

# Bay Soundings

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COVERING THE TAMPA BAY WATERSHED

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Frogs  
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## PERILS OF PLASTIC

By Sigrid Tidmore

When our nonprofit organization, Community Stepping Stones, won a Tampa Bay Estuary Program mini-grant 18 months ago, we embarked upon an adventure that has literally changed our lives. Our students participate in an after-school program for at-risk teens in Sulphur Springs. Located on the Hillsborough River, our campus is at the head waters of the estuary, so our idea was to collect river, bay and beach debris to use in a mosaic that spoke to our common waterway. We had no idea that our research would lead us to a face-to-face encounter with one of the most dangerous threats to our planet.

“When you throw something away, exactly where is away?”

You may have heard of the Great Pacific gyre – that floating garbage patch in the middle of the Pacific Ocean. But did you realize there are now five ocean gyres, each over 1,500 miles wide and

one mile deep carrying 100+ million tons of plastic? The National Oceanic and Atmospheric Administration estimates that today every square kilometer of sea contains 46,000 pieces of plastic. In the past ten years the amount of plastic in our oceans has tripled, and it’s predicted to double again in the next ten years.

Where does the trash come from? Approximately 80% washes from the land down into our waterways. The rest blows off or is dumped by ships. Americans annually generate 10.5 million tons of plastic waste and recycle less than 25%. Eventually, about 50% of all plastics generated globally end up in the ocean.

The insidious nature of these whirlpools isn’t the big, chunky pieces of debris as much as it is the pulverized plastic particles which are entering the bottom of the food chain at an alarming rate. It takes up to 700 years for plastic to decompose, but when exposed to sun

and waves, plastic breaks into minute particles and moves into solution.

Beginning in 2010, scientists at the Algalita Marine Research Foundation began investigating the suspended mass of plastic in the Pacific Ocean compared to the mass of zooplankton. One small study found six pounds of particulate plastic for every one pound of plankton. This incredible plastic displacement of tiny organisms means animals higher up the food chain are likely to ingest non-nutritious synthetic matter accidentally.

“Plankton is the foundation of the ocean’s food chain,” says Dr. Bridgette Froeschke, an oceanographer and microbiologist at the USF Florida Center for Community Design and Research. “When massive quantities of plastic are part of the ecosystem, filter feeders from whales to oysters are unable to discriminate their intake. The result is a break-down in their energy intake, which obviously affects their health.”

### No ocean is free of plastic – and neither is Tampa Bay

The majority of Tampa Bay’s beautiful beaches are regularly cleaned and manicured. While this is great for tourism, it means we remain blissfully unaware of the vast quantities of refuse we are leaving behind in paradise. And despite our best efforts at hiding the trash, that pesky plastic is still finding its way into Tampa Bay and the Gulf of Mexico. Major sources locally include:

- Storm drain trash is, for the most part, the small stuff: straws, coffee stirrers, lighters, beverage bottles, caps, lids, plastic cutlery, food wrappers, the plastic casings of shot gun shells, 6-pack holders, cigarette butts, etc. For example, the City of St. Petersburg has more than 1,300 storm drains that each dump four to seven pounds of light plastic into surface waters with every downpour. That equates to 4.5 tons of plastic every time it rains – and that’s only St. Pete!
- Recreational trash, primarily from beach activities, contributes approximately 36.7% of litter found in the water, according to a University of Plymouth study. Local contributions include everything mentioned above, plus festival beads, diapers and syringes. Fishermen add bait

#### Perils of Plastic

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## Air Pollution Tops Other Sources of Contamination in Tampa Bay

More than half the nitrogen entering Tampa Bay is coming from air pollution, primarily from cars and power plants, according to important research conducted by a regional team of scientists.

The recently completed research, called the Bay Region Atmospheric Chemistry Experiment (BRACE), compiles data from a landmark multi-year study that involved scientists from the U.S. Environmental Protec-

tion Agency, the University of South Florida, the Tampa Bay Estuary Program and other federal, state and local environmental agencies.

The research quantified the sources and relative contributions of air pollution, also known as atmospheric deposition, to Tampa Bay. It also examined the potential effects of existing and proposed air quality regulations on nitrogen loadings to Tampa Bay.

“It’s a very complex study,” said Lindsay Cross, environmental science

and policy manager for the estuary program. “Atmospheric deposition comes from a wide variety of sources – including cars, power plants, fertilizer plants, airplanes, agricultural operations, lawn mowers, and even lightning. Determining where it comes from and how it gets to Tampa Bay was like a giant chemistry experiment.”

Overall, power plants and industries are responsible for the bulk of the air

#### Air Pollution

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# Meet Jim Igler: Super Volunteer

If you've ever volunteered to help improve Tampa Bay's ecosystems, you've probably met Jim Igler.

He's the guy who has a near-perfect attendance record at the Tampa Bay Estuary Program's Give a Day for the Bay events. Or you may have seen him pulling abandoned crab traps with Tampa Bay Watch, or cleaning up underwater trash with Keep Tampa Bay Beautiful. He leads Green Team at the Florida Aquarium and is the volunteer dive team leader, working to restore local coral reefs and maintain the aquarium's shark tanks. Other days, he's helping to build "love boats" where least terns can lay their eggs at Fort DeSoto, repairing historic structures on Egmont Key or pushing efforts to make the Gasparilla parade more eco-friendly.

He's also the guy who won the most prestigious award given by one of the nation's most respected organizations, Keep America Beautiful's Iron Eyes Cody Award, named for the 1970s "Crying Indian" advertising campaign that helped kick off the country's fledgling environmental movement.

"Jim Igler's passion for the environment shines a bright light on many coastal Florida communities," said Matt McKenna, president of Keep America Beautiful. "He's a true hero, an inspiration to the Tampa Bay community as well as to all of us."

It didn't start out that way.

Raised on a Pennsylvania dairy farm, Igler earned a degree in vocational agriculture from Oklahoma State University before he realized that driving a truck paid more money than teaching – and let him see more of the country.

When he retired, he bought a small home on a canal near Cockroach Bay, then went right back to work.

He had learned to scuba dive on a Caribbean vacation, and the Florida Aquarium was looking for volunteers, so he signed up to help. As he met more people from other organizations, he joined Tampa Bay Watch, the Tampa Bay Estuary Program, then Keep Tampa Bay Beautiful and the Egmont Key Alliance and St. Petersburg Audubon Society.

"I could see the jobs that needed to get done, and I knew I could help," Igler says. "I didn't do it for the awards – I did it because I enjoy it. I get to work with people I might not meet otherwise and make a difference in the world."

Igler lives his commitment to improving the environment every day. Rather than a seawall on his



Jim Igler participates in dozens of clean-up events in Tampa Bay every year, including a recent derelict crab trap removal event sponsored by Tampa Bay Watch.

canal, he put down rip-rap so mangroves can grow along the water's edge, creating habitat for juvenile fish, crabs and birds. When his central air conditioner conked out two years ago, he opened his windows and learned to live without it. His next home project is setting up a chicken coop – made from recycled materials he's collecting now – so he can harvest his own eggs.

In fact, the best part of winning an important national award is the credibility it gives him as he continues his campaign to make Tampa Bay a better place. "It will be a great platform," he says. "People are much more likely to listen to me now."

For instance, he'd like to see the final float at the Gasparilla parade set up to collect and recycle beads and bottles – instead of diving off Bayshore to clean up the petroleum-based plastic trash. And new regulations that require every new home in Florida to be outfitted with solar panels and systems that harvest rainwater. Or giant coolers at clean-up

events instead of thousands of bottles of water, maybe even seeing event leaders pass out reusable cups instead of t-shirts for participants.

"There's always something we can do better," he says. "And if everybody did just a little bit to help the environment, we'd all be so much better off."

When he first arrived in Tampa Bay in the late 1980s, the water in the bay was brown, but he was used to it. "I'd been living in Oklahoma and Kansas and water is usually brown there." As he learned more about the challenges facing the bay, he got more involved in restoring it.

"It's a shame that more people don't realize that Tampa Bay is one of the only urban estuaries in the world where water quality has actually improved over the last few decades instead of declining."



Igler, left, accepts Keep America Beautiful's most prestigious award from the organization's president, Matthew M. McKenna.



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](http://www.baysoundings.com) or send an email to [circulation@baysoundings.com](mailto: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](mailto: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](mailto:editor@baysoundings.com).

### HELP YOURSELF

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## BP Trial Continues: Local Groups Look at Restoration Efforts

A federal judge has refused to grant a motion releasing BP from charges of gross negligence meaning the oil company could be liable for fines of nearly \$20 billion following the 2010 oil spill that killed 11 employees and dumped more than four billion gallons of oil into the Gulf of Mexico.

Even with no end in sight for the trial, local organizations have been working to determine how funds can be spent to restore ecosystems across the Gulf of Mexico, including those not directly affected by the oil spill. The three National Estuary Programs on Florida's Gulf Coast are working with local governments to compile a joint list of priority restoration projects (See *Bay Soundings*, Fall 2012).

The Gulf Coast Ecosystem Restoration Council will develop a comprehensive restoration plan, depending upon funds available from the BP fines. A preliminary list is available online at [http://www.dep.state.fl.us/deepwaterhorizon/projects\\_restore\\_act.htm](http://www.dep.state.fl.us/deepwaterhorizon/projects_restore_act.htm).

## TBEP Announces 2013 Mini-Grant Winners

The Tampa Bay Estuary Program recently awarded \$104,463 to 20 community groups for projects that directly involve citizens in restoring and improving Tampa Bay. This year, special \$10,000 awards for in-the-ground habitat restoration projects also were available, thanks to a matching grant from the Tampa Bay Environmental Fund.

Funds for the Mini-Grant program come from sales of the Tampa Bay Estuary license plate – also known as the "Tarpon Tag."

### Hillsborough County grants include:

- \$4,998 to the East Lake Park Home-

owners watershed education and wetlands treatment project

- \$10,000 to the Ecosphere Restoration Institute for Ulele Springs, Tampa's first source of drinking water
- \$5,000 to Keep Tampa Bay Beautiful for "Live It, Love It, Preserve It!," educational presentations on environmental topics
- \$5,000 to Lowry Park Zoo for a 200-gallon invasive marine species exhibit housing aquatic invaders such as lionfish, green mussels and Mayan cichlids
- \$3,302 to Dowdell Middle Magnet School for Camping by the Bay, for 40 students in four trips to the Hillsborough River State Park Youth Camp
- \$4,915 to Community Stepping Stones for Beautiful Building Blocks: Food Web, an art exhibit that highlights the intricate details of the marine food web
- \$5,000 to Sierra Club Inner City Outings which will bring at-risk, inner-city youth to Crystal Springs Preserve to learn about habitats, ecosystems and food webs.

