Sarasota County

WATER QUALITY

Water Quality Virtual Update

October 18, 2021

Sarasota County Water Quality Update

- Introduction: Commissioner Ziegler
- Community Playbook for Clean Waterways
- Water Quality Science Update
- County Water Quality Initiatives
- What You Can Do

Sarasota County Water Quality Update

Speakers

Christian Ziegler, Vice Chairman

Sarasota County Commission

Jon Thaxton, Senior Vice President for Community Investment

Gulf Coast Community Foundation

Jennifer Shafer, President

Shafer Consulting

Dave Tomasko, Executive Director

Sarasota Bay Estuary Program

Mike Mylett, Director

Sarasota County Public Utilities

Sarasota County
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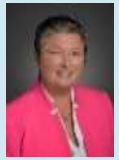
Sarasota County Water Quality Update

Speakers



Amanda Boone, Stormwater Senior Manager
Sarasota County Public Works

Rachel Herman, Environmental Protection Division Manager
Sarasota County Planning and Development Services

Nicole Rissler, Director
Sarasota County Parks, Recreation and Natural Resources

Lee Hayes Byron, Director
Sarasota County UF/IFAS Extension and Sustainability

Abbey Tyrna, Water Resources Agent
Sarasota County UF/IFAS Extension and Sustainability

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Sarasota County Water Quality Update

We want to hear from you!

- Type your questions in the “Question and Answer” box throughout the presentations.
- Questions will be answered after each section.

Water Quality Introduction

Commissioner Christian Ziegler

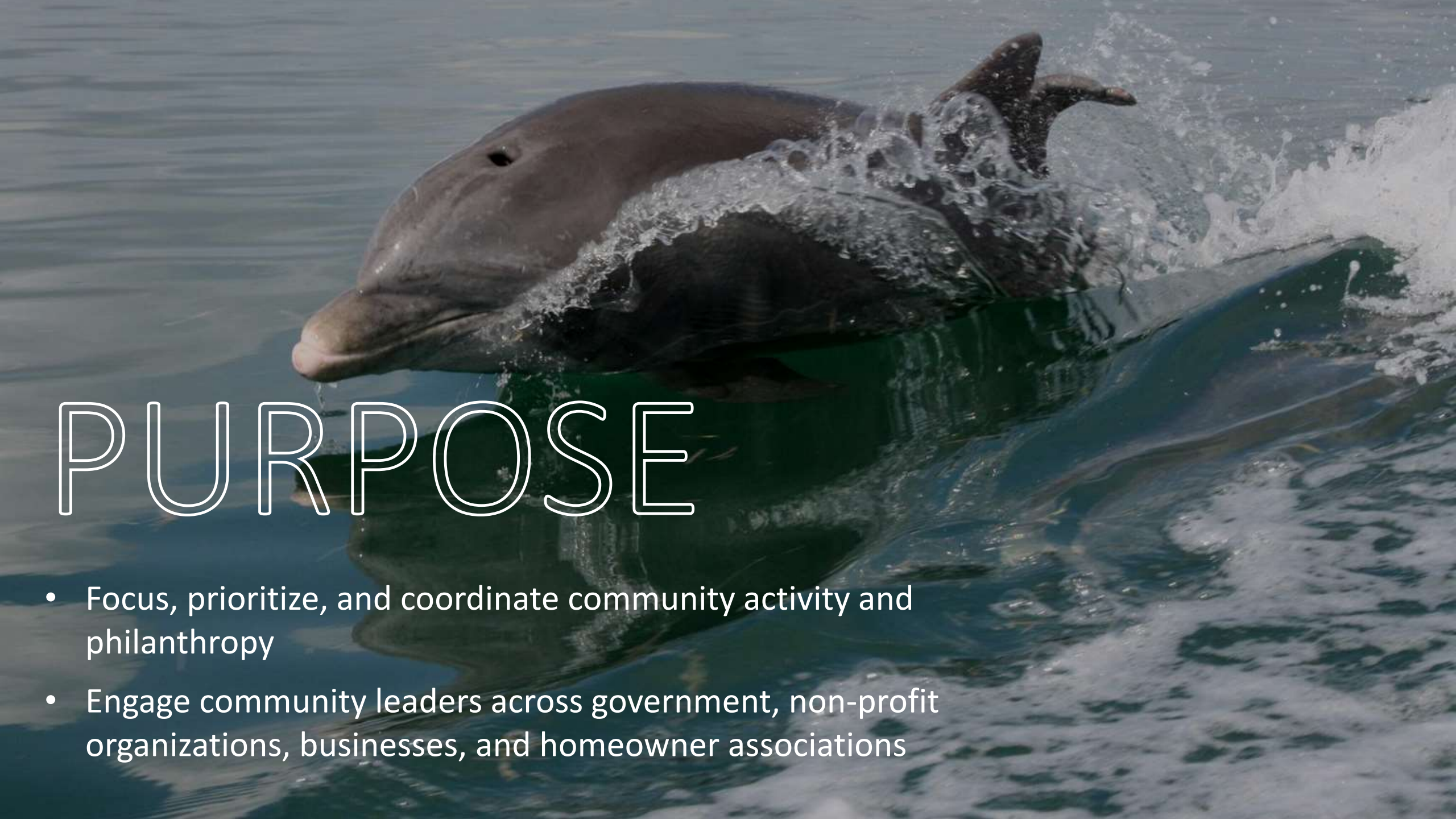
COMMUNITY PLAYBOOK FOR CLEAN WATERWAYS

An Initiative of the Gulf Coast Community Foundation

Jon Thaxton, Gulf Coast Community Foundation

Jennifer Shafer, Shafer Consulting


OUR WAY OF LIFE



PURPOSE

- Focus, prioritize, and coordinate community activity and philanthropy
- Engage community leaders across government, non-profit organizations, businesses, and homeowner associations

GOALS

Goal 1: **Reduce** anthropogenic-based nutrient loading in natural systems

- **Fertilizer**
- **Biosolids**
- **Wastewater**
- **Septic Systems**
- **Engine emissions**

Goal 2: **Remove** excess anthropogenic-based nutrients from natural systems

- **Land conservation**
- **Species restoration**
- **Green infrastructure**
- **Stormwater BMPs**

Goal 3: Build capacity and resilience of ecosystems and human systems to **sustain** G1-2.

- **Education**
- **Incentives**
- **Partnerships**
- **Better data**
- **Public policy**


WASTEWATER
HABITAT
SEPTIC
MONITORING
FERTILIZER
STORMWATER
COMMUNITY PARTNERSHIPS
ATMOSPHERIC DEPOSITION
BIOSOLIDS
COORDINATION COLLABORATION

Site Map

WHY WE NEED THIS | OVERVIEW OF TOPICS | HOW TO GET STARTED

1: CENTRAL WASTEWATER
- 1: TREATMENT
- 2: REUSE
- 3: SPILLS
- 4: REPORTING
- 5: EDUCATION

2: SEPTIC SYSTEMS
- 1: LOADS
- 2: EFFECTIVENESS
- 3: LOCATIONS
- 4: MAINTENANCE
- 5: EDUCATION

3: BIOSOLIDS
- 1: LOADS
- 2: DISPOSAL
- 3: REGULATIONS

4: FERTILIZER
- 1: LOADS
- 2: REPORTING
- 3: REGULATIONS
- 4: HOA'S
- 5: GOLF COURSES
- 6: AGRICULTURE
- 7: COMPOST

5: ATMOSPHERIC DEPOSITION
- 1: LOADS
- 2: EDUCATION

6: STORMWATER DESIGN
- 1: LOADS
- 2: EFFECTIVENESS
- 3. REGULATIONS
- 4. MAINTENANCE

7: STORMWATER PARTNERSHIPS
- 1: HOW-TO GUIDES
- 2: COST-SHARING
- 3. RECOGNITION
- 4. DEMONSTRATIONS

8: HABITAT & WILDLIFE
- 1: WETLANDS
- 2: WILDLIFE
- 3. LAND CONSERVATION
- 4. FORESTATION

9: COORDINATION
- 1: CONSORTIUM
- 2: PLANNING
- 3. FUNDING
- 4. DATA SHARING
- 5. NETWORKING
- 6. EDUCATION
- 7. POLICY

10: MONITORING
- 1: MONITORING
- 2: GAPS

END NOTES
- LIST OF ALL ACTIVITIES
- NUTRIENTS 101
- REFERENCES
- CREDITS

10 Topics | 43 ACTIVITIES

Actionable information to support first steps

- Importance
- Overview
- Approach
- Resources
- Status
- Performance Measures
- Experts or Leads
- Cost
- Related Activities

