Water Quality Update

Councilman Rich Blonna

4/8/21

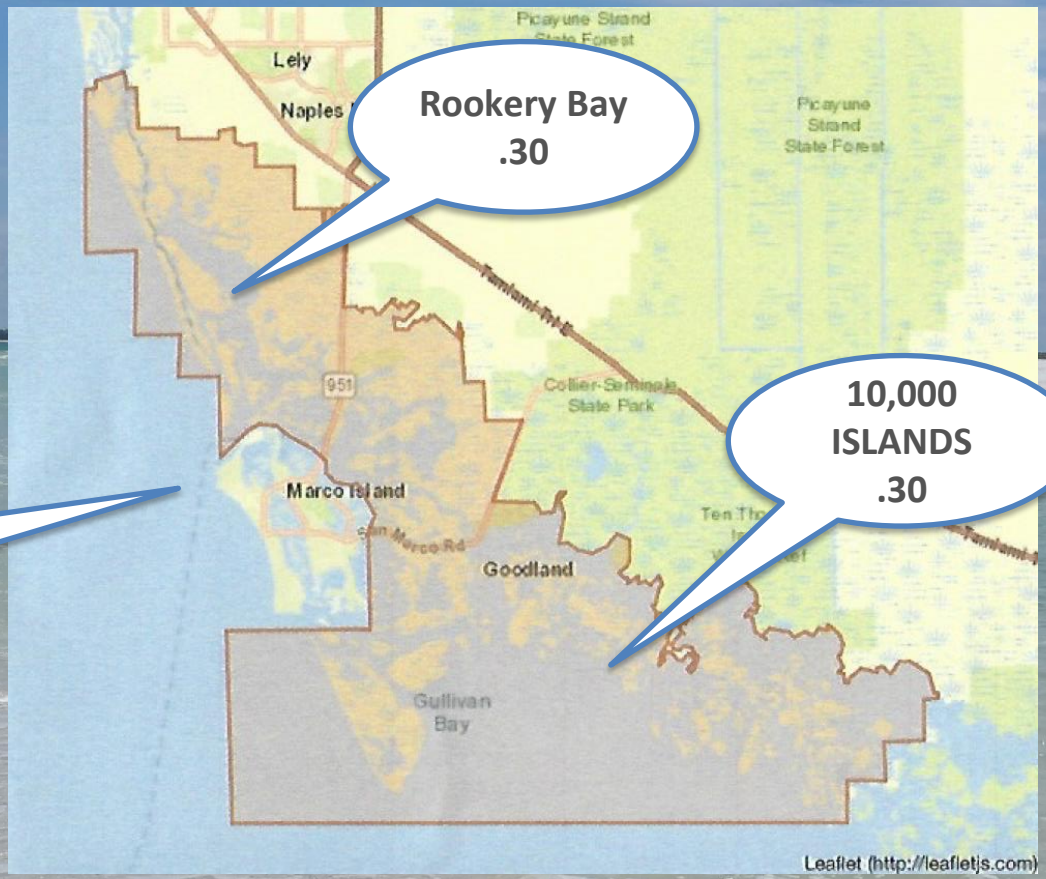
What is Impaired Water?

The Florida Department of Environmental Protection (FDEP) is responsible for setting water quality standards.

- **In 2012 FDEP set the standards for most estuaries in Florida.**
- **Marco Island's standards were taken from Estuary Nutrient Regions(ENRES) 3 that is contiguous to Rookery Bay and the 10,000 Islands .**

- **Source: Turrell Hall, 2019●**

Estuary Nutrient Region 3



What is Impaired Water?

The FDEP standards for impaired water quality were set at:

- **Total Nitrogen (TN) = .30 mg/L**
- **Total Phosphorous (TP) = .046mg/L**
- **Chlorophyl a = 4.9 ug/L**

Impairment is determined if the parameter criteria (.30, .046 etc.) is exceeded more than once in a three year period.

- **Source: Turrell Hall, 2019●**

What is Impaired Water?

- In 2017, 10 testing sites on Marco Island exceeded the criterion for TN.
- In 2018 all 12 testing sites on Marco island exceeded the criterion for TN.
- Exceeding the FDEP criterion for TN for two consecutive years resulted in being declared impaired.
- Source: Turrell Hall, 2019.

Nitrogen, Phosphorus, and Water Quality

- **Excessive levels of nitrogen and phosphorous can lead to the growth of nuisance plants and algal blooms.**

- **These contribute to lack of water clarity.**

- **When the algae blooms die off their decay can lead to the loss dissolved oxygen in the water, an essential element for aquatic life.**

Source: Turrell Hall, 2019.

Common Sources of Nitrogen in Waterways

- Atmospheric Deposits
- Stormwater Runoff
- Fertilizing
- Grass Clippings
- Reuse Water (7mg/L)
- Potable Water (.7mg/L)
- Storm/Hurricane Debris
- Animal Waste

Stormwater and Impaired Waterways

- Stormwater can best be described as water that runs off of impervious structures (roofs, driveways, parking lots, roadways etc.) into canals.

- Stormwater is conveyed from impervious structures to canal outlets via swales and other components of our stormwater management system.

Stormwater and NPDES

- Controlling stormwater-associated nitrogen and other nutrients and pollutants is a major goal of our stormwater management program.

- The National Pollutant Discharge Elimination System (NPDES) created in 1990, by the U.S. Environmental Protection Agency (EPA) created to address stormwater quality in medium and large municipalities.

NPDES

The FDEP manages the NPDES program in Florida and is divided into two phases based on population and urbanization.

- **Phase I is designed for large municipalities of more than 100,000 people.**
- **Phase II targets municipalities that have at least 10,000 people, but less than 100,000.**
- **Marco Island designated Phase II.**

Marco Island Designated MS4

As part of Phase II, in 2013 the City of Marco Island was designated as a small Municipal Separate Storm Sewer System (MS4) and required to:

- **Develop a Stormwater Management Program.**
- **Create a Stormwater Control Ordinance.**
- **Apply for an annual MS4 permit every five years.**

Stormwater Management Program

In 2015 Marco Island implemented a Stormwater Management Program that had four main parts:

- **Stormwater Maintenance.**
- **Drainage Facilities.**
- **Illegal Discharges Into the System.**
- **Alterations or Obstructions to the system.**

Stormwater Ordinance Created

On 3/5/2018 the City of Marco Island passed a Stormwater Control Ordinance (18.07) that codified the Stormwater Management Program.

MS4 Permit

The overarching goal of the MS4 permit is to implement best management practices that promote higher water quality by addressing:

- Illegal discharge of toxic chemicals.
- Poor maintenance of construction sites.
- Poor maintenance of stormwater systems.
- Trash and debris

MS4 Permit Elements

Best management practices are implemented using six elements:

1. **Public Education and Outreach as to Stormwater Impacts.**

2. **Public Involvement/Public Participation.**

3. **Illicit Discharge Detection and Elimination.**

MS4 Permit Elements

Best management practices are implemented using six elements:

4. Construction Site Stormwater Runoff Control.

5. Post– Construction Stormwater Management in New Development and Redevelopment.*

6. Pollution Prevention/Good Housekeeping for Municipal Operations.