### Manatee County awards include:

- \$4,850 to Around the Bend Nature Tours, for low-impact development field trips focused on new pathways for stormwater
- \$5,000 to Manatee School for the Arts for a biology education program, field trips and labs
- \$4,500 to Anna Maria Island Turtle Watch for Flippers and Feathers, an education booklet emphasizing ways in which residents and visitors can protect turtles and birds
- \$5,000 to Audubon of Florida to design and print a boating and angling guide to Terra Ceia Bay and Lower Tampa Bay.

### Pinellas County awards include:

- \$3,474 to the Clearwater Audubon Society to build a floating wooden raft for least terns at Honeymoon Island State Park
- \$10,000 to Pinellas County Parks and Conservation Resources to recreate 75

feet of shoreline habitat at Fort DeSoto Park's North Beach

- \$4,632 to Friends of Boyd Hill Nature Preserve for a survey that will use biological data on gopher tortoises and eastern indigo snakes to guide habitat restoration efforts
- \$4,898 to Pinellas County Department of Environment and Infrastructure's Watershed Management Section for the Lealman Water Quality Education Initiative, including materials translated into Vietnamese to help prevent pollution of nearby Joe's Creek
- \$3,000 to The Pier Aquarium for Monitoring Madeira: Synergism of Science to Foster Tampa Bay which allows students at Madeira Beach Fundamental Middle School to monitor water quality
- \$4,938 to the Florida Turtle Conservation Trust to create a demand for blue crabs caught in crab pots using bycatch reduction devices (BRDs) that allow diamondback terrapins – a shy estuarine turtle found in Tampa Bay -- to escape unharmed
- \$4,202 to Riviera Bay Civic Association for Operation Healthy Water
- \$10,000 to Tampa Bay Watch, Inc. to create 650 linear feet of oyster shell shoreline at Elnor Island.

### Region-wide awards include:

- \$1,750 to Keep Pinellas Beautiful for its "Adopt an Intracoastal Island Maintenance Program" to remove debris too large to be handled by kayakers.

Applications for the 2014 mini-grants must be completed by Oct. 1. For more information, visit [www.tpep.org](http://www.tpep.org).

## Gopher Tortoise Grant Now Available

The Gopher Tortoise Council has established an environmental education grant to support educators and organizations committed to developing education-

al projects about the gopher tortoise and the fascinating world in which it lives. The grant also honors Donna June Heinrich, an environmental educator whose life was dedicated to conserving wildlife and their associated habitats.

Deadline for 2013 applications is August 31. Applications may be downloaded from [www.gophertortoiseCouncil.org](http://www.gophertortoiseCouncil.org). Applications which contain the following will be given preference:

- Projects that reach diverse and new audiences
- Projects that focus on the importance of the conservation of intact upland ecosystems
- Projects that encourage community involvement
- Projects that have matching funds.

For more information, contact George L. Heinrich at [george@heinrichecologicalservices.com](mailto:george@heinrichecologicalservices.com).

## Paddling Group Creates Environmental Toolkit Training

A "light" version of the Florida Master Naturalist program is now available to groups of 10 or more through the Florida Paddling Trails Association (FPTA).

"We want to help people interact positively with nature – to explore with purpose," notes Hank Brooks, a Safety Harbor resident and founding president of FPTA. "Once people learn to respect habitats – and the wildlife that depends upon them – they'll take better care of the environment."

The program includes two half-day sessions: four hours of interactive classroom instruction followed by a three-hour paddle or walk the next day. The cost is \$20 for non-members and includes a laminated wildlife guide. For more information, visit [www.floridapaddlingtrails.com](http://www.floridapaddlingtrails.com) or contact [hbrooks@floridapaddlingtrails.com](mailto:hbrooks@floridapaddlingtrails.com).



## A BIG THANKS

to the following sponsors for making Bay Soundings possible with our deepest appreciation for your commitment to celebrating and preserving Florida's largest open-water estuary.

**Tampa Bay Regional Planning Council  
Tampa Bay Estuary Program  
Florida Department of Transportation, District 7**

If you or your company would like information on becoming a sponsor of Bay Soundings, please contact Suzanne Cooper at the Tampa Bay Regional Planning Council, 727-570-5151, ext. 32, or email [suzanne@tbrpc.org](mailto:suzanne@tbrpc.org)

## Tampa Bay is Getting Better. YOU CAN HELP.

Buy a Tampa Bay Estuary tag and help keep Tampa Bay on the road to recovery. They're available year-round in your local tax collector's office or request a Tampa Bay Estuary tag with your annual renewal.

The cost is \$27 for the first year and \$17 after that – with \$15 going directly to projects that benefit the estuary, including the publication of *Bay Soundings*.

A message from the Tampa Bay Estuary Program and the Tampa Bay Regional Planning Council's Agency on Bay Management. Original artwork by Russ Sirmons.



# Look at Alternatives Before Using Synthetic Chemical Pesticides

By Pam Brown

As residents of Florida, we enjoy wonderful weather almost year-round. But our moderate winter weather and the hot, wet, humid summers conspire to support many insect, bacterial and fungal pests that can damage our landscapes and our homes. There are many pesticides on the market that promise to help rid us of these pests if we will just use them. However, it is unreasonable to expect a pest-free environment in Florida.

I don't know about you, but I'm increasingly concerned about all of the chemicals used to control pests. Pesticide residues can build up and sometimes persist for many years in the environment. In Tampa Bay, stormwater rushing across our landscapes has become a primary source of toxic contaminants to our beautiful aquatic ecosystems.

The "What's on My Food" website (<http://www.whatsonmyfood.org>) lists 44 different pesticide residues found by the United States Department of Agriculture Pesticide Data Program in water and groundwater in 2008. I wonder how many there are now? I, for one, don't subscribe to the notion of "better living through chemistry." There are



Photo courtesy Charles Olsen, USDA APHIS PPO, Bugwood.org

Chinch Bug

other alternatives that are much safer in nearly every circumstance.

When looking for alternatives to toxic pesticides, the first lines of defense are excluding pests from our homes and using proper cultural practices in the landscape. Inside the home, make sure that any cracks at the foundation or where pipes or wiring enter the house

from outside are caulked, and windows and doors do not have visible gaps where insects might enter.

Keeping mulch and other debris away from the foundation will reduce moisture that can harbor insect pests that find their way indoors, as well as the dreaded termites that eat our homes from the inside out. The University of Florida Extension publication "The Facts about Termites and Mulch"

(<http://edis.ifas.ufl.edu/in651>) states that mulch can contribute to the survival of established termites by keeping the soil moist and temperatures moderate. If mulch must be used next to the foundation, keep the layer less than two inches deep for a distance of 12 inches from the wall. This reduces the possibility that termites can move across the treated soil to get to the foundation. For more information from the University of Florida about structural pests and their control, visit [http://edis.ifas.ufl.edu/topic\\_household\\_and\\_structural\\_pests](http://edis.ifas.ufl.edu/topic_household_and_structural_pests).

Proper cultural practice in the landscape starts with placing the right plant in the right place for the growing conditions, then caring for it appropriately with proper watering and fertilizer. A healthy plant is much more likely to survive an attack by harmful insects or disease. Diverse plantings also act as a foil for insect infestations.

It has been said that nature abhors a monoculture and large fields consisting of one agricultural crop that need pesticides to thrive are a perfect example. Closer to home, lawns are probably our largest monoculture. Eileen Buss, a researcher at the University of Florida, has reported that St. Augustine grass that is watered heavily and fertilized with large amounts of water-soluble nitrogen will have a greater number of chinch bug eggs laid and adults feeding than St. Augustine that has been

watered moderately and fertilized with slow-release nitrogen (<http://edis.ifas.ufl.edu/lh036>). Many insects that attack plants prefer new succulent growth and too much water and fertilizer fuels new growth.

Before you pull out weedkiller, consider weed control. Pulling weeds before they become well-established could be the only control you need, especially

important before they bloom and produce seeds. Many herbicides can damage your desirable plants and trees when used to kill weeds in planting beds or your lawn. I personally find pulling weeds, where I can be outside enjoying the fresh outdoors along with the birds and other wildlife, very pleasant. A natural pre-emergent weed control that also adds some slow-release nitrogen fertilizer is corn gluten meal.

But what do we do if our diligent attention still doesn't keep damaging insects away from our landscapes? If you do see that you have an infestation of a pest insect or disease, you could start by removing the diseased or infested portions of the plants. Learn what beneficial insects, such as ladybugs, look like and look for their activity (<https://edis.ifas.ufl.edu/in120>). Many times they are all the control that you need for insect pests, especially if you remove the infested plant parts.

If you still need to treat the problem, then consider a natural or organic product. The natural pesticides in my arsenal are neem oil, insecticidal soap, sulfur, copper, horticultural oil (Organocide), and a product containing the bacterium *Bacillus thuringiensis* (Bt) (Thuricide). I scout my landscape for pests weekly so I seldom need stronger pesticides if I catch infestations soon enough. Natural products for insect pest management are primarily either botanical, soap, mineral or biological.

Botanical insecticides include hor-

ticultural oils derived from plants such as sesame (Organocide is primarily sesame oil mixed with fish oil), citrus (d-limonene and linalool) and neem. A number of other botanicals are derived from various plant parts. Pyrethrum, derived from the flowers of a daisy-like plant, is the most widely used botanical insecticide in the U.S. Other botanicals include rotenone, ryania, and sabadilla, but the list of all the commercially available botanicals is quite long. In addition, recipes abound for creating your own insecticides from garlic, onion,

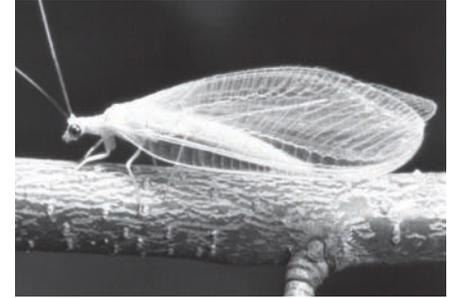


Photo courtesy Clemson University - USDA Cooperative Extension Bugwood.org  
Goldeneye lacewing

chili peppers, baking soda, liquid soap and vegetable oil.