COMMUNITY PLAYBOOK

FOR HEALTHY WATERWAYS

Take action to reduce and remove nutrient pollution

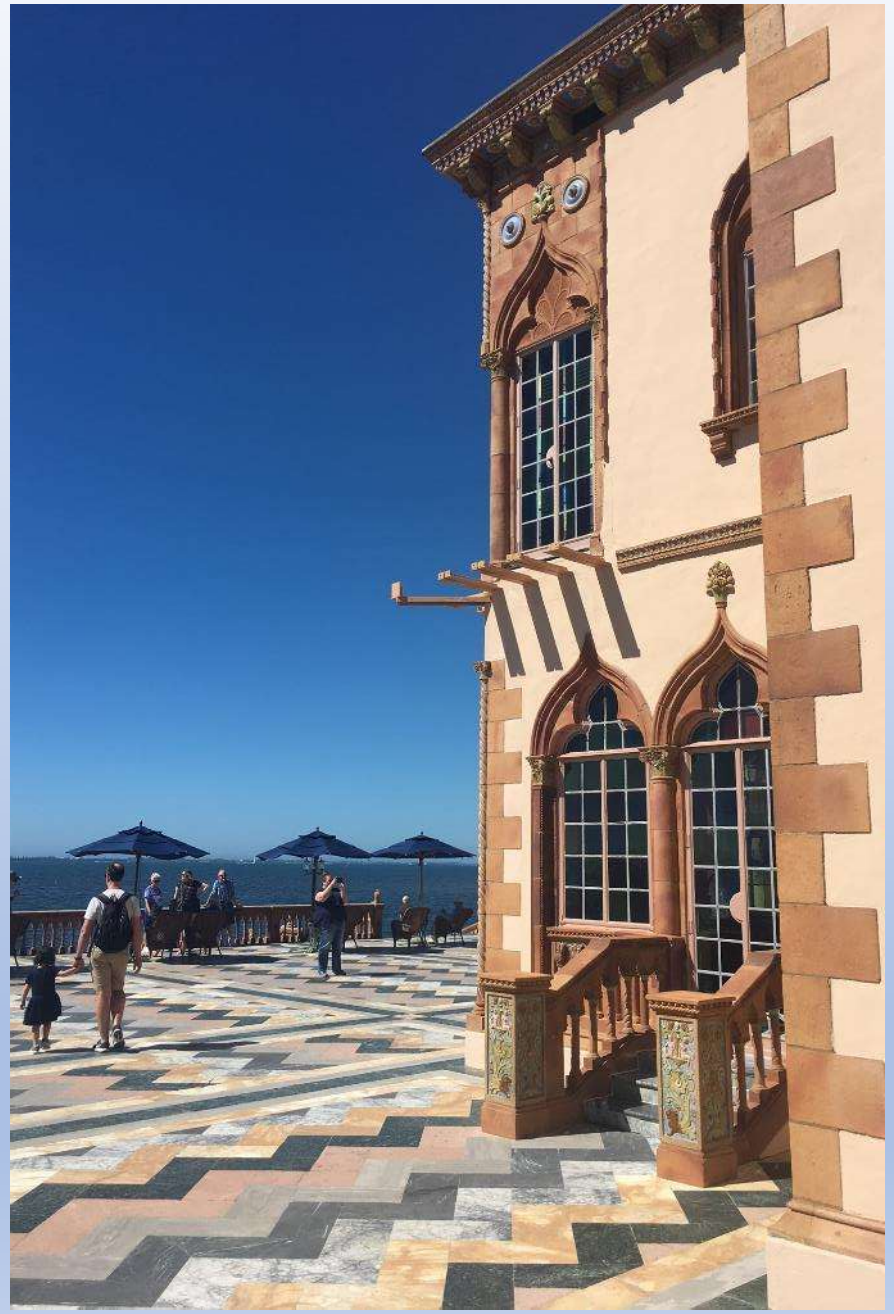
PLAYBOOK CHAPTERS

Sarasota Bay Estuary Program

Status of Sarasota Bay's water quality

SARASOTA BAY ESTUARY PROGRAM
Restoring Our Bays

A healthy bay is important to our quality of life



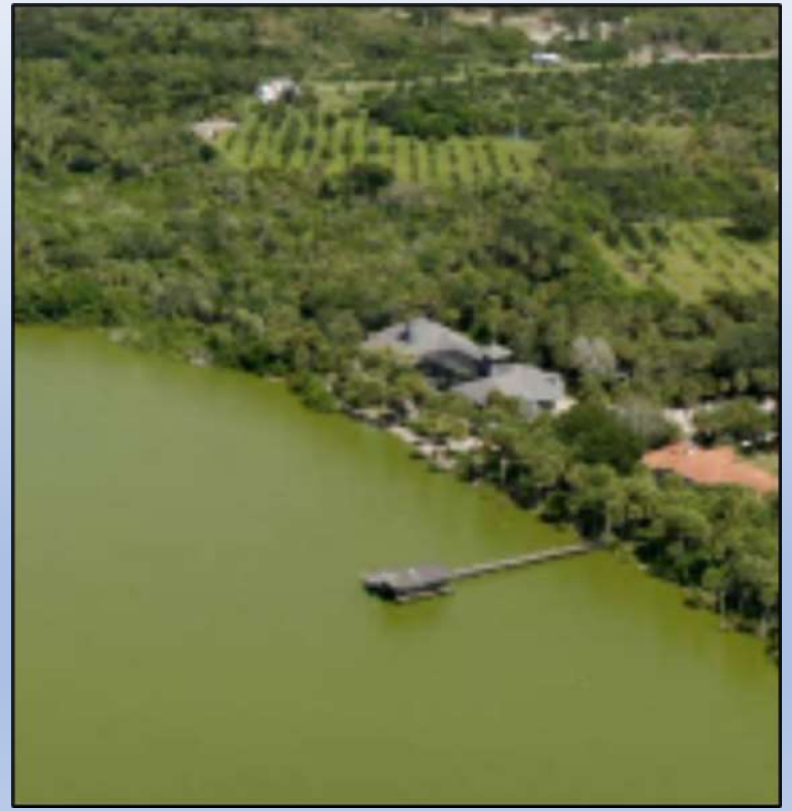
A healthy bay is important to our economy

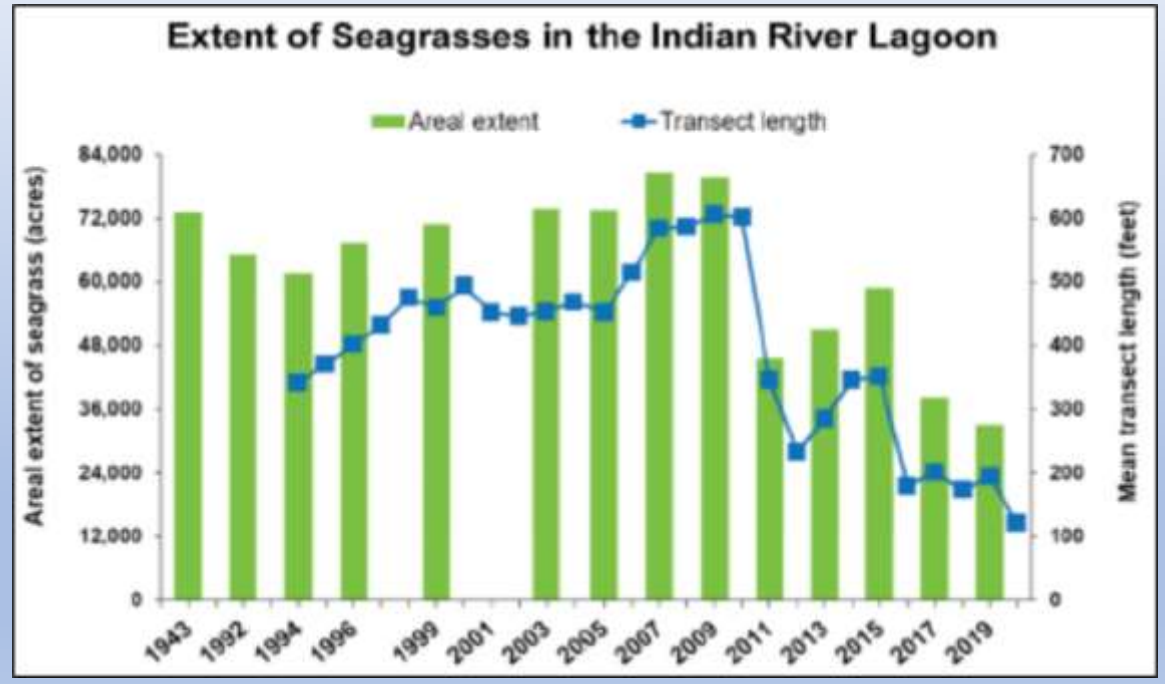
Other reasons to care about water quality…

During the first six months of 2021, the number of manatees we lost was >10% of our latest population estimate

- Photo from www.news-journalonline.com

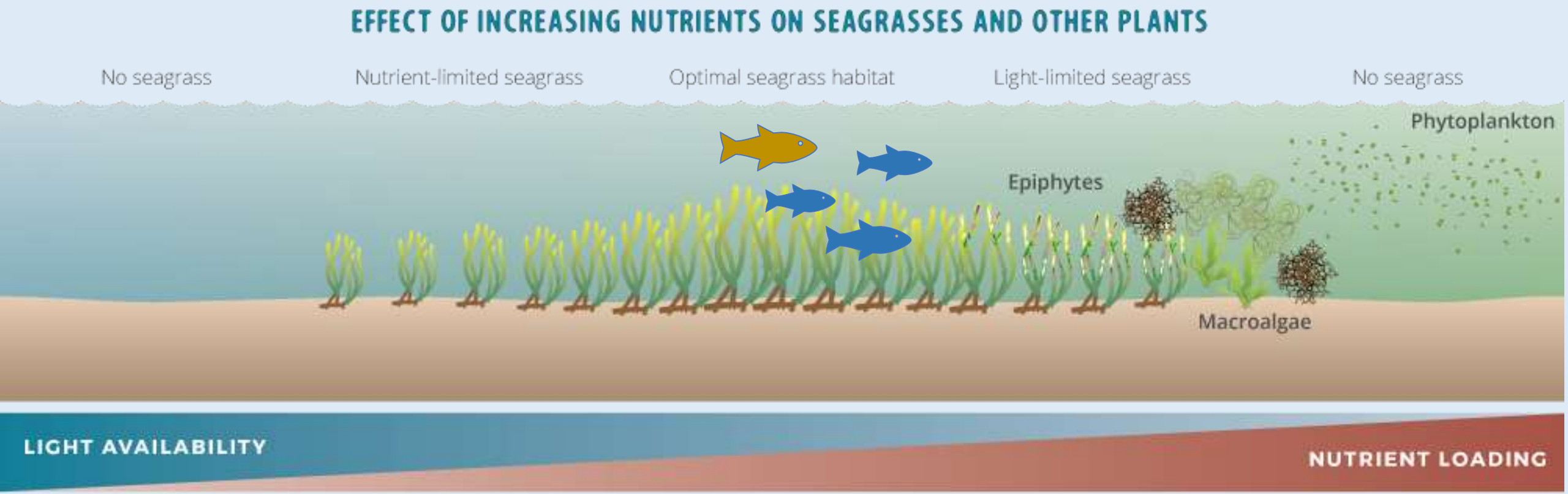
What we don’t want to happen





Both from IRLNEP (2020)

To manage water quality, we need to manage nitrogen



Conceptual diagram illustrating the effect of nutrients of aquatic primary producers

Diagram courtesy of the Integration and Application Network (ian.umces.edu), University of Maryland Center for Environmental Science. Source:

ian.umces.edu

Sarasota Bay's peer-reviewed Report Card

Based on a "reference period" of 2006 to 2012

Bay-wide, 28% increase in seagrass coverage (but not actually peak)

Lower levels of nitrogen

No bay segment impaired for chlorophyll-a (phytoplankton)

No bay segment showing widespread increases in macroalgae

Multiple indicators of levels of nutrient levels

Chlorophyll-a

Total Nitrogen

Seagrass coverage

Macroalgae (where available)

SARASOTA BAY ESTUARY PROGRAM

Bay Segments

- Palma Sola
- Upper Sarasota
- Roberts
- Little Sarasota
- Blackburn

Scores are based on scale of 1 to 4

(4 is best, 1 is worst)

