



City of Sanibel

800 Dunlop Road
Sanibel, Florida 33957-4096

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January 3, 2019

The Honorable Dane Eagle
Florida House of Representatives, District 77
1039 SE 9th Place, Suite 310
Cape Coral, FL 33990

Subject: Lee County Legislative Delegation Meeting and the City of Sanibel's
Legislative Priorities

Dear Representative Eagle:

I look forward to attending the Lee County Legislative Delegation meeting on Wednesday, January 15, 2019 at Florida Southwestern State College. Unfortunately, I have a scheduling conflict in the morning on January 15th with our monthly City Council meeting. I would like to request time on your agenda in the afternoon so that I may address the Delegation and present the City of Sanibel's 2019 legislative priorities. Included with this letter are the City's legislative priorities, which focus on regional and local water quality projects.

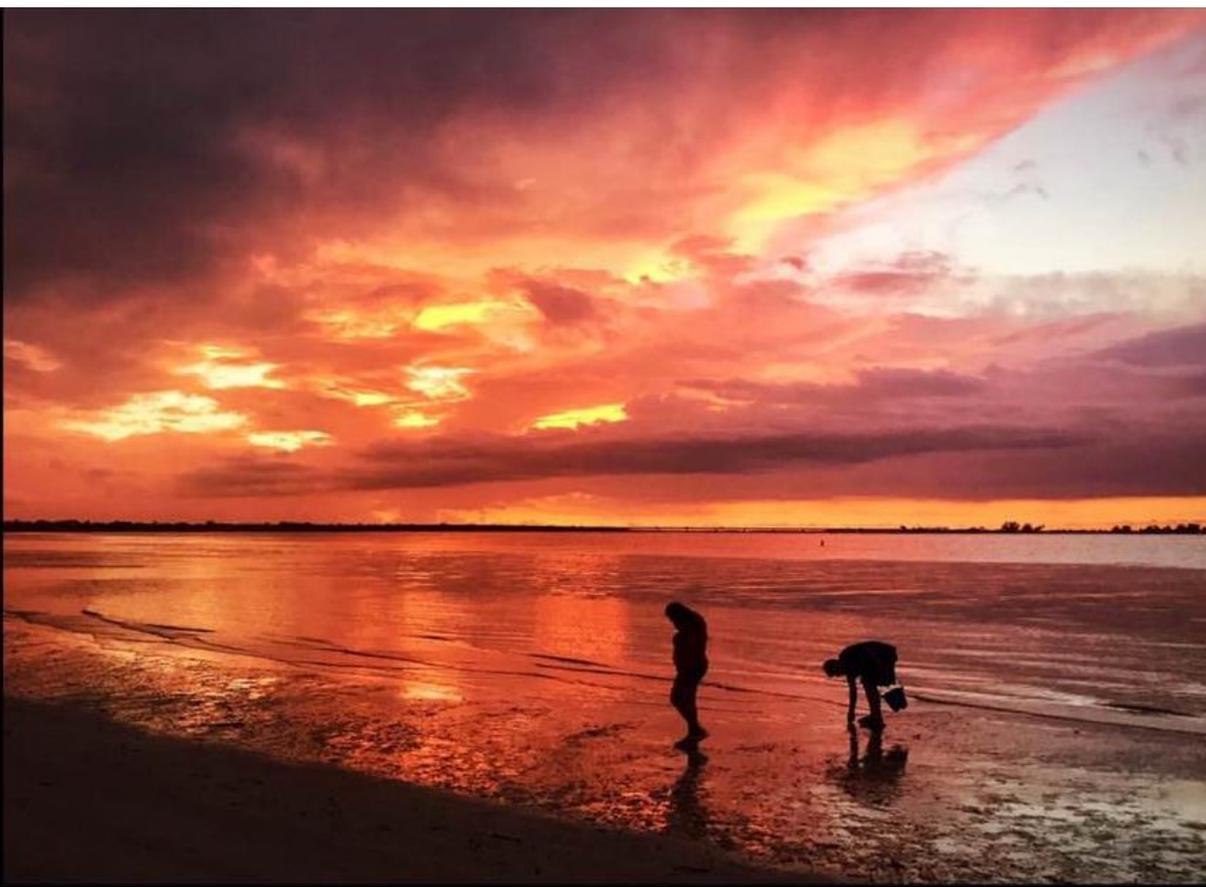
I hope that you can accommodate my request and I look forward to seeing you and the other members of our delegation on the 15th.

