

**PRESENTATIONS
I. ITEM A.**



**AGENDA REPORT
April 18, 2019**

Natural Resources Management Department

SUBJECT:

Presentation by Natural Resources Office.

DEPT/OFFICE:

County Manager

ATTACHMENTS:

Description

- **NRO Presentation**

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Brevard County

Board of County Commissioners

Indian River Lagoon and Utilities Workshop

April 18, 2019

Save Our Indian River Lagoon

Program Update

Virginia Barker, Director

Natural Resources Management Department

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Presentation Outline

- Clean Water Goals
- Progress to Date
- Projects Underway
- Adaptive Management
- 2020 Opportunities
- Potential for Matching Funds
- Regulatory Considerations

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What Are Our Clean Water Goals?

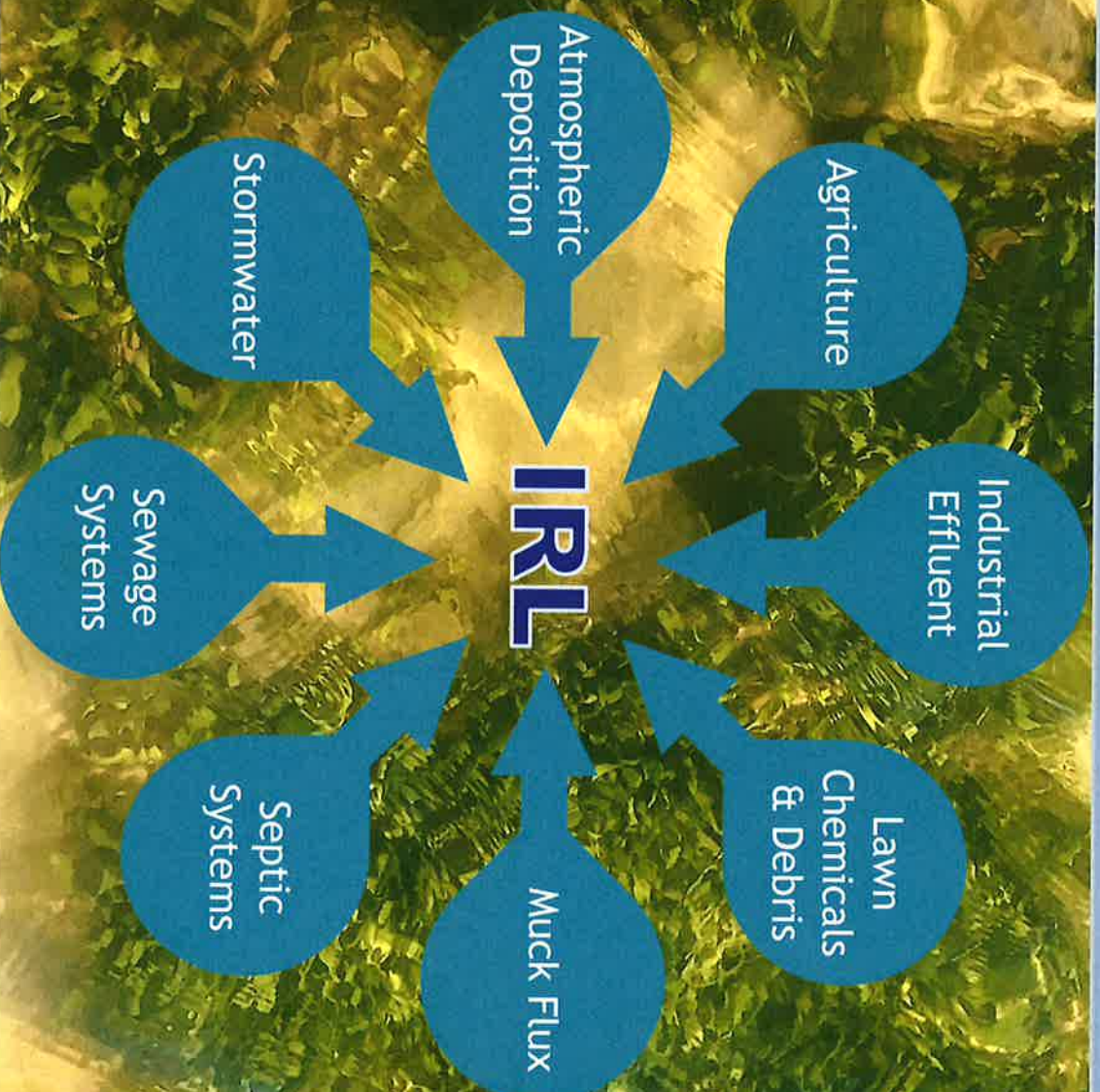
Fishable
Swimmable
Harvestable

What Targets Can We Quantify?

