SANIBEL COMMUNITIES for CLEAN WATER

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City of Sanibel, Natural Resources Department
March 12th, 2020

2020 City Council Goals

I. ON-ISLAND WATER QUALITY IMPROVEMENT

II. STATE/REGIONAL WATER QUALITY IMPROVEMENT

III. FEDERAL WATER QUALITY IMPROVEMENT

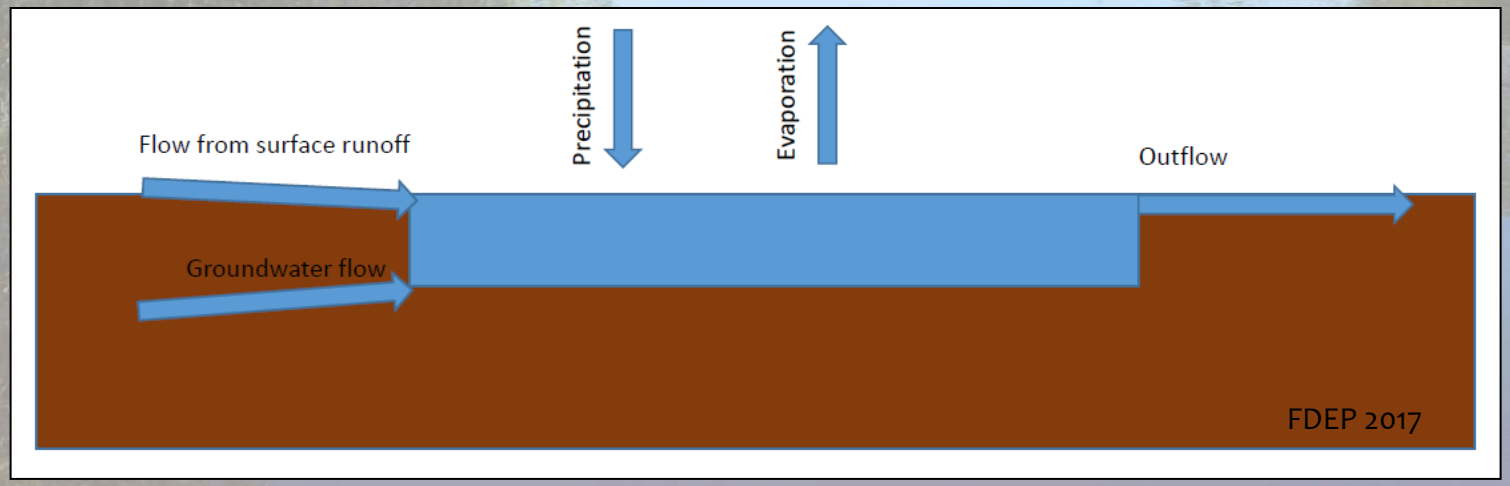
WHY SHOULD WE
CARE ABOUT
WATER QUALITY???

DIRECTION
303 deg(T)
26.46121°N
082.04793°W
ACCURACY 16 m
DATUM WGS84
2018-08-07
11:37:39-04:00

Sanibel Slough
Total Maximum Daily Load (TMDL)

What is a TMDL?

- A TMDL is a regulatory term in the U.S. Clean Water Act (Section 303d), describing a value of the maximum amount of a pollutant that a waterbody can receive while still meeting water quality standards.
- "The TMDL process quantifies the amount of a pollutant that can be assimilated in a waterbody, identifies the sources of the pollutant, and provides water quality targets needed to achieve compliance…"



Sanibel Slough TMDL

* The Sanibel Slough (River) DOES NOT meet current state water quality standards and has been designated IMPAIRED for NUTRIENTS and DISSOLVED OXYGEN.
* The City is REQUIRED to reduce nutrient loading to the Sanibel Slough to meet the TMDL target.

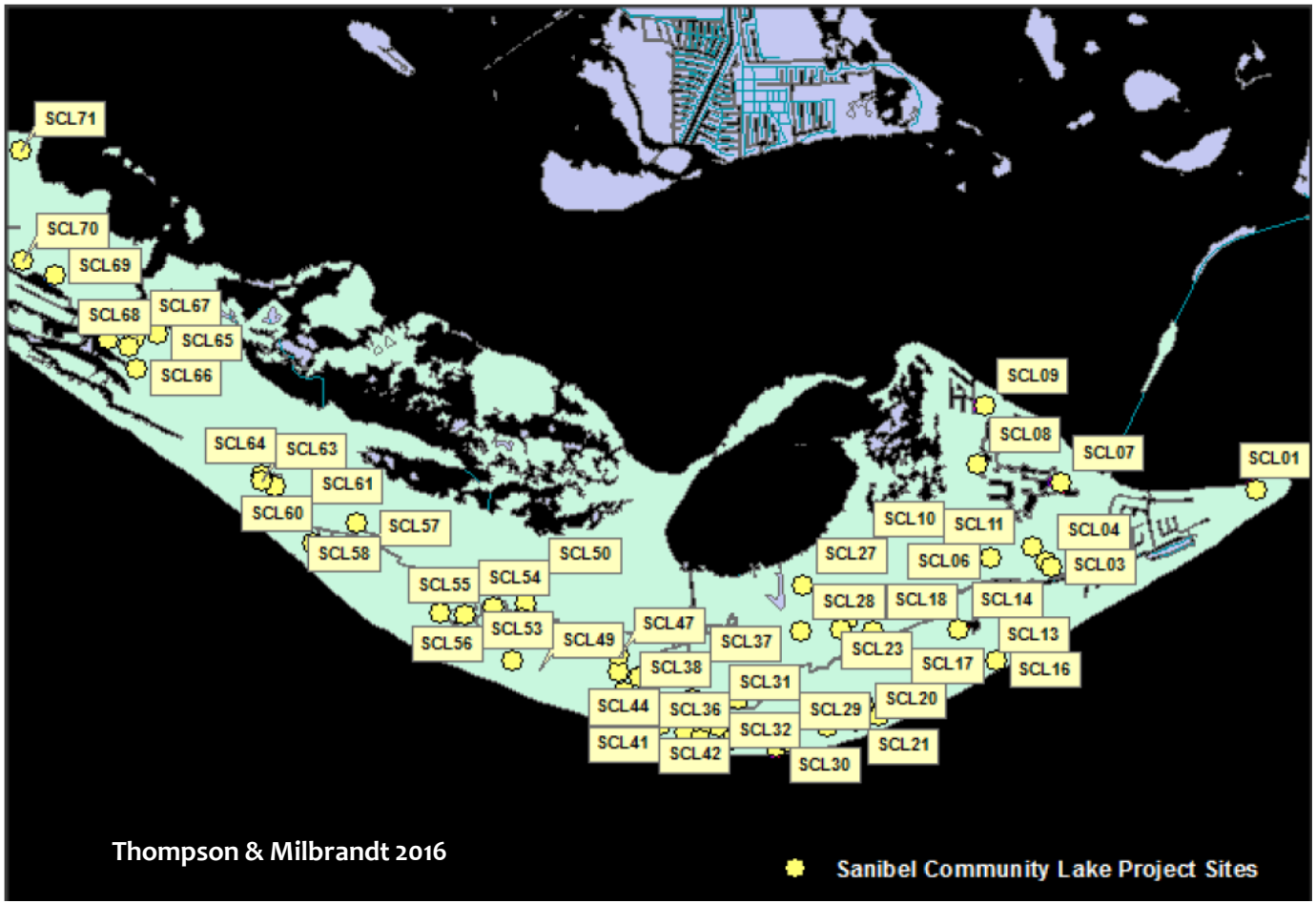
What Are We Doing to Improve Water Quality?

