI establish a new marine research center in St. Petersburg. Three years later, Larry Langebrake went from director of COT to director of SRI St. Petersburg. The facility was launched with more than $30 million in public funds and 40 employees. SRI today employs more than 80 people throughout Florida with a goal of reaching 200 by 2020.

Catalyst for Economic Development

While SRI St. Petersburg clearly catapulted the marine science industry cluster to new heights, St. Pete's national and growing international reputation as a center for marine research excellence is longstanding.

At its nucleus is the USF College of Marine Science, one of the country's premier post graduate marine science programs.

"Scientists working at USF provide a labor force that's attractive to high tech companies says Dave Goodwin, St. Petersburg economic development director. The College of Marine Science is a pipeline for that talent pool, adds Smith, noting the growing number of researchers, engineers and graduates now working for SRI and commercial spinoffs from the cluster.

One company, Claro Scientific, founded in 2006 as a spinoff from USF's College of Marine Science, has developed technology that uses beams of light instead of chemical reagents to rapidly analyze blood and other fluids. The breakthrough technology, developed by former USF Professor Luis Garcio-Rubio, delivers comprehensive and highly precise analyses in minutes and stands to dramatically reduce the time and cost it takes to find and treat diseases. Clinical trials are underway. And although Claro's chief focus is medical diagnostics, the platform technology could be adapted for applications across a wide range of markets, from biodefense to food safety and environmental monitoring.

Another early USF spinoff, Ocean Optics, is a global leader in optical sensing. Started in 1989 by Mike Morris, a graduate of the College of Marine Science, Ocean Optics develops and manufactures hand-held mass spectrometers, portable devices that measure tiny changes in light and can be used to solve problems ranging from disease detection to environmental pollution. The Dunedin-based company, which employs 218 people, was voted one of the St. Petersburg Times Top Places to Work in 2011.

After selling the company in 2004 to Halma PLC, Morris donated proceeds from the sale of a single share of the company's stock, valued at $114,000, to the St. Petersburg Downtown Partnership, which has used the money to create a technology fund for local startups.

Serendipity Knocks

Last May, St. Petersburg took an important step toward building its international reputation as a center for marine research and conservation when Cousteau Divers opened its North American headquarters at Bayboro Harbor (see Cousteau Creates a Splash in St. Petersburg, *Bay Soundings*, Fall 2012). The conservation group, started by Pierre-Yves Cousteau, the youngest son of legendary ocean conservationist Jacques Cousteau, is uniting a worldwide community of divers who act as "citizen-scientists" by recording and uploading observations on the health of our oceans.

How Cousteau Divers came to St. Petersburg is a testament to the kind of targeted serendipity St. Petersburg Downtown Partnership President Peter Betzer is known for.

BY THE NUMBERS

3,429 direct and indirect jobs created by St. Petersburg Ocean Team*

$143 million estimated annual household earnings generated by the consortium's 1,622 employees

$251 million impact on Pinellas County's Gross Product

* The Tampa Bay Regional Planning Council's 2010 Ocean Team Economic Impact Analysis measured economic activity generated in Pinellas County by 12 marine research and technology agencies and organizations comprising the St. Petersburg Ocean Team. These partners created 1,622 direct jobs plus an estimated 1,807 additional indirect jobs through industry demand and household spending.

Betzer met Cousteau in late 2010 while he was in Spain on a business trip. Recognizing what the conservation group could mean for the city in terms of business and education partnerships as well as tourism, Betzer talked to Cousteau about the city's consortium of marine science talent and resources. A visit followed, then meetings with local movers and shakers, and a scant year-and-a-half later Cousteau established its U.S. base here.

Betzer's far-reaching sights are now set on a 'wish list' that includes luring SRI's West Coast educational division here in an effort to accelerate the Tampa Bay region's strength in STEM education – Science, Technology, Engineering and Math. In collaboration with USF St. Petersburg, the Pinellas County School District, the Helios Foundation, and Pinellas County Educational Foundation, SRI developed The SunBay Digital Mathematics Project. By using advanced technology to give students a visual as well as hands-on approach to learning, SunBay is setting the direction for the future of mathematics education for Pinellas County middle schools.

> **"When you see what SRI can bring, and what they've already done, how can you not get fired up?"**
> – Peter Betzer, St. Petersburg Downtown Partnership

"When you see what SRI can bring, and what they've already done, how can you not get fired up?" Betzer says.