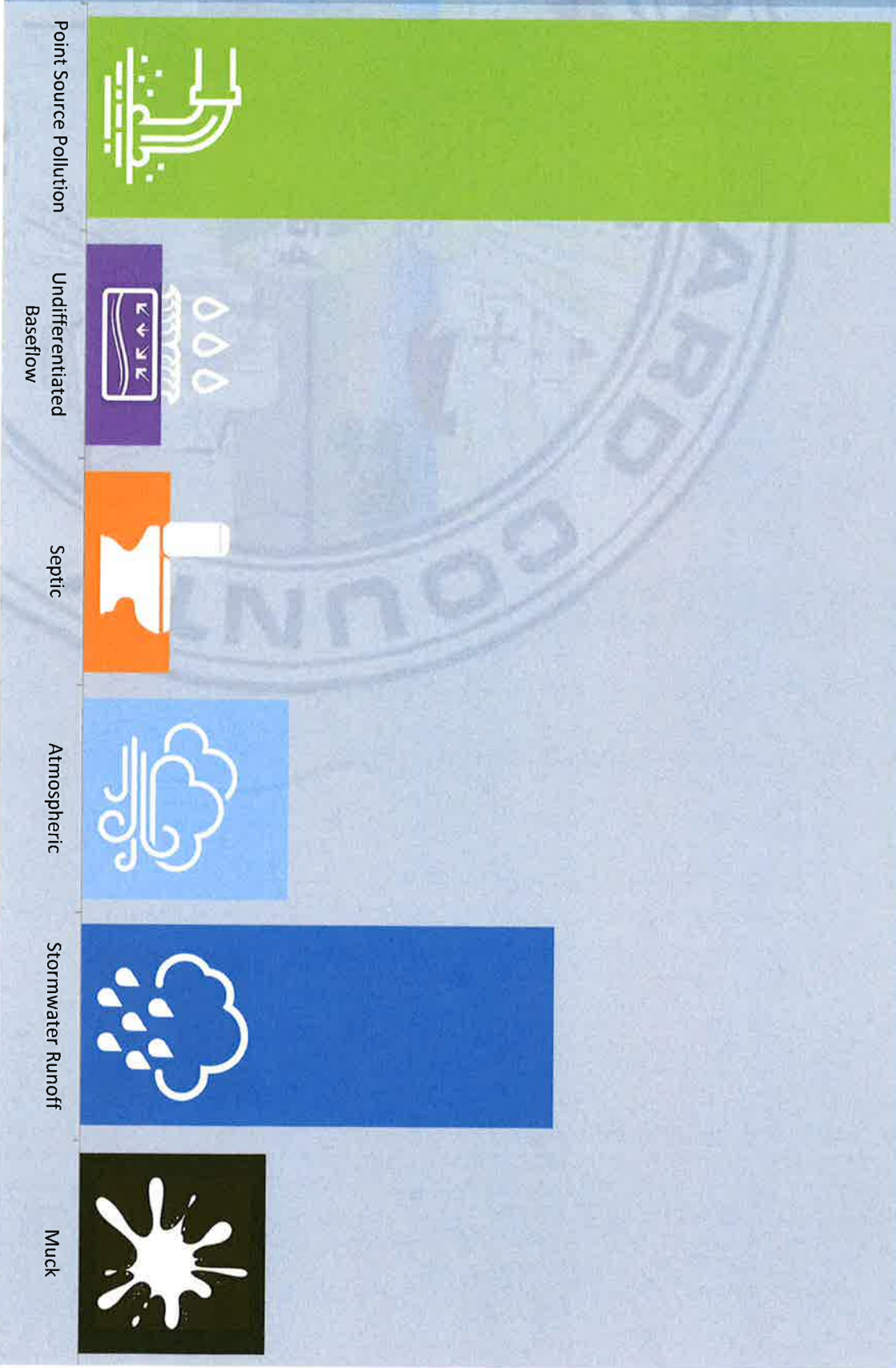
- Water Clarity (versus algae blooms)
- Sandy Floor
- Seagrass
- Dissolved Oxygen
- Natural Filtration



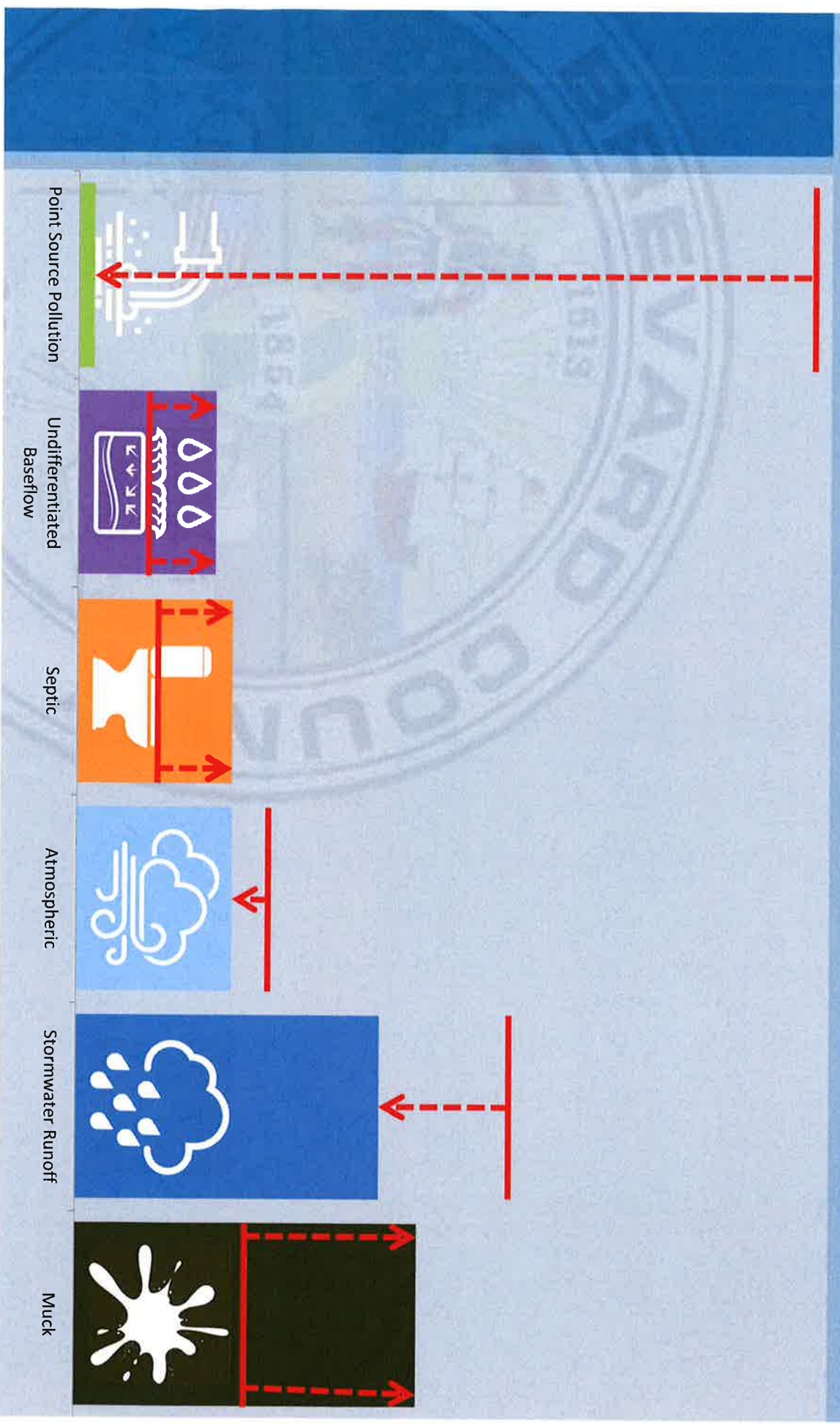
Where Does Pollution Come From?