- Environmentally Sensitive Lands Conservation Program
- Established a fertilizer ordinance
- Golf Course Report Card Program
- Native plant protection and sod limitations
- Converted most of the island from septic to central sewer
- Reduction of impervious surfaces for single family homes
- Implementation of NPDES to reduce stormwater runoff
- Beach and dune protection
- Mangrove protection through state delegation
- Dunes weir modifications
- Jordan Marsh Water Quality Treatment Park
- Upgrades to the Donax Wastewater Reclamation Facility
- **Sanibel Communities for Clean Water Program**

SANIBEL COMMUNITIES for CLEAN WATER

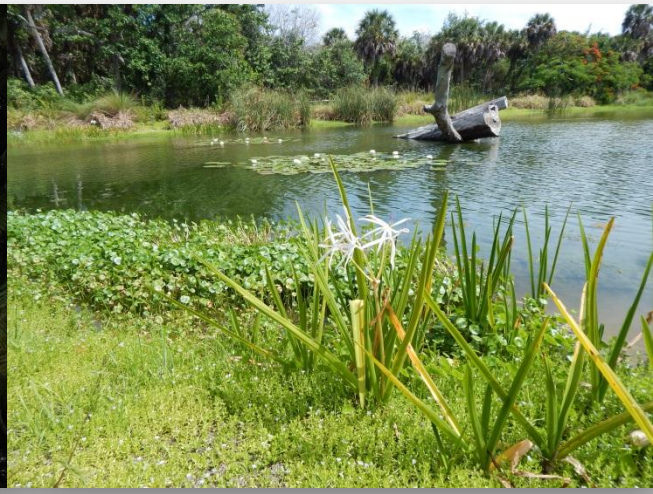
Project Background

* Part of Phase 3 of the Comprehensive Nutrient Management Plan
* A total of 72 (now 78) lakes, ponds, and stormwater collection systems were sampled across the Island by the Sanibel-Captiva Conservation Foundation (SCCF)
  * Dry vs. Wet season sampling