Betzer also hopes to boost the Ocean Team's fleet of research vessels by convincing NOAA to bring its new 208-foot state-of-the art fisheries survey ship *Pisces* to St. Petersburg. It would play a critical part in expanding research to help support the West Florida Shelf, a $24-billion sport and commercial fishery, he says.

Looking Ahead

Marketing the Ocean Team is a top priority for the city's economic development team, says Goodwin, whose group is targeting biomedical businesses among others. Two biomedical outfits have recently expressed early interest in what St. Petersburg has to offer, he adds. "When you talk about some of our major research institutions and the good things happening here, that gets attention."

The Ocean Team was formed in 2009 to boost collaboration among disparate marine science agencies and organizations based in St. Petersburg, according to its chair, Gil McCrae, director of the Florida Fish & Wildlife Conservation Commission's Marine Research Institute. "We recognized that we have something unique and special here that doesn't occur but in a few places in the country," he says. "We needed a higher visibility to push out information on the team."

What began as a way to foster integration and communication has now evolved into more of a collective entity under the Ocean Team umbrella, explains McCrae, who credits its former Mayor Rick Baker as a driver behind the consortium's creation.

"Most of the marketing effort has been led by the City of St. Petersburg, but I think we're just beginning and there's a lot more opportunity to market the area as a marine science cluster," he says.

Still, McCrae says the first priority is enhancing collaboration and partnerships among team members. "We've been working in similar areas for decades, but only in recent years have we started to regularly get together to talk about shared challenges and opportunities.

"There are things we may be able to take on collectively that none of us is able to tackle individually," he says. Major environmental issues like climate change, For example, major environmental issues like climate change and sea level rise all require a collaborative approach.

Promoting the cluster is the next priority, says McRae, who is quick to add that the Ocean Team's true impact extends well beyond jobs and economic benefits.

"When you have a large and highly specialized concentration of folks in such a small area, it has the potential to transform the community. It generates a level of community involvement and interest that goes beyond environmental issues to underscore and promote the importance of science and technology education."

For more information on St. Petersburg's Ocean Team and links to its partners, visit www.stpete.org/bayboro/

PROBING THE DEEP

From the icy waters of the Arctic Ocean to the Gulf of Mexico and Tampa Bay, cutting-edge research by Ocean Team scientists is gaining international acclaim.

USF scientists study effects of the Deepwater Horizon spill from aboard the Florida Institute of Oceanography research vessel R/V *Weatherford II*.

Photo courtesy FIO and USF

USF Responds to Deepwater Horizon Spill

In the days and months following one of the nation's worst environmental disasters, scientists from the University of South Florida made national headlines for their response and ongoing analysis of the April 2010 BP Deepwater Horizon oil spill.

From the first day of the blowout, scientists from USF's College of Marine Science were involved in tracking the spill, collecting water and oil samples and predicting where and how quickly the oil was moving, and later analyzing the spill's environmental impact.

As if images of birds, fish and animals killed by floating oil in the Gulf of Mexico weren't disturbing enough, USF scientists discovered another danger lurking underwater – deepwater oil plumes, some 600 feet thick reaching depths of more than 3,900 feet. While BP initially denied their existence, a team led by USF Chemical Oceanographer David Hollander ultimately traced the plume's oil to the blown-out well head using molecular isotopic fingerprinting.

BP initially said that about 1,000 barrels of oil per day were leaking into the Gulf of Mexico. Using satellite data, Florida State University Professor Ian McDonald challenged those figures, estimating that the oil gushing out was more on the order of 26,500 barrels. Live video feeds – released only after scientists turned to the media who in turn put pressure on politicians, the Obama administration and BP – ultimately revealed the massive scale of the blowout: about 50,000 barrels of oil were being released into the gulf each day, even more than Florida scientists feared.

In 2011, the College of Marine Science received an $11-million grant from BP's Gulf of Mexico Research Initiative to lead an international consortium that continues to study the effects of the oil spill, including impacts to marine life. A gulf-wide survey led by USF that summer found more sick fish in the area of the oil spill than anywhere else. While USF scientists can't conclusively trace lesions discovered on red snapper and other fish to the BP spill, emerging laboratory studies show that chronic exposure to oil causes everything from genetic defects to compromised immune systems.

Source: USF, WUSF Public Media, CNN.com, tampabay.com

Research on Top of the World and in Tampa Bay: USGS

From the icy waters of the Arctic Ocean to Florida's largest open-water estuary, Tampa Bay, local scientists from the U.S. Geological Survey (USGS) are conducting pioneering research that is gaining international acclaim.