Historical Nitrogen Loading



Current Nitrogen Loading



HOW DO WE GET TO A HEALTHY LAGOON?

REDUCE Excess Nitrogen and Phosphorus Inputs

- Fertilizer Management
- Wastewater Upgrades
- Septic to Sewer Conversion
- Septic Upgrades
- Stormwater Treatment

RESTORE Nature's Living Filtration Services

- Oyster Bars
- Planted Shorelines
- Seagrass Beds

REMOVE Accumulations of Decomposing Muck

- Environmental Dredging
- Interstitial Treatment
- Surface Water Remediation

RESPOND to New Information

- Measure Progress
- Update Costs
- Evaluate New Technology
- Consider Substitute Projects
- Update the Plan Annually

Project Selection

- Portfolio of Project Types
- Least Cost per Pound of Nitrogen
- Spatially Distributed
- Sequential Timing Considered

Project Videos

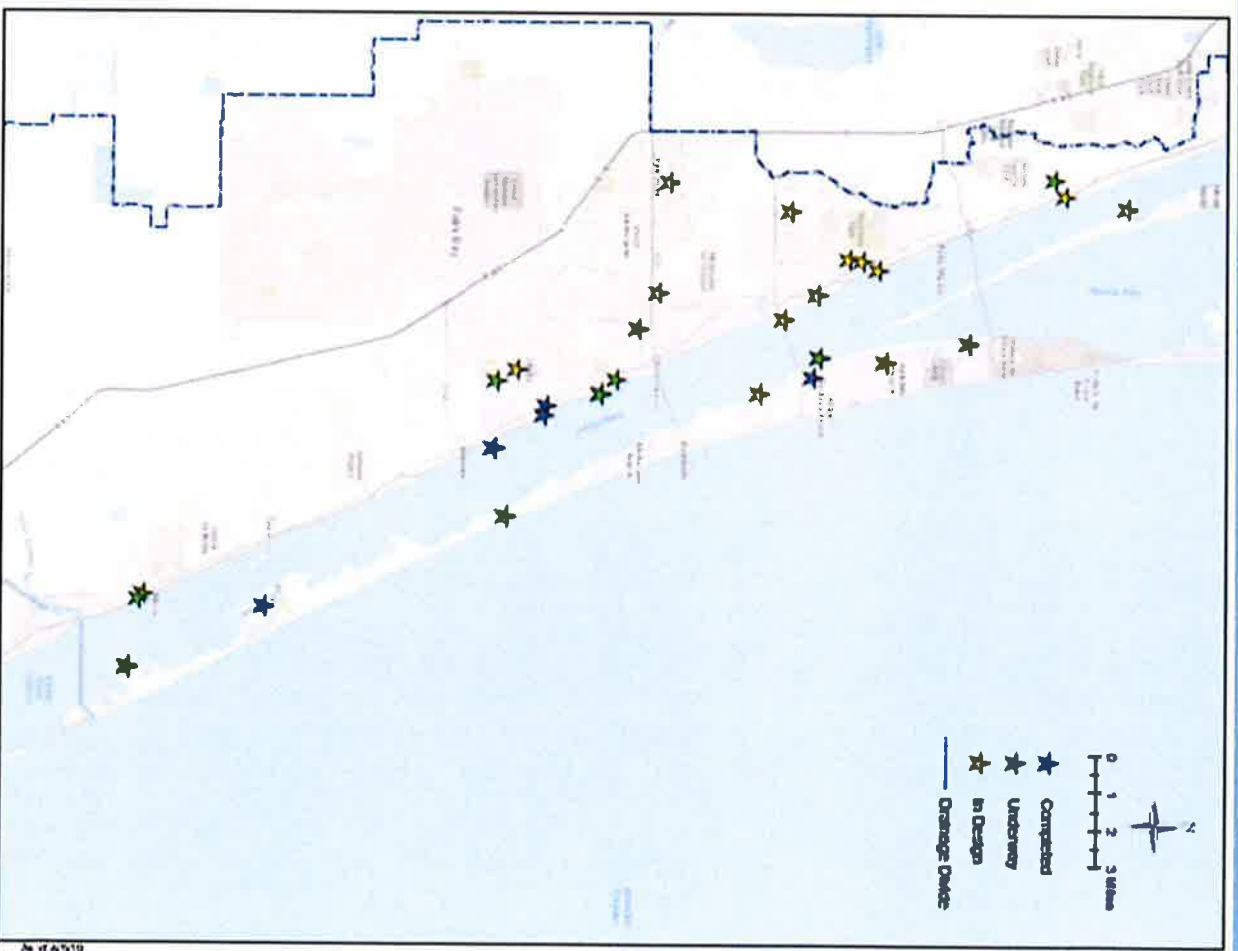
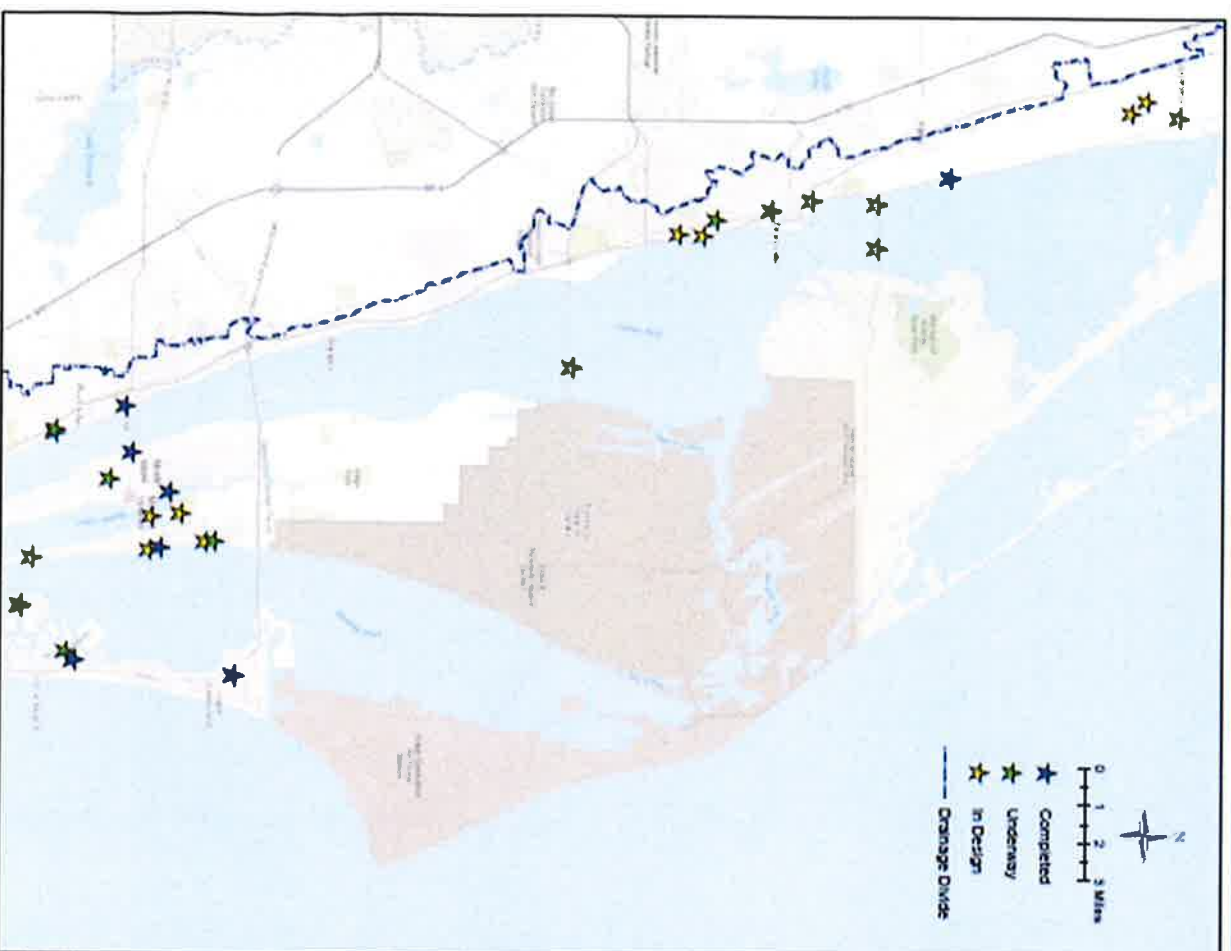
- Titusville Baffle Box
- Turkey Creek Watershed