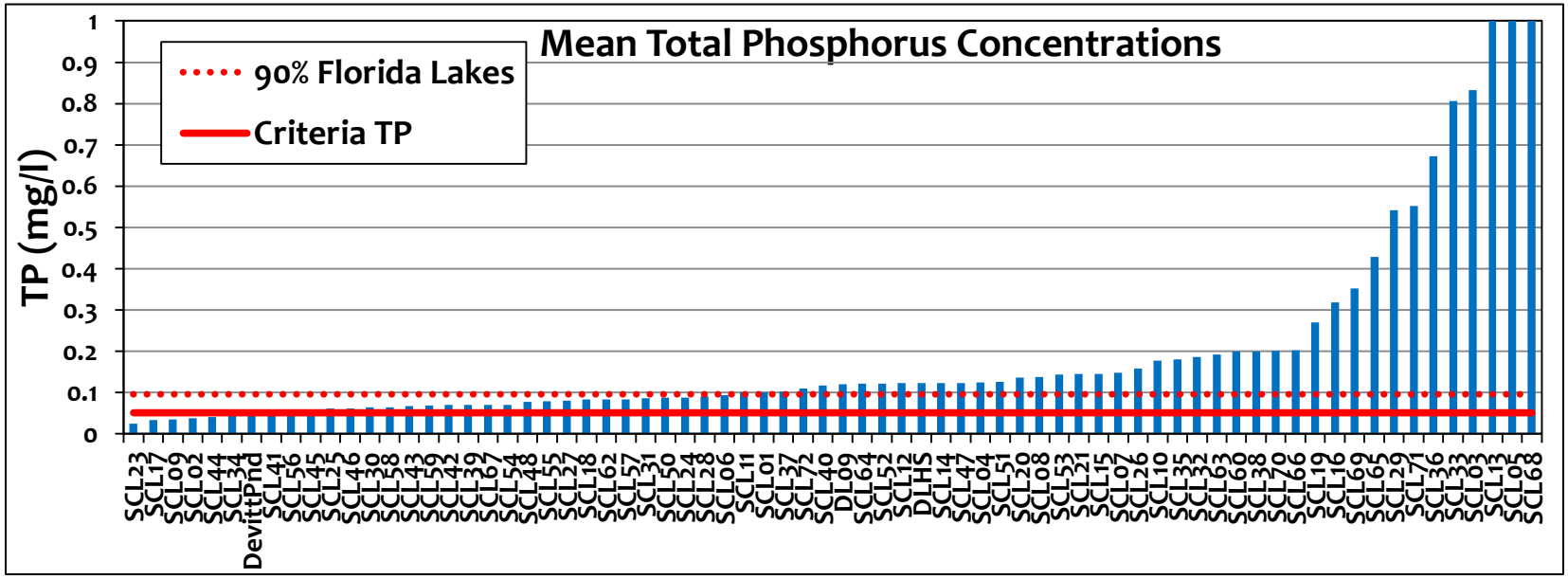


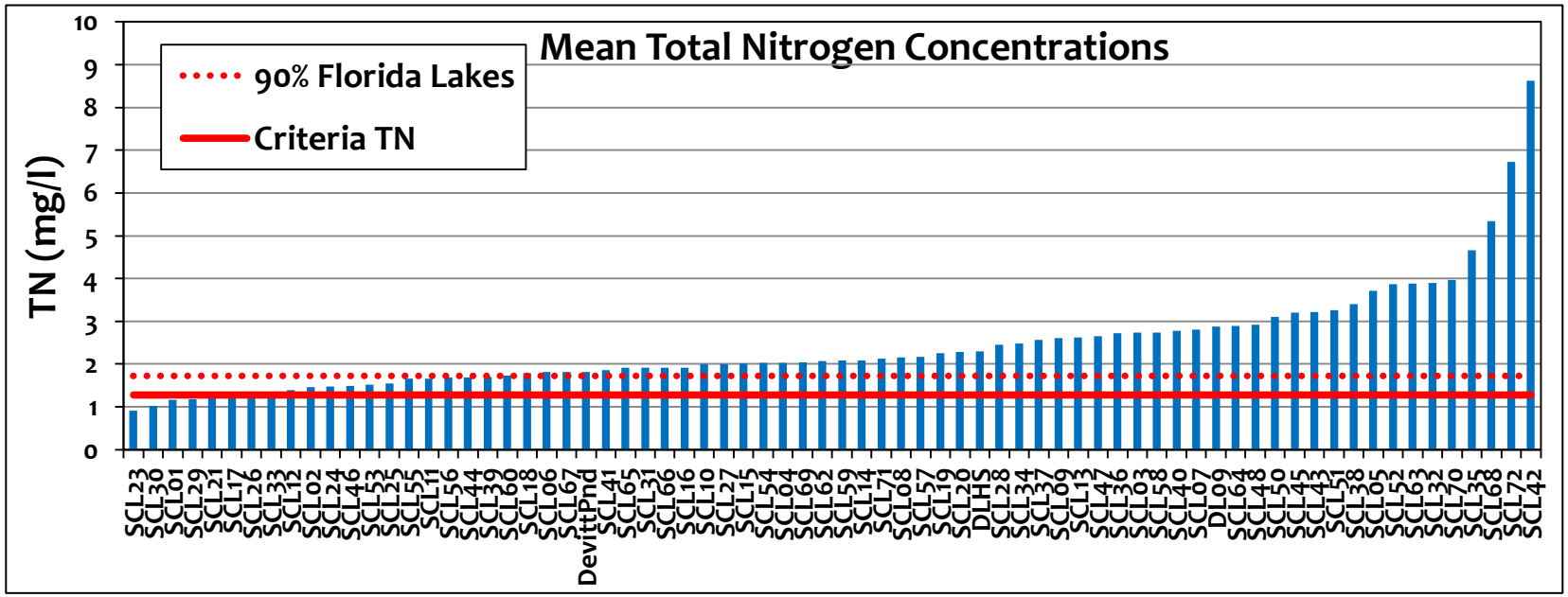
Project Goals

1. Develop baseline water quality data for each waterbody that was sampled, and rank each community from most impaired to least impaired.
2. Make best management practice recommendations for each individual community, based on the data collected, that would work best to improve water quality in their respective waterbody.