Oils can control pests by blocking the air or breathing holes of the insects, thus suffocating them. There is no residual activity with oils so the oil must coat the insect for it to be effective and repeat spraying is usually necessary.

Neem oil is derived from the seeds of the neem tree. It is not toxic to pets, wildlife or humans. In fact toothpaste, soap and skin creams are made from the



Photo courtesy William M. Ciesla, Forest Health Management International, Bugwood.org  
Tomato hornworm

oil or other parts of the tree. I recommend NimBioSys 100% cold-pressed neem oil that I order online from Brandon-based Neem Tree Farms ([www.neemtreefarms.com](http://www.neemtreefarms.com)). Most of the neem oil that is available commercially is only a 70% neem oil product. Neem oil is considered an insecticide, miticide (spider mites), and a fungicide (especially

powdery mildew), so it has multiple functions.

Besides being oil that smothers insects, it primarily acts as a growth regulator and feeding deterrent for the insects feeding on a sprayed plant. I am sure that you have heard about the bed bug problems that are cropping up here in the US. Besides being a great pesticide for the landscape, cold-pressed neem oil was recently registered as a control for bed bugs with the US Environmental Protection Agency (EPA).

Oils from oranges and other citrus fruit peels are distilled to make d-limonene and linalool. Both of these compounds are insecticidal contact poisons or nerve toxins that are considered safe for use around humans and pets. Commercial products are usually called “d-Limonene.” The EPA has registered these products to use against fleas, aphids and mites. However, they also seem effective for fire ants, paper wasps, crickets and some flies.



Photo courtesy Alton N. Sparks, Jr., University of Georgia, Bugwood.org  
Scarabs or scarab beetles

A very concentrated proprietary orange oil product called XT2000 Orange Oil Plus is marketed to treat dry wood termites as a more environmentally safe alternative than whole-house tenting using toxic gas. With this method, which must be applied by a trained and certified pesticide operator, the orange oil is injected into the wood determined to have active dry wood termites where it kills them. This orange oil product is not used to treat for the subterranean termites most often found in the Tampa Bay region.

Insecticidal soaps are potassium salts of fatty acids. They are similar to common household soaps but have been specifically selected for their ability to kill insects. They seem to work by disrupting the cell membranes or by removing the protective wax covering of the insect so that it dies from water loss. There is no residual activity, so the insects must be covered by the spray

for this product to work. Retreatment may be necessary, as often as weekly, if coverage isn't complete. There can be phytotoxicity in some plants so test a small portion of the plant then watch for leaf burn before spraying the whole plant. These sprays are generally effective against most small, soft-bodied in-



Photo courtesy Albert (Bud) Mayfield, USDA Forest Service, Bugwood.org  
Leafcurl ash aphid

sects such as aphids, scales, mealybugs, whiteflies and spider mites.

Mineral pesticides include sulfur, copper, borax, baking soda and diatomaceous earth. Sulfur is one of the oldest pesticides around. It can be used as a dust or liquid, primarily for controlling diseases such as powdery mildew, rust and leaf blight. But thrips, psyllids and mites can also be controlled. Sulfur cannot be used with other pesticides, especially horticultural oils. Serious damage to the plants can occur.

Minerals also can be used to treat termites. One product containing a mineral compound of boron and oxygen called borate is also used as a treatment for termites. When mixed with a glycol product that allows the borate to penetrate into wood, this product effectively protects against termites and other wood-feeding insects as well as mold damage. It is primarily used when a structure is being built so that all the wood can be coated during construction. One product called Bora-Care lists the following pests controlled: subterranean, Formosan, drywood, and dampwood termites; powder, anobiid and post beetles; old house borers; carpenter ants; brown rot, white rot and wood-decay fungi.

Diatomaceous earth is the fossilized shell remains of diatoms (one-celled algae with silica shells). It removes the waxy layer of some insects or pierces the soft bodies of slugs and snails so that they dry out and die. The “natural-grade” DE is safe to use around humans and pets. Filter-grade is sold for swim-

ming pool filters, and should be avoided.

Biological control of pests calls for enlisting the good bugs that are naturally in the environment or a concentrated use of a natural enemy. You are probably familiar with lady bugs, but some other ravenous natural enemies that live in Florida include green lacewings, big-eyed bugs, minute pirate bugs, some ants, soldier and stink bugs, parasitic flies and wasps, spiders and parasitic mites.

If you learn to identify them, you will start to notice them when you are scouting your landscape, especially if you are not using chemical pesticides. The University of Florida publication “Natural Enemies and Biological Control” (<http://edis.ifas.ufl.edu/in120>) is a good source for information on these controls.

One bacterium that occurs naturally in soil and that is an especially useful biological control is *Bacillus thuringiensis* (Bt). It is sprayed on plants or applied to the soil and it is toxic to caterpillars, certain types of beetle grubs, and mosquito and black fly larva. This bacteria produces a poison that paralyzes the gut of the pest, causing death from starvation. Different strains of the bacteria are used for plant-feeding caterpillars, grubs and mosquitoes. This pesticide is safe for use around pets and humans. However, since butterfly larvae are caterpillars, too, this product should be used carefully near plants where butterflies deposit their eggs.

Some natural enemies can be purchased, but you will be most successful if the natural enemy is matched carefully to the pest needing control. For the



Photo courtesy Gary Alpert, Harvard University, Bugwood.org

Bed bug

homeowner, it is probably best to provide a healthy environment (no chemical pesticides) for the natural enemies, and they will come when there are pests to be controlled.

As more and more people become aware of the dangers of synthetic chemical pesticides, there is more information available on safer alternatives. Many people – even in Florida – have discovered that using natural products to combat pests is as effective as the chemicals. There is a lot of information out there, particularly on the University of Florida website, so do some additional research. You might find that once you begin to use more natural ways to combat pests, you have more beneficial insects and possibly more wildlife in your landscape to enjoy.

*Pam Brown earned a master's degree in ornamental horticulture from Virginia Tech. She served as the University of Florida Urban Horticulture Extension Agent in Pinellas County for eight years and currently serves as president of Pampered Gardeners ([www.pamperedgardeners.com](http://www.pamperedgardeners.com)).*



Photo by Pam Brown

Pam Brown's personal arsenal of non-toxic pest control.

# Regional Report Card Highlights Impacts to Tampa Bay

By Victoria Parsons

Tampa Bay – the region – made national news when the American Society of Civil Engineers gave it a C for infrastructure, one of the best grades given so far in an ongoing report card.

So what does that mean for Tampa Bay, the body of water?

About the same, concludes Elie Araj, president of Applied Sciences Consulting and chairman of the report card committee.

The region's top grade – an A for coastal areas – doesn't count, however, because it applies strictly to Pinellas County beaches where federal dollars help minimize the impact of ongoing erosion. On the other hand, you can disregard a D- in education because it doesn't have a direct impact on the estuary, he explains.

Ports, including both the Port of Tampa and Port Manatee near the mouth of the bay, earned the region a B+ for investing in infrastructure, particularly preparing for the opening of the expanded Panama Canal (see *Bay Soundings*, Fall 2009). "I don't know how many people realize how important the ports are to our local economy," Araj said. "The more I learned about what the ports are doing, the more impressed I was."

At the Port of Tampa, a new Gateway Rail Terminal is the state's first on-dock train with intermodal container capabilities. For trucks, the nearly complete Interstate 4 – Selmon Expressway

Connector creates a bypass over busy surface roads in historic Ybor City.

Currently port activities generate almost \$8 billion in economic impact and support nearly 100,000 jobs, with additional opportunities for growth when the Panama Canal opens in 2014. "The ports are well-funded and they're making good investments," he notes. "The economic downturn didn't hurt them much."

Bridges over Tampa Bay also were rated above average with a B-. Nearly 75% of the bridges are in excellent or good condition structurally but far fewer provide adequate service for current levels of traffic. Additionally, funding has been cut and may not be sufficient to maintain current bridges and build new ones in response to increased populations.

The region got a C+ for water, including potable, reclaimed and wastewater, but the report warns that the water system is susceptible to natural disasters. Funding only "marginally" covers maintenance costs and does not address planned capital improvements.

Aging infrastructure also is an issue but Hillsborough and Pinellas counties as well as the city of St. Petersburg have aggressive maintenance campaigns to prevent leaks in water and wastewater systems. "We're still doing okay in terms of meeting federal and state standards for water quality and wastewater discharge but we're going to need more money to meet needs as the region continues to grow," Araj said.



Photo courtesy Pinellas County Tourist Development Council.

Tampa Bay's award-winning beaches earned an A on the region's report card.

The big issues remaining for the Tampa Bay estuary are stormwater along with roads and transit – no surprise to most people who live here. Roads and transit impact the bay because deposition from auto emissions contributes a significant portion of the contamination in Tampa Bay. Still, stormwater remains the biggest issue impacting the Tampa Bay estuary and it earned the region's lowest grade – a D-, so we nearly flunk. Even worse, it's the primary source of contaminants in Tampa Bay, contributing more than 60% of the problem nitrogen to the estuary.

"Not only do we not have funds for capital improvements, funding for day-to-day maintenance has been steadily cut," Araj said. "It's hard for stormwater to compete with parks, libraries and police when local budgets are being cut. Most people don't even realize stormwater systems exist until they stop working and their homes flood."

And maintaining even simple stormwater structures is expensive. "For instance, Hillsborough County has a thousand square miles of land – that's a lot of ditches to mow, pipes to keep clean and repair – even before you start on lakes which have their own problems. Residents pay a \$12 per home fee to cover those costs, but it's the bare minimum to do much-needed maintenance."

In Pasco, where much of the development took place after state rules required more effective stormwater treatment, residents pay \$47 a year; Pinellas County doesn't have a stormwater fee but many of its municipalities do, and the city of St. Petersburg has an exceptionally good maintenance program,

Araj said.

Along with damage to the bay caused by contaminants in stormwater, pushing the problem down the road may have severe economic impacts for the region. The Tampa Bay Nitrogen Management Consortium has been recognized nationally for its accomplishments in voluntarily reducing nitrogen loadings to Tampa Bay. However, new state and federal regulations, spurred by a series of lawsuits, are restricting contaminants to current levels even as the region continues to grow. (See *Bay Soundings*, Fall 2012)

It's not clear how the rules and permitting will actually work, but the Southwest Florida Water Management District and state Department of Environmental Protection will strictly limit new development that impacts "impaired" surface water. (About three-quarters of rivers, lakes and streams in the Tampa Bay region are considered impaired because they do not meet at least one of the state's standards for water quality.)