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SOIRL Projects Completed, Underway & In Design



Progress by Project Type

Project Category	Project Type	Number of Projects Completed		Additional Projects Begun	
Reduce	Public Education		1		
	WWTF Upgrades for Reclaimed Water				2
	Sewer Lateral Rehabilitation				1
	Rapid Infiltration Basin/Sprayfield Upgrades				
	Septic System Removal by Sewer Extension	9	3	22	7
	Septic System Removal by Sewer Connection				1
	Septic System Upgrades		1		
	Stormwater Projects		4		11
	Muck Removal		2		10
	Treatment of Muck Interstitial Water	3	1	17	7
Remove	Oyster Bars		3		1
Restore	Planted Shorelines	5	2		
Respond	Project Performance Monitoring/Plan Updates	4	4	9	9
Total	Total	21	21	49	49

Tracking Project Delivery

[illegible]

Costs and Benefits for Reduce, Remove, Restore, Respond

Project Category	Actual SOIRL Cost to Date	Total SOIRL Cost for Projects Begun and/or Completed	Ten Year Cost	Nitrogen Reduction (lbs/yr)
Reduce	\$1,894,505	\$32,561,384	\$183,549,502	587,790
Remove	\$932,475	\$93,003,033	\$150,233,571	262,485
Restore	\$89,859	\$105,984	\$10,203,978	25,699
Respond	\$356,489	\$556,512	\$27,699,353	-
Total	\$3,273,328	\$126,226,913	\$371,686,404	875,974

Responsive Management

- Performance Measures
- Decision Science
- Annual Plan Updates
- Transparency
- Citizen Oversight Committee
- County Commission
- Review, Approval, Modification or Rejection