2016 Water Quality Sampling Results



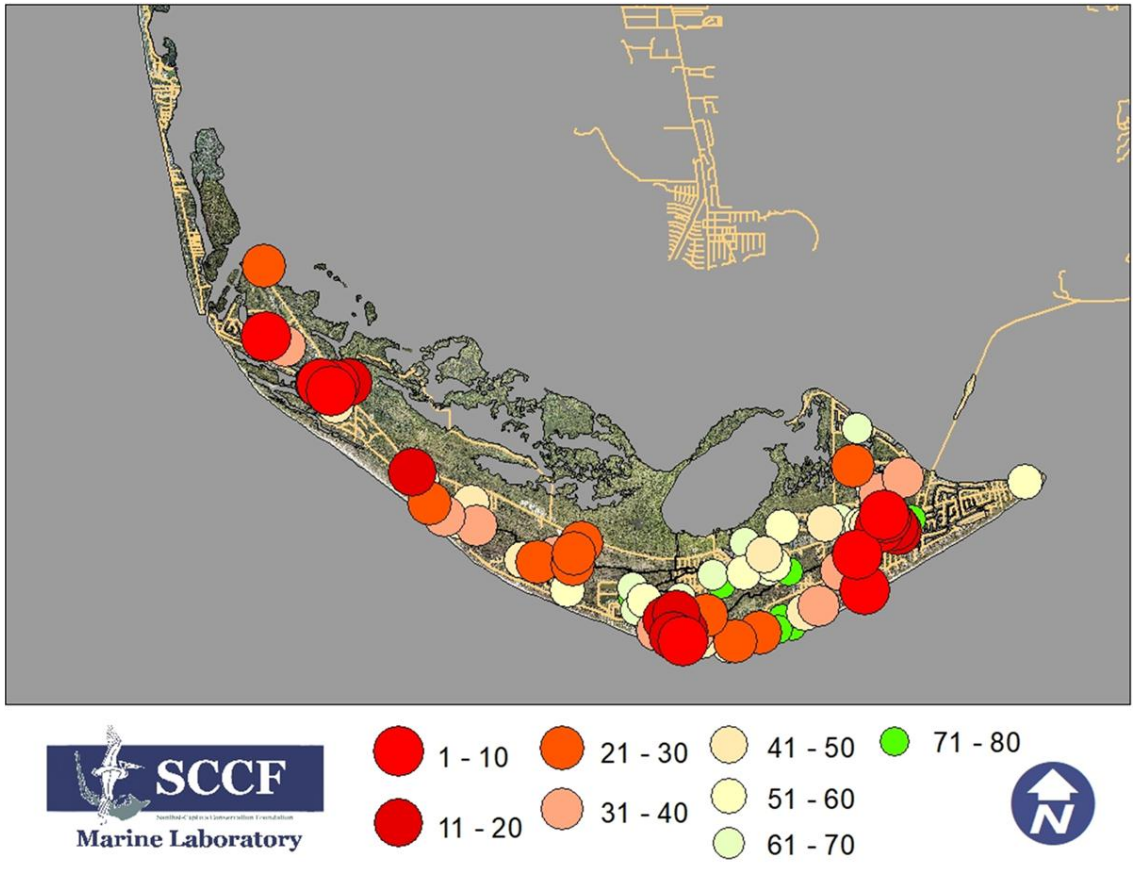


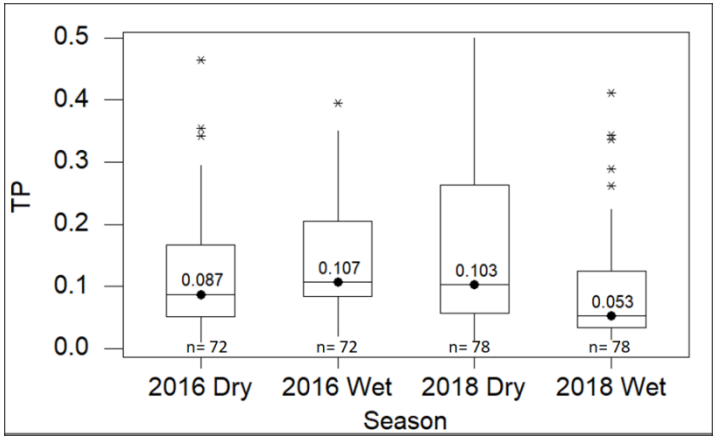
Thompson & Milbrandt 2016

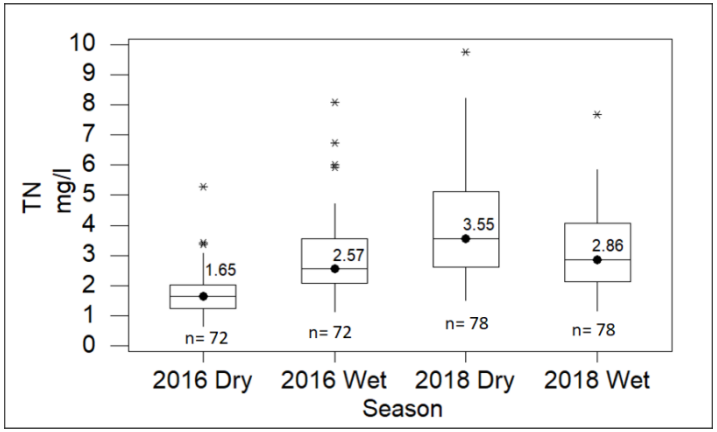
2018 Water Quality Sampling Results

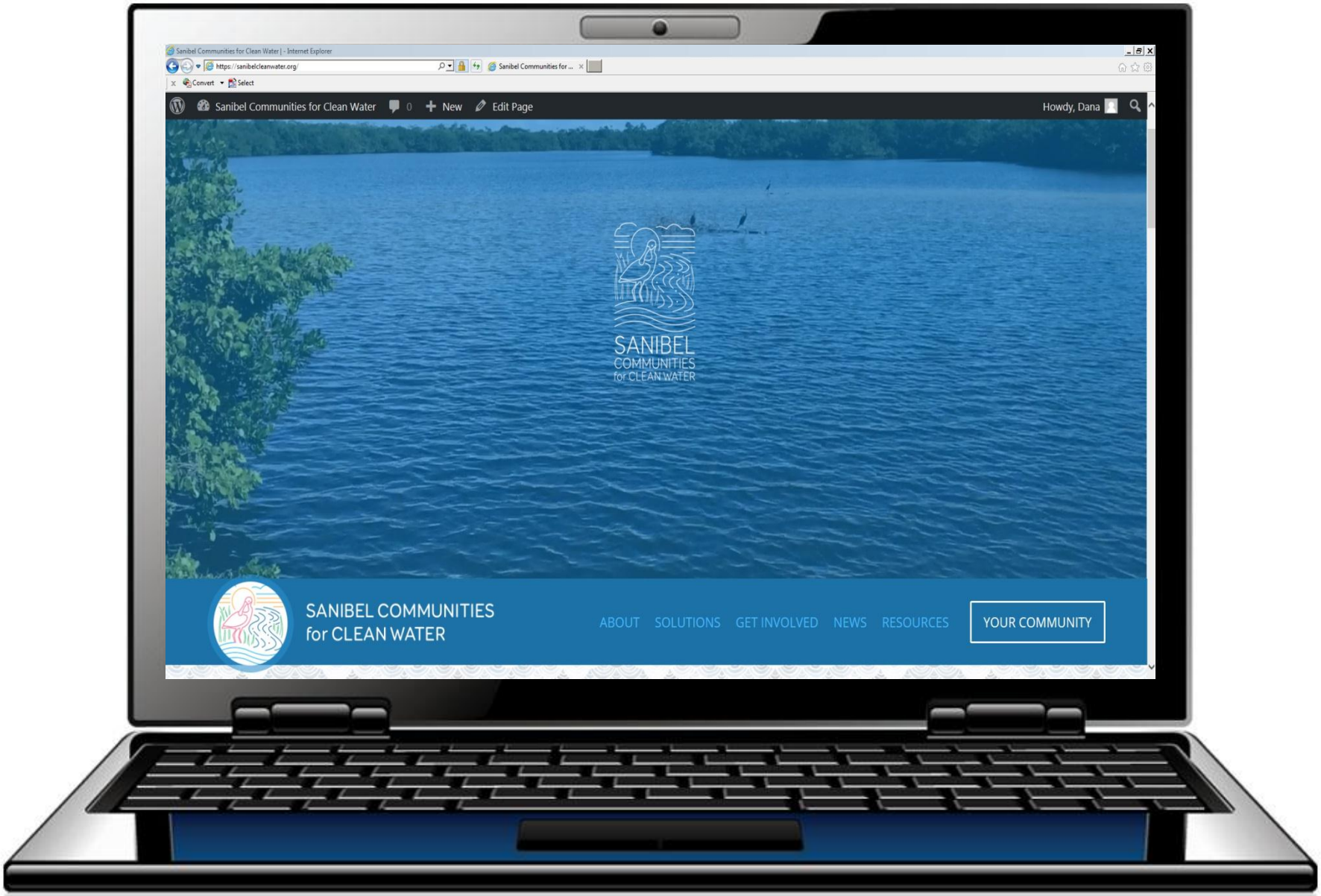
HIGHLIGHTS

- Added 6 additional sampling sites
- TSI scores increased an average of 7.5% compared to 2016
- 69% of lakes were above the numeric nutrient criteria for TP (89% in 2016)
- 100% of lakes were above the numeric nutrient criteria for TN (89% in 2016)