For any new construction, developers must show that stormwater leaving the property meets a "net improvement requirement" unless local governments make other improvements in the watershed to balance out the impact.

"New technologies will make it possible for us to meet those criteria, but we'll all need to start paying more attention to stormwater," Araj said. "People who may not know anything about stormwater right now will start to care one day – and we'll all need more education about how our day-to-day actions impact Tampa Bay."



Photo by Victoria Parsons

Coastal restorations like those at Cockroach Bay weren't included in the regional report card but certainly add to quality of life.

# Project Aims to Improve Water Quality in Old Tampa Bay

By Marcia Biggs

**SAFETY HARBOR** - One can hardly find a more cerebral place on Tampa Bay than Safety Harbor.

Here along the upper northwest shore of Old Tampa Bay, mangroves create refuges for a variety of shorebirds and other marine creatures. Pelicans fly above the pier where fishermen cast lines and nets in search of snook, mullet and redfish, while dolphins and manatee frolic nearby. Along a paved trail that hugs the shoreline, bicyclists and runners enjoy a scenic view of the bay and the calm, shallow waters are favorites for kayakers and paddle boarders.

But beneath the surface, trouble is looming. Testing has found the water quality here lags behind the rest of Tampa Bay. In this watershed area, Mullet Creek, Alligator Lake and the Lake Tarpon overflow canal drain directly into the bay, bringing nitrogen-laden runoff from the surrounding communities. A series of large algae blooms have plagued Old Tampa Bay in recent summers, and Tampa Bay Estuary Program is conducting a comprehensive, large-scale research effort to identify causes and potential remedies.

According to TBEP scientists, more than half the nitrogen entering Tampa Bay comes from stormwater runoff from urban and residential areas. Stormwater, the water that runs off the land with rainfall, carries with it fertilizer and pesticide residues, as well as trash. Excess nitrogen accelerates algae growth, limiting the amount of sunlight reaching seagrasses and hindering a healthy marine ecosystem. Research has linked a build-up of thick, noxious muck in Old Tampa Bay near Safety Harbor to stormwater runoff high in nitrogen.

"It's actually a combination of nu-



## ELEPHANT BITES

This is part of a series of stories called "Elephant Bites," that looks at innovative designs local governments and developers are using to capture nutrients before they enter surface waters. Learn more at <http://www.baysoundings.com/Stories/elephant.asp>.



A series of baffle boxes capture roadside stormwater.

trient pollution and poor circulation that is driving the muck problem," says TBEP Senior Scientist Ed Sherwood. "We're looking at various models that would improve circulation, but preventing further stormwater inputs into that area will certainly add to the future health of that area of the bay."

### Looking for Solutions

Preserving the environmentally sensitive land that makes Safety Harbor unique is a priority for city officials. But for years, winding Bayshore Boulevard south of Safety Harbor Spa has been

a source of concern. Summer rains combined with poor drainage caused constant pooling and pollution runoff into the bay. The flat geography was the main culprit, according to Ray Boler, Safety Harbor's director of public works.

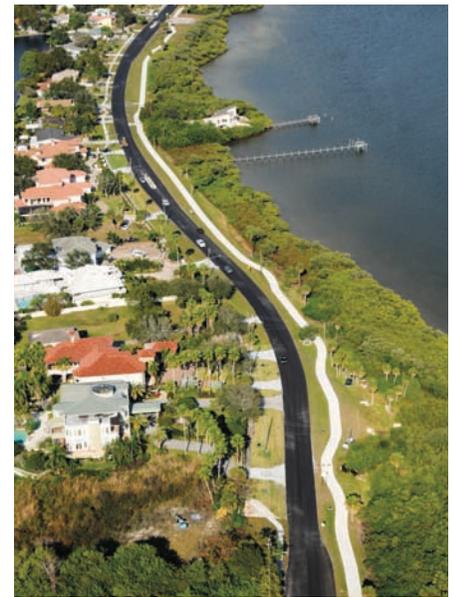
"Pools of stormwater would collect on the west side of the street, wash across the asphalt and drain into the bay," he explained. "During extreme high tides, water from the bay might even reach the street, drawing pollution, trash and oak leaves back down with it."

In 2010, the city won grant funding for a \$2.6 million project that would alleviate pollution from stormwater runoff by improving drainage along South Bayshore Boulevard. With \$1.3 million from the FDEP and \$800,000 from Southwest Florida Water Management District, the city committed another \$96,000. The Safety Harbor Stormwater Improvement Plan would include roadway and sidewalk improvements, including replacing the Bayshore sidewalk trail and sewer lines. Even though the sewers had not reached a state of advanced deterioration, replacing them now would preclude the need to excavate the roadway at a future date, said Boler.

### Designing for Geography

Since the land is flat, a swale had to be formed between the street and the trail sidewalk by realigning and raising the elevation of the sidewalk and raising the elevation of the street. Safety Harbor hired Cardno TBE of Clearwater to design a project that would pipe stormwater under Bayshore and into large concrete baffle boxes which remove trash and sediment before entering the swale. The 5,000-linear-foot swale is large enough to remove over 7,300 pounds of pollution from the stormwater runoff each year.

The eight baffle boxes, which range in size from 5x11 feet to 10x16 feet, are situated at various locations along South Bayshore where they will remove suspended solids as the water flows through a series of chambers and filters. The filtered stormwater then flows through channels into the bay. City crews will be responsible for vacuuming the contents of the baffle boxes and cleaning the fil-



Stormwater along South Bayshore Boulevard is diverted into swales and beneath the street into baffle boxes.

ters annually, Boler added.

Construction started in September 2011 with an initial completion date of June 2012, but a series of delays kept pushing back the completion date. Finally in March, the final stages were completed with the addition of three landscaped traffic islands in the middle of South Bayshore for beautification.

Even before the Safety Harbor stormwater project was complete, good news arrived. TBEP's 2012 Water Quality Report released in February shows marked improvement in Old Tampa Bay since 2011. Water quality standards jumped from the red designation (inadequate to support seagrass) to green (meeting water quality targets to support seagrass). In fact, all segments of the bay met water quality targets in 2012, for only the fourth time since bay-wide assessments began in 1974.

"This is an impressive testament to the collective efforts of both local governments and private industries to reduce pollution in the bay, especially when you consider that the population around the bay has grown by more than 1 million people since 1974," said Holly Greening, TBEP executive director. "Tampa Bay is one of the few estuaries in the nation that is showing this kind of sustained improvement."

*Marcia Biggs is a freelance writer who lives in Safety Harbor.*



Roseate spoonbills are a common sight along the shoreline in Safety Harbor.



# You Can Help Save Frogs

By Avalon Theisen

When you think of a frog, what comes to mind? Slimy? Hopping? Fly-eating? Green? Well, those things may describe some frogs, but did you know that frogs represent so much more? In fact, frogs represent the health of the environment, both locally and globally. Think about a kitchen sponge. When you put it under water, what happens? The sponge absorbs the water, and parts of anything that is in it. Frog skin acts in a very similar way, and is often referred to as permeable. Permeable just means things like chemicals and gases pass through it easily. So if there is something wrong in the environment, frogs are going to be one of the first creatures to be affected by it.

According to biologist Dr. Kerry Kriger, who founded the organization Save the Frogs!, amphibian species naturally disappear at the rate of one species every 250 years. Unfortunately, about 200 species have completely disappeared since 1980! What's making

them disappear so fast? There are many different threats, and here are just a few of them:

- Destruction of their habitat (when their homes are destroyed to be replaced by people's construction)
- Pollution
- Chemicals, including fungicides and pesticides sprayed in backyards across the country
- Overharvesting for the pet/food trades (when amphibians are taken from nature to be sold as pets or food),
- Even cats that like to pounce on small creatures are a threat to amphibians.

When I heard about the challenges amphibians are facing, I knew I needed to find a way to help, and I put my focus on frogs. Luckily, there are many small things that ordinary people, especially children, can do. You can pick up trash and also build new frog habitat. It doesn't have to be as complicated as a pond, you can just use things like PVC pipe, old Tupperware, rocks, dirt and water. If you are going to get a pet am-



Photo by Deborah Theisen  
Ben Johnson with Conserve It Forward mascot Clover and Avalon Theisen.

phibian, make sure it was captive-bred and not taken from the wild. Is it time for frog dissection at school? Compa-

nies like Digital Frog International and Froguts offer frog dissection software for home and school use. This frog-friendly dissection costs less, has less smell and best of all, there are no dead frogs!

Another great way to help frogs is to become a citizen scientist, a person who does science by being part of fun activities and projects. My favorite citizen scientist activity is working as a frog listening volunteer. Did you know that every species of frog has a different call, or sound? Frog listening helps you identify frogs solely by their calls. First, you learn the calls by going to workshops, or online. Once you pass the quiz, you can go out in nature and report what you hear to help working scientists. It's just that easy, and a great way to get outdoors!

Being a Cuban Treefrog Citizen Scientist is another way to help in Florida. Cuban treefrogs are invasive – not native to our state. That means that they are not here naturally, but because of something that people did. Cuban treefrogs cause all kinds of trouble for our native treefrogs, native ecosystems and people. Not only do they eat our native treefrogs and tadpoles, but they also compete with them for space and food. These treefrogs can be much larger than our native treefrogs and they are basically bullying them -- and that is why they can take over ecosystems. As a Cuban Treefrog Citizen Scientist, you can learn to identify and report this species to help scientists know where they are. To learn more about Cuban Treefrog Citizen Science, please visit [http://ufwildlife.ifas.ufl.edu/citizen\\_sci.shtml](http://ufwildlife.ifas.ufl.edu/citizen_sci.shtml).

With all this information, I started to talk to other people about what I had been learning by doing things like setting up frog info booths, giving presentations and leading frog listening hikes. My projects eventually turned into a non-profit organization called



Photo by Rafael Alvarez

Participants at the 2012 Tampa area Save the Frogs Day event pose for a group photo at Camp Bayou.



Photo by Deborah Theisen

Above, Avalon explains the call of a bullfrog while leading a frog listening hike. Right, Frog Day volunteer CK Gordon demonstrates frog-saving pool tools.