Sincerely yours,

Kevin Ruane, Mayor

Cc: Sanibel City Council
Judith A. Zimomra, City Manager
John Agnew, City Attorney
Paige LeBowtillier, Legislative Assistant - District 77

CITY OF SANIBEL



2019 Legislative Priorities

INTRODUCTION

This document represents Sanibel City Council's legislative priorities for the 2019 State Legislative Session. As in past years, the City's legislative priorities focus on regional and local water quality. Blue-green algae blooms, red tide, and other water quality issues that impacted our beaches, our quality of life, and local economy during the past year underscore the need for legislative action to improve water quality.

We look forward to working with our local delegation and other members of the Florida Legislature to implement policies and projects that will protect and improve our water quality.

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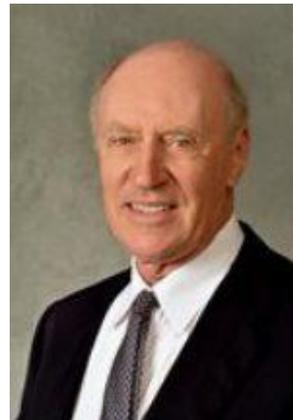
Local Water Quality Priorities

Supplemental Information for the Sanibel Donax WRF Process Improvements

SANIBEL CITY COUNCIL



Mayor Kevin Ruane



Vice Mayor Mick Denham



Councilman Chauncey Goss



Councilman Jason Maughan



Councilwoman Holly D. Smith



CITY OF SANIBEL, FLORIDA

2019 LEGISLATIVE PRIORITIES

Regional Water Quality/Quantity Priorities

- 1. Everglades Agricultural Area (EAA) Reservoir Project.** The project includes construction of a 240,000 acre-feet above-ground reservoir and a 6,500-acre Storm Water Treatment Area (STA), located on the A-2 parcel and A-2 Expansion area. These features will work in conjunction with the existing 60,000 acre-feet A-1 Flow Equalization Basin (FEB), STA-2, and STA-3/4 to meet State water quality standards. The EAA Reservoir is estimated to reduce high-flow discharge events in the Caloosahatchee Estuary lasting more than 60 days by 40% and is expected to provide a 55% reduction in high-flow discharge events lasting more than 42 days in the St. Lucie Estuary. In combination with the previously authorized projects, the reservoir would provide a 55% reduction in discharge volumes and a 63% reduction in mean monthly high-flow discharge events to the Northern Estuaries from Lake Okeechobee.

Legislative Request: Provide continued funding support to keep the project moving forward.

- 2. C-43 West Basin Reservoir Project.** The C-43 Reservoir is designed to store up to 170,000 acre-feet of water within the Caloosahatchee watershed. The reservoir is expected to supply enough water to meet the existing Minimum Flow and Level for the Caloosahatchee River 80% of the time. The estimated cost of the project is \$500 million. Increased costs associated with post-Hurricane Katrina dam safety standards and other construction market related factors may require additional funding to keep the project on track with the Integrated Delivery Schedule (IDS).

As currently designed, the reservoir does not include a water quality treatment component to remove nutrients prior to discharge to the River. The Caloosahatchee is currently "impaired" for nitrogen and it is imperative that a water quality treatment component be incorporated into the project. The City of Sanibel is asking the Legislature to fund the South Florida Water Management District to conduct a feasibility study to evaluate a location and design of a stormwater treatment area on land within or adjacent to the project site. This will minimize the amount of nutrients in the water being discharged to the Caloosahatchee.

Legislative Request: 1) **Dedicate sufficient funding to keep construction of the reservoir on track with the Integrated Delivery Schedule (IDS)** (funding needed is estimated at \$150 million/year until completion). 2) **Funding for a feasibility study to construct a Stormwater Treatment Area (STA)** to operate in conjunction with the reservoir (Estimated at \$1 million).