In 2010, researchers from St. Petersburg boarded the U.S. Coast Guard Cutter Healy to sample the remote waters of the Artic Ocean, piggybacking on a larger month-long USGS expedition to map the Arctic seafloor. The team of specialists included USGS senior scientists Lisa Robbins and Kim Yates and USF College of Marine Science Professor Bob Byrne.

By collecting CO2 data and related water and chemical samples in the largely uncharted Arctic waters, the scientists helped fill important gaps of knowledge that will contribute to a better understanding of the impacts of CO2 on ocean chemistry, trends in ocean acidification, and implications for climate change. "Models suggest that the Arctic is already undersaturated with respect to carbonate minerals during part of the year," said Lisa Robbins, USGS oceanographer. "Our data provides important baseline information about this region."

Oceans absorb about one-third of the total carbon dioxide (CO2) emissions generated worldwide by fossil-fuel combustion. As the CO2 is absorbed, it forms carbonic acid and lowers the slightly alkaline (basic) pH of seawater. Lowered ocean pH alters the ability of many calcifying marine organisms – corals, oysters and crustaceans, for example – to form skeletons and shells. Carbon emissions are projected to have risen 2.6 percent for 2012 over the previous year to a record high 35.6 billion tons, according to an analysis from the Global Carbon Project. As the basic chemistry of the oceans change, scientists fear those increases may cause profound changes in marine food webs and global ecosystems.

Photo courtesy USGS

U.S. Coast Guard Cutter *Healy* navigates icy waters in the Arctic Ocean.

That's just one example of the research taking place at the federal agency's Coastal and Marine Science Center in St. Petersburg, a bustling three-building complex with a staff of 82. Its establishment here in 1988 was a game-changer for the city's emerging marine science complex.

"Winning the national competition for the expansion of USGS was the single largest thing that could have happened to us – and a lot of people were surprised," said Peter Betzer, who heads the St. Petersburg Downtown Partnership. The competition pitted USF Bayboro against 24 universities including Columbia and a North Carolina triumvirate led by Duke.

The opportunity to work with local scientists, plus the long-term database already in place, was a key consideration when the USGS selected Tampa Bay for its pilot study, according to senior scientist Kim Yates (see baysoundings.com/fall02/monitoring.html).

The five-year Tampa Bay Study, which began in 2001 and included a team of more than 60 scientists, has been called the largest multi-disciplinary science project ever orchestrated by the USGS. It was the first time scientists from all four USGS disciplines - geological, biological, chemical and hydrological - formed a fully integrated team. "We worked with the Tampa Bay Estuary Program and other agencies to determine where the research gaps were and how we could help, particularly how we could learn more about the bay as a system rather than collecting little pieces of data."

The Tampa Bay Study involved drawing up maps of the sea floor, charting habitats, identifying the sources and quality of groundwater seeping into the bay – even reconstructing the region's ancient environment. Tampa Bay may have originally started life as a giant sinkhole that became a freshwater lake before the sea broke through. "If we know how it looked in the past, we can build models that use that information to validate what may happen in the future," Yates said.

After decades of pollution, Tampa Bay has rebounded to reclaim its position as the economic and environmental centerpiece of the Tampa Bay region. Overall water clarity is as good as it was in 1950, and Tampa Bay has more seagrasses than at any time since then, thanks to efforts to improve water quality and wildlife habitats, pollution control measures, and a community-wide recognition of the economic importance of a healthy bay.

Maintaining these gains as the region grows, and addressing emerging challenges such as climate change and sea level rise, will require continued focus and vigilance.

Source: USGS Sound Waves, Bay Soundings Fall 2002 issue, Maddux Report

Tavros, the Tweeting Bull

The newest member of the University of South Florida's fleet of autonomous underwater vehicles, @Tavros02, is making quite a splash. For years, USF marine scientists have relied on bright yellow underwater vehicles to patrol the Gulf and report back findings on water conditions. @Tavros02 not only independently analyzes conditions in the water's depths, it also uses Twitter to report back its findings. Outfitted with sensors and powered by solar cells, Tavros – Greek for bull, a nod to the USF Bulls – tweets raw data from the depths as it dives, relaying information on water temperature and pressure along with its coordinates. By pinpointing threshold levels from that data, Tavros can also tweet basic observations – confirming the presence of red tides or fishing conditions, for example.