Photo by Rafael Alvarez

Conserve It Forward. One exciting free event that we host every year at Camp Bayou Outdoor Learning Center in Ruskin is Tampa Bay's regional Save the Frogs Day event. Save the Frogs Day is a world-wide celebration of amphibian education and conservation.

Our event has fun games and activities to help people learn about frogs and the environment, including challenges frogs face, and solutions people can put to use. You might enjoy comparing your jump to that of a frog's, learning about what frogs eat by playing "feed the frog" cornhole, or getting a temporary frog tattoo. Be part of a frog talk/frog walk combo, and meet

Clover, our mascot frog. That's just a few of the fun activities we're planning for April 27 from 10 a.m. to 1 p.m. We will all come together at 1 p.m. for the Human Frog Chorus, where people croak just like frogs for a video to raise awareness for amphibian conservation. Everybody receives a ribbon to wear showing they croaked in the Human Frog Chorus.

After the chorus, the event ends with a prize drawing. Every attendee gets one free prize drawing ticket, but more are available for purchase. Prizes depend on what gets donated, but in the past we've had handmade jewelry, inflatable frogs, frog art, frog identification guides, tree-frog houses made from PVC pipe, and a grand prize of Froguts digital dissection software.

I invite you and all your friends to pre-register for the Tampa Bay area Save The Frogs Day event at [www.ConserveItForward.org](http://www.ConserveItForward.org), where you can also see the most current schedule and information. This event is free, with a suggested donation of \$5 per person. I hope to see you there!

*Avalon Theisen of ConserveItForward.org has been recognized internationally for her conservation efforts. With a goal of working for National Geographic when she grows up, her hobbies include traveling abroad and animal handling, especially amphibians.*



Photo by Rafael Alvarez

Games like "Stamp Out the Threats to Frogs" and "Feed the Frog" were big hits with participants.

## Florida Frog Links

Florida's Frogs  
UF Wildlife – Johnson Lab  
<http://ufwildlife.ifas.ufl.edu/frogs/florida.shtml>

Frogs & Toads of Florida  
UF Florida Wildlife Extension  
[http://www.wec.ufl.edu/extension/wildlife\\_info/frogstoads/](http://www.wec.ufl.edu/extension/wildlife_info/frogstoads/)

Checklist of Florida Frogs and Toads  
Florida Museum of Natural History  
<http://www.flmnh.ufl.edu/herpetology/checklist/frogstoads.htm>

Audio presentation by the Hillsborough River Watershed Alliance, including downloadable frog calls  
<http://www.hillsborough.wateratlas.usf.edu/fln/audio.aspx>

## Frog Citizen Science Links

FrogWatch USA  
<http://www.aza.org/frogwatch/>  
The Tampa area chapter is the Frog Listening Network that is a partnership between the Hillsborough River Watershed Alliance and Lowry Park Zoo. To contact them directly, email [Frogs@LowryParkZoo.com](mailto:Frogs@LowryParkZoo.com)

North American Amphibian Monitoring Program  
<http://www.pwrc.usgs.gov/naamp/>

Cuban Treefrog Citizen Science  
[http://ufwildlife.ifas.ufl.edu/citizen\\_sci.shtml](http://ufwildlife.ifas.ufl.edu/citizen_sci.shtml)

Amphibian Conservation Groups  
Save the Frogs!  
[www.SaveTheFrogs.com](http://www.SaveTheFrogs.com)

The Amphibian Specialist Group  
<http://www.amphibians.org/>

Amphibian Ark  
<http://www.amphibianark.org/>

Conserve It Forward  
[www.ConserveItForward.org](http://www.ConserveItForward.org)

Amphibian and Reptile Conservancy  
<http://amphibianandreptileconservancy.org/>

The Sticky Tongue Project  
<http://thestickytongue.org/>

Wendell's Frog Blog  
<https://www.facebook.com/wendellsfrogblog>

## Perils of Plastic

From page 1

containers, cleaner and oil bottles, fishing line, lures, nets, night sticks, rope, straps, crates, ice chests, plastic sheeting, light bulbs, and pallets.

- Dumping is where the really big stuff comes from -- appliances, batteries, building materials, tires -- and more. You get the picture.

I asked Dr. Ernst Peebles from the USF College of Marine Science why, with all this trash entering Tampa Bay, we aren't seeing our own gyres. "It's the ocean currents that lift the trash into whirlpools. We don't have that much circulation in the bay. Currents are relatively calm so things just become waterlogged and sink."

Both Peebles and Froeschke voiced

concern about what's happening on a bacterial level to all that plastic invisible under bay waters. At first, it's covered with bacteria and algae, and eventually barnacles, but underneath the new growth, the plastic continues to break down, eventually becoming part of the water column. "Bacteria are incredibly important in moving energy through the ecosystem," says Peebles, "but they are the last to be considered."

Another big problem with plastics is the fact that they break down over a period of centuries, not years, notes Chris Johnson, project manager for Keep Pinellas Beautiful. "And we're seeing a lot more plastic -- doctors are telling people to drink water, Gatorade and beverages like Propel which might be good for them but aren't healthy for environment."

Combining the rising costs of petroleum with consumer concerns about plastic, industry has created smaller bottles and smaller bottle caps. Several counties, including Hillsborough, are moving toward single-stream recycling which makes it easier for people to participate and recycled plastic becomes more valuable every time the cost of oil goes up.

Of course, not all plastic immediately breaks down and the larger pieces create a variety of problems:

- Biodiversity Displacement: Plastic is a magnet for bacteria and algae. Ocean buoys are being found with coral heads beginning to grow on them. This new habitat in the center of the deep ocean means that invading surface feeders begin to show up. When the deep ocean fish come up to feed at night, they find their food sources have been depleted. Shifts of a similar nature could be happening in our bay.
- Starvation by Plastic Blockage: The poster children of plastic ingestion are the sea turtles who consume bags, believing they are jellyfish. (Luckily, that's only an occasional issue in Tampa Bay, according to Bill Sanders at Keep Pinellas Beautiful.) More disturbing are the hundreds of thousands of Pacific albatross chicks, dead because their unwitting parents

fed them plastic shaped like krill or eggs -- which is why so many bottle tops are found among their skeletal remains. Closer to home, Florida gulls and other scavengers consume plastic in their quest for food and suffer the same fate. Even the tiniest of fish are found to have plastic particles in their guts. Imagine having to swim with what are basically plastic floatation devices in your stomach that offer you no nutrition.

- Constricting Plastic: The internet is filled with photos of birds and animals strangled, deformed and starved by plastic wrapped around torsos and appendages. Virtually every boater has a story of untangling monofilament line and other plastic detritus from their propellers.
- Toxic Chemicals: As far back as 1998, researchers were concerned about BPA (Bisphenol A), a toxic endocrine disruptor that leaches from plastics. In fact, BPA is only one of several toxic chemicals re-

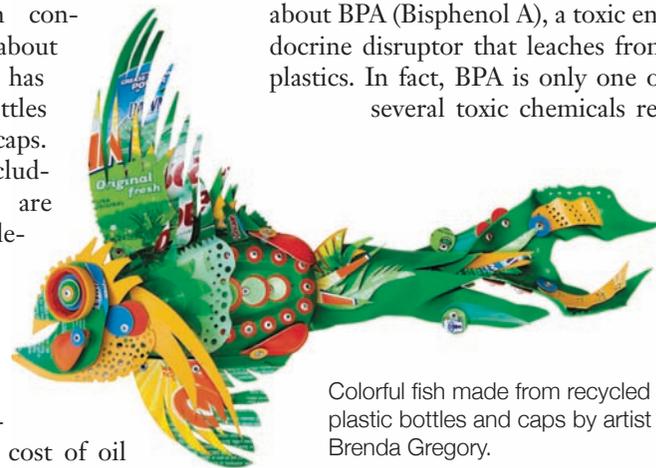


Participants in the Community Stepping Stones mural learned about plastic trash while doing beach clean-ups.



Photo by Sigrid Tidmore

A bird skeleton found on Caladesi Island clearly shows that it had eaten plastic pieces before it died.



Colorful fish made from recycled plastic bottles and caps by artist Brenda Gregory.

leased as large molecules when plastics like polyvinylchloride (PVC), polystyrene (styrofoam), polyethylene (bags) and the 80-plus other petrochemical plastics break down in water. Sand on beaches around the world (including Tampa Bay) now harbors vast quantities of grain-sized plastic pellets. In the Bahamas, there are beaches that are almost 100% plastic. A 2010 article in Science News describes a Japanese study of beach sand at 28 popular global sites, all of which reported toxicity from BPAs that were "orders of magnitude" greater than those sufficient to cause negative effects in animal and lab studies.

## So Where's the "Better News?"

As the awareness of the global ocean crisis grows, local groups are taking action. Keep Pinellas Beautiful's Recycling Regatta, to be held on April 20

this year, highlights the dangers of plastics in marine ecosystems. Keep Tampa Bay Beautiful scheduled a separate clean-up after the Gasparilla parade, largely to collect plastic water bottles and unwanted beads.

Another newly organized nonprofit is the Tampa Bay Green Consortium (www.tampabaygreenconsortium.org). TBGC was begun about a year ago by environmental veterans who wanted to offer a platform for coordinating diverse groups working on beach and waterway clean-ups. For instance, TBGC coordinates “Divers Against Debris” locally for the international organization, Project Aware. The trio also enlists volunteers from University of Tampa, USF and local dive clubs to survey underwater marine debris, collect data and orchestrate clean-ups.

“We try to remove serious environmental hazards from around heavily used piers, such as fishing line tangles, lost nets and non-biodegradable refuse,” says Dan Fisher, one of the group’s founders. “This restores habitat and safety to the area. Sometimes the group’s free services are met with resistance from skeptics, bureaucrats and reluctant pier managers who aren’t inclined to shut their piers for a couple hours once a year while divers do their work. Fisher is circumspect, “I guess it will take more public education before everyone appreciates that clearing out the trash now will improve the fishing in the long run.”

The data that Fisher and his volunteers collect about the refuse they remove is sent to Project Aware and the Ocean Conservancy, where it is compiled into a national annual report. Fisher sees a time when cleanups might be compensated for the marine waste they remove by selling it to the waste-to-energy industry as the cost of petroleum continues to rise.

In response to public concern, the plastics industry is moving towards more recyclable products. The nonprofit Biodegradable Plastics Institute (www.bpiworld.org) offers education, scientifically based standards and certification for new plastic products which are biodegradable in central composting facilities. Retailers as diverse as Whole Foods and Sears have moved to fully compostable plastic shopping bags. We can only hope that the ocean’s “central composting facility” is able to safely handle these new products.