Palma Sola Bay appears to be in good condition

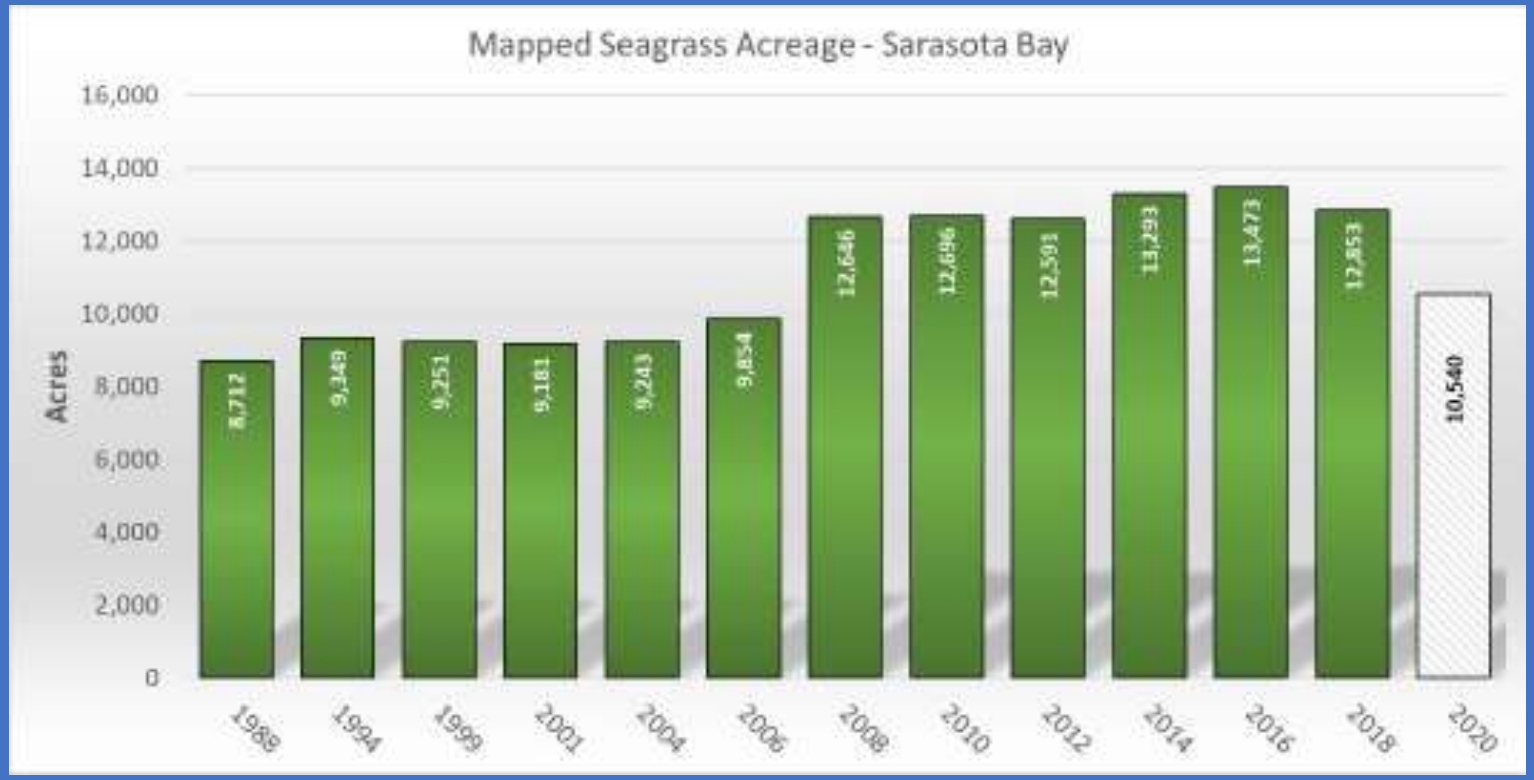
Upper Sarasota Bay was mostly good conditions, until recent red tide events, especially 2017 to 2018 – monitor its ability to recover from that event, and potential effects from Piney Point

Roberts, Little Sarasota and Blackburn Bays (all impaired as per NNC) require – and are receiving – management actions to restore their ecosystem health

Year	Palma Sola	Upper Bay	Roberts	Little Sarasota	Blackburn
2006	3.67	3.50	3.50	3.75	3.75
2007	3.00	3.25	4.00	3.75	3.75
2008	3.67	3.00	3.00	3.25	3.25
2009	3.67	3.25	3.25	3.50	3.00
2010	3.67	3.75	3.00	2.75	2.75
2011	4.00	3.50	3.00	2.75	2.50
2012	3.00	3.25	3.25	3.00	3.25
2013	3.67	3.00	2.50	2.25	2.25
2014	4.00	3.50	2.50	2.50	2.25
2015	3.67	3.25	2.00	2.25	2.00
2016	3.67	2.75	1.75	2.00	2.25
2017	3.67	2.50	2.00	2.25	2.00
2018	4.00	2.50	2.00	1.50	1.75
2019	3.67	3.00	3.25	1.75	1.75
2020	3.67	3.00	3.00	2.25	2.25

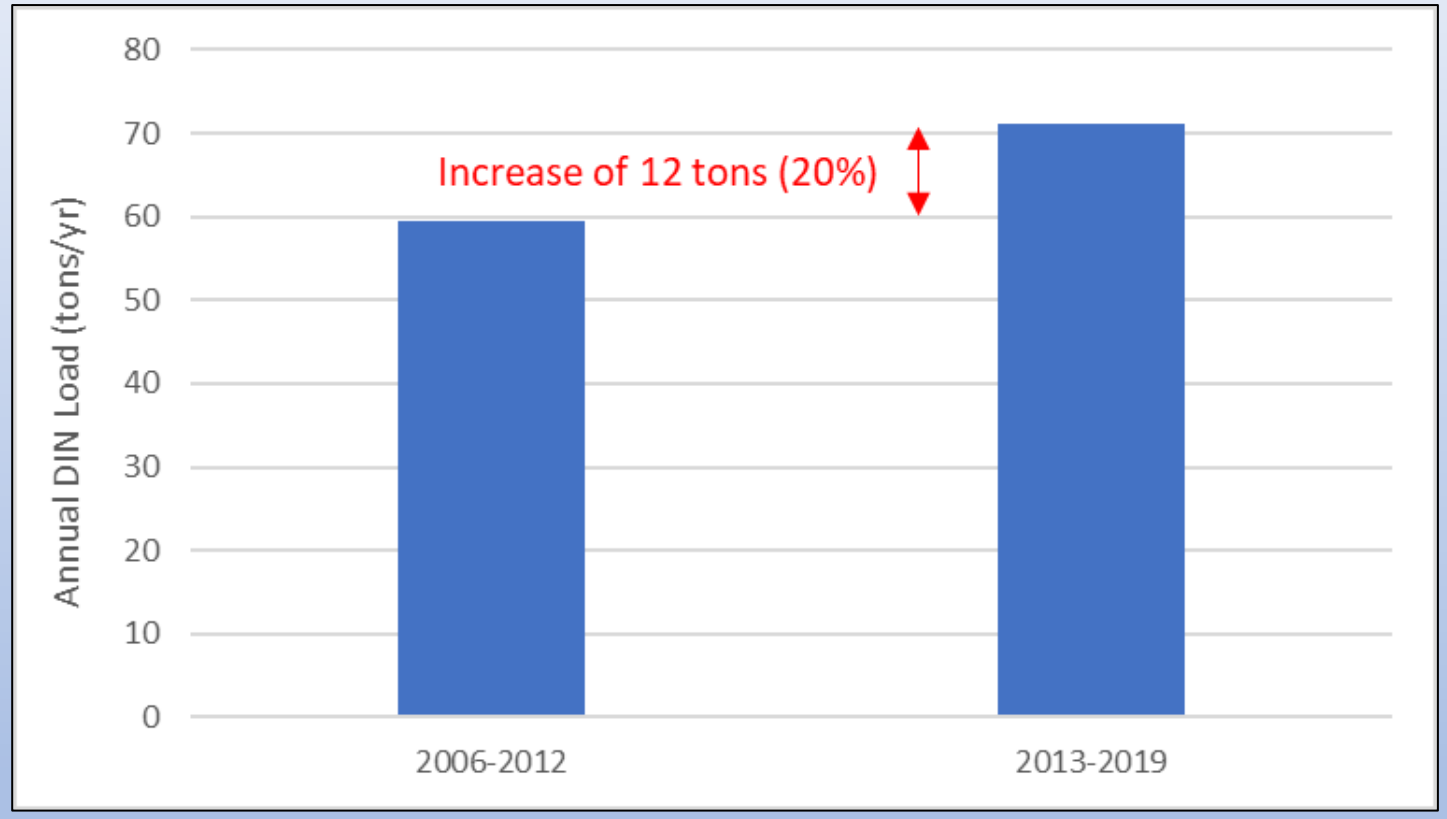
Bay-wide, seagrass coverage is lowest in over a decade

(22% decline since 2016)



SARASOTA BAY ESTUARY PROGRAM

Compared to the reference period, the most relevant nutrient loads have increased by about 12 tons per year

