YOUR OFFICIAL CITY NEWSLETTER APRIL 2016

~ ~ ~ Special Edition ~ ~ ~

Compiled and Edited by Councilwoman Lorraine Gott

A Healthy Lagoon – It's Up to Us!

This year's devastating fish kill in the Indian River Lagoon has caught everyone's attention, and many are now asking what can be done to help. The good news is that numerous entities—State, regional, County, and municipal governments; universities; non-profit organizations; community groups; and individuals—have already begun meaningful efforts. Some of these are described in this *Beachcaster*.

What's the problem?

Florida Today has reported extensively on the lagoon's critical condition. **Nitrogen and phosphorus** (primarily from **septic tanks** and **fertilizers** in stormwater runoff) cause high concentrations of **algae** which make the water appear brown. A decades-long accumulation of **muck** (rotted organic matter, clays, and soils referred to as "black mayonnaise") on the bottom of the lagoon (the "legacy load") releases **nutrients** (nitrogen and phosphorus) that feed the algae. Dead algae feed **bacteria** that consume the oxygen in the water, suffocating the fish. **Rotting fish** then release additional nutrients into the water, reinforcing the **algae bloom**. Stirred-up muck and brown algae blooms also **kill seagrass** by blocking sunlight, reducing important food sources for marine organisms and animals such as manatees. A mucus produced by brown algae clogs up and **kills shellfish**. Building on the cumulative effect of other destructive algae blooms this decade, last month's fish kill (described by *Florida Today* as the worst one known in the lagoon's history) resulted in **65,000 pounds of dead fish** from **more than 30 species**, according to Brevard County.

What's our City doing?

In the 1990s, our City began to focus on reducing pollutants and harmful discharges into the lagoon from our stormwater drainage system. Projects needed to upgrade the system (costing almost **$20 million dollars**) were identified in our **Stormwater Master Plan** and its update. To help provide funding, a **stormwater utility fee** was implemented in 1997, and grant funds were obtained beginning in 1998 to cover half of the $11 million cost of the projects that were undertaken, such as **inlet filter baskets, baffle boxes, stormwater retention ponds, and exfiltration projects.** Our City also helped lead an effort to insure that State and federal mandates for stormwater improvement projects were based on **sound science.** Current City efforts include **fertilizer regulations** to decrease nutrients in our stormwater runoff, routine **street-sweeping**, and preparations for **dredging muck** from our finger canals.

What can we, as individuals, do?

- Follow the numerous suggestions found throughout this *Beachcaster*.
- Ask federal and State elected officials to **support legislation and adequate funding** (including **Amendment 1** funding requirements) for lagoon restoration and long-term protection.

To learn more about the lagoon, visit www.sjrwmd.com/indianriverlagoon**.**

Brevard County Partnerships Working for the Lagoon

By Virginia Barker, Director, Brevard County Natural Resources Department

Restoring the Indian River Lagoon to a healthy state requires a **multi-faceted approach** and collaborative effort among many agencies and community interests. Long-term solutions are needed to reverse decades of damaging pollution. Along with municipalities, other lagoon counties, state and federal agencies, universities, non-profits, and community-interest groups, Brevard County has embarked on an aggressive lagoon restoration strategy to **REDUCE** excess nutrient inputs, **REMOVE** the legacy load of muck, **RESTORE** the natural filtration systems, and ensure that sound **RESEARCH** guides all efforts.

Reduce Nutrient Inputs. Brevard County formed a **consortium with all local municipalities, the Florida Department of Transportation, and Patrick Air Force Base** to analyze the response of lagoon seagrass to stormwater pollution. This study has identified the amount of pollution control needed to reduce nutrient inputs to sustainable levels and helped to identify the most timely and cost-effective options for reducing and removing excess lagoon pollution.