For now, increased public awareness

is our best hope that individuals will decide to modify their plastics addiction. Within the last two years, media attention is beginning to acknowledge the impending problems and Hollywood is beginning to crank out a series of “plastic alert” movies, like the award-winning Bag It, (visit www.Bagitmovie.com or attend the Tampa Bay Sierra Club screening on April 22.) National Geographic has a new site specifically for teachers on the “perils of plastic” (http://education.nationalgeographic.com/education/activity/perils-plastic/?ar\_a=10) to teach kids to be more careful about using plastics. And in California, like Florida, where tourism is a major industry, the state recently funded a study detailing the impact of plastic debris – including micro-plastics that may become part of the food chain (http://calost.org/pdf/science-initiatives/marine%20debris/Highlights\_Plastic%20Debris%20Report\_FINAL.pdf).

As statistics-weary consumers, it’s easy to glaze over when we hear litanies of depressing facts about impending doom. Fortunately, artistic expressions have the power to gain our attention and make a massive concept become a personal mission. Visual and performing artists worldwide are taking up the cause of saving our oceans from certain synthetic doom. Just Google “Upcycled Art” or “Plastic Art” and you’ll be amazed.

Which brings me back to the Community Stepping Stones mural, “One Waterway One Tampa Bay.” As we sorted through the thousands of diverse plastic items we retrieved from local beaches, we realized we were witnesses to a system gone crazy. We were compelled to sound the alert. Today, the resulting 12-by-8-foot mural hangs in the VIP Suite level of the Tampa Bay Times Forum speaking its lesson to the thousands of people who will pass it this year.

All of us who worked on the project have had our lives changed. Our teens elected to make our campus a “water bottle free zone,” and they’re much more conscientious about getting the trash out. Me? I’m a bit nostalgic drinking water from my paper cup and remembering a time when there weren’t any plastics in paradise.

*Sigrid Tidmore is an environmental writer and illustrator who also serves as the executive director of Community Stepping Stones (www.CommunitySteppingStones.org).*

## What you can do:

- Use your own water bottle, mug, utensils and bag at work.
- Say “No plastic straw please” when you dine out.
- Buy products that come with the least amount of plastic packaging.
- Pick up five pieces of plastic pollution every day.
- Volunteer to clean up litter. The Great American Clean-up is scheduled for April 27 in Hillsborough and March 9 through June 29 in Pinellas. Keep Manatee Beautiful will host a series of events throughout April and Pasco expects hundreds of volunteers to fan out across the county on April 20. Learn more about local events at www.kab.org.
- Spread the word that a little less plastic goes a long way. Use your own shopping bags, avoid plastic bottles and always recycle the plastic you must use!

Tampa Bay Sierra Club  
will present a  
**FREE SCREENING**  
of **Bag It** at 7 pm on  
April 22 at the  
Hillsborough Community  
College Performing Arts  
Building,  
1304 E. 11th Ave.,  
Ybor City.



**bag it**  
is your life too plastic?

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EDITED BY SUZAN BERAZA & CASEY NAY DIRECTOR OF PHOTOGRAPHY LEIGH REAGAN PRODUCED BY MICHELLE HILL  
WRITTEN BY MICHELLE CURRY WRIGHT MUSIC BY LARRY GROUPE SCREENPLAY BY SUZAN BERAZA

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# Spring-Breakers Help Restore Tampa Bay

Not all college students on break come to Florida for the beaches and parties.

Ten students from Ohio State University (OSU) recently spent their spring break helping the Tampa Bay Aquatic Preserves (TBAP) program with habitat restoration work. During their one-week experience, students cleaned trash from remote shorelines and removed exotic plants such as Brazilian pepper and Australian pine from natural barrier and man-made spoil islands so that future groups can plant native plants to support local wildlife.

OSU's Buck-I-SERV program is one of many alternative spring break programs that have become increasingly popular in recent years. The university plans approximately 50 annual substance-free service projects outside of the Columbus area during winter, spring and summer academic breaks. Groups of students work alongside one agency to learn more about the needs and capacities of that organization, its impact in the local community and how it connects to their community in Columbus. The Tampa Bay Aquatic Preserves program hosts three OSU groups each year, as well as volunteers from



Photo courtesy Ohio State University  
Ten students from Ohio State University spent their spring break helping clean up and restore islands in the Tampa Bay Aquatic Preserve.

other local and national organizations.

"We can get plenty of people to clean up a nice beach," says TBAP Manager Dr. Randy Runnels. "Some of our most valuable habitat is in remote areas that can be difficult to access with short-term volunteers and expensive to restore using contractors. For a small program like ours, having such skillful, energetic assistance greatly increases our capacity to protect natural resources over a large geographic area."

Dr. Runnels says college students are enthusiastic and committed volunteers. Another group from OSU affiliated with the National Society of MANRRS (Minorities in Agriculture, Natural Resources and Related Sciences) spent part of their Christmas break working at the TBAP. When they have some free time they enjoy taking a small boat or kayak out to explore other islands in the preserve.

Pamela Thomas, OSU College of

## Fun Facts

Approximately 1/3 of Florida's coral species can be found in the Pinellas County Aquatic Preserve.

Locally, the aquatic preserves habitat includes sandy beaches, mangrove-dominated shorelines, oyster bars, seagrass beds, coral communities and spring-fed caves.

At least five species of bats forage for insects over the waters in Terra Ceia. A single bat can eat thousands of insects in one evening.

The name "Cockroach Bay" may have originated with early explorers who observed numerous horseshoe crabs in the area.

Cockroach Bay is the only aquatic preserve in Florida in which the submerged land of the preserve is not state-owned. The submerged lands are owned by the Tampa Port Authority.

The Cockroach Bay preserve includes two paddling trails that wind through mangrove labyrinths.

Food, Agricultural and Environmental Sciences' multi-cultural student services director, has been very pleased with the results of these efforts. "They provide a chance for us to partner with organizations doing work that we feel passionate about and combine in-class theoretical ideas with hands-on, real world applications."

## Air Pollution

*Continued from page 1*

emissions in our area because they release emissions from tall stacks that travel great distances. However, emissions from automobiles and trucks have a larger impact locally, because those emissions are generated low to the ground. "Local mobile sources – including cars and trucks -- have a disproportionate impact because they're generated closer to the ground and are less likely to be carried out of the watershed by wind," Cross said.

Additionally, Cross said, a large portion of our air pollution comes from outside the Tampa Bay area, from an "airshed" that stretches north to Atlanta and south to Cuba.

Along with identifying the impact of automobile emissions, key findings from BRACE include:

- Atmospheric sources now ac-

count for four times as much nitrogen loading to Tampa Bay as discharges from municipal sewage treatment plants and industry combined.

- About 17% of the nitrogen loading to Tampa Bay comes from direct deposition on the bay itself, while 40% comes from air pollution that falls on the watershed and is washed to the bay in stormwater.

- Two-thirds of the nitrogen deposition is contained in dust particles; one-third comes with rainfall.

Local and national regulations already are resulting in cleaner air. For example, local power plant upgrades, including replacing coal-burning plants with natural gas facilities and installing nitrogen reduction equipment on smoke stacks, resulted in a 95-ton per year decline in nitrogen between 2002 and 2012.

If fully implemented by 2020, the federal Clean Air Interstate Rule --

requiring 27 Eastern states to reduce pollution from both mobile and stationary sources -- could bring about a 24% reduction in nitrogen deposition to Tampa Bay. And new federal standards for automobile fuel efficiency will lead to cleaner cars on our roads in coming years.

Individuals play an important role in improving our air and water quality. How we drive, what we drive and how much we drive all impact our environment and our wallet. Getting out of our cars is becoming easier, as regional transit options are expanded through ridesharing, designated bicycle lanes, and improved bus rapid transit. Many of these initiatives are led by the Tampa Bay Area Regional Transit Authority (TBARTA).

"There is a lot more discussion among elected officials and business leaders about transportation, from both an economic development per-

spective as well as the environmental issue," said Amy Ellis, TBARTA communications director. "Any of the alternatives to driving alone in a car is going to help reduce emissions that end up in Tampa Bay."

*Learn more:*

[http://www.tbep.tech.org/TBEP\\_TECH\\_PUBS/2012/TBEP\\_04\\_12\\_BRACE\\_Public\\_Document.pdf](http://www.tbep.tech.org/TBEP_TECH_PUBS/2012/TBEP_04_12_BRACE_Public_Document.pdf), the Tampa Bay Estuary Program's citizen report on atmospheric deposition

[www.tampabayrideshare.org](http://www.tampabayrideshare.org) for online ride-matching of carpoolers and bikers – plus the "guaranteed ride home" for emergencies

[www.getreadytampabay.org](http://www.getreadytampabay.org) for more information about electric car charging stations in the region

<http://baysoundings.com/fall04/fall-out.html>, an earlier cover story about the BRACE report on atmospheric deposition

## Rebuilding Tampa Bay

From page 16

moved the shell in about 2,000 plastic mesh bags that each weighed about 30 pounds each.

Once the shell is in place, it will attract juvenile oysters almost immediately. “You can start to see small oysters after about three months under ideal conditions,” said Peter Clark, TBW president. “After about two years, the oyster shell reef will have a mature growth of oysters covering the shell bar.”

Since the 1950s, at least half of the oyster communities in Tampa Bay have been lost due to dredge-and-fill activities and other developmental impacts, Clark said, but populations appear to be stabilizing. What’s needed most is habitat – areas with hard rough surfaces where juvenile oysters can attach, like the oyster bars we’re building today.

The Schultz project is part of TBW’s Community Oyster Reef Enhancement (CORE) program. It’s funded partially through the largest gift TBW has received in its 20-year history – a \$225,000 grant from the Mosaic Foundation to build oyster bars at Schultz and complete other water quality initiatives over the next three years.

Mosaic also will be actively involved in oyster habitat restoration through employee volunteer days. “It’s a great team building activity. It’s hard work, it’s dirty but to go out to the bay and see the positive impact it has on the environment makes it all worthwhile,” said Christine Smith, community relations manager for Mosaic. “It’s great what Tampa Bay Watch is doing and we are glad to be a part of it.”