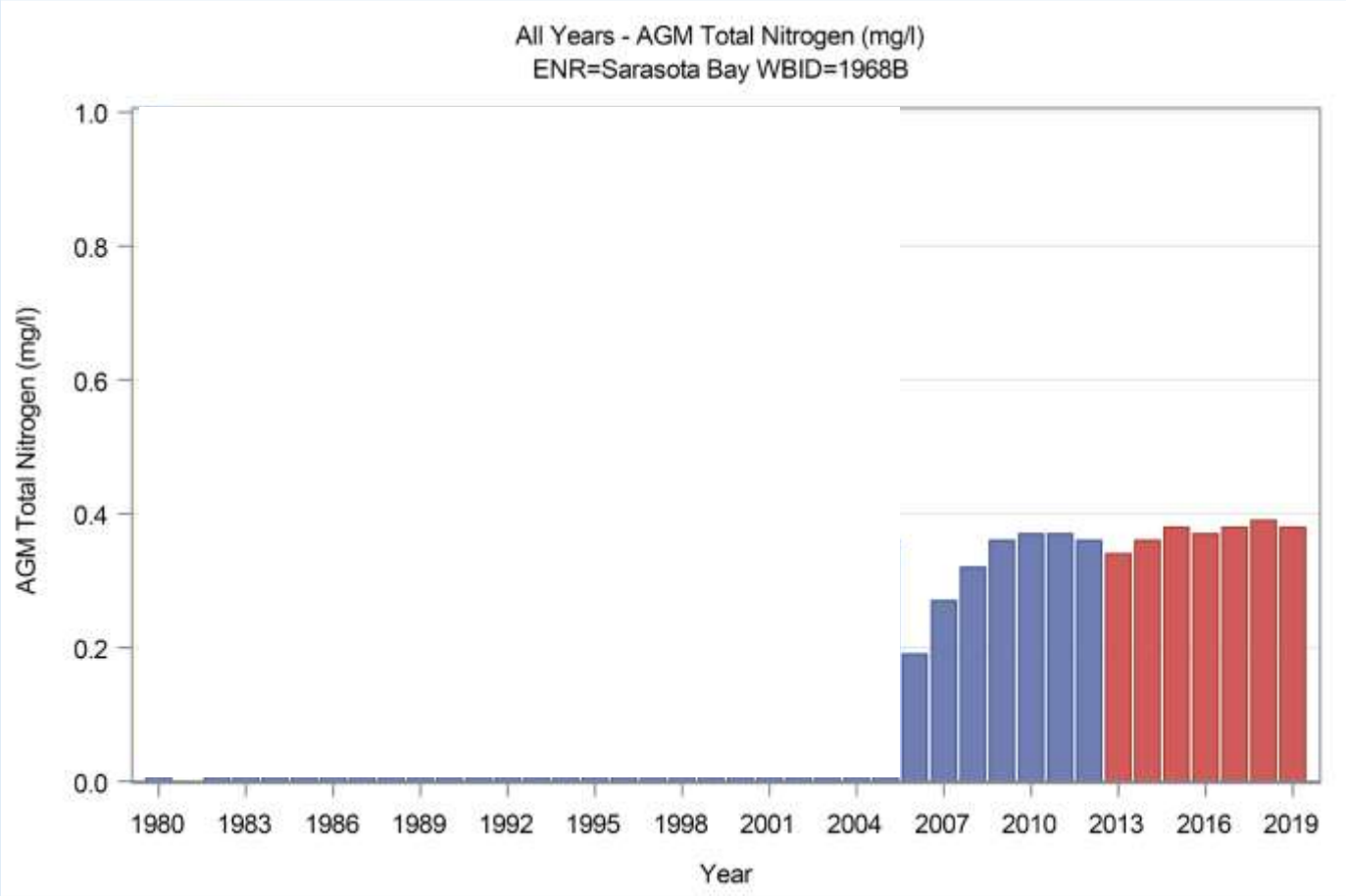


Data compiled from Janicki Environmental, Inc (with Jones Edmunds, Inc.) - 2021

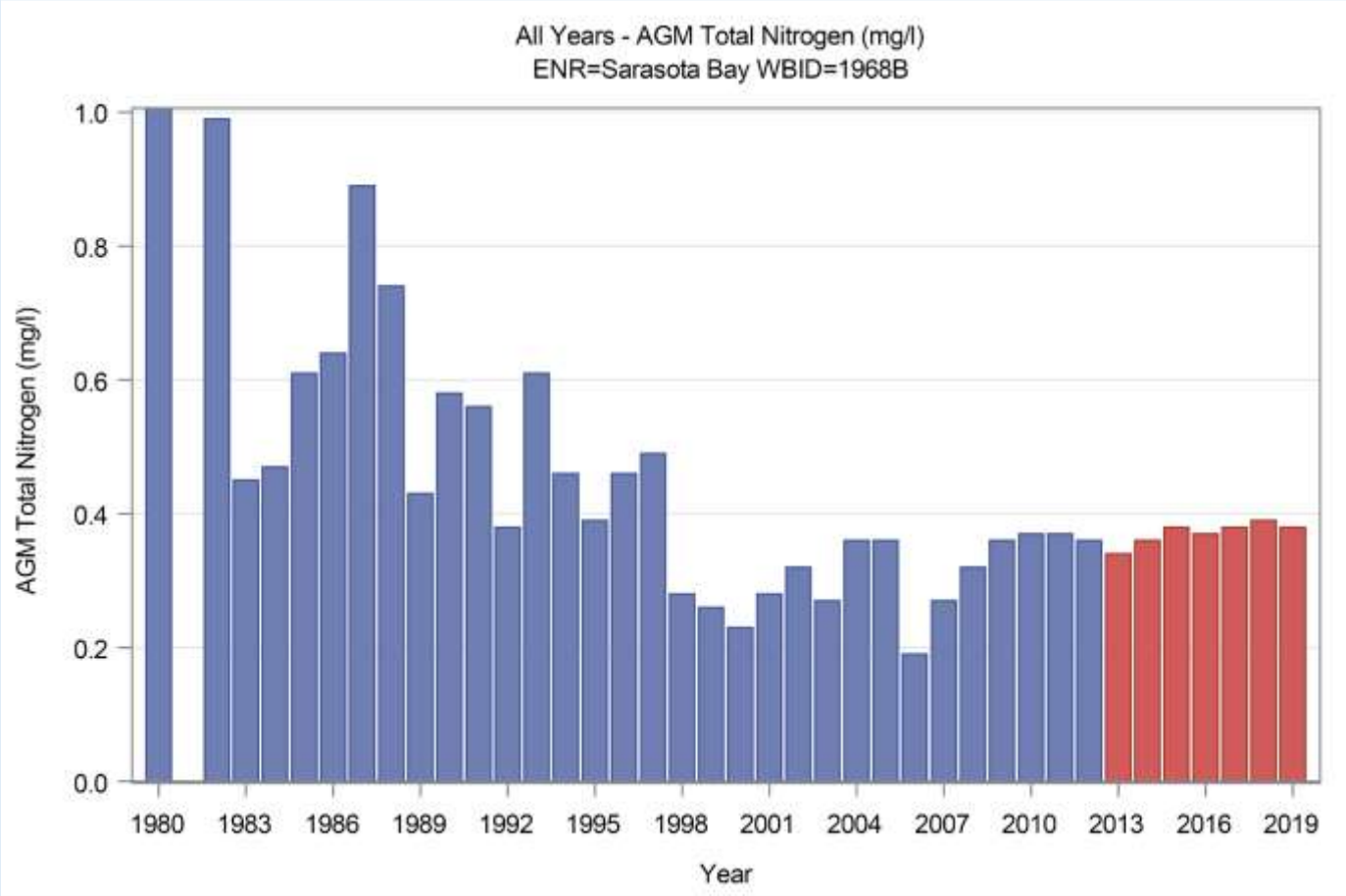
Could we reduce inorganic nitrogen loads by 12 tons?

- What is the quantity of <u>controllable</u> loads?
  - Impacts from excessive application or nutrient-rich reclaimed water peaked at 20 tons/yr (2016)
  - Spills peaked at > 6 tons Roberts Bay alone (2018)
  - Septic tanks ca. 20 tons / yr in Roberts Bay (2019)
- Eliminating the combination of point sources, septic tanks, reclaimed water and spills alone is <u>*more than enough*</u> to get 12 tons / yr reduction

Is it realistic to be optimistic, with all that needs to be done?



Yes – look at what we've already done!



Questions or comments?

dave@sarasotabay.org

Community Playbook & Water Quality Science

Questions & Discussion

County Water Quality Initiatives

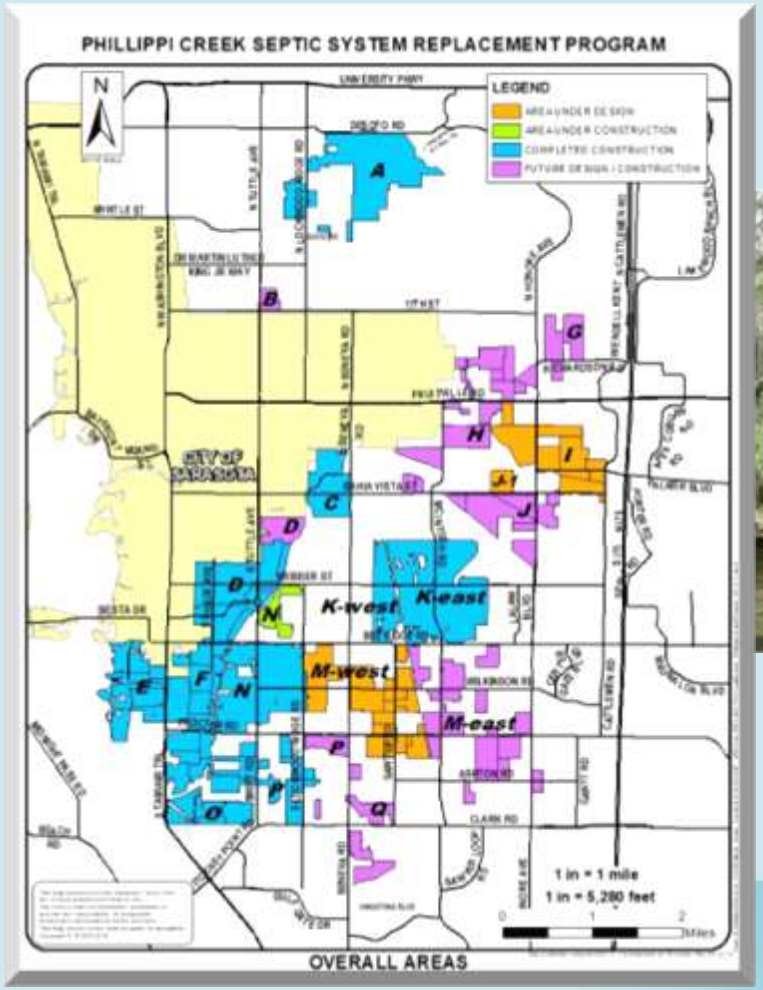
- Public Utilities
- Public Works
- Planning and Development Services
- Parks, Recreation, and Natural Resources
- UF/IFAS Extension and Sustainability

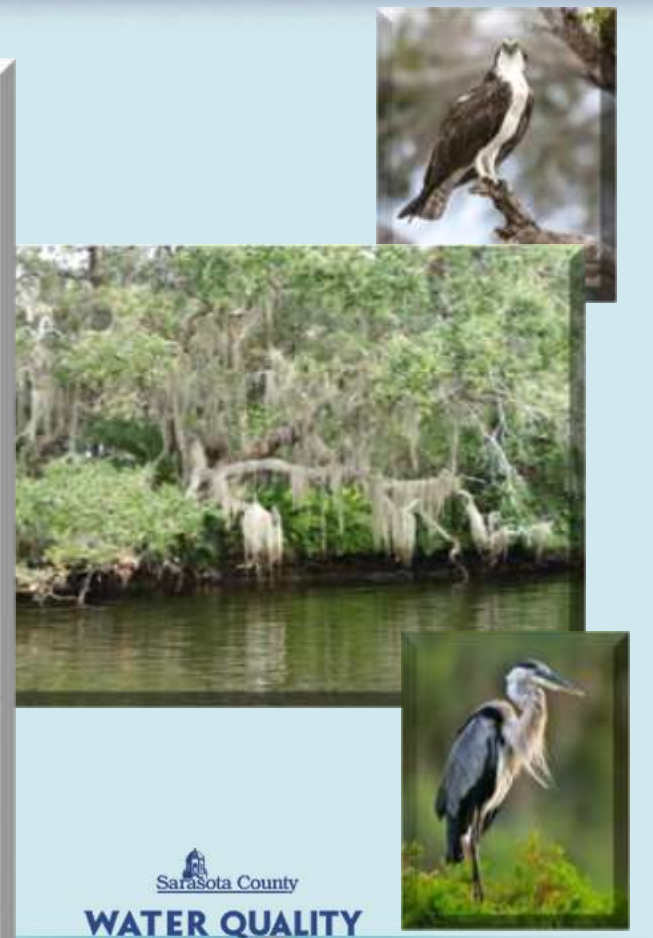
County Water Quality Initiatives

Public Utilities

Phillippi Creek Septic System Replacement Program

- Since 2001 inception, made available to 10,232 properties.
- 9,414 properties connected.
- 92% connection rate.
- 14,000 septic tanks to be eliminated.
- Cost $115M





Sarasota County
WATER QUALITY

County Water Quality Initiatives

Public Utilities

Repair & Rehabilitation Programs 2015 - 2021

Lift Stations

- 151 Lift Stations Rehabilitated
- Cost $10.1M

Sarasota County
WATER QUALITY

County Water Quality Initiatives

Public Utilities

Repair & Rehabilitation Programs 2015 - 2021

I & I – Manholes & Sanitary Sewer Lining

- Manholes
  - 10,160 FT Recoated
  - Cost $4.9M
- Sanitary Sewer
  - 374,968 LF Lined
  - Cost $16.4M