3. **C-43 Water Quality Testing Facility (“BOMA”).** The South Florida Water Management District, in partnership with Lee County, conducted a Water Quality Treatment and Testing Facility Project to evaluate cost-effective, wetland-based strategies for reducing nutrient loadings, particularly nitrogen, to the Caloosahatchee River and its downstream estuarine ecosystems. Excessive nitrogen in the Caloosahatchee has contributed to algal blooms and other ecological impacts to the estuary and coastal waters of Lee County. The project goals are to design, build and operate a test facility that will demonstrate effective removal or reduction in total nitrogen loads to the Caloosahatchee River Estuary. Sampling and design were completed in 2015. Phase I mesocosm construction was completed in 2018. Funding is needed for the next phase of the project to construct stormwater treatment areas on approximately 1,500 acres of land. Construction could be done in phases as funding becomes available.

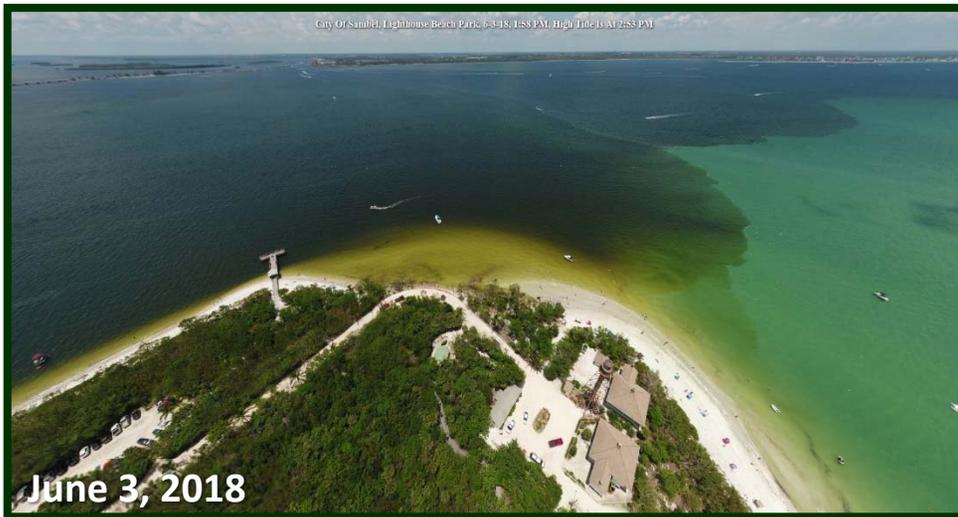
Legislative Request: Funding to begin construction of a stormwater treatment area on property purchased jointly by Lee County and the South Florida Water Management District.

4. **Harmful Algal Blooms.** 2018 proved to be a very challenging year for the coastal communities of Lee County. High-volume freshwater releases from Lake Okeechobee combined with runoff from the Caloosahatchee watershed resulted in extensive blue-green algae blooms that impacted the entire length of the river. The blooms resulted in beach closures and prompted the Florida Department of Health to post warnings to avoid contact with the algae. Shortly after the blue-green algae blooms began, an extensive red tide bloom started impacting our coastal communities. On Sanibel alone, the City removed more than 850,000 pounds of dead sea life from our beaches at a cost of more than \$1.6 million. The poor water quality contributing to these ongoing harmful algal blooms (HAB) must be addressed by the Legislature and local communities. Additional funding is needed to support HAB research, including water and air quality testing to evaluate the human health impacts of water and airborne toxins produced by algae, and prediction, notification, and mitigation strategies.

Legislative Request: Support state funding for research, water and air quality monitoring, prediction, notification and mitigation efforts pertaining to red tide and blue-green algae.



May 11, 2018



June 3, 2018

Impacts of High-volume Freshwater Releases from the Caloosahatchee River on Sanibel Island

Lake O releasing brown water into gulf
 Jun 6, 2018, 9:09 AM

 **firstmom**
 Level 3 Contributor
 41 posts
 4 reviews

Hi. I am bringing my kids for the first time ever to Sanibel next Monday for a few days. We were so excited but now I am worried because of the pictures of brown water and now possibly algae coming into the gulf. I have never heard of this before. Will the water still be brown next week? Is it less affected depending on where we stay on the island? And most importantly, is it safe to be in? My son has asthma, allergies, and skin issues and I keep reading about the algae content possibly impairing his breathing??? I'm very saddened by all of this. If anyone has any insight on this, I would appreciate it. Thanks

[Report inappropriate content](#)

[Reply](#)

3: Re: Sanibel water quality
 Jun 5, 2018, 8:56 AM

 **SDT**
 Key West
 Destination Expert for Key West
 Level 4 Contributor
 12,486 posts
 166 reviews

The link at the bottom is a recent news article about the water releases and their impact on water quality around Sanibel, including drone footage of the brown water. It takes a minute for the news story to load.