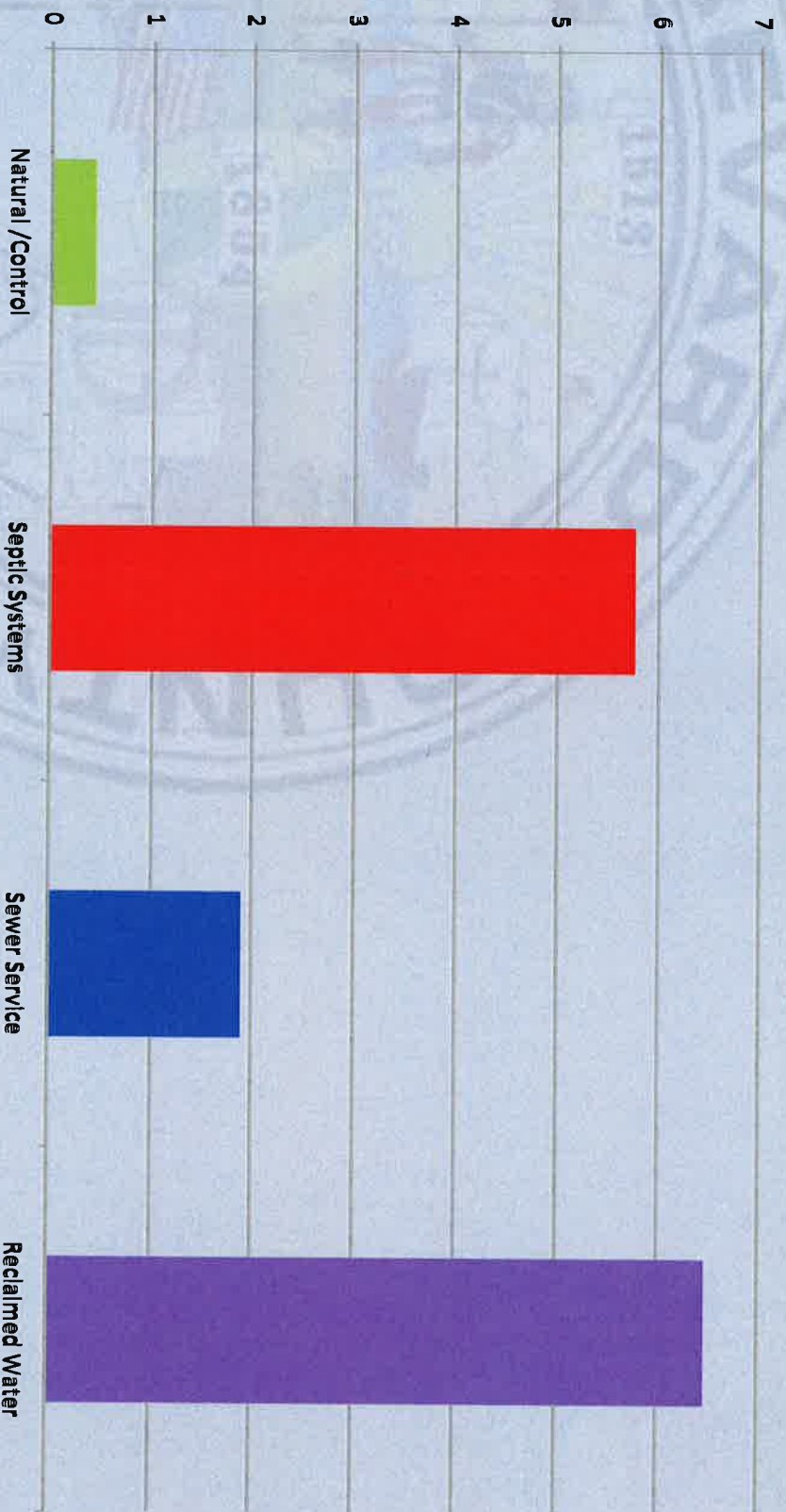
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Groundwater Sampling

Groundwater Nitrogen Concentrations (June 2018 – February 2019, mg/L TN)



Preliminary results from MRC/Applied Ecology Groundwater Quality Monitoring

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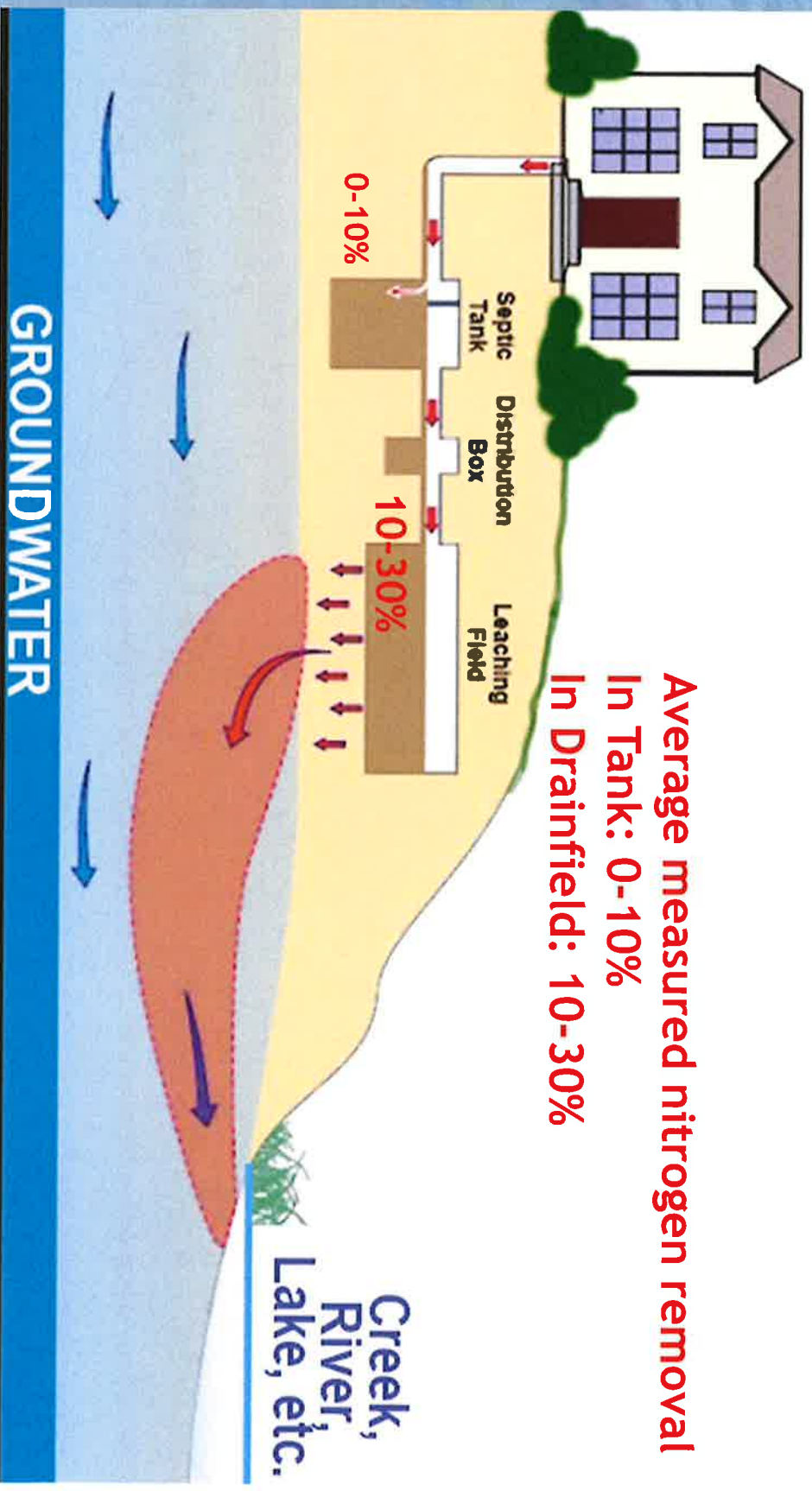
Typical Septic System near Waterway