Remove Legacy Load of Muck. Environmental dredging was identified as critical to the overall lagoon restoration strategy. Dredging will remove **decades of past pollution currently stored in muck deposits** and frequently re-suspended by winds and waves. Muck removal will improve water clarity, water quality, and dissolved oxygen; reduce algae blooms; facilitate seagrass recovery; and support healthier marine life and rebounding fisheries. Brevard County moved swiftly to secure State funding to contract for engineering design and permitting for five high-priority muck-removal areas and to contract with an **FIT team** to **research** the lagoon's ecological responses to muck removal. **Dredging** in **Turkey Creek** and **Cocoa Beach** is underway, and permitting is nearly complete for dredging at the **Mims Boat Ramp, Sykes Creek,** and the **Grand Canal in Satellite Beach**. More sites will be addressed with future funding.

Restore Natural Filtration Systems. Living shorelines integrate oyster reefs, saltmarsh grasses, and mangroves into a **shoreline stabilization system** that restores natural pollution filters while providing habitat for economically-important fish and food webs. Current projects include:

- **Oyster-Reef Living Shorelines**. In partnership with **Brevard Zoo** and guided by **UCF research, Brevard County** will construct 2,360 linear feet of oyster-reef living shorelines during FY 15-16 and FY 16-17. The pilot sites will include native saltmarsh vegetation and living oyster reefs as wave breaks.
- **Oyster Gardening.** This engages the community, especially **waterfront property owners,** in citizen science. Participants raise juvenile oysters at their docks to populate the oyster-reef living-shoreline sites. Oyster gardening workshops discuss challenges facing the lagoon and provide training on raising oysters, collecting scientific data, and building living shorelines.

BLUE LIFE. In partnership with **9 municipalities, Brevard Zoo, and Good Environmental Solutions, Brevard County** initiated BLUE LIFE, which promotes personal-stewardship actions to protect and restore water quality. BLUE LIFE educates students and residents on **simple steps to prevent stormwater pollution from lawn care, vehicle maintenance, and pet care.**

Satellite Beach Recreation and Living Shorelines

Since February 2014, **Satellite Beach** has partnered with **Brevard Zoo** to offer monthly **oyster mat-making workshops** as part of the Zoo's **oyster-reef restoration project.** As a result of the enthusiastic participation of residents of all ages at our Community Center and elsewhere, the Zoo's last three restoration sites in Mosquito Lagoon will be completed this summer, bringing the total to 76 restored oyster reefs offering a potential home to an estimated 10,453,976 new living oysters! That would be 522,698,800 gallons of water being filtered every day! **Satellite Beach** is pleased to partner on the **"living shorelines"** project with **Brevard Zoo** and **Brevard County.**

Young residents join participants of all ages to make oyster mats at the DRS Community Center.

Girl Scout Cadettes of Troop 156 and Living Docks

In 2013, **Girl Scout Cadettes of Troop 156** partnered with **FIT scientists** from the **Indian River Lagoon Research Institute** to attach oyster mats and bags to the pilings of a private dock in the lagoon to create a **"living dock."** Such docks require little to no maintenance and attract oysters and other filter feeding animals which grow and help clean the water over time. Their project recorded significant settlement and growth of new oysters and other filter feeders. The Girl Scouts presented their findings to the Satellite Beach City Council and were approved to create **living docks on Samsons Island,** which they and their team of scientists completed on March 12, 2016. Grateful for an opportunity to help the lagoon and enjoy "a fun way to give back to Satellite Beach," these Girl Scouts hope to inspire others to take action to support lagoon restoration .

Girl Scouts prepare oyster mats (left) and team with FIT scientists to attach them to Samsons Island living dock (right).

Partnering for Muck Removal in Our Canals

The **Cities of Satellite Beach and Indian Harbour Beach** are hopeful that, when Brevard County begins dredging our portions of the Grand Canal, sufficient funding will be available to also **dredge the finger canals in both Cities**. To facilitate this possibility, Satellite Beach and Indian Harbour Beach are assisting **Brevard County** by undertaking the preliminary steps (**surveying, engineering, and permitting**) needed before dredging can begin, putting us ahead of other jurisdictions which wait for the County to do the preliminary work for their area.