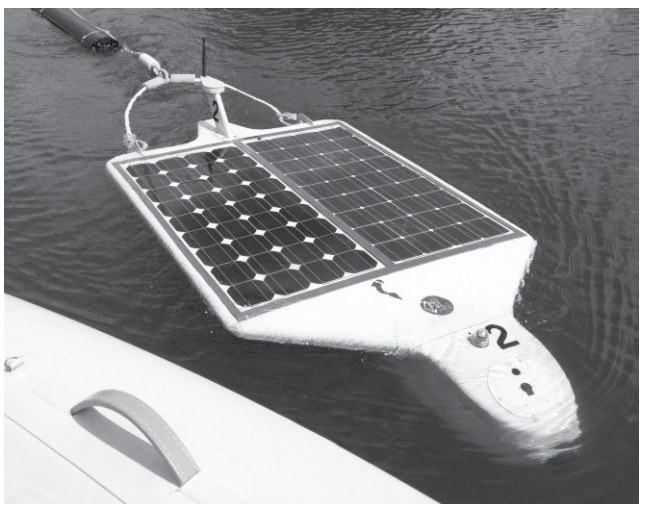


Photo courtesy USF College of Marine Science

Tavros02, USF's solar-powered autonomous underwater vehicle, is creating a buzz on Twitter.

The space-age social media hipster has a growing number of followers on Twitter and Facebook. Twitter followers can ask Tavros a question, and one of its human minions will actually tweet back using the Twitter handle @myhumansays. Developed by USF marine science engineer David Fries in collaboration with a team of engineers at the College of Marine Science, the concept for Tavros emerged in response to the Gulf oil spill. Had it been available then, Tavros not only could have mapped the oil but, before the event, also captured baseline conditions so scientists could track changes.

Sources: USF News and tbo.com

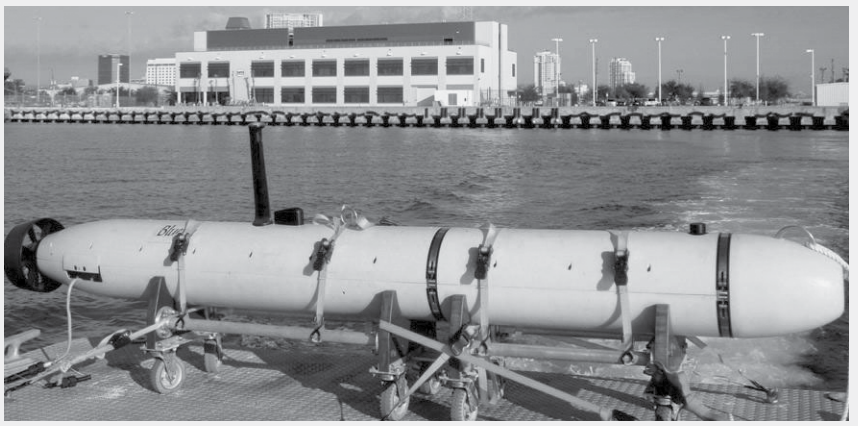


Photo courtesy SRI International

Foreground: Remotely operative vehicles or ROVs, such as the one shown here, can be outfitted with 3D imaging sonar and cameras as well as chemical sensors capable of 'sniffing out' drugs or explosives on the hulls of ships. Background: SRI St. Petersburg headquarters at Bayboro Harbor.

SPOTLIGHT: SRI St. Petersburg

SRI St. Petersburg is accelerating technology R&D in ocean science, marine technology and port security with cutting-edge technologies that have applications far beyond these realms.

Experts in chemical sensing, optical imaging and engineering, the group specializes in the study of surface and subsurface marine environments. Among the high-performance chemical sensors being developed here are miniature mass spectrometers that measure and trace volatile organic compounds and dissolved gasses. While they have wide-ranging applications, these instruments are capable of "sniffing out" explosives, drugs or contraband attached to the hulls of ships entering ports that would otherwise be practically impossible to discover.

Mass spectrometers can be deployed on a variety of platforms, including remotely operated or autonomous underwater vehicles (ROVs and AUVs), in tandem with sonar and cameras that can rapidly scan underwater environments and produce 3D photo images. They can scan and image 3,000 linear feet of seawall in about 20 minutes, "something that would probably take a team of 10 divers at least a full day to do," says SRI St. Petersburg Director Larry Langebrake, "and at the end of the day they would have no images, no information to compare it to. This technology is a huge multiplier."

It's just one facet of a larger port and maritime security data-gathering and information management system SRI has developed that provides a simplified view of complex port operations and activities. The system already is operating in several undisclosed ports across the U.S.