www.sanibelcleanwater.org

SANIBEL COMMUNITIES for CLEAN WATER

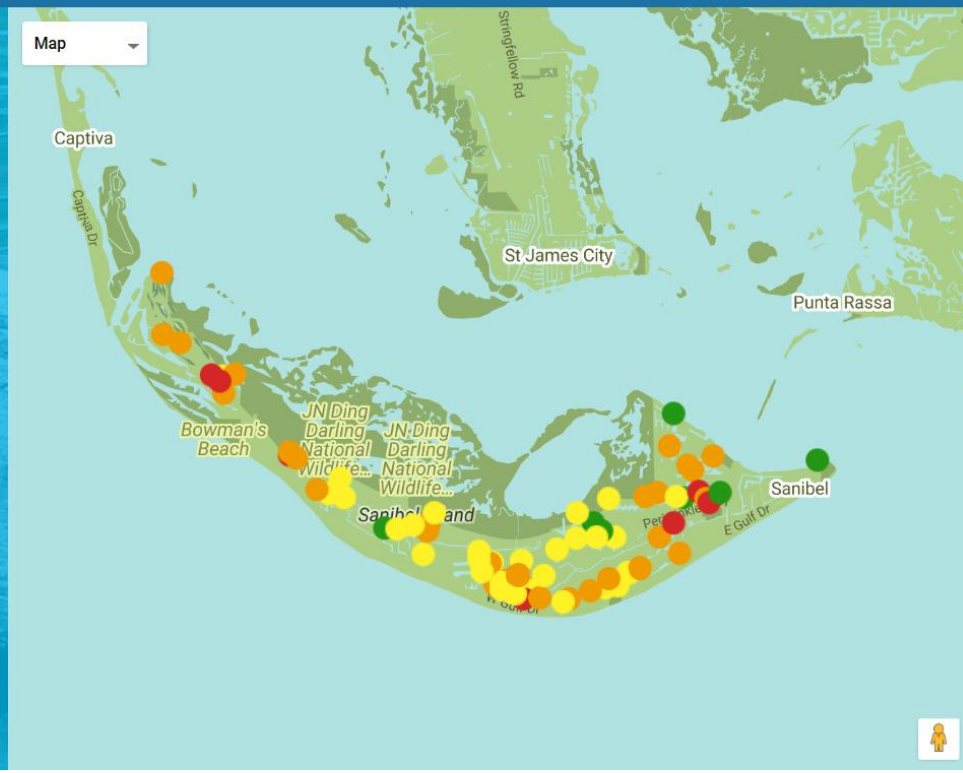
ABOUT SOLUTIONS GET INVOLVED NEWS RESOURCES YOUR COMMUNITY

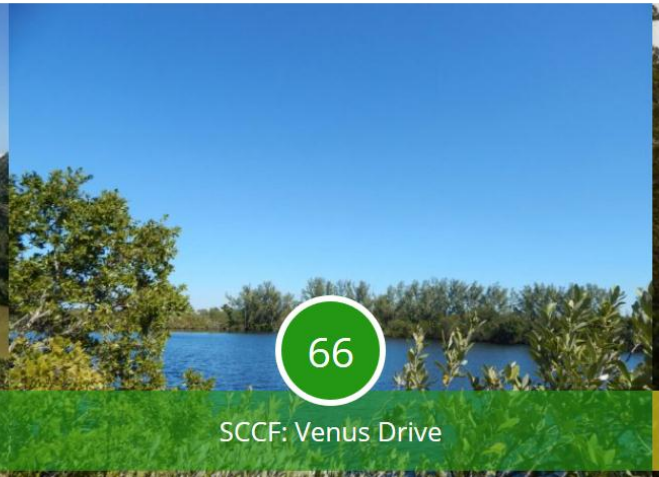
Find Your Community

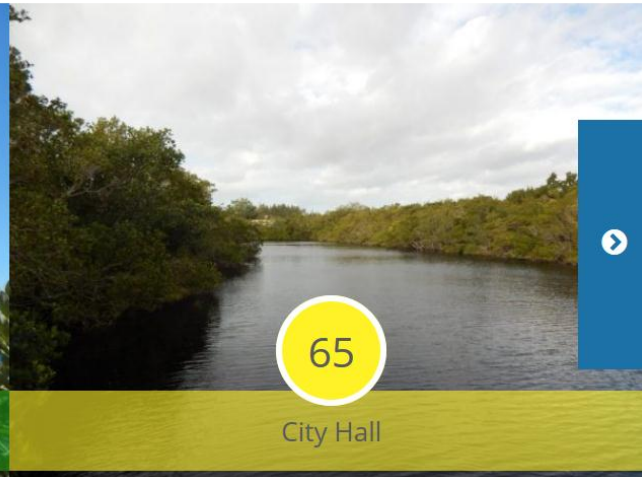
Start typing community name...

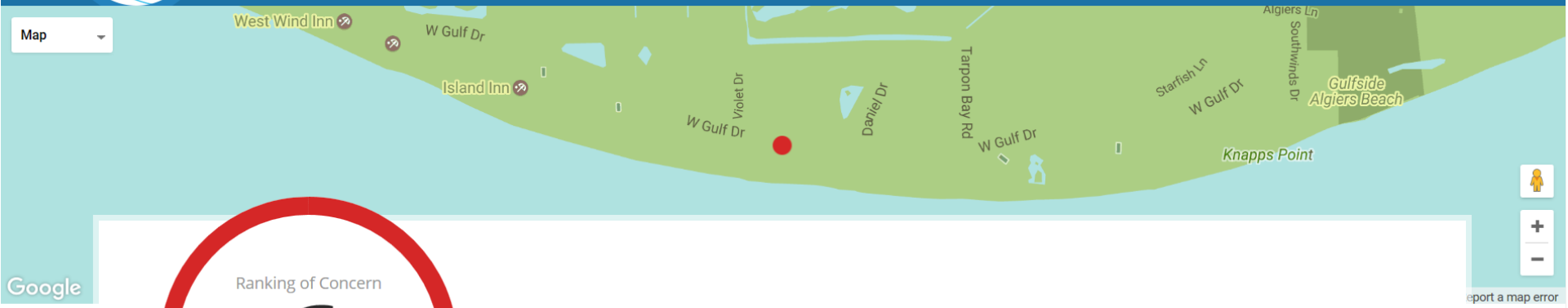
Can't find your community?