Accordingly, both Cities have just approved contracts for the **initial step (surveying all the finger canals)** and have agreed to share the cost of the **subsequent steps (engineering and permitting)**. The surveying will assess the location and volume of muck in each canal and determine the engineering and permitting needed to design the muck-removal project, including the identification of disposal sites. Our City's cost for surveying all finger canals in Satellite Beach is $27,000, and this survey work is expected to take approximately three months. Both Cities believe that having the engineering and permitting work completed when funds become available will expedite the County's dredging project.

For more information on County dredging projects, visit www.brevardcounty.us/NaturalResources/DredgingProjects.

Our Sustainability Board Welcomes Your Input

4th Wednesday of every month, 7:00 p.m., at City Hall

In response to a resident's suggestion at a town hall meeting in the City last year, our City Council created the Ad Hoc Green Committee to identify environmentally-friendly initiatives the City could undertake. Residents have been so interested in this committee that Council has made it a permanent **Sustainability Board**, consisting of Chair Jeff Chestine (pictured), Vice-Chair John Fergus, Mindy Gibson, Eugene Mathews, Josh Pause, David Vigliotti, and liaison Dylan Hansen.

The Sustainability Board is working on a variety of projects, including:

- A **"Smart Yards" project** to train interested landscaping contractors for certification on sustainable lawn-care practices.
- Initiatives promoting **LED lighting, solar energy, and reusable bags**.
- **Partnering with FIT** to create a **comprehensive sustainability plan** to help City departments and residents be better stewards of our environment.

Want to learn how to use YOUR yard to help the Lagoon?

Sally Scalera, homeowner horticulture expert,
UF's Institute of Food and Agricultural Sciences (IFAS) Brevard County Extension,
will show us how our soils and native landscaping are important to lagoon restoration.

TWO WORKSHOPS

Tuesday, April 26, 2016 at 6:30 pm

Saturday, May 7, 2016 at 10:00 am

Satellite Beach Civic Center, 565 Cassia Boulevard

Anglers for Conservation Love Our Lagoon

By Capt. Rodney Smith, President

For over 10 years, the non-profit Anglers for Conservation (AFC) has worked with the Satellite Beach Recreation Department and other sponsors to conduct **"Hook Kids on Fishing"** programs and teach conservation-minded recreational fishing at the library ponds.

Here are **tips from AFC** to help anglers, boaters, and others better protect our lagoon:

- Strictly practice catch-and-release until fisheries recover; learn proper release techniques, and use a de-hooking device to minimize contact with fish.
- Avoid fishing whenever marine animals such as bottle-nose dolphin and manatees are in the area.
- Avoid feeding marine birds such as gulls, herons, and pelicans.
- Retrieve snagged gear, and properly dispose of fishing line.
- At a minimum, comply with fertilizer ordinances. **Better yet, avoid using fertilizers, pesticides, and lawn chemicals entirely.** Implement **xeriscape** practices.
- Learn about the nature, health, and economic value of the lagoon and its ecosystem. Talk to your neighbors about its importance.
- Secure trash on your boat.
- Pick up your pet's waste.
- Avoid dumping your boat's gray water.
- Don't wash boats and cars in driveways, where soap and dirt can run into the street, stormwater drains, and lagoon. Use environmentally-friendly washing products.
- Most importantly, set a strong example by demonstrating great respect for our waterways.
- Learn more about how you can love our lagoon at Anglersforconservation.org.

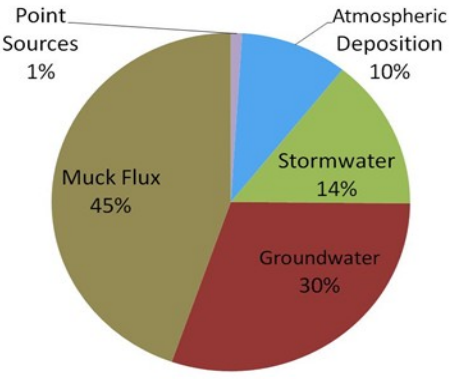
Lagoon Pollution Sources

Point Sources—wastewater and industrial discharges.

Atmospheric Deposition—vehicle, power plant, and other industrial emissions settle into the lagoon.

Stormwater—rainwater picks up pollution (fertilizer, trash, debris, and vehicle pollutants from the roads) as it flows over the land and into water bodies.