Sarasota County
WATER QUALITY

County Water Quality Initiatives

Public Utilities

Water Quality Improvements

Bee Ridge WRF Aquifer Recharge Wells
- Cost $9.97M

Hudson Bayou In-Stream Water Quality
- Cost $536K

ASR Permanent Pumps & Piping
- Cost $1M

Central County DIW Pumps & Piping System
- Cost $1.37M

Siesta Key MPS & FM (Phases 1, 2 & 3)
- Cost $7.1M

Total Cost: $ 19.9M

Sarasota County
WATER QUALITY

County Water Quality Initiatives

Public Utilities

Water Quality Improvement Projects

ASR Permanent Pumps & Piping

- Cost $1M

Central County DIW Pumps & Piping System

- Cost $1.37M

Sarasota County
WATER QUALITY

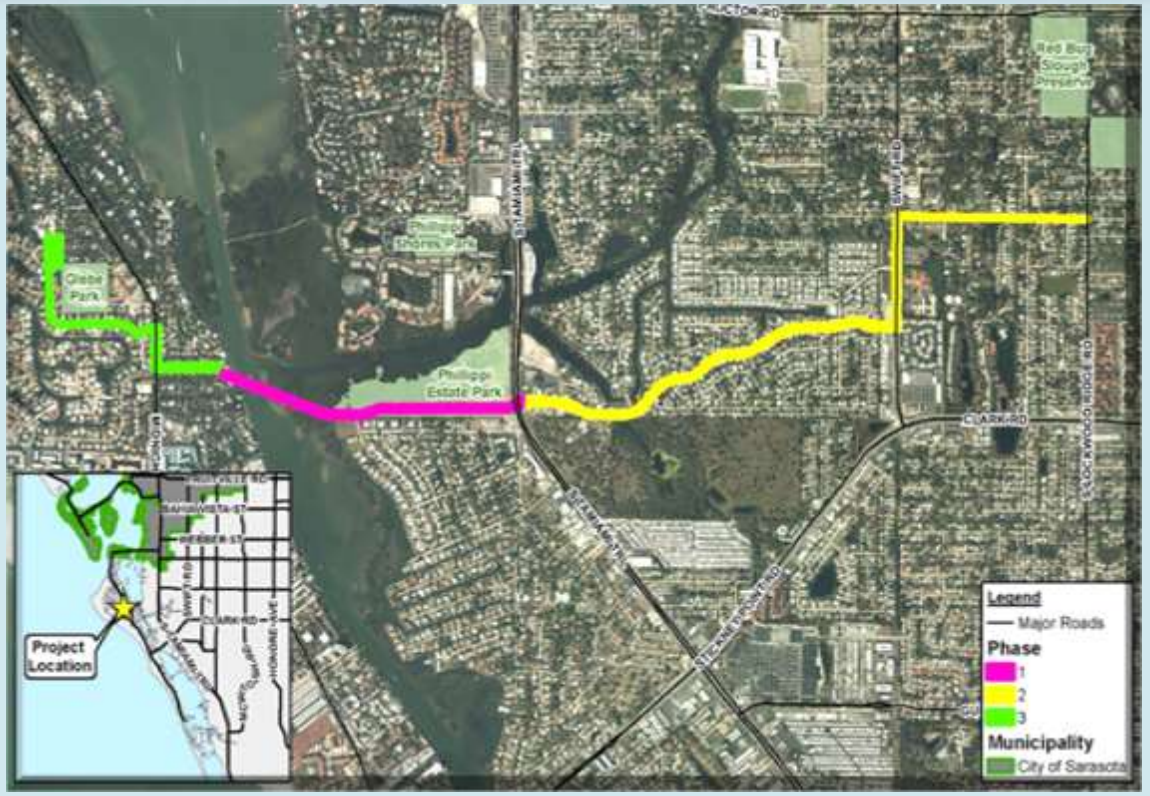
County Water Quality Initiatives

Public Utilities

Water Quality Improvement Projects

Siesta Key MPS & FM (Phases 1, 2 & 3)

- Cost $7.1M



Sarasota County
WATER QUALITY

County Water Quality Initiatives

Public Utilities

Water Quality Improvement Projects

Bee Ridge WRF Aquifer Recharge Wells

- Cost $9.97M

Bee Ridge AWT

- Cost $215M

Venice Gardens AWT

- Cost $90M

Central County AWT

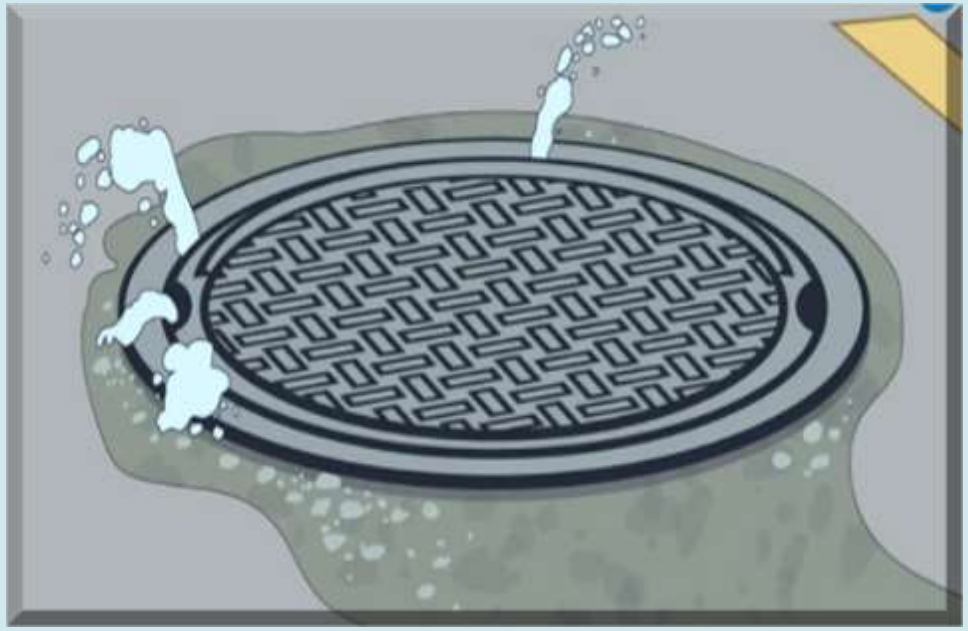
- Cost $140M

Sarasota County
WATER QUALITY

County Water Quality Initiatives

Public Utilities

- EPA Approach provides a best practice approach operate and manager sanitary sewer collection systems.
- Estimated to add $5M to $10M /year to Operating Budgets
- Result in increased staffing of 40+



Sarasota County
WATER QUALITY

County Water Quality Initiatives

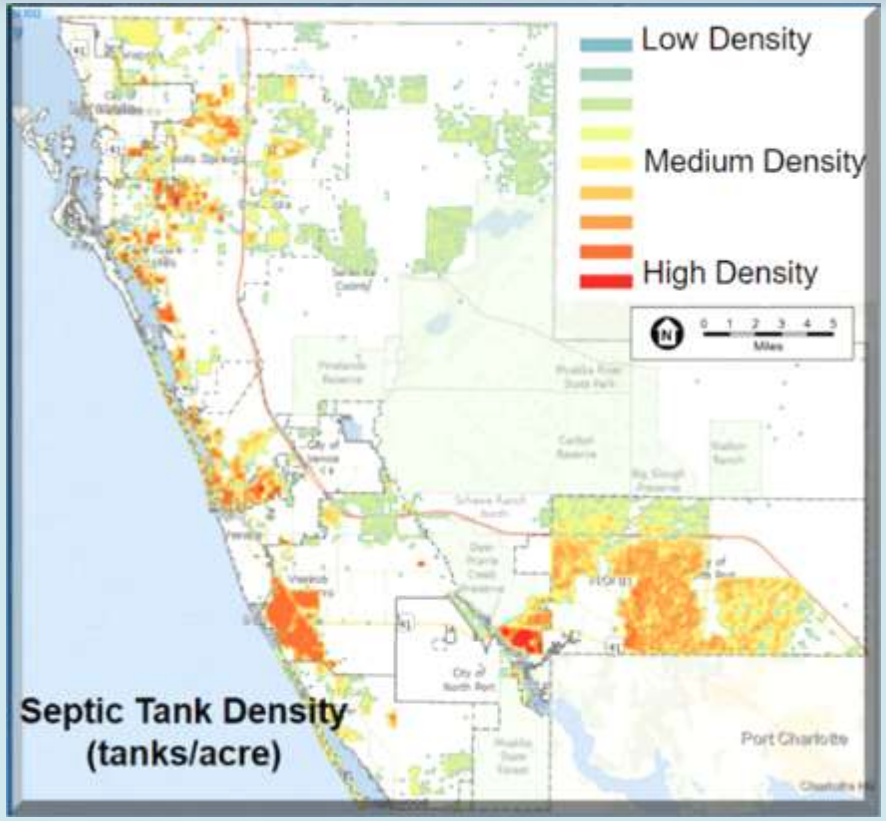
Public Utilities

Water Quality Improvement Projects

Sarasota County Septic System Replacement

- Developing Implementation Plan
- 23,633 estimated total septic tanks in SCPU Service Area
- $20,000 - $36,000/connection
- *Program Cost $472M - $851M*

  (Does not include transmission infrastructure and value-added improvements water mains, paving, stormwater improvements, reclaimed water mains, sidewalks)



Sarasota County
WATER QUALITY

County Water Quality Initiatives

Public Works

Stormwater Environmental Utility

Past Focus: Flood control

Future Focus: Water Quality

Responsibilities Include:

- City of Sarasota Interlocal
- Maintenance & Planning
- Capital Improvement Projects
- Development Standards
- NPDES Compliance
- TMDL Management

1962 FLOODING FROM HURRICANE DONNA IN PINECRAFT AREA

Sarasota County
WATER QUALITY

County Water Quality Initiatives

Public Works

Past Projects

- Celery Fields $20M
- Dona Bay $19M +
- Catfish Creek $4.3M
- Sediment Traps $1.4M
- Hudson Bayou $1M
- 10th St. Baffle Box $1M

Sarasota County
WATER QUALITY

County Water Quality Initiatives

Public Works

Ongoing Projects

- Aquatic Weed Harvesting
- Water Goats
- N.E.S.T.