Contact Us









Ranking of Concern

6

out of 72

View All Rankings

Share on Facebook

Sand Pointe

26.423374, -82.086742

Sand Pointe has a current 6 ranking of concern. We've analyzed 72 water bodies on Sanibel Island, and ranked them from 1 (most concerned) to 72 (least concerned).

Share on Twitter

Recommendations | Alerts 0 new

Data Summary

IN
TN
OP
TP
Chla-a
TSI
Salinity
DO

Data Summary

IN	0.086
TN	2.73
OP	0.396
TP	0.672
Chla-a	22.1
TSI	86.1
Salinity	0.75
DO	5.75

Inorganic Nitrogen. The form of nitrogen that is most readily available for uptake or use by aquatic plants and algae. The primary forms of inorganic nitrogen are ammonia, ammonium, nitrate, and nitrite. Units = mg/L

body.

gen

g/l

Sanibel Average

horus

ng/l

Sanibel Average

SOLUTIONS PAGE

BMPs include:

1. Lake-Friendly Landscaping
2. Proper Irrigation Practices
3. Stormwater Retrofits
4. Runoff Control
5. Proper Pet Waste Disposal
6. Turf Grass Selection
7. Proper Mowing Techniques
8. Exotic Fish Removal
9. Aeration
10. Nutrient-rich Sediment Dredging
11. Reuse Water Fertilizer Calculator
12. Landscaper Selection

Littoral Zone Plantings and Shoreline Buffers

Planting your shoreline provides natural nutrient removal from urban runoff. This BMP involves the planting of emergent and submergent aquatic vegetation along the water's edge based on the slope of the bank and the needs of each individual plant. The plants will slow down stormwater runoff, and uptake a portion of the nutrients before they enter the lake or pond. These plants will also stabilize the shore banks to prevent potential erosion.

Based on GIS analysis, 30% littoral coverage of the shoreline should provide water quality improvements. Littoral plantings and buffers provide excellent foraging habitat for water birds, and offer additional protection for juvenile fishes and invertebrates that feed on algae.

Floating Treatment Wetlands (FTWs)

Because of the methods used to construct lakes and stormwater ponds in older communities, often times shoreline banks are too steep to allow the successful colonization of littoral vegetation or homeowners prefer an unobstructed view of the water, and in these cases FTWs are a great option to help improve water quality and habitat for wildlife.

A FTW is essentially a floating mat upon which plants grown hydroponically uptake excess nutrients via there root system. As plants mature, nutrients become tied up in the plant tissue. The plants are harvested periodically from the FTWs, further reducing the nutrients from the waterbody. Some plants grown on FTWs have the ability to release chemicals into the water that deter algal competitors.

Mechanical Removal of Algae and Aquatic Pest Plants

Typically, the preferred measure for ridding lakes of algae blooms or reducing the prolific growth of aquatic nuisance plants is the use of chemical herbicides. Unfortunately, research has shown that these herbicides will also harm non-target species, i.e. other native plants, invertebrates and juvenile fishes. Moreover, the use of herbicides does not reduce nutrient concentrations in the waterbody; in fact it can actually release nutrients back into the system through the decomposition of the treated biomass.

Mechanical removal of algae and aquatic pest plants by raking and/or seining the problematic plants and algae is highly recommended. Using mechanical techniques and refraining from the use of chemicals will not only reduce nutrient levels in the system, but it will also prevent the unintended mortality of invertebrates and juveniles fishes that often feed on the aquatic pest plants and algae.

Here's what you can do to improve water quality in your own backyard!