Groundwater—excess fertilizer, failing septic tanks, and leaking sewer pipes enter the groundwater.



Muck Flux—a combination of dirt carried by stormwater and organics (grass clippings, leaves, and dying algae blooms) sitting at the bottom of the lagoon.

Sources: Dr. Claudia Listopad, Dr. Harvey Harper, Dr.John Trefry, and Dr. Steve Peene

Irrigating and Fertilizing . . . or Not!

Most of the water applied to our lawns ends up in the brackish Indian River Lagoon, either by seepage into the groundwater or runoff into the stormwater drainage system. This fresh water is laden with nitrogen and phosphorus from fertilized lawns. This year, the St. Johns River Water Management District began a **pilot project** in Indian River County **to address runoff** by approving two **"water farms"**—a type of retention pond where stormwater is diverted and treated prior to entering the lagoon, thereby trapping some of the nitrogen and phosphorus causing harm. Engineers estimate that these farms will eventually treat 23 million gallons of water daily, capturing nearly 60,000 pounds of nitrogen and 9,000 pounds of phosphorus each year.

We can turn our own yards into mini-water farms by **adjusting sprinkler heads** to water only our lawns and not the sidewalks, curbs, or streets. This simple step, along with **not over-watering**, controls runoff and helps to keep the nutrients in the lawn and out of the lagoon. Although a small individual correction for an enormous problem, consider this: the 1.5 million residents living in the four counties containing the 156-mile-long Indian River Lagoon can collectively make a big difference.

The following table shows the **District's day-and-time watering restrictions**, which also apply to Satellite Beach. For additional information, email **waterrestrictions@sjrwmd.com** or call **(800) 232-0904**.

Time of Year	Residential No or Odd-Numbered Addresses	Residential Even-Numbered Addresses	Non-Residential Properties
	(ending in 1, 3, 5, 7, or 9)	*(ending in 0, 2, 4, 6, or 8)*	
Daylight Saving Time	**Wednesday & Saturday**	**Thursday & Sunday**	**Tuesday & Friday**
Eastern Standard Time	**Saturday**	**Sunday**	**Tuesday**

Water only when needed, not between 10 a.m. and 4 p.m., and no more than one hour per zone.

In November 2013, our City Council adopted **restrictions on fertilizer use** within our City to comply with a State requirement to adopt minimum fertilizer regulations. Along with other Brevard municipalities, we adopted standards more stringent than the minimum to more effectively protect the lagoon from fertilizer pollution. Highlights include:

- No fertilizing during the rainy season (June 1 to September 30) or during the warning period of a significant storm.
- No fertilizing within a 10-foot buffer zone abutting a canal or river.
- Use fertilizers containing no phosphorus and at least 50% slow-release nitrogen.
- Keep grass clippings (and other organic and road debris) out of stormwater drains and water bodies; blow clippings back into the yard from streets and sidewalks.

Alternatives to avoid or reduce the use of **fertilizer**:

- "**Florida Friendly Landscaping**" using low-maintenance plants and little fertilizer or irrigation, instead of St. Augustine grass which needs irrigation and fertilizer to promote growth and green color.
- **Native landscaping** or **xeriscaping** using no fertilizer or irrigation.
- **Native landscaping combined with grass** in some areas.
- Visit www.fyn.ifas.ufl.edu for additional ideas.

To learn more about **lawn care for a healthy lagoon**, visit www.brevard.ifas.ufl.edu for information on:

- University of Florida's hands-on course called **"My Brevard Yard"**
- How to **get your soil tested** to find out how much fertilizer you need.

Referendum Proposed To Fund Lagoon Restoration

By Brevard County Commissioner Curt Smith, District 4

The Indian River Lagoon Estuary is a unique and very valuable asset of our County, not only from an environmental perspective, but from an economic one as well. This lagoon system is the most diverse estuary in North America, providing habitat for more than 2,100 types of plants and 2,200 animal species, including 685 different types of fish and 370 bird species.