Sarasota County
WATER QUALITY

County Water Quality Initiatives

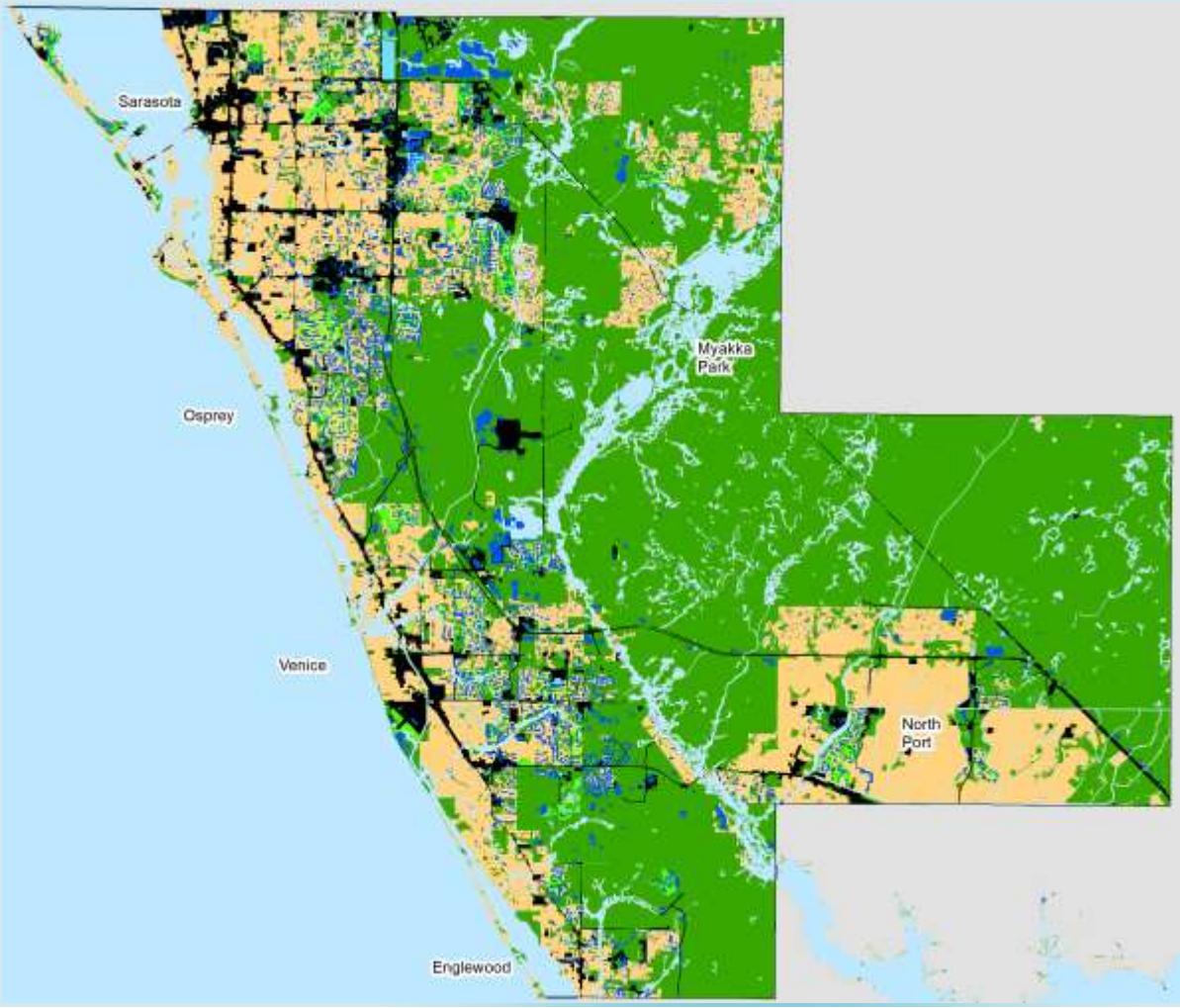
Public Works

Stormwater CHALLENGE

Landscape, outside preserved areas, is mostly developed

Coast developed before stormwater treatment was required

County does own the drainage system including ~ 280 ponds



County Water Quality Initiatives

Public Works

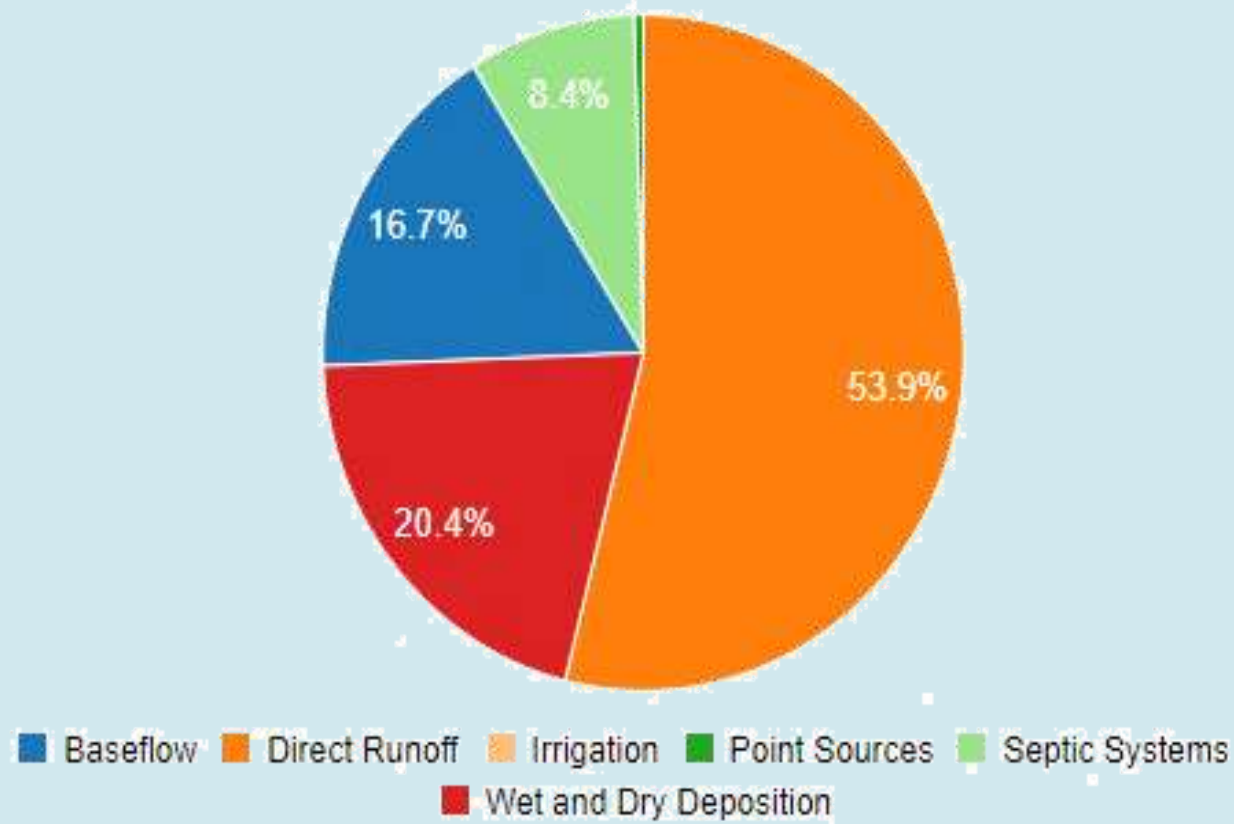
Future Projects

- Alligator Creek Stream Restoration $6.6M
- Phillippi Creek NW & Central Tributaries – Natural Systems Restoration $55M
- Pond Management & Retrofit
- Urban Retrofits/LID

Sarasota County
WATER QUALITY

County Water Quality Initiatives

Public Works



Sarasota County
WATER QUALITY

County Water Quality Initiatives

Planning & Development

Standards for Development

- Littoral shelves in ponds
- Tree planting requirements and funding for public tree planting
- Water quality monitoring plans
- Native habitat protection
- Recent UDC amendment including pollution prevention requirements
- Erosion control, and pollution prevention BMPs
- Lot Drainage reviews of building permit applications
- Watercourse buffers and setbacks, Myakka River Protection Zone requirements
- Promote the use of Low Impact Design features

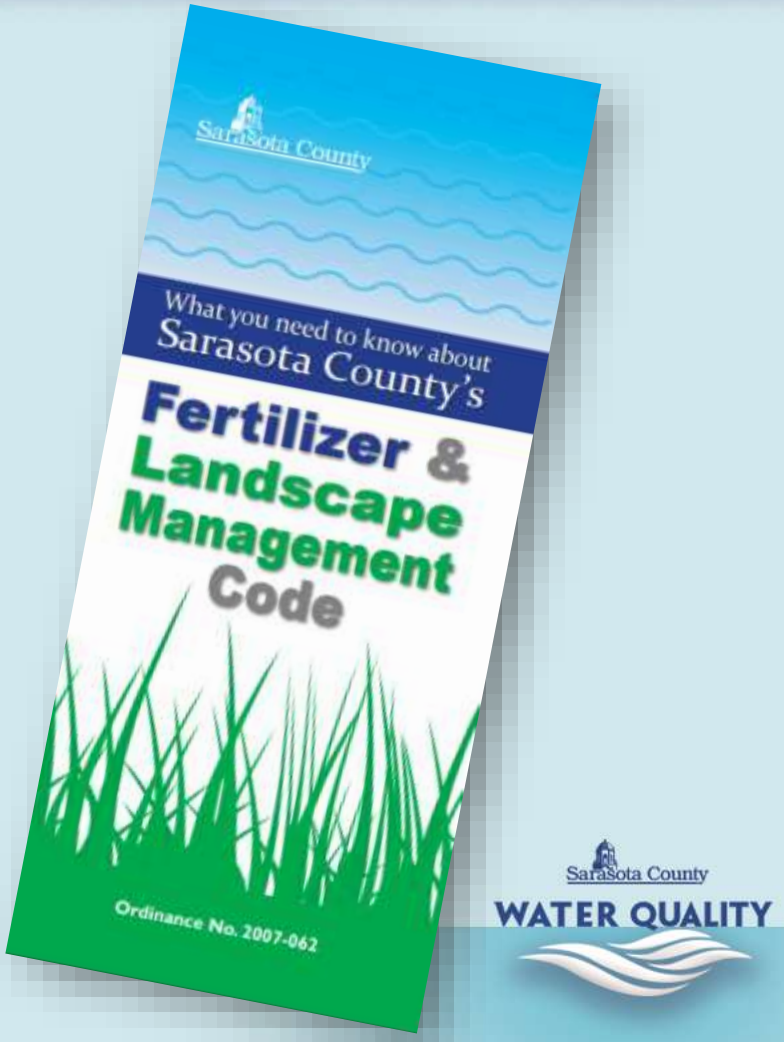
Sarasota County
WATER QUALITY

County Water Quality Initiatives

Planning & Development

Outreach

- Partnership with UF/IFAS on rain barrels
- Targeted presentations to neighborhoods about ponds and preserve areas
- Education materials at the County Fair, FireFest, Earth Day and at libraries
- Targeted social media releases and neighborhood newsletters on fertilizer application, pamphlet, etc.
- 1:1 education during inspections



County Water Quality Initiatives

Planning & Development

Compliance

- Cleanup of petroleum contaminated sites – 15 annually
- Inspection of pollution sources
  - Petroleum Storage tank systems – 175 annually
  - Stormwater water quality at industrial facilities – 100 annually
  - Domestic wastewater treatment facilities – 85 annually
  - Land development sites
- Pollution response to citizen's concerns - 200 annually
- Inter-agency coordination with Environmental Health (DOH), FDEP, SWFWMD, USACE

Sarasota County
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County Water Quality Initiatives

Parks, Recreation & Natural Resources

Land Acquisition

- Sarasota County's Environmentally Sensitive Lands Protection Program (ESLPP) has been protecting land and water resources since 1999.
- ESLPP has protected over 8,000 acres of land directly along the Myakka River shoreline.
- ESLPP has also protected an additional 2,548 acres along additional waterbodies.