Nutrients from leach field seep into groundwater, nearby creeks, rivers, lakes, etc. if placed too close

Average measured nitrogen removal

In Tank: 0-10%

In Drainfield: 10-30%



Decision Science - Septic Analysis



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563
Septic Systems
8,702
Lbs. Nitrogen/Year

384
Septic Systems
4,784
Lbs. Nitrogen/Year

465
Septic Systems
8,121
Lbs. Nitrogen/Year

1,207
Septic Systems
19,799
Lbs. Nitrogen/Year

5,584
Septic Systems
188,956
Lbs. Nitrogen/Year

45 to 55 Yards

34 to 44 Yards

23 to 33 Yards

12 to 22 Yards

0 to 11 Yards

4,304
Low Conductivity
Septic Systems
29,824
Lbs. Nitrogen/Year

3,230
Medium Conductivity
Septic Systems
39,401
Lbs. Nitrogen/Year

8,203
High Conductivity
Septic Systems
203,363
Lbs. Nitrogen/Year

13,472
Septic Systems
10,805
Lbs. Nitrogen/Year

23,969
Septic Systems
86,575
Lbs. Nitrogen/Year

15,737
Septic Systems
299,590
Lbs. Nitrogen/Year

> 219 Yards

55 to 219 Yards

< 55 Yards

Total

53,737 Tanks

396,970 lbs N

Priority

10% of Tanks

48% of N

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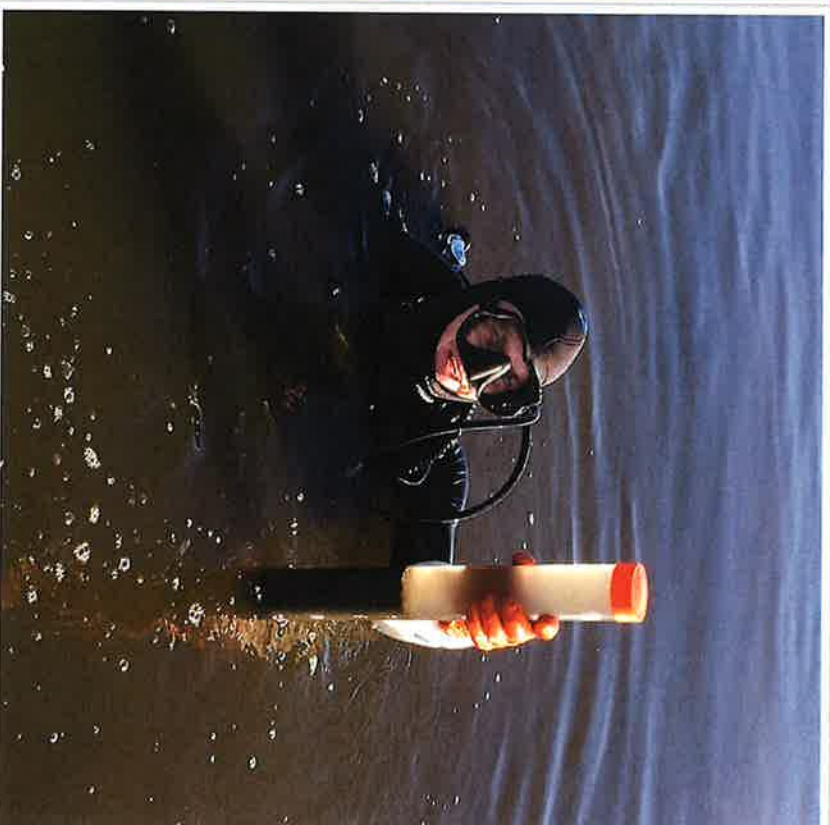
Filtration Media Additions for Wastewater Treatment Infiltration Basins

- Ranking Factors
- Distance
 - Soils
 - Volume
 - Concentration



Muck Prioritization Research

- Dredge locations reprioritized using new research data
- Funds allocated to dredging are substantially decreased
- Interstitial water treatment costs are added



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Annual Plan Updates

- Refined Revenue Projections
- Updated Costs and Benefits
- CPI Applied to Construction Costs
- Substitute Projects from Community