In 2007 its annual economic value was estimated at $3,725,900,000. Clearly, this is a tremendous reason for Brevard County residents to desire a healthy and thriving lagoon. The recent woes of the Indian and Banana Rivers, while stark and alarming, are a result of the poisoning of the lagoon for many decades. Untreated stormwater runoff, aging septic systems, improper fertilizer applications, and freshwater intrusion are some, but not all, of the ills that we have burdened the lagoon with, turning a once-flourishing ecosystem into a very sick estuary.

There are a number of projects and programs designed to remedy our poor stewardship; however, all of them are very expensive. Dredging muck, constructing effective stormwater systems, and replacing septic systems with sewer are examples of the most-costly projects.

Simply put, we do not have the financial resources available to do the job. The County budget cannot support the effort to any valuable degree, because County operations and the dire condition of our road maintenance program require a higher level of funding with limited revenue sources. The State of Florida has some Amendment 1 funds available for this purpose. However, with the Everglades restoration and springs protection programs, these funds will be spread out across the State, limiting how much we can hope to receive.

If it is the will of Brevard residents to save our gift from nature, then I want them to have an opportunity to do so. Commissioner Jim Barfield has proposed having a **referendum on allowing a millage rate increase specifically allocated to Indian River Lagoon restoration**. While the content of the referendum must still be decided and the proper oversight and scope of the program needs to be designed, it is important to note that, if this proposal makes it to the ballot box, then Brevard residents will determine if this issue is a high-enough priority for the whole community to act on. I encourage all residents to become educated on the issue and make an informed decision if the referendum is placed on the ballot.

Local Events Support the Lagoon

Paddle Craft Fishing Tournament, August 1-31, 2016

Villon Clothing will be hosting this catch-and-release tournament and donating the proceeds to lagoon restoration projects. Entry fee is $50, and entry forms will be available at **villonclothing.com** beginning July 1. The biggest fish caught in Brevard in each of 10 fish species gets a $300 cash prize. Go fish, and make a difference for the lagoon.

Space Coast VW Fest, Sunday, October 16, 2016

Held annually on the 3rd Sunday of October at the David R. Schechter Community Center, this event will showcase over 140 VWs and have family activities and food trucks. Proceeds from this fun event will benefit Indian River Lagoon restoration projects.

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We Are the Future of the Indian River Lagoon

By Duane De Freese, Ph.D.

Executive Director, Indian River Lagoon National Estuary Program

Extending through **Volusia, Brevard, Indian River, and Martin Counties,** the Indian River Lagoon (IRL) connects us, as communities and neighbors.

This remarkable estuary is home to more than 4,300 species of plants and animals and a resource serving almost 50 human communities. Over the last century, the lagoon has weathered countless changes which have altered its shorelines and increased the flow of freshwater, nutrients, sediments, and other pollutants. Eventually the stress becomes too much.

Since the superbloom of 2011, many scientists wonder if the lagoon has reached a tipping point because of these multiple stressors. This year's algae bloom and resulting fish kill from depleted oxygen are reminders that the lagoon is vulnerable and needs our help today and for the foreseeable future. It's time to tip it back in the right direction.

The good news is that **restoration progress is already underway**. Stakeholders and individuals representing public, private, and independent sectors have joined together to improve the health of the Indian River Lagoon. Connected, visionary, and focused leadership has started the flywheel spinning in the right direction. Each project we complete adds positive momentum. There is no quick fix; recovery will take time. Strategic and sustained efforts are needed.

Where do we go from here? We must **work together at every level** to ensure the long-term health of **our *one lagoon***.

- The reorganized **IRL National Estuary Program** will help build a restoration vision and regional coalition to implement change.
- **Individually**, we must become responsible stewards of the IRL, change our daily habits that negatively impact the lagoon, and become more informed and involved.
- **Scientists and engineers** must continue to improve and share their knowledge.
- We must invest in 21st century **technology development and infrastructure improvements** to position Florida as a global leader in clean-water solutions.
- **Every level of government** must continue to fund worthwhile **restoration projects and infrastructure improvements** to keep the lagoon healthy.

The challenges are complex, but not insurmountable. We are all part of these problems, and we must all be part of the solutions. **We must become . . .**

"One Lagoon – One Community – One Voice"