When I arrived at Williams Park boat ramp near the mouth of the Alafia River, a group of Mosaic volunteers and the TBW team were ready to get to work. The Environmental Protection Commission of Hillsborough County and the Florida Wildlife Research Institute provided their boats to transport the oyster shells. Additionally, TBW had two boats and one of their long-time volunteers had another.

Clark and Kevin Misiewicz, TBW’s environmental scientist and project manager for the Schultz Preserve, kicked off the morning with a short demonstration on how to fill mesh bags with the fossilized shells. Volunteers would shovel the shell into a PVC pipe “sleeved” with a mesh bag. Once the PVC form was removed, we’d end up with an oyster shell bag tied at both ends.

We loaded the bags into waiting boats, where they would be unloaded and deployed by hand in an intricate pattern that mimics natural oyster bars. Staff from TBW was on-site to ensure accurate placement and to minimize human impact on seagrass beds and other sensitive habitat.

Misiewicz explained that although the mesh is made from plastic, it has not been shown to have adverse effects on wildlife. “It keeps the oyster shell contained and is eventually completely encrusted with live oyster and is no longer visible or exposed,” he added.

According to Clark, oysters prefer to settle and attach to other oyster shells first, but they will settle on any available hard surface. Fossilized shells from local shell mines used in this project provided a hard surface for oyster larvae to settle upon and grow. “There is no difference



Photo courtesy of Sonia Lavina.

TBW Environmental Scientist Kevin Misiewicz and a Mosaic volunteer place shell bags at the Schultz Nature Preserve oyster restoration site.

in using fossilized shells or recycled shells in the environment – they both provide hard-bottom habitat that oysters love,” said Misiewicz.

After the demonstration, half of the Mosaic volunteers began shoveling fossilized shells into the mesh bags while a second group of volunteers assisted in the laying of the shell bags. It was clear that Melinda Spall, TBW environmental specialist, and Serra Herndon, habitat restoration director, had done this job before as they easily hefted the filled bags onto waiting boats.

“These types of oyster restoration projects are a lot of fun,” said Herndon. “It never ceases to amaze me how dedicated our volunteers are and how hard they work – and getting a good group of volunteers to participate always makes our job a lot easier.”

I rode out to the reef-in-progress on a TBW boat with about 70 bags of shell. Adam Hange, a committed TBW volunteer, was driving the boat and Misiewicz was also onboard. The bags were not only heavy, they were slippery and wet so I was glad to be wearing water shoes and heavy-duty gardening gloves.

Hange has been volunteering with TBW since 2005, often taking vacation time to help out with these projects. “You plant the seed and watch it grow year after year and you do it with people who have the same kinds of interests that you do,” he said. “It’s a great feeling and a great way to give back to the community -- and look, we are out on a boat!”

We arrived at the site after a 20-min-

ute ride and watched as Misiewicz and the Mosaic volunteers strategically placed the oyster bags adjacent to the shoreline where they would be covered by water during high tides. I returned to the boat ramp with Hange to get another load of shells.

After the first couple of trips, I was a little sore but the aches were more than outweighed by the feelings of accomplishment. Hange said it best: “It’s a wonderful feeling at the end of the day; your muscles are a little sore. But to go out to the project a year later and see how it grows, it’s a warm feeling you have in your heart. I’ll be able to take my children and grandchildren to the same project and explain to them how they can make a difference during their lives and their generation as we did in ours.”

Personally, I was amazed to see what a positive impact a group of volunteers can have on the environment in just one morning.

And they couldn’t do it without us! “Community volunteers are critical in our efforts to improve water quality and rebuild fish and wildlife habitats in Tampa Bay,” says Clark. Adds Rachel Arndt, TBW volunteer coordinator, “Our volunteers range from children to retirees, and people of all abilities are needed to assist with our projects.”

To learn more about upcoming TBW volunteer opportunities, visit [www.TampaBayWatch.Org](http://www.TampaBayWatch.Org) or the calendar section of *Bay Soundings* at <http://www.baysoundings.com/Quarterly-Calendar.asp>.



Photo courtesy Tampa Bay Watch

Mosaic employees worked with Tampa Bay Watch to build an oyster reef at Schultz Nature Preserve on December 7th 2012.

# CALENDAR of EVENTS

The *Bay Soundings* calendar lists some of our favorite events and top trips, but there are many more events online at [www.baysoundings.com](http://www.baysoundings.com) where you will also find more complete information. It is 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.

## april

**Apr. 13**, 9am-noon, Plant ID tour with Manatee Master Gardeners at DeSoto National Memorial and Riverview Pointe Preserve.

**Apr. 13**, 9am-noon, Your Green Home – It is Easier Than You Think, Brooker Creek Preserve, registration required.

**Apr. 13**, 10am-noon, Archaeology Works, Weedon Island Preserve, registration required.

**Apr. 13**, 9:30am-12:30pm, Nature's Elements, hands-on learning for kids ages 5 to 7, Boyd Hill Nature Preserve, registration required.

**Apr. 13-14**, 10am-4pm, Spring Plant Festival at USF's Botanical Gardens, including special workshops on urban farming, tropical trees and organic vegetable gardens.

**Apr. 16**, 9-11am, Florida-Friendly Garden Tours at Florida Botanical Gardens. Groups limited to 10 participants, registration required.

**Apr. 16**, 7:30pm, Night Hike at Boyd Hill, pre-registration required.

**Apr. 17**, 10-11am, Flipping for Dolphins, Weedon Island, pre-registration required.

**Apr. 17**, 10-11:30am, Fun-Time Forestry Hike at Brooker Creek, pre-registration required.

**Apr. 19**, 7pm, Astronomy Night at Boyd Hill, pre-registration required.

**Apr. 19-21**, Florida Ornithological Society Spring Meeting in St. Petersburg, visit [www.fosbirds.org](http://www.fosbirds.org).

**Apr. 20 & 21**, 10am- 5pm, Earth Day celebrations throughout the bay area including Boyd Hill Nature Preserve, the University of South Florida's Botanical Gardens and Tropicana Field.

**Apr. 20**, 9am-noon, Florida-Friendly Landscaping Combo – Compost & Rain Barrel at Manatee County Extension, pre-registration required.

**Apr. 23**, 6:30pm, Hillsborough County Extension program on



Summer is nearly here and the most popular classes are accepting applications – and they'll fill up fast. Check out our comprehensive list of nature and science –oriented programs at [www.baysoundings.com/summercamps](http://www.baysoundings.com/summercamps)

## EXHIBITS & ONGOING

**April is Outdoor Water Conservation Month, contact your local extension service for information on how you can save water.**

**Wednesdays**, 11am-noon, Jungle Boogie, wildlife adventures for kids at Boyd Hill Nature Preserve, St. Petersburg, pre-registration required.

**Thursdays**, 10:30-11:15am, Book Time @ Brooker Creek Preserve, Wee Time at Weedon Island, pre-registration required.

Florida native plants, North Tampa Library.

**April 25**, 5:30-8:30pm, Crawfish Boil at SS American Victory.

**April 27**, 8am-noon, Give A Day for the Bay, invasive plant removal at Camp Bayou in Hillsborough County, sponsored by Tampa Bay Estuary Program.

**Apr. 25, 26 & 27**, 9am-noon, Tampa Bay Watch needs volunteers for oyster shell project to restore Schultz Nature Preserve.

**April 27-28**, 9am-4pm, Green Thumb Festival, Walter Fuller Park, St. Petersburg.

**Apr. 30**, 6:30-8:30pm, Pot Luck Dinner & Bird Calls with the St. Petersburg Audubon Society.

## may

**May 11**, 9-11am, Brooker Creek Preserve, Exotic Species Day, registration required.

**May 11**, Tampa Audubon Society, Migratory Bird Count, registration required.

**May 11**, 10-11am, Bright Futures Ranger Naturalist Program

**Most Saturdays and Sundays**, guided nature walks at Fort DeSoto Park. Learn more at [www.pinellascounty.org/park](http://www.pinellascounty.org/park).

**Most Saturdays**, 9-10:30am, Guided hikes at Brooker Creek Preserve and Weedon Island Preserve, pre-registration required.

**Saturdays**, 10am-5pm, Kids Ahoy! at the SS American Victory Ship anchored near downtown Tampa.

Overview for high school students at Weedon Island Preserve.

**May 11**, 10:30-noon, Orchids and Epiphytes of Brooker Creek Preserve.

**May 11**, 1-4pm, Going Coastal – Introduction to Fishing for Youth at Weedon Island Preserve.

**May 11**, 10am-4pm, Relive History cruise aboard the SS American Victory, one of only four operational World War II merchant marine ships in the country.

**May 12**, 6pm, Annual Mother's Day Coffeepot Bayou Bird Island Boat Trip with St. Petersburg Audubon, registration required.

**May 16, 17, & 18**, 9am-noon, Tampa Bay Watch oyster shell project to restore Green Key.

**May 18**, 9am-3:30pm, Celebrate Forest Day: University of Florida's School of Forest and Resource Conservation at Brooker Creek Preserve.

**May 18**, 9-11:30am, Micro-irrigation workshop at Manatee County Extension, pre-registration required.

**May 19**, noon-4pm, Viva Florida 500 Celebration, Heritage Village.

**First Saturday**, 9:30-10:30am, Friends of Brooker Creek Preserve host the Brooker Book Club.

**Apr. 1-Oct. 1**, St. Petersburg Sail and Power Squadron seminars, pre-registration required.

**First Saturdays**, 8-11am, Boyd Hill Nature Preserve monthly bird walks with St. Petersburg Audubon or Moccasin Lake Nature Park with Clearwater Audubon.

**Second Saturdays**, Apr., May, Sept., Oct., 9am, Lettuce Lake Park for beginning birders with Tampa Audubon.

**May-Sept.**, Volunteers needed for bird surveys, bird stewarding and rooftop chick checking, St. Petersburg and Clearwater Audubon societies.

**June 15-Aug. 24**, 10am-noon, Booker Creek Preserve Environmental Education Center, six-part program on plant identification.

