

TRANSFORMING THE GREEN MONSTER TO MYSTIQUE

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GREEN MONSTERS



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WHY? LOWER ST. JOHNS RIVER GREEN MONSTER





MYSTIQUE: THE LOWER ST.
JOHNS RIVER NUTRIENT
GOAL IS BLUE WATER

Year	Count of Completed Projects
2008	229
2009	25
2010	10
2011	17
2012	19
2013	1
2014	5
2015	3
2016	2
2017	53
2018	18
Grand Total	382



WHEN?



DOMESTIC WASTEWATER



INDUSTRIAL WASTEWATER



MUNICIPAL SEPARATE
STORM SEWER SYSTEMS
(MS₄)—PHASE I AND
PHASE IIS



MUNICIPALITIES WITHOUT
AN MS₄ PERMIT



FLORIDA DEPARTMENT OF
TRANSPORTATION (FDOT)



AGRICULTURE

WHO?

ENTITIES WITH WASTEWATER PROJECTS

- Anheuser Busch
- Atlantic Beach
- Clay County Utility Authority
- Jacksonville Beach
- JEA
- Naval Air Station (NAS)-Jax
- Naval Station (NS) Mayport
- Neptune Beach
- Orange Park
- Smurfit-Stone Container
- Georgia-Pacific
- Green Cove Springs
- Palatka
- Seminole Electric

AGRICULTURE

- Owner-implemented best management practices (BMPs)
- Compliance process
- Tri-County Agricultural Area (TCAA) Partnership
 - Advanced cost share funding
 - Outreach
 - Early adopters
- Most agriculture located high in the watershed