In fact, a key reason SRI has been so successful in so many realms is its focus on commercializing technologies. "So we're looking at that constantly, and there are three or four technologies on the conveyor belt that have generated various levels of interest," says Langebrake.

For instance, SEAS, SRI's compact spectrophotometer that can measure chemical constituents in the parts per trillion to depths of more than 3,000 feet might be adapted for measuring surface nutrient runoff in places like the Great Lakes, where agricultural runoff is blamed for causing the worst algal bloom in decades. The technology could be used to provide feedback to farmers and for regulatory enforcement.

"That's not yet on the conveyor belt but it's an example of one that could be in the near future because of how well it could potentially address this problem," Langebrake says.

Business continues to grow in the areas of homeland security and defense, educational training, and environmental research, as well as space exploration, he adds.

NASA recently funded SRI to determine how miniaturized mass spectrometer systems might be adapted and deployed in space. "It could be used for upper atmospheric research – trying to understand what's happening with solar flares and space weather, or flying it through the tail of a comet to analyze its chemical constituents." SRI is also applying its expertise to technology that may eventually travel to Mars in a separate project with NASA's Goddard Space Center,

In addition to its St. Petersburg facility, SRI has a microelectromechanical (MEMS) lab in Largo where it designs and fabricates nano- and micro-scale devices for applications including marine and weather sensing.

QUARTERLY **CALENDAR**

The *Bay Soundings* calendar lists some of our favorite events and top trips, but there are many more events online at www.baysoundings.com where you will also find more complete information on each of the outings. It's compiled months in advance so we strongly suggest that you contact organizers to confirm. To allow additional space for events, contact information is listed at the bottom of the page.

Enjoy the newly renovated boardwalk at Moccasin Lake Nature Park in Clearwater, open daily, or join Clearwater Audubon Society for its monthly bird walks, held on the first Saturday of every month from 8 to 11am.

january

Jan 1, 6am-noon, 22nd Annual Rich Paul New Year's Day Birding Open, Ft. DeSoto Park, St. Petersburg Audubon Society.

Jan 3, 6:30pm, Fresh Start: Clean and Green! Make your own eco-friendly cleaning supplies, Boyd Hill Nature Preserve.

Jan 5, starting at sunrise, Tampa Audubon Society, Christmas Bird Count.

Jan 5, 10:30am-noon, Orchids and Epiphytes, Brooker Creek Preserve.

Jan 9, 7pm, Dooryard Fruit, South Shore Library, HCE.

Jan 10, 9am-noon, Agency on Bay Management, Tampa Bay Regional Planning Council.

Jan 10, 9am-4pm, 3rd Annual Roots to Shoots Tree Program. Pre-registration required at Pinellas County Extension.

Jan 11, 6-7:30pm, Family Campfire Night, Boyd Hill Nature Preserve.

Jan 12, 11am-noon, Benefits of Trees, Brooker Creek Preserve.

Jan 13, 11:30am, Alligator Walk, Boyd Hill Nature Preserve.

Jan 13, 1-4pm, Organic Gardening for Kids, Boyd Hill Nature Preserve.

Jan 14, 6:30pm, Plant Propagation, Lutz Library, HCE.

Jan 15, 6:30pm, Veggies in the Landscape, Temple Terrace Library.

Jan 15, 5:30pm, Night Hike, Boyd Hill Nature Preserve.

Jan 19, 8am-noon, Give A Day for the Bay, invasive plant removal at Sawgrass Lake in Pinellas County, Tampa Bay Estuary Program.

Jan 19, 10-11am, Florida Sandhill Crane Conservation, Brooker Creek Preserve.

Jan 19, 5pm, Tampa Bay Watch "2K for the Bay." Pre-registration required.

Jan 23, 3-5pm, Tampa Bay Estuary Program Community Advisory Committee, Tampa Bay Regional Planning Council.

Jan 24, 6:00-8:30pm, Florida-friendly Landscaping, PCE.

ONGOING EVENTS

Most Saturdays, 9-11am, guided hikes at Brooker Creek Preserve and Weedon Island Preserve. Registration required.

Most Saturdays & Sundays, 10am, guided nature walks at Fort DeSoto Park.

First Saturdays, 8-11am, Bird walk with St. Petersburg Audubon Society at Boyd Hill Nature Preserve.

First Saturdays, 9:30am, Family Naturalist Hour at Camp Bayou with family-friendly activities.

Second Saturdays, 9am, program for beginning birders at Lettuce Lake Park with Tampa Audubon Society.