**May 22**, 3- 5pm, Tampa Bay Estuary Program Community Advisory Committee meeting, Tampa Bay Regional Planning Council.

**May 24**, 5-8pm: Potluck on the Porch at Tampa Bay Watch.

## june

**June 7 & 8**, Annual Ed Alber Tarpon Rodeo, an all-release fishing tournament to benefit Tampa Bay Watch.

**June 13**, 9am-noon, Agency on Bay Management, Tampa Bay Regional Planning Council.

## july

**July 11**, 9am-noon, Agency on Bay Management, Tampa Bay Regional Planning Council.

**July 29- Aug. 2**, 9am-4pm, Herpetology Camp at Brooker Creek Preserve.

## august

**Aug. 24**, Great Bay Scallop Search sponsored by Tampa Bay Watch.

## CONTACTS

Agency on Bay Management, Tampa Bay Regional Planning Council, Pinellas Park, 727-570-5151, ext. 32 or [www.tbrpc.org](http://www.tbrpc.org)

Boyd Hill Nature Preserve, St. Petersburg, 727- 893-7326 or [www.stpete.org/boyd](http://www.stpete.org/boyd)

Brooker Creek Preserve / Environmental Education Center, Tarpon Springs, 727-582-2100 or [www.pinellascountyextension.org](http://www.pinellascountyextension.org)

Camp Bayou, Ruskin, 813-641-8545 or [www.campbayou.org](http://www.campbayou.org)

Clearwater Audubon Society, 727-518-6241 or [www.clearwateraudubon.org](http://www.clearwateraudubon.org)

Florida Botanical Gardens, Largo, 727-582-2100 or [flbg.org](http://flbg.org)

Heritage Village, Largo 727-582-2233 or [www.pinellascounty.org/heritage](http://www.pinellascounty.org/heritage)

Hillsborough County Extension, 813-744-5519, [www.hillsborough.ifas.ufl.edu](http://www.hillsborough.ifas.ufl.edu)

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

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

Pinellas County Extension, 727-582-2100 or [www.pinellas.ifas.ufl.edu](http://www.pinellas.ifas.ufl.edu)

St. Petersburg Audubon Society, 727-526-3725 or [www.stpeteaudubon.org](http://www.stpeteaudubon.org) or

St. Petersburg Sail and Power Squadron, 727-550-1811 or [www.boating-stpete.org](http://www.boating-stpete.org).

Tampa Audubon Society, [www.tampaaudubon.org](http://www.tampaaudubon.org)

Tampa Bay Estuary Program, St. Petersburg, 727-893-2765 or [www.tbep.org](http://www.tbep.org). For Give a Day for the Bay information, email [colleen@tbep.org](mailto:colleen@tbep.org)

Tampa Bay Watch, Tierra Verde, [www.tampabaywatch.org](http://www.tampabaywatch.org) or 727-867-8166

Walter Fuller Park, 727-893-7441 or [www.stpeteparksrec.org](http://www.stpeteparksrec.org)

Weedon Island Preserve Cultural and Natural History Center, St. Petersburg, 727-453-6500 or [www.pinellascountyextension.org](http://www.pinellascountyextension.org)

University of South Florida Botanical Gardens, 813-974-2329, [www.gardens.usf.edu](http://www.gardens.usf.edu)

Walter Fuller Park, 727-893-7441 or [www.stpeteparksrec.org](http://www.stpeteparksrec.org)

# Commentary & Opinion

## Love Hurts! Some Nature Photographers Get too Close

By Ann Paul and Mark Rachal,  
Audubon Florida

The Tampa Bay region supports some of the largest and most important waterbird nesting colonies in the state. We have bustling tree islands full of brown pelicans and impossibly pink roseate spoonbills, plus herons, egrets, white ibis, and wood storks raising their young. In other places, birds make small hollows in the sand and nest directly on the beaches.

Unfortunately, nesting birds are very vulnerable to disturbance when people approach them too closely. As parent birds flee from approaching observers, eggs and chicks are left exposed to the sun, vulnerable to predators like crows, and prone to falling from their nests to their deaths.

For more than 75 years, Audubon wardens in Tampa Bay have been the keepers of these special places. At first, we protected them from the plume trade and harvest for food that almost drove these birds to extinction. But today, these nesting birds face a new and unexpected threat: catastrophic disturbance by nature photographers. And worse, a few unscrupulous tour leaders in Tampa Bay are giving nature photography a bad name, and threatening the future of our area's vibrant waterbird colonies.

### The Problem

You might think "how much damage can one photographer do?" The impacts are cumulative and substantial. Some nature photographers lead customers on photo "safaris," including vulnerable nesting colonies among their destinations. With clients in tow, some paying \$450 per day to be escorted to prime sites, these tour operators are be-



Photo courtesy Florida Audubon Society.

Nature photographers approaching the Richard T. Paul Alafia Bank Sanctuary too closely, despite warnings by Audubon wardens.

coming serial disturbers.

Pressured to deliver the best shots for their customers, many tour leaders approach the islands too closely. Then they allow clients to wade in even closer with their equipment, past signs and in spite of being told by Audubon wardens that their actions endanger birds. These unscrupulous leaders are harming the wildlife that they depend upon for their living, including some of Florida's rarest species -- reddish egrets, roseate spoonbills and American oystercatchers.

### The Damage

American oystercatchers, among Florida's rarest bird species, are a perfect example of the problem. They walk away from their nests if people approach by boat or on foot, trusting the excellent camouflage of their eggs, laid in shallow hollows on the sand just above the high tide line, for protection. However, if the day is hot, the sand can cook the delicate embryos inside the eggs in minutes. Even if the weather is nice, sharp-eyed aerial predators like fish crows will steal the eggs in the time it takes the human intruders to leave so the adult can return to protect the nest. Sad to say, we have documented photographers trespassing on posted sanctuary shorelines, and watched as crows stole eggs from oystercatcher nests while the helpless parents hovered nearby.

Less visible but just as harmful for birds are intrusions that occur when

rare wading birds are courting. Surveys at the Alafia Bank Bird Sanctuary are finding fewer nesting reddish egrets and roseate spoonbills each year. We fear this troubling decline is due in part to relentless disturbance by nature photographers coming to the sanctuary at dawn and dusk which is when courtship occurs.

When birds are trying to attract mates, their plumage displays are at their most spectacular. Exploiting this opportunity, photographers wade to sandbars where birds gather to select mates, disrupting the sensitive process. Then, a few weeks later when the photogenic young egrets and spoonbills fledge but are still being fed by their parents, photographers are there again, creating "no-bird" zones where the birds could forage if intruders were not present.

Photographers, having been taught to approach too closely by their photography "safari" leaders, return on their own or go to other colony sites. Fishermen, kayakers, and other boaters, having observed the example of photographers in so close, use those distances as "guidelines," creating a continuous cycle of disturbance.

### How You Can Help?

Give the birds room and set a good example.

Of course, most nature photographers are not unethical. The North

American Nature Photography Association has endorsed Ethical Photography Practices; and effective guidelines are being promoted by the Florida Shorebird Alliance and even our local Audubon chapters.

These days, with the innovations in digital cameras and lenses, many people can enjoy nature photography and share their experiences. But because this activity has become so popular, it's critical that the places that we value and the wildlife we love are protected for the future. Intrusion and disturbance of birds at nest, roost, and forage sites when they are most vulnerable is inexcusable.

We ask everyone – boaters, nature photographers, bird-watchers, hikers, kayakers, beach-goers – while you are near bird nesting colonies, the beaches and shores where birds congregate, and the habitats where they forage, to be aware of potential impacts, to avoid disturbance, and to set a good example for others.

As our area's human population increases, protection of our natural resources – both the wildlife and the habitats that support it – becomes more challenging. It will take all of us working together to ensure that the special and spectacular bird populations, fish, dolphins, manatees, turtles, and all the other wildlife denizens of our community survive in the future. It is both our responsibility and our sacred trust.

### Learn more:

Visit [www.nanpa.org/docs/NANPA-Ethical-Practices.pdf](http://www.nanpa.org/docs/NANPA-Ethical-Practices.pdf) for the National Association of Nature Photographers' ethical practices guidelines

[www.flsshorebirdalliance.org/WordPress-FSA/wp-content/uploads/2013/01/SN-PLWG-Photographer-Guidelines020122.pdf](http://www.flsshorebirdalliance.org/WordPress-FSA/wp-content/uploads/2013/01/SN-PLWG-Photographer-Guidelines020122.pdf) for the Florida Shorebird Alliance photographer guides

[www.baysoundings.com/lovehurts](http://www.baysoundings.com/lovehurts) for comments from local nature photographers on how to ethically capture images while respecting wildlife – and photos of some who blatantly ignore sanctuary boundaries.

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- 2 Meet Jim Iglar: Super Volunteer**
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# REBUILDING TAMPA BAY FROM THE BOTTOM UP



By Sonia C. Lavina

I wasn't sure what I was getting into when I signed up to help Tampa Bay Watch and a team of about 40 employees from the Mosaic Company install an oyster shell bar along the shoreline of the Schultz Nature Preserve on Hillsborough Bay near Gibsonton.

I had heard about the importance of oysters for maintaining water quality -- just one oyster can filter 50 gallons of water a day, or 1,500 times its body volume. As filter feeders, oysters remove excess nutrients, bacteria and organic matter, improving overall water quality. Oyster reefs also serve as feeding grounds for wading birds and game fish such as snapper, grouper and snook. (Although Tampa Bay oysters have been off-limits for decades because of high bacteria levels, they're economically important as a commercial food source in other locations.)

The day I participated was Day Two of a three-day project. On December 6, TBW had 35 volunteers including students from King High School at the same location. Then on Saturday, Eagle



Scout Cody Czhran had recruited 60 volunteers for the project.

Schultz Nature Preserve is located in what old-timers called "The Kitchen" because they knew they could count on catching dinner there. Then, in the mid-1960s, it became part of a large dredge-and-fill project that created uplands for port development. About half of the man-made peninsula jutting into the bay was purchased by Hillsborough County's Environmental Land Acquisition and Protection Program and the Southwest Florida Water Management District to restore fish and wildlife habi-

tat (See Bay Soundings, Winter 2005).

While the Schultz Preserve is one of the region's most successful restorations, erosion is still a concern. Along with filtering water and providing habitat, oyster reefs help to reduce erosion by minimizing wave action. Once this

project is complete, eight new oyster shell bars spanning 1850 linear feet will help protect the shoreline.

It's an immense undertaking. Our three-day project required 30 tons of oyster shell to create about 300 linear feet of new oyster reef. Volunteers

Tampa Bay Watch President Peter Clark with Christine Smith, Community Relations Manager for Mosaic.

Mosaic recently donated \$225,000 to Tampa Bay Watch to help fund bay restoration efforts.

Photo courtesy of Sonia Lavina.

**Rebuilding Tampa Bay**  
*Continued on page 13*