Personally, I certainly would not swim in brown water that looks like the Mississippi River even if I was told it is safe. It's tragic that a State that relies on tourism and beautiful beaches has allowed this to continue for so long. Hopefully we will have a dryer spring that will help mitigate these releases.

nbc-2.com/story/38344712/lake-o-release-rate...
 Edited: 8:57 am, June 05, 2018

[Report inappropriate content](#)

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**Regional Impacts of Excess
Nutrients from Freshwater Releases
from Lake Okeechobee and
Stormwater Runoff from the
Caloosahatchee Watershed**



Nutrient impacts related to Lake Okeechobee and Caloosahatchee watershed discharges. Photos of extensive blue-green algae bloom in the Caloosahatchee taken in July 2018.

2018 Impacts of Red Tide Blooms on Sanibel Island



Extensive fish kills and impacts to marine life resulting from extensive red tide blooms. Photos of blue-green algae and fish kill in bayside canal and deceased whale shark and goliath grouper on Sanibel's beaches.



CITY OF SANIBEL, FLORIDA

2019 LEGISLATIVE PRIORITIES

Local Water Quality Priorities

The City of Sanibel has implemented numerous measures to improve water quality since incorporating in 1974. They include the acquisition of environmentally sensitive lands, native plant and mangrove protection, sod limitations, beach and dune protection, conversion from septic to central sewer, responsible development through reduction of impervious surfaces and onsite stormwater management, extensive water quality monitoring, adoption of a fertilizer ordinance and contractor education program, fertilizer and lake management Best Management Practices for golf courses, adoption of a Comprehensive Nutrient Management Plan, and implementation of the Sanibel Communities for Clean Water program www.SanibelCleanWater.org. The total investment by the City of Sanibel represents more than \$120 million. While the City has taken a very proactive role in improving water quality, the Sanibel Slough and many of the island's residential and golf course lakes remain "impaired" for nutrients such as nitrogen and phosphorus.

The Sanibel Comprehensive Nutrient Management Plan completed in 2017 identified several nutrient load reduction priorities for Sanibel. One of the primary sources of nitrogen and phosphorus in surface and groundwater on the island originates from the City's reuse water system (Thompson et al. 2017). In an effort to significantly reduce nutrient concentrations in reuse water, the City is moving forward with a project to upgrade the Donax Wastewater Reclamation Facility (WRF) to advanced wastewater treatment. Upgrades to the plant would reduce nutrient concentrations in reuse water provided to golf courses, multi-family, and residential properties by more than 50%. The City is also planning for construction of Phase 4 Sewer, which includes the remaining areas of the island not currently connected to central sewer.

- 1. City of Sanibel Donax WRF Process Improvements.** The project will convert the plant process from a modified Ludzack Ettinger (MLE) to a 5-stage Bardenpho coupled with the membrane biological Reactor (MBR). The upgrades are estimated to remove between 50 and 70 percent of the total phosphorus and nitrogen in the reuse water used for irrigation.

The City of Sanibel's Donax WRF has a permitted design capacity of 2.375 million gallons per day (MGD) on a maximum monthly average daily flow (MMADF) basis. The facility is the City's main wastewater treatment plant and produces effluent that meets its regulatory requirement of Florida Department of Environmental

Protection (FDEP) criteria for public access reuse; it does not have surface water discharge. The current permitted criteria levels are 12.0 mg/L Nitrogen, 5.0 mg/L TSS, 30 mg/L BOD, and no limit on Phosphorus. The facility consists of three biological treatment process units. Treatment Process Unit 1 was constructed in 1995, while Treatment Process Units 2 and 3 were constructed in 2003 with the expansion of centralized sewer on the island. Treatment Process Unit 1 is a conventional activated sludge plant and Treatment Process Units 2 and 3 are Modified Ludzack-Ettinger (MLE) systems. The treatment capacity of the plant will remain sufficient for the island and the process improvements are anticipated to reduce Total Nitrogen and Total Phosphorus to <3.0 mg/L and <1.0 mg/L respectively, which meet advanced waste treatment standards.