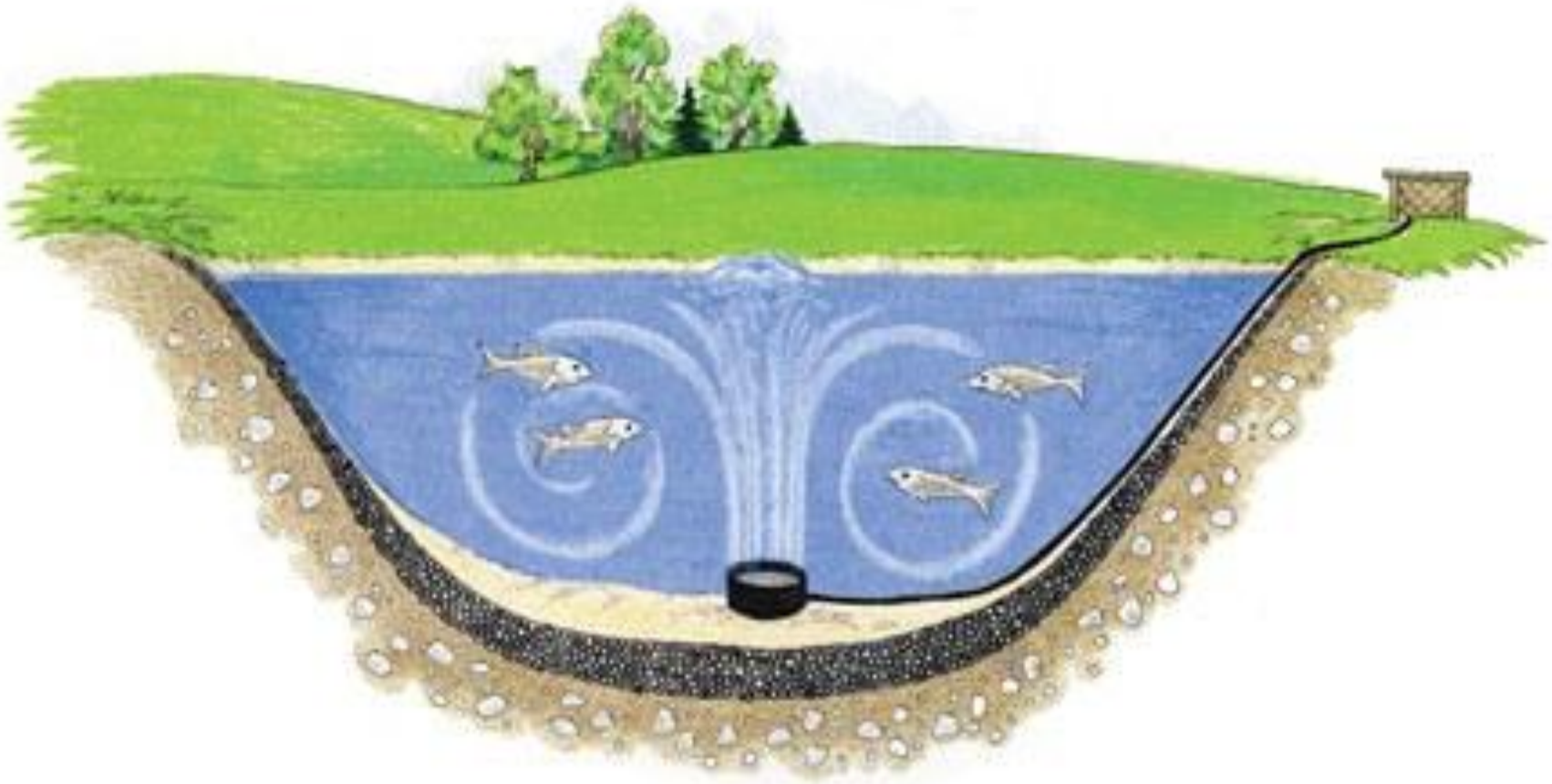
* Best Management Practices (BMPs)

1. Floating treatment wetlands
2. Shoreline plantings
3. Aeration
4. Mechanical removal of algae or pest plants
5. Lake friendly landscaping/gardening
6. Follow the City's Fertilizer Ordinance
7. Stormwater Management
8. Turf Grass Management
9. Irrigation Management
10. Landscaper Selection

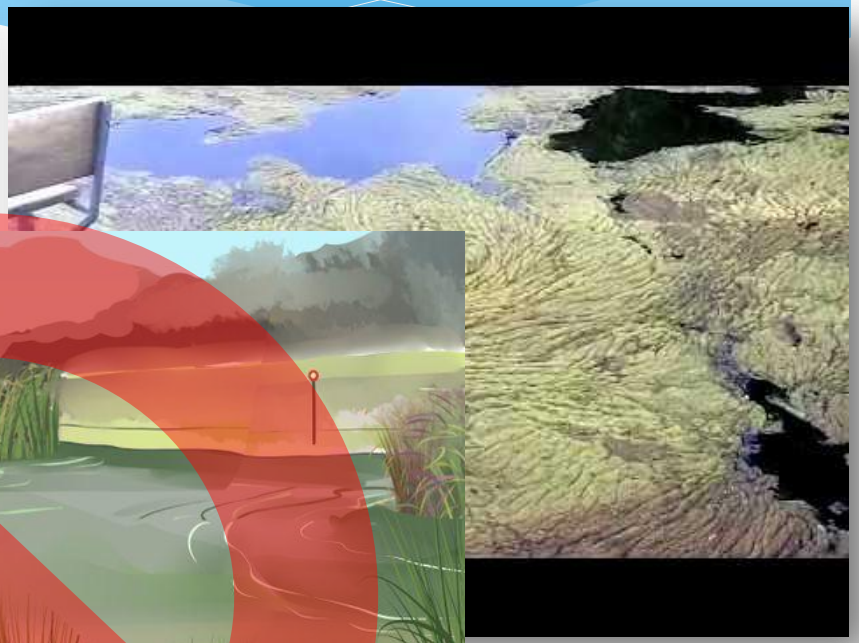
Shoreline Plantings

Floating Treatment Wetlands

Aeration



Mechanical Removal of Algae and Pest Plants



Lake Friendly Landscaping

PLANT NATIVE!!!