County Water Quality Initiatives

Parks, Recreation & Natural Resources

Water Quality and Environmental Restoration Projects

- Ongoing goal to restore and enhance wetland and shoreline habitats to increase nutrient uptake and storage by plants.
- Restoration projects in coastal park settings present cost-effective viable solutions to help with nutrient reduction and climate mitigation in this community.
    - Siesta Beach Access 7 – removal of invasive plants and trees before supplanting the area with flora native to Florida wetlands.
    - Blackburn Point Park – built a “living shoreline” using coir logs, mangroves, button woods, railroad vine, sand cord grass, and oyster bags.

County Water Quality Initiatives

Parks, Recreation & Natural Resources

Water Quality and Environmental Restoration Projects – North Jetty

A large organically shaped, shallow, sodded detention area between Casey Key Road and the shoreline that can temporarily store and detain stormwater, allowing sediments to settle out before the water outflows into the bay.

The detention area can double as a recreation area during the dry periods of the year and provides continuous access to the shoreline by park patrons.

County Water Quality Initiatives

Parks, Recreation & Natural Resources

Water Quality and Environmental Restoration Projects – North Jetty

Before and After Detention Area

Sarasota County WATER QUALITY

County Water Quality Initiatives

Parks, Recreation & Natural Resources

Water Quality and Environmental Restoration Projects – North Jetty

Vegetated, terraced spillway with erosion control mat.

New drainage ditch along Casey Key Road.

Sarasota County WATER QUALITY

County Water Quality Initiatives

Parks, Recreation & Natural Resources

Waste2Water Recycled Wash Station

PRNR installed a Waste2Water Recycled Wash Station for protection of the soil and groundwater.

- The wash station uses natural and biological additives to clean and recycle water that is used to clean equipment.
- This system is completely self-contained thereby eliminating runoff exposure and contamination.

County Water Quality Initiatives

UF/IFAS Extension and Sustainability

Agriculture Best Management Practices

- Site visits to farms and ranches
- Support for large and small producers
- Education on cost share programs

County Water Quality Initiatives

UF/IFAS Extension and Sustainability

Landscaping

- Florida Friendly Landscaping™ education
- Plant Clinic Q&A
- Demonstration gardens
- Master Gardener Volunteers
- Commercial Horticulture Best Management Practices

County Water Quality Initiatives

UF/IFAS Extension and Sustainability

Urban Forestry

- Urban forestry workshops
- National Arbor Day tree adoption events
- Florida Arbor Day Family “TreeQuest” scavenger hunts

County Water Quality Initiatives

UF/IFAS Extension and Sustainability

Ponds & Reclaimed Water

- Healthy Ponds Certification Program
  - 8-week training for pond managers & pesticide applicators
- Reclaimed water nutrient calculator
  - Bay-friendly fertilizing tool for reclaimed water users

County Water Quality Initiatives

UF/IFAS Extension and Sustainability

Neighborhood Education & Support

- HOA Pond consultations & potential funding
- HOA landscape consultations
- Home irrigation evaluations

County Water Quality Initiatives

UF/IFAS Extension and Sustainability

Coastal Management

- Marine debris education & clean ups
- Living shorelines
- Mangrove Best Management Practices
  - Classes
  - Site visits, technical support

County Water Quality Initiatives

UF/IFAS Extension and Sustainability

Florida Master Naturalist Program

20th Anniversary
Florida Master Naturalist Program

- Trainings for professionals and volunteers
- Promote awareness of Florida's natural world
- Topics: Freshwater, Invasive Plants, and more

County Water Quality Initiatives

UF/IFAS Extension and Sustainability

Energy Education

- Reducing Atmospheric Deposition
  - Electric Vehicles
  - Solar
  - Energy Efficiency


Photo credit: Brilliant Harvest LLC

County Water Quality Initiatives

Funding Opportunities

Surtax & American Rescue Plan

- Surtax: One cent infrastructure sales tax.
  - Learn more and submit project ideas at: sarasotacountysurtax.net & workshops.
- American Rescue Plan Act: Coronavirus fiscal recovery funds 2021-2026.
- Water quality projects included in both proposed projects lists.

Blackburn Point Park Improvements

Brother Geenan Way Storm Culvert

Nokomis Sewer Line

Spoil Island

County Water Quality Initiatives

Questions & Discussion

Top 5 Actions You Can Take to Improve Water Quality

1. Create a Florida-Friendly landscape and follow the 9 principles

https://ffl.ifas.ufl.edu/about-ffl/9-principles/ or call Master Gardener Plant Clinic to get started @ 941-861-9807

Sarasota County
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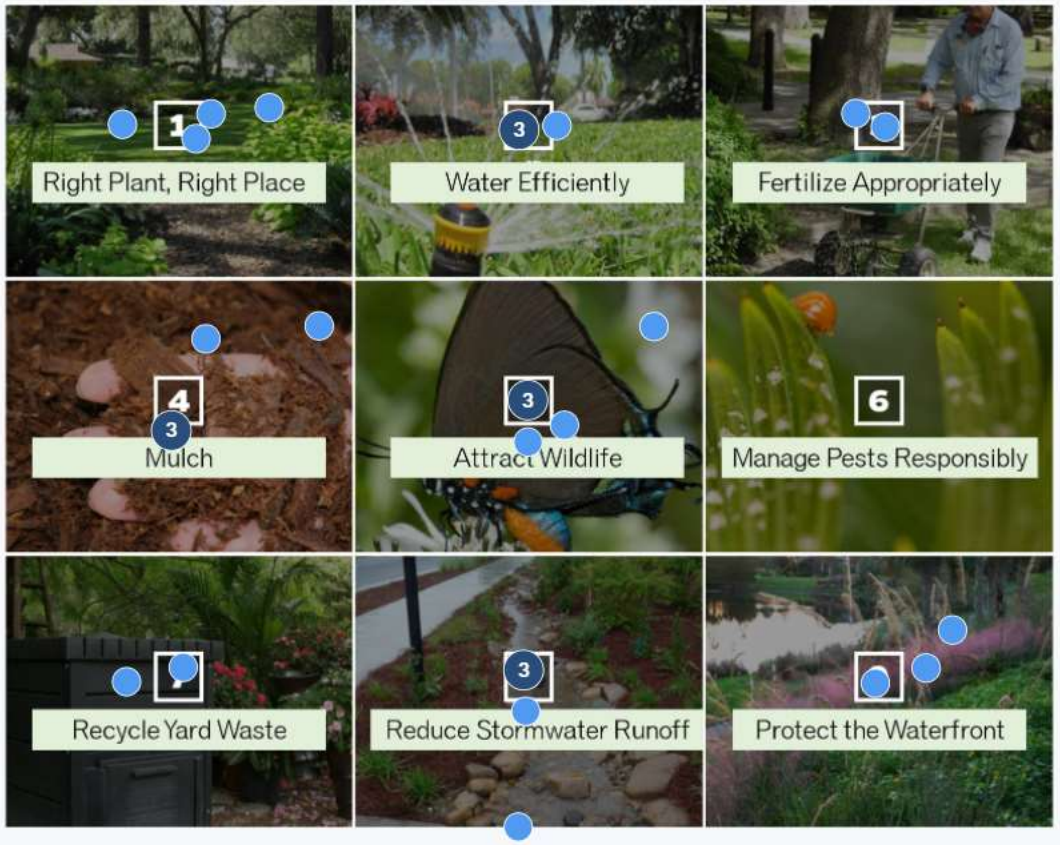
Photo credit: UF|IFAS

Go to **www.menti.com** and use the code **9110 0832**

Pick the Florida-Friendly Landscaping Principle that you will commit to implementing in the next 6 months.



Top 5 Actions You Can Take to Improve Water Quality

2. Check your irrigation system and add rain barrels.

bit.ly/irrigationevaluation

bit.ly/sarasotarainbarrels

Sarasota County
WATER QUALITY

Photo credit: Wilma Holly

Go to **www.menti.com** and use the code **9110 0832**

Automatic irrigation systems are required to have a rain shut-off device such as a rain sensor. What is wrong with the rain sensor shown here?

Press S to show image

33

Top 5 Actions You Can Take to Improve Water Quality

3. Implement Bay-Friendly Fertilizing

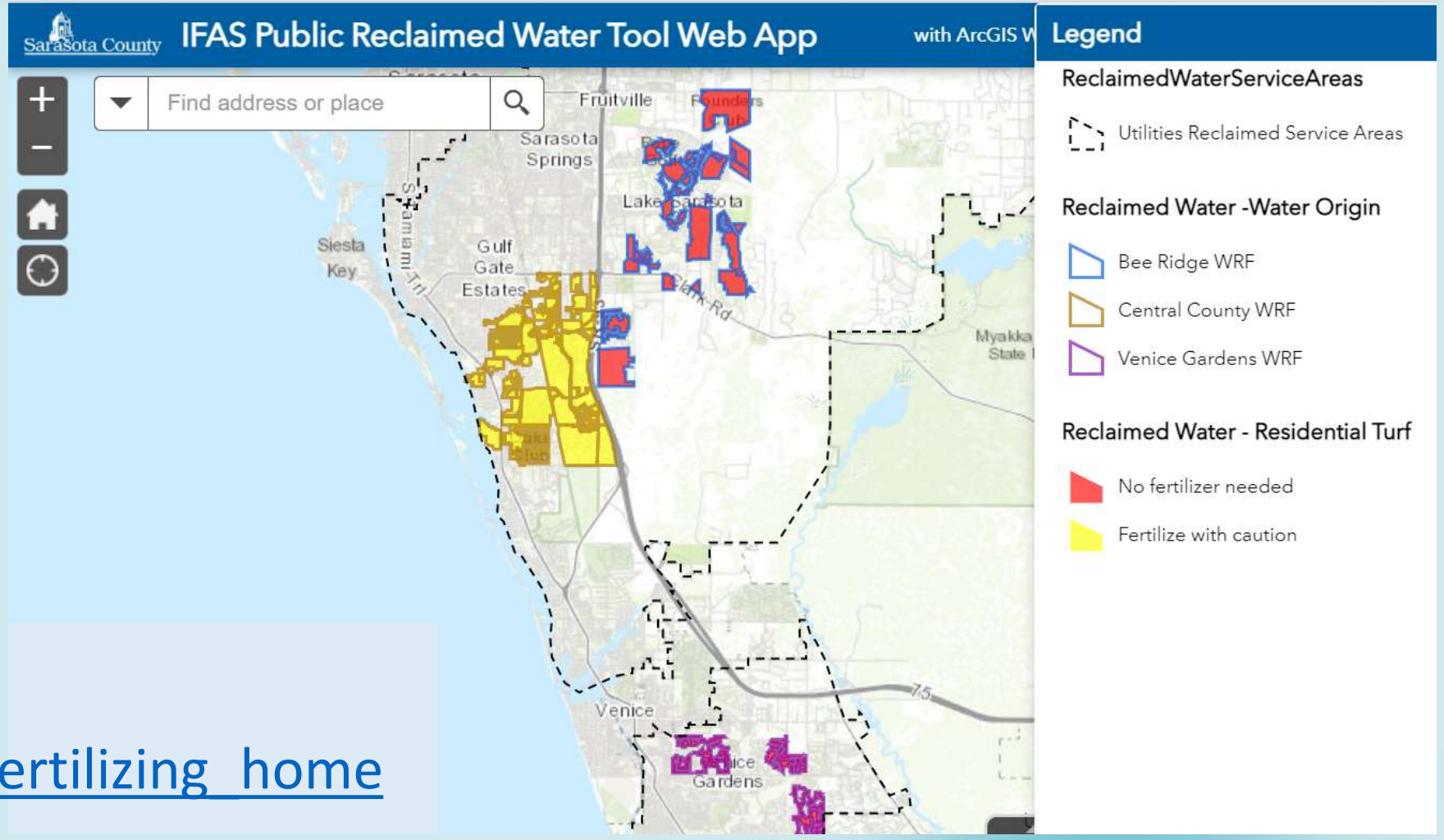
Use our tool to:

a.) see if you get reclaimed water & if the fertilizer in your irrigation water is enough

b.) determine how much fertilizer you should use if plan to fertilize

Go to:

Bit.ly.com/BayFriendlyFertilizing_home



Go to **www.menti.com** and use the code **9110 0832**

Bay-friendly fertilizing -- How would you rank the effectiveness for reducing nutrient pollution of each recommendation?

Top 5 Actions You Can Take to Improve Water Quality

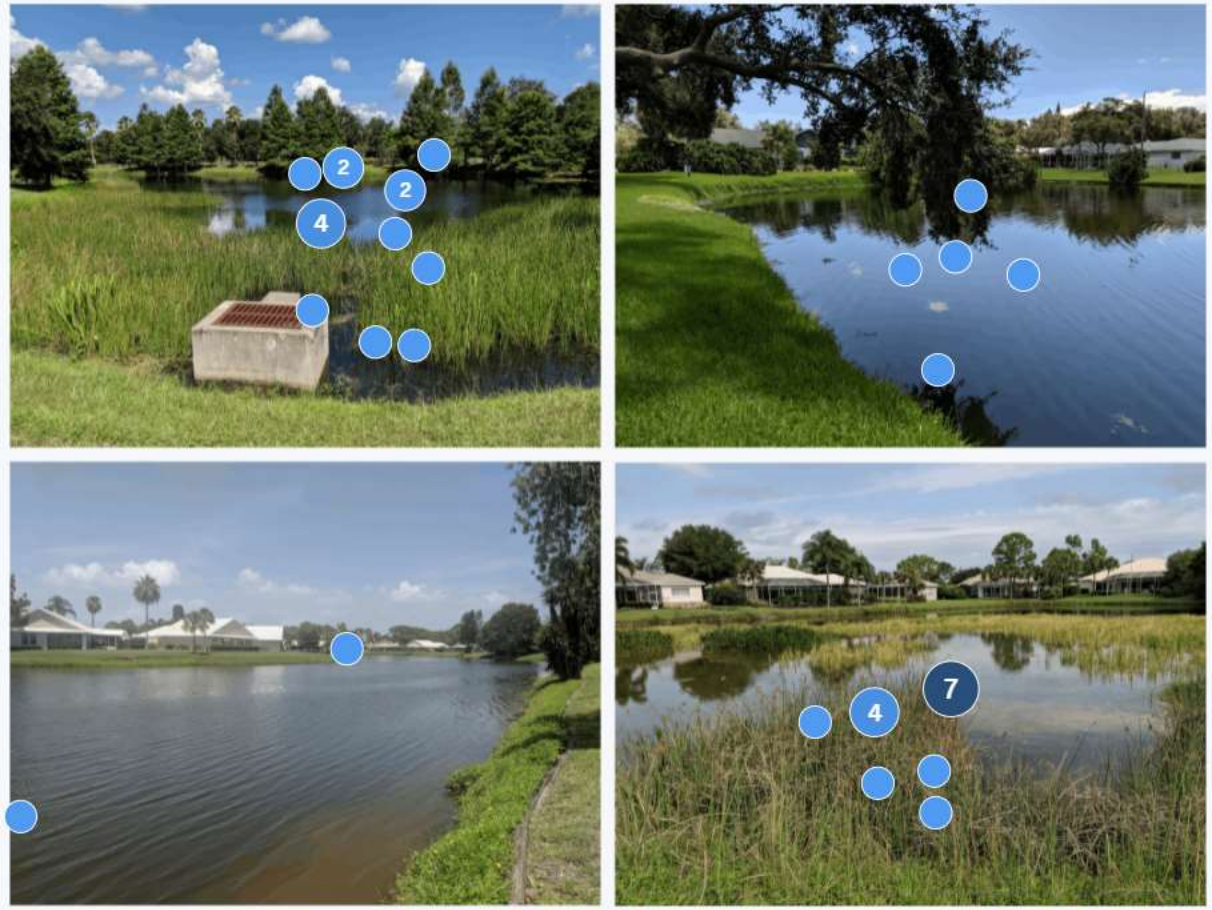
4. Improve your stormwater ponds (a.k.a lakes).

Email Abbey or Mollie:

atyrna@ufl.edu or mkholland@scgov.net

Go to **www.menti.com** and use the code **9110 0832**

Pin the image you would like to live around.



37

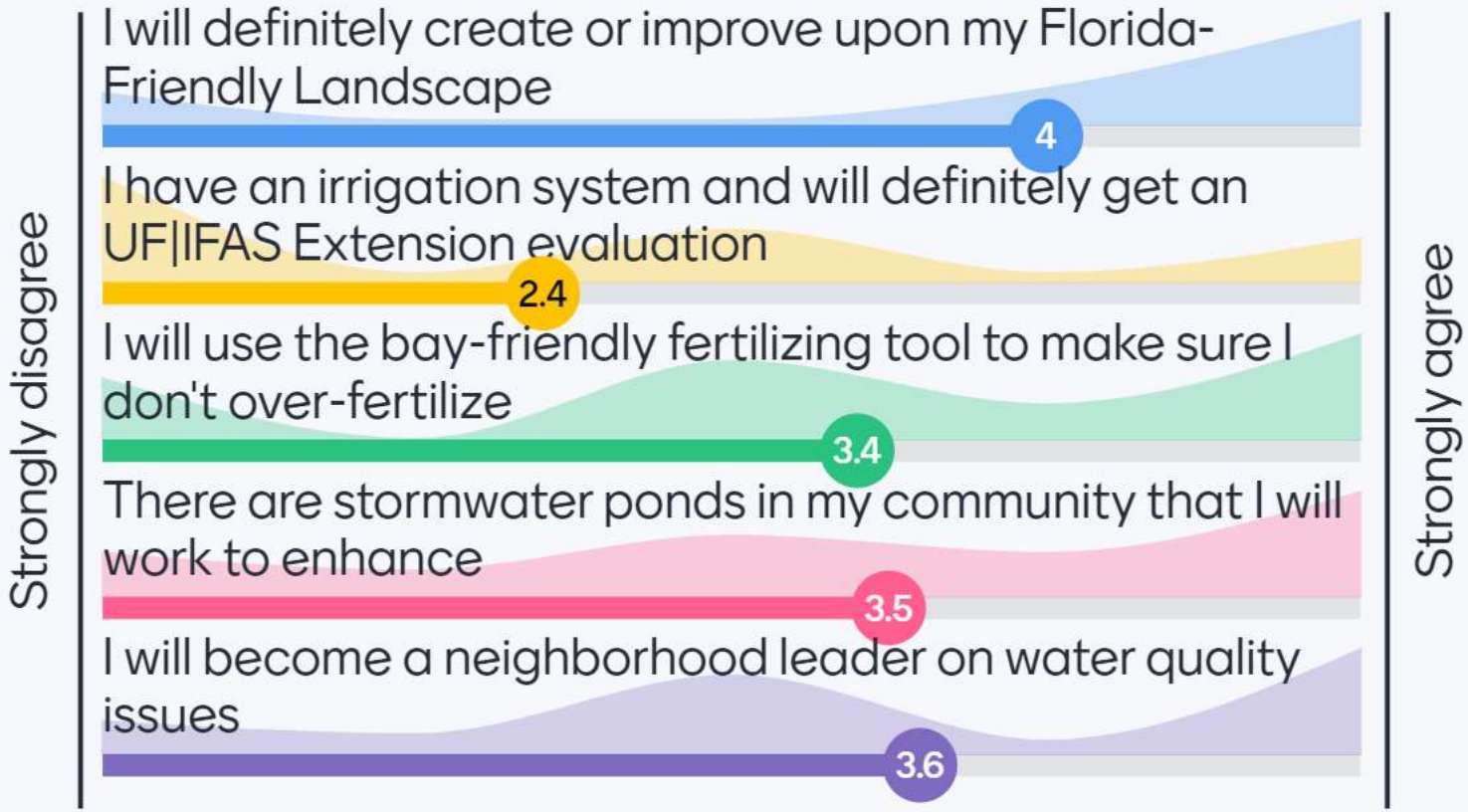
Top 5 Actions You Can Take to Improve Water Quality

5. Become a leader!

Sarasota County
WATER QUALITY

Go to **www.menti.com** and use the code **9110 0832**

Your Water Quality Commitment



40

Water Quality Resources

INFORMATION

- Sarasota County Water Atlas
  https://www.sarasota.wateratlas.usf.edu/water-quality-trends/
- Sarasota Bay Estuary Program
  https://sarasotabay.org/
- Science and Environmental Council
  https://www.scienceandenvironment.org/project/water-quality/

FINANCIAL ASSISTANCE

- Sarasota County Neighborhood Grants
  https://www.scgov.net/government/planning-and-development-services/planning-and-zoning/neighborhood-services
- Healthy Ponds Collaborative
  atyrna@ufl.edu or MkHolland@scgov.net
- Sarasota Bay Estuary Program Mini-Grants
  https://sarasotabay.org/get-involved/apply-for-a-grant/

GET INVOLVED

- UF|IFAS Extension Classes
  ufsarasotaext.eventbrite.com
- Get an Irrigation Evaluation
  bit.ly/irrigationevaluation
- Volunteer
  https://www.sarasota.wateratlas.usf.edu/get-involved/

Sarasota County
WATER QUALITY

Top 5 Actions You Can Take to Improve Water Quality

Questions & Discussion

Sarasota County Water Quality Update

Thank you for joining us today!

For more information:

www.scgov.net

(key words: water quality)

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