The City of Sanibel received Legislative funding in 2016, administered by the Department of Environmental Protection, Division of Water Restoration Assistance (Item 1600A of the FY16-17 General Appropriations Act) and subsequently entered into DEP Agreement No. LP36030, for a grant with a cost reimbursement basis up to a maximum of \$825,000. The City completed design and engineering for the project in April 2018. Supplemental information about this project is included at the end of this document.

Legislative Request: The City is requesting \$2 million in additional state funding for phase 2 construction. (Local match for FY19 Phase I construction is \$6,292,400; local match for FY20 for Phase II construction is 4,948,400 (included in 5-yr CIP)). The original construction cost estimate was \$11.9 million. The City put out a Request for Proposals in March 2018 and received a total of three qualified bids. The lowest bid came in at \$20.1 million. The City is committed to completing this important project and is currently exploring all funding options. Sanibel has received \$2.8 million in past legislative funding assistance for design (\$825k FY16-17) and construction (\$2 million FY18-19).

- 2. Sanibel Sewer Phase IV Expansion Project – Sections B, C, D, and F (remaining sections).** As an environmentally sensitive barrier island, Sanibel has made it a top priority to expand centralized sewer and eliminate septic tanks. In 1998, the City adopted the island-wide Wastewater Master Plan. The primary goal of this plan is to further Sanibel's philosophy of environment protection and preservation through the ultimate elimination of on-site systems with the provision of city-wide central sewer service and advanced wastewater treatment and disposal. Thus far, efforts to expand centralized sewer throughout the island have resulted in 99% of all properties being connected to sewer.

To date the citizens of Sanibel have invested over **\$66 million** into improvements to, and expansion of, the City's centralized sanitary sewer system. The City has

budgeted \$150,000 for design in FY19 and is projecting a 50% project cost share for FY20 in the 5-year capital Improvement Project Fund.

Legislative Request: The City is requesting \$500k in legislative funding. This represents a 50% cost share (total project cost \$1 million). Matching funds for the project are included in the City's 5-year Capital Improvement Project Fund.

Local Impacts of Excessive Nutrients in Stormwater Runoff on Sanibel's Water Quality



Photos showing a blue-green algae bloom and fish kill in Sanibel's community lakes, 2017. Data collected by the City of Sanibel and the Sanibel Captiva Conservation Foundation as part of the Sanibel Comprehensive Nutrient Management Plan identified municipal reuse water as a major source of nitrogen and phosphorus loading to Sanibel's surface and groundwater (Thompson and Milbrandt, 2016).

City of Sanibel Donax WRF Process Improvements

The City of Sanibel's Donax Water Reclamation Facility (WRF) has a permitted design capacity of 2.375 million gallons per day (MGD), based on a maximum 3-month average daily flow. The Facility is the City's main wastewater treatment plant and produces effluent that meets its regulatory requirement established by Florida Department of Environmental Protection (FDEP) criteria for public access reuse; it does not have surface water discharge. The current permitted criteria levels are 12.0 mg/L nitrogen, 5.0 mg/L TSS, 30 mg/L BOD, and no limit on phosphorus. The Donax WRF consists of three biological treatment process units. Treatment Process Unit 1 was constructed in 1995 while Treatment Process Units 2 and 3 were constructed in 2003 with the expansion of centralized sewer on the island. Treatment Process Unit 1 is a conventional activated sludge plant and Treatment Process Units 2 and 3 are Modified Ludzack-Ettinger (MLE) systems.

The project would convert Treatment Process Unit 1 from conventional activated sludge treatment to a flow equalization tank and upgrade Treatment Process Units 2 and 3 from a MLE process to a five stage Bardenpho process, adding new membrane biological reactors consisting of bioreactor and microfiltration. The treatment capacity of the plant will remain sufficient for the island and the process improvements are anticipated to reduce total nitrogen and total phosphorus to <3.0 mg/L and <1.0 mg/L respectively, which meets advanced waste treatment (AWT) standards. With additional disposal, capacity could be increased up to 3 MGD.