Second and fourth Thursdays, 10:30-11:15am, Book Time at Brooker Creek Preserve, Wee-Time at Weedon Island Preserve.

Second Sundays, 9-11am, MCE Master Gardener plant ID tour at Emerson Point Preserve. Pre-registration required.

Third Saturdays, 10:30am-12:30pm, outdoor photography program, Moccasin Lake Nature Park.

Third Saturdays, 9-11am, MCE Master Gardener plant ID tour at Robinson Point, Bradenton.

Fourth Saturdays, 9-11am, Manatee County's Master Naturalist Wetlands Hike – Flatford Swamp. Registration required, MCE.

Jan 5, 19, Feb 2, 16, Mar 2, 16, Apr 6, 20, 9am, Free Bay-Wise kayak tours with educational trips to Neal Preserve, 941-955-8085 or http://sarasotabay.org.

Jan 19 & Feb 9, Sparrow Drive at Weeki Wachee Preserve, St. Petersburg Audubon.

Jan 24, 9-10:30am, Harvesting Rain in Recycled Plastic Barrels, Weedon Island Preserve.

Jan 25-30, Space Coast Birding & Wildlife Festival, Titusville, http://spacecoastbirdingandwildlife festival.org.

Jan 26, 10:30am, Wildflower Walk, Boyd Hill Nature Preserve.

Jan 26, 10am-4pm, Pinellas Folk Festival, Heritage Village, Largo.

Jan 26, 8:30-11:30am, Shorebird Class, North Shore Park Beach, St. Petersburg Audubon.

Jan 31, 6:00-8:30pm, Protect Our Waterways with Proper Fertilizer, Rain Gardens and Rain Barrels, PCE.

Jan 31, 6:30pm, Wild Florida 101: Learn to Identify Florida Lizards, Boyd Hill Nature Preserve.

february

Feb 2, 8am-noon, Give A Day for the Bay, invasive plant removal at Joe's Creek in Pinellas County, Tampa Bay Estuary Program.

Feb 2, Compost Happens, Water-Wise and Rainwater Harvesting workshops, Seffner, HCE.

Feb 5, 6:30pm, Rain Barrels, Riverview Library, HCE.

Feb 7 & 21, 6:00-8:30pm, Landscape Design 1 & 2. Registration required, PCE.

Feb 11, 7pm, Spring Vegetable Gardens, Bruton Library, Plant City, HCE.

Feb 12, 7pm, Caring for Citrus, Jimmie B. Keel Library, north Tampa, HCE.

Feb 13, 7pm, Florida Lawns, New Tampa Library, HCE.

Feb 14, 1:30-4:30pm, Tampa Bay Estuary Program Management Board, Tampa Bay Regional Planning Council.

Feb 15-18, 16th Annual Great Backyard Bird Count sponsored by Cornell Lab of Ornithology and National Audubon Society, www.birdcount.org.

Feb 15, 10am, Tampa Bay Estuary Program Policy Board, Tampa Bay Regional Planning Council.

Feb 16-17, Tampa Audubon Society overnight field trip to Merritt Island National Wildlife Refuge.

Feb 16, 8am, Tour Circle B Bar Reserve, St. Petersburg Audubon.

Feb 16, 9am-noon, Snakes of the Tampa Bay Region, Interpreting Nature Series, Boyd Hill Nature Preserve.

February 20 through April 3, 8am-5:00pm, Florida Master Naturalist Program Module, MCE.

Feb 23, 9am-3pm, Sustainable Living in an Urban Environment, Gamble Creek Farm, Parrish, sponsored by Tampa Bay Estuary Program.

Feb 23, 10:30am-noon, Family Herpetology Series II: Frogs!, Brooker Creek Preserve.

Feb 23, 2-3pm, "Birds of Pinellas: Then and Now," Weedon Island Preserve.

Feb 26, 8:30-11:30am, Shorebird Class, Fort DeSoto Park, St. Petersburg Audubon.

Feb 26, 6:30pm, Florida Lawns, North Tampa Library, HCE.

Feb 28, 6:00-8:30pm, sensible sprinkler systems and micro-irrigation clinic, PCE.

march

Mar 2, 8am-noon, Give A Day for the Bay, invasive plant removal at Rye Preserve in Manatee County, Tampa Bay Estuary Program.

Mar 2, Composting and Rain Barrel workshops, Seffner, HCE.

Mar 5, 6:30pm, Florida Wildflowers, Austin Davis Library, HCE.

Mar 5, 6:30pm, Composting and Organic Vegetable Gardening, Riverview Library, HCE.