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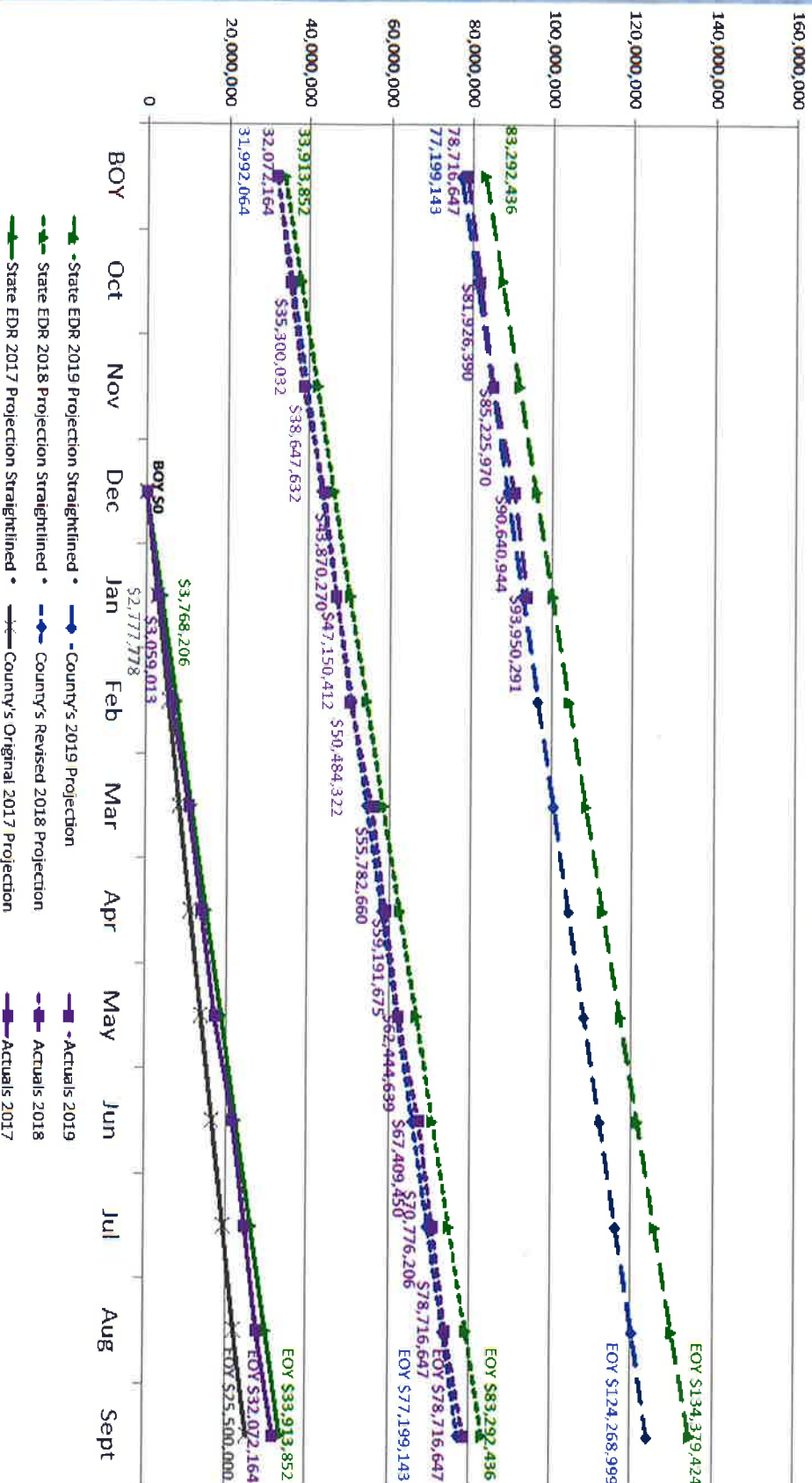
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Revenue Status

Save Our Indian River Lagoon Revenues Cumulative Graph Fiscal Year 16-17 to Current Fiscal Year

- Economic and Demographic Research Data is sourced from Florida's Office of Economic & Demographic Research using their Estimation of Realized and Unrealized Tax Revenues Table
- Projected and Actual Data is from Systems, Applications and Products program
- EDR-Economic and Demographic Research Data, BOY-Beginning of Year, EOY-End of Year
- For Screen Readers use the Save Our Indian River Lagoon Revenues Cumulative Fiscal Year 16-17 to Current Fiscal Year Table



Adaptive Management

(Plan Updates Since Inception)

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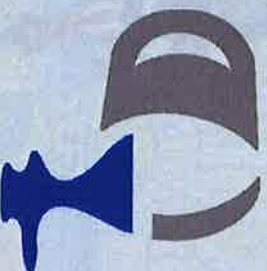
Human Waste



Outreach & Engagement



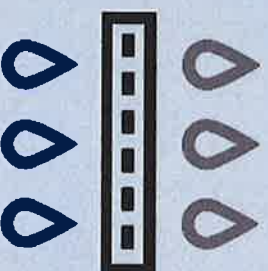
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Stormwater



Interstitial Water
Treatment



Net \$47.9 ↓

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Shoreline Restoration



Muck Removal



2020 Opportunities

- Additional Sewer Projects
- Package Plant Connections to Sewer
- Package Plant Upgrades
- Alternative Septic Upgrade Media
- Surface Water Remediation
- Refining Stormwater Priorities

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Leveraging Potential

- Save Our Indian River Lagoon Surtax
- Municipal, Utility and Other Partner Cost Share
- Community Redevelopment Districts
- Grants: TDC, FIND, SJRWMD, FDEP, IRLNEP, EPA, FEMA
- Legislative Appropriations