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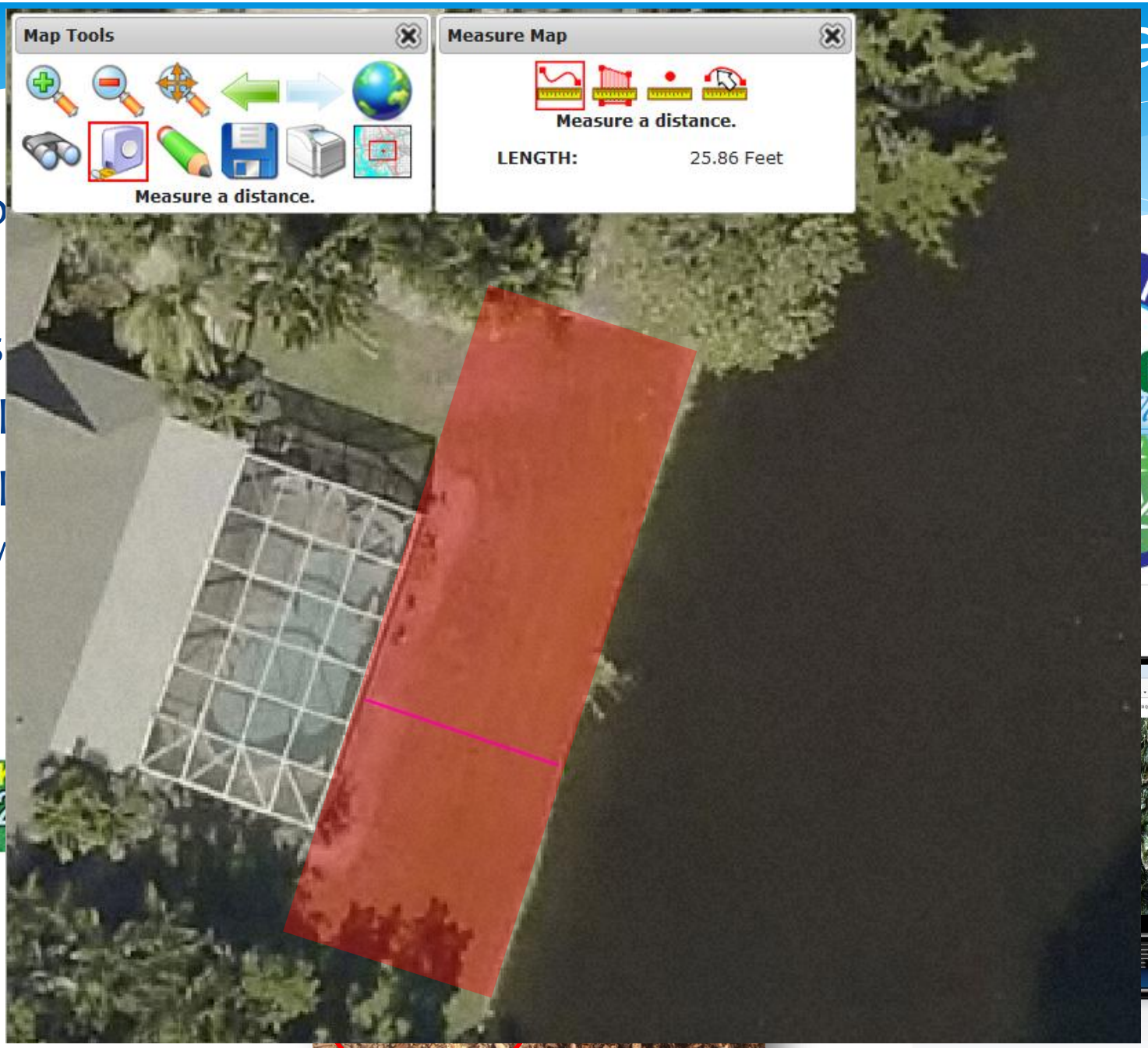
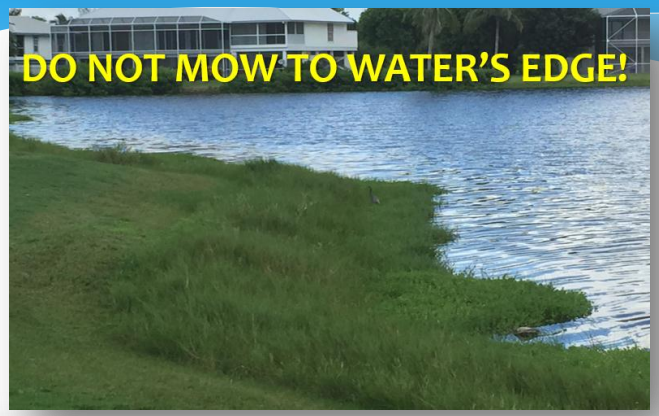


Stormwater Management

Turf Grass Management



Irrigation Management

Landscaper Selection

SANIBEL COMMUNITIES for CLEAN WATER

Water Quality Protection Checklist for Homeowners

Stormwater runoff from urban landscapes is a major source of nutrients (nitrogen and phosphorus) contributing to algae blooms and water quality impairments in Florida. Unfortunately, Sanibel is not immune to this problem. There is no shortage of excess nutrients in Sanibel's waters, and findings from Sanibel's Comprehensive Nutrient Management Plan (2017) showed a large majority of waterbodies (lakes, stormwater ponds, swales, etc.) located in private communities and on public lands did not meet the State of Florida's water quality standards for nutrients. Poor water quality not only impacts wildlife habitat and the quality of life for island residents, but it also negatively impacts property values.

For the past several years, water quality has been the City of Sanibel's top priority, and the City has implemented a number of projects and programs to improve water quality on Sanibel. However, there is always more that can be done, and it can start in your own backyard! In a time when water quality is a chief concern, it is important for each of us to examine our role in protecting Sanibel's waters. The undertakings of individual homeowners can collectively add up to island-wide water quality improvements.

Below is a list of items for you to review to ensure all necessary steps are being taken to protect water quality on Sanibel and in your backyard. If you utilize the services of a contractor, please have them review and sign this document as a pledge to you and the community of Sanibel to protect water quality through best management practices.

Fertilizer Application

- ☐ Only fertilizer mixtures containing 20% nitrogen content or less are being applied to the landscape.
- ☐ At least 50% or more of the nitrogen content is in a slow-release form.
- ☐ Only fertilizer mixtures containing 2% phosphorus content or less are being applied to the landscape.
- ☐ No more than six application of fertilizer per year.
- ☐ One pound of nitrogen per 1,000 square feet or less is being applied to the landscape during a single application.
- ☐ Four pounds of nitrogen per 1,000 square feet or less is being applied to landscape in a year.
- ☐ No fertilizers containing nitrogen and/or phosphorus are applied with 25ft of any waterbody: lakes, ponds, canals, wetlands, and the Sanibel Slough, or over catch basins and stormwater conveyances.
- ☐ No fertilizer containing nitrogen and/or phosphorus are applied to stormwater conveyance systems including retention areas and drainage swales.
- ☐ Reuse water usage is being considered when calculating application rates. Reuse nutrient calculator available here: https://www.sanibelcleanwater.org/solutions/
- ☐ Any fertilizer spilled on impervious surfaces will be cleaned up.

Landscaping Practices

- ☐ Vegetative debris is disposed of properly in an upland location.
- ☐ Vegetation debris such as leaves and grass clippings are not being blown or raked into waterbodies, catch basins, or stormwater conveyances.
- ☐ Grass is being mowed to the proper height to increase turf density and promote root health.
- ☐ Mower blade is kept sharp to limit damage to turf blades.

Irrigation Practices

- ☐ Irrigation heads are positioned so they do not directly spray into a waterbody.
- ☐ Irrigation application rates do not exceed the soil's ability to absorb and retain water.
- ☐ Systems are inspected regularly to ensure proper function.

By signing this document, I pledge to protect Sanibel's water quality.

_____ Homeowner Signature

_____ Contractor Signature

Questions?

SANIBEL
COMMUNITIES
for CLEAN WATER
Together,
we can reduce our impact
on the Island's ecosystem.