The project is estimated to remove between 50 and 70 percent of the phosphorus and nitrogen in the reuse water used for irrigation (see Table 1, comparison between existing plant performance and AWT standards). Based on data collected through development of the Sanibel Comprehensive Nutrient Management Planⁱ, the project is estimated to decrease phosphorus loads by 218 kg/yr within the eastern Sanibel Slough and by 38 kg/yr in the western Slough. This is approximately 53% of the proposed Total Maximum Daily Load (TMDL) phosphorus reduction required in the east basin and 57% of the reduction required in the west basin. At a 70% removal rate, the project is estimated to reduce nitrogen loads to the east basin by 518 kg/yr and by 91 kg/yr in the west basin. The nitrogen load reduction is approximately 75% of the total TMDL load reduction requirement for the eastern basin and 43% for the western basin. **The project was identified as the most cost-effective way to reduce nutrient loads entering the Sanibel Slough, compared to all of the other projects evaluated in the Nutrient Management Plan.**

This project will serve as a model for other communities working to address TMDLs. Reuse water is typically viewed as an asset for meeting the irrigation needs of communities. However, if the water is not treated appropriately it can become a liability. Even though the City's plant is exceeding all of the regulatory requirements established by the FDEP, effluent used for irrigation is entering the groundwater and contributing to the nutrient impairment of the Sanibel Slough. Sanibel is not the only community that is dealing with this issue. This project will provide valuable information to other communities working to address nutrient issues and will demonstrate how reuse system upgrades can help achieve state water quality standards.

In 2016, the City of Sanibel received a grant for \$825,000 from the FDEP, Division of Water Restoration Assistance (Item 1600A of the FY16-17 General Appropriations Act) and entered into DEP Agreement No. LP36030. The consulting engineer, Tetra Tech, completed design and engineering for the project in April 2018.

In 2018, the City received \$2 million in legislative funding for Phase I construction. The original construction cost estimate was \$11.9 million. The City put out a Request for Proposals in March 2018 and received a total of three qualified bids. The lowest bid came in at \$20.1 million.

The City is requesting \$2 million in State funding for Phase II construction. The City has included the remaining funding for the project in the adopted 5-year Capital Improvement Plan.

ⁱ Thompson, M., E. Milbrandt, R. Bartleson 2017. The Sanibel Comprehensive Nutrient Management Plan Phase 4: Integration and Analysis of Sanibel Waterbody Nutrient Data. <http://www.mysanibel.com/content/download/23350/144296>

Table 1. Donax WRF – Summary of Plant Performance (Donax WRF Process Improvements Preliminary Design Report - Tetra Tech - January 12, 2018)

Parameter	Donax WRF Permit Limit		Donax WRF 2015 Annual Performance	Donax WRF 2016 Annual Performance	AWT
CBOD ₅	20 mg/L	ANNUAL AVERAGE MAXIMUM	2.3 mg/L	2.0 mg/L	5 mg/L
CBOD ₅	30 mg/L	MONTHLY AVERAGE MAXIMUM	3.0 mg/L	2.0 mg/L	5 mg/L
TSS	5.0 mg/L	SINGLE SAMPLE MAXIMUM	2.9 mg/L	11.20 mg/L (01/29/16) 5.60 mg/L (03/03/16)	5 mg/L
CHLORINE	1.0 mg/L	MINIMUM	1.5 mg/L	1.5 mg/L	N/A
TURBIDITY	REPORT	MONTHLY MAXIMUM	2.5 ntu	2.5 ntu	N/A
NITROGEN (NO ₃)	12.0 mg/L	SINGLE SAMPLE MAXIMUM	5.28 mg/L	6.84 mg/L	N/A
TOTAL NITROGEN	REPORT	MONTHLY AVERAGE	4.82 mg/L (MAX MONTH AVG)	6.68 mg/L (MAX MONTH AVG)	3 mg/L
TOTAL PHOSPHORUS	REPORT	MONTHLY AVERAGE	2.74 mg/L (MAX MONTH AVG)	4.64 mg/L (MAX MONTH AVG)	1.0 mg/L