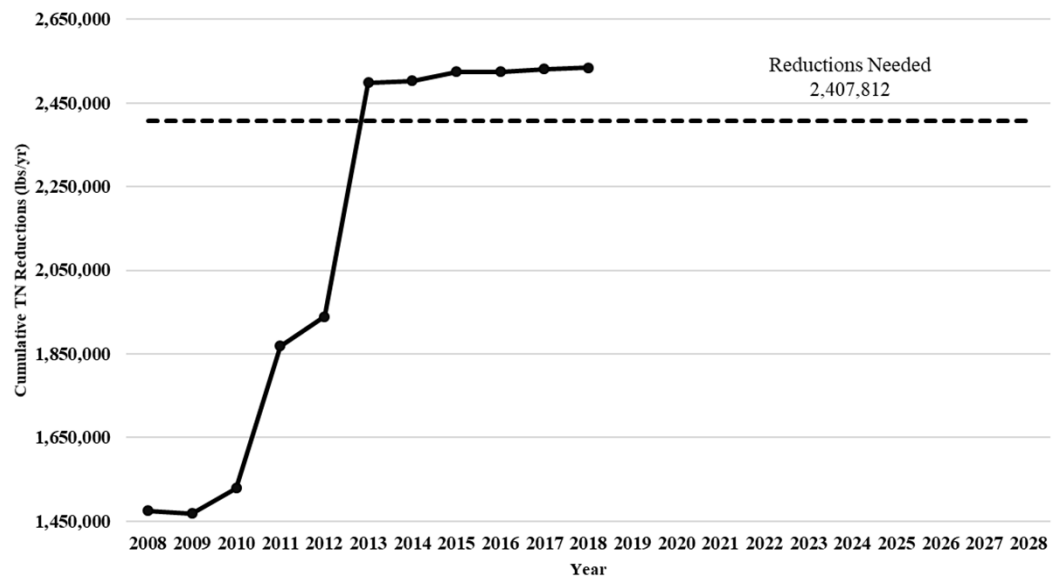


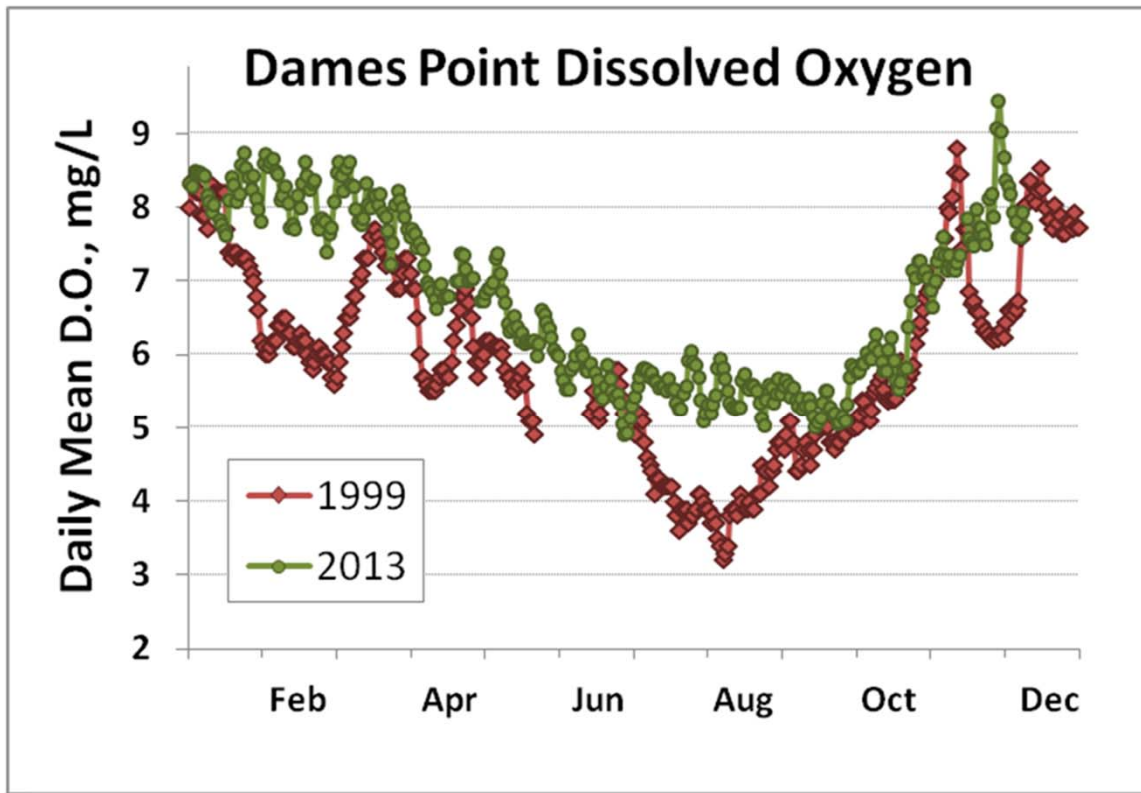
Project Type	Number of Projects
Alum Injection Systems	1
Baffle Boxes- First Generation (hydrodynamic separator)	1
Baffle Boxes- Second Generation	11
Baffle Boxes- Second Generation with Media	1
Biological/ Bacteria Treatment	1
BMP Cleanout	5
Control Structure	1
Dry Detention Pond	13
Education Efforts	12
Exfiltration Trench	1
Fertilizer Cessation	1
Grass Swales Without Swale Blocks or Raised Culverts	2
Hydrologic Restoration	1
LID- Other	2
On-line Retention BMPs	1
OSTDS Phase Out	18
Reclaimed Water	1
Regional Stormwater Treatment	9
Regulations, Ordinances, and Guidelines	6
Stormwater Reuse	10
Stormwater System Rehabilitation	16
Stormwater Treatment Areas (STAs)	1
Street Sweeping	6
Wet Detention Pond	157
Grand Total	278

HOW? TYPES OF PROJECTS

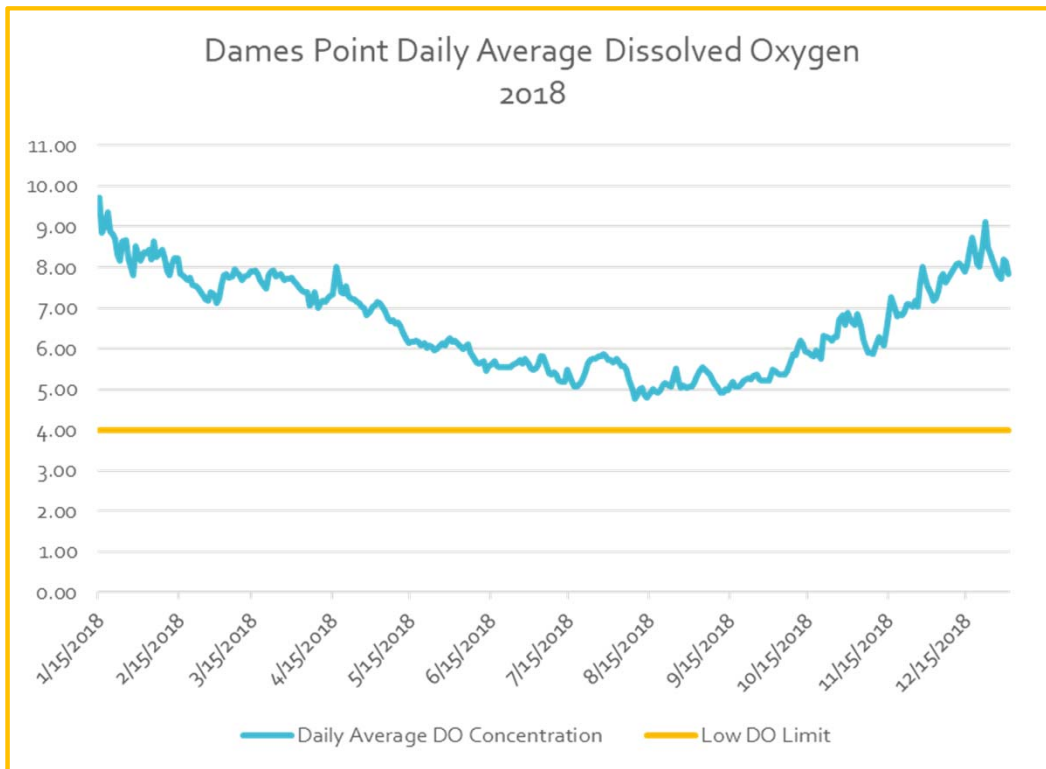
MARINE TOTAL NITROGEN (TN)

LSJR Main Stem Marine TN Project Reductions





MARINE
DISSOLVED
OXYGEN
1999 & 2013



MARINE DISSOLVED OXYGEN 2018



Water quality credit trading has not been very active except

For new dischargers without allocations
Where utilities and stormwater entities were separate



Wastewater projects were cost-effective



All sectors achieve substantial reductions



Cost share support for projects



Entire total maximum daily loads (TMDLs) were addressed

LESSONS LEARNED

MODERN CHALLENGES

- Upstream loads
- High rate of new residential/commercial development
- Uncertainty on effectiveness of urban and agricultural BMPs
- Less monitoring data in tributaries and overall



FOR MORE
INFORMATION