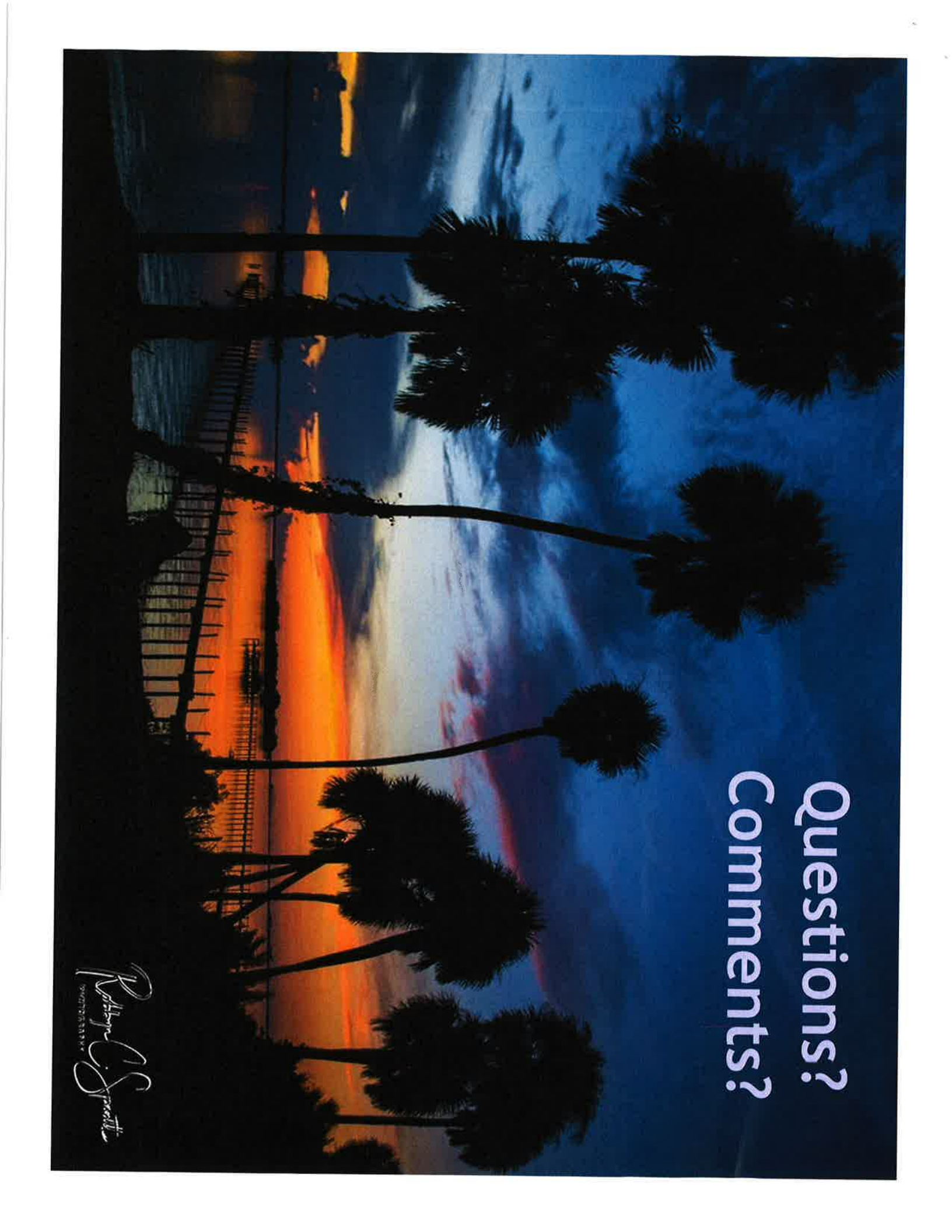
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Regulatory Options

- Fertilizer signs at retail outlets
- Enforce fertilizer and grass clipping rules
- Irrigation restrictions (SJRWMD grant incentive)
- Mandatory hook-up to adjacent force main
- Mandatory repair of private sewer leaks
- Conservation rates for reclaimed water



Questions? Comments?

Robyn C. Smith
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LEAKY LATERAL REPLACEMENT

The problem...

Smoke testing results indicate that your sewer lateral is in need of replacement or repair. The lateral line is the sewer pipe that connects the private residence to the public utility sewer.

What needs to be done?

The sewer lateral is part of your private property and is your maintenance responsibility. Repairs to your collection system are required to eliminate leaks into the sewage system that are deleterious or cause a sanitary nuisance. **HELP US HELP YOU!**

Pilot Private Lateral Replacement Grant Program

Brevard County is pleased to inform you of a pilot Private Lateral Replacement Grant Program funded by the Brevard County Save Our Indian River Lagoon Trust Fund. This grant program is designed to assist you in repairing or replacing your sewer lateral by funding **up to \$10,000**. Brevard County staff are available to assist you with arranging repairs and applying for the grant. This program requires groundwater data to be collected before and after repairs are completed. This data will help us implement this program county-wide and restore our Lagoon!

Research Team and Push Points:

Applied Ecology, Inc. is working with Brevard County to conduct this important groundwater research. They will perform push point sampling on your property to collect nutrient data associated with your groundwater. You don't have to be present for sampling and there is no impact to your yard.

What are Push Points?

Push points are a method to monitor groundwater with no impact on your yard. The push point device is a hollow steel rod which is inserted into the ground. The groundwater is then pulled up through the rod to the surface using a peristaltic pump. After the sample is collected, the rod is removed and the small hole (< 1/2") will be naturally filled in after the first rain event.



Why bother?

There are numerous benefits to replacing or repairing your sewer lateral. These benefits include:

- Staying in compliance with Section 110-69 of Brevard County code at little-to-no cost
- Better plumbing functions in your home
- Protection of the groundwater from nutrient and fecal pollution
- Doing your part to reduce the frequency and amount of sewer discharges into the Indian River Lagoon and Banana River

How can I learn more?

Please contact **Anthony Gubler** or **Kayleigh Douglass** to inquire about how you can participate in this important pilot project by allowing push point testing of your groundwater on your property, receive assistance in the application and repair process, or for more detailed information.

Anthony Gubler:

(321) 633-2016 Ext 52824

Anthony.Gubler@BrevardFL.gov

Kayleigh Douglass:

(321) 514-1171

kdouglass@appliedecologyinc.com

A Smoky Situation...

Brevard County needs your help to complete an important project in your community that will benefit you and the Indian River Lagoon!

You may recall that "smoke testing" was completed in your neighborhood last summer. The smoke testing results indicate that your sewer lateral is in need of replacement or repair, which is a part of your maintenance responsibility in accordance with Section 110-69 of the Brevard County code.

BUT Brevard County is here to help with a pilot Private Lateral Replacement Grant Program funded by the Brevard County Save Our Indian River Lagoon Trust Fund! This Grant Program is designed to assist you in repairing or replacing your sewer lateral by providing funding **up to \$10,000**. Look inside to see how you can help!



Brevard County Natural Resources
Management Department.
2725 Judge Fran Jamieson Way
Building A, Room 219



Applied Ecology, Inc.
122 Fourth Ave., Suite 104
Indialantic, FL 32903

Is your Lateral Leaking?



WE CAN HELP!