Mar 7-10, LEEF (League of Environmental Educators in Florida) conference, Ocala, http://wc-leef.blogspot.com.

Mar 10 & 11, Boyd Hill Nature Preserve Wildlife Weekend.

Mar 11, 6:30pm, Composting, Lutz Library, HCE.

Mar 12, 7pm, Microirrigation, Jimmie B. Keel Library, HCE.

Mar 12, 7pm, "Ants and Plants," with Pasco Native Plant Society.

Mar 13, 7pm, Growing Ground Covers, New Tampa Library, HCE.

Mar 16, 9am-1pm, Camp Bayou Spring Open House.

Mar 16, 9am-noon, Scatology: Discovering the Secrets of Scat - Interpreting Nature Series. Registration required, www.heinrichecologicalservices.com.

Mar 27, 3-6pm, Tampa Bay Estuary Program Community Advisory Committee, Mini-Grants Show and Tell, Tampa Bay Regional Planning Council.

CONTACTS

Agency on Bay Management, Tampa Bay Regional Planning Council, Pinellas Park, 727-570-5151, ext. 32 or www.tbrpc.org/abm.

Boyd Hill Nature Preserve, St. Petersburg, 727- 893-7326 or www.stpete.org/boyd.

Brooker Creek Preserve and Environmental Education Center, Tarpon Springs, 727-582-2100 or www.pinellascountyextension.org.

Camp Bayou, Ruskin, 813-641-8545 or www.campbayou.org.

Clearwater Audubon Society, 727-518-6241 or www.clearwateraudubon.org.

Fort DeSoto Park, 727-552-1862 or www.pinellascounty.org/park/05_ft_desoto.htm.

Florida Botanical Gardens, Largo, 727-582-2100 or flbg.org.

Heritage Village, Largo 727-582-2233 or www.pinellascounty.org/heritage.

HCE, Hillsborough County Extension, 813-273-3652 or www.hillsborough.extension.ufl.edu.

MCE, Manatee County Extension, 941-722-4524 or http://manatee.ifas.ufl.edu.

Pasco Native Plant Society, 727-849-2335 or http://www.pasconativeplants.org.

PCE, Pinellas County Extension, 727-582-2100 or www.pinellas.ifas.ufl.edu.

St. Petersburg Audubon Society, www.stpeteaudubon.org.

Tampa Audubon Society, www.tampaaudubon.org.

Tampa Bay Estuary Program, 727-893-2765 or www.tbep.org. For Give A Day for the Bay information, email colleen@tbep.org.

Tampa Bay Watch, www.tampabaywatch.org or 727-867-8166.

Weedon Island Preserve Cultural and Natural History Center, St. Petersburg, 727-453-6500 or www.pinellascountyextension.org.

Stand Up for Florida Water & Land Legacy Now

By Pegeen Hanrahan, P.E.

We're all familiar with one spot or another in Florida that used to be untouched, and is now nearly untouchable. Our untouched natural areas make Florida the place we love, and we must leave a legacy for future generations that will continue to support strong tourism businesses and nature-based recreational activities like fishing, swimming, hunting, hiking, biking, boating and bird watching.

Our natural resources are tremendously important to Florida. Without clean water to drink, and without the sparkling lakes, rivers, beaches and springs that so distinguish our state, how will our economy and our quality of life thrive?

Florida's Water and Land Legacy (www.floridawaterlandlegacy.org) campaign is a citizen-led petition drive to let Florida voters decide in 2014 whether to adequately fund protection of our water and natural resources. The proposed constitutional amendment will let Floridians choose whether to set aside one-third of an existing revenue source – the documentary stamp tax on real estate transfers – and dedicate it to resource protection.

It's important to note that the amendment does not create a new tax, and it does not create any unwanted government mandate. Instead, the amendment sets aside a very, very small portion of the state's huge budget to protect water and land resources, and land purchased with the funds will only be bought voluntarily from willing sellers. Because Preservation 2000 bonds will be paid off in the coming years, with a reduction of $250 million in debt service in 2013 alone, this measure will not represent a net increase in the amount or percentage of documentary stamp taxes currently allocated to these purposes.

Just five years ago, this amendment would not have been necessary. However, in recent years state funds for land and water conservation have been cut drastically. The cutbacks are largely due to the terrible recession, but they've been far deeper than those seen in most other state programs.

For almost two decades prior to 2009, the state set aside $300 million per year for Florida Forever, and also provided $100 million per year to match federal dollars for Everglades restoration. Since 2009, the Florida Legislature has provided a total of only $23 million for Florida Forever, a 97.5 percent reduction in funding. State appropriations for land management and ecological restoration, including the Everglades, have suffered similar declines.


Pegeen Hanrahan

If approved on the November 2014 ballot, the amendment would take effect July 1, 2015, and would dedicate one-third of the net revenues from the existing excise tax on documents for 20 years to restore the Everglades, protect drinking water sources, and revive the state's historic commitment to protecting natural lands and wildlife habitat through the Florida Forever Program.

Under the amendment, the monies deposited into the Land Acquisition Trust Fund will remain separate from the State's General Revenue Fund. The amendment would provide more than $5 billion for water and land conservation in Florida over the next ten years and an estimated $10 billion over the 20-year life of the measure, without any tax increase.

When given the opportunity, Floridians have a strong history of voting to protect water and land resources. Since 1994, they have approved five of six proposed constitutional amendments relating to conservation and the environment, with average support of more than two-thirds of the voters. Meanwhile, voters in Florida's cities and counties have approved 82 local land conservation and park measures over the past decade and a half, often by even larger margins.

Hillsborough County voters have been even more enthusiastic supporters of protecting environmental lands. More than 70% of voters supported a 0.25 mill tax for four years specifically to purchase wildlife habitat in a program called Environmental Lands Acquisition and Protection (ELAPP) – one of the first-ever instances of citizens voting to tax themselves for general habitat purchases.

When the original ELAPP neared expiration in 2008, 79% of citizens voted to continue the special tax levy. Hillsborough has been able to continue purchasing land because prices have plummeted – but the long-time partnerships with state and regional water management districts have disappeared.

Land and water conservation programs have enjoyed bipartisan support over the decades. Governors Graham, Martinez, Chiles, Bush and Crist all enthusiastically supported programs ranging from Everglades restoration to Preservation 2000 to funding for land management. Democratic and Republican leaders in the Florida Legislature also consistently supported funding for land and water conservation. Key organizations supporting the Florida Water and Land Legacy Campaign include the Trust for Public Land, Audubon Florida, the Florida Wildlife Federation, the Sierra Club, the Nature Conservancy, 1000 Friends of Florida, Defenders of Wildlife, and others.

Public support remains strong for improved protection of our lakes and rivers, bays and beaches, springs, forests, swamps and trails. These lands are precious to our quality of life, providing the clean drinking water we need to survive and creating a legacy to pass on to our children and grandchildren. What has been lacking in recent years is an established funding source for these efforts, and creating such a source is the goal of the Legacy campaign. This is certainly an achievable goal.

Across the country, voters are standing up for green spaces. Last November, three-quarters of Alabama voters agreed to extend their state's "Forever Wild" program to protect wildlife habitat and water resources. Voters in 21 states had the opportunity to approve no fewer than 57 state and local land conservation initiatives. Of those initiatives, 81% were approved.

Florida can and should do the same.

While the vote won't occur until November 2014, we need help now to make it happen. The campaign must obtain the signatures of at least 676,811 registered voters to put the amendement on the ballot. We are asking you to help by gathering signatures, donating money, helping with the campaign, requesting a speaker, or otherwise pitching in. More information is available online at www.floridawaterlandlegacy.org or you can call (850) 629-4656.

At stake is nothing less than the very future of the water and land that make Florida exceptional.

Pegeen Hanrahan is an environmental engineer who served as mayor of Gainesville from 2004 to 2010. She is serving as the campaign manager for Florida's Water and Land Legacy.

inside this issue

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Fly-Fishing Hooks Angler

By Nanette O'Hara

I admit it. I was among the hordes of people attracted to fly fishing after seeing the movie "A River Runs Through It."

I watched a very young Brad Pitt arcing that line gracefully over the Blackfoot River and thought to myself, "That's really beautiful. I'd like to do that."

Me and a million other people, if industry estimates of the newbies who flocked to fly fishing after the movie's release can be believed, all of us captivated by the allure of standing waist-deep in a cold mountain stream and tracing artistic patterns in the sky with our casts.

Little did I know that my quest to learn fly fishing, on the rivers of northeast Oregon, would lead me right back to where I began – in Tampa Bay.

Unfortunately for the fly fishing industry, most of the newcomers who waded enthusiastically into the sport because of "The Movie" didn't stick with it.

FLY-FISHING
Continued on page 10

Capt. Dave Chouinard working hard to bring a tarpon to the boat in the clear waters just off Anna Maria Island.

Photo by Bryon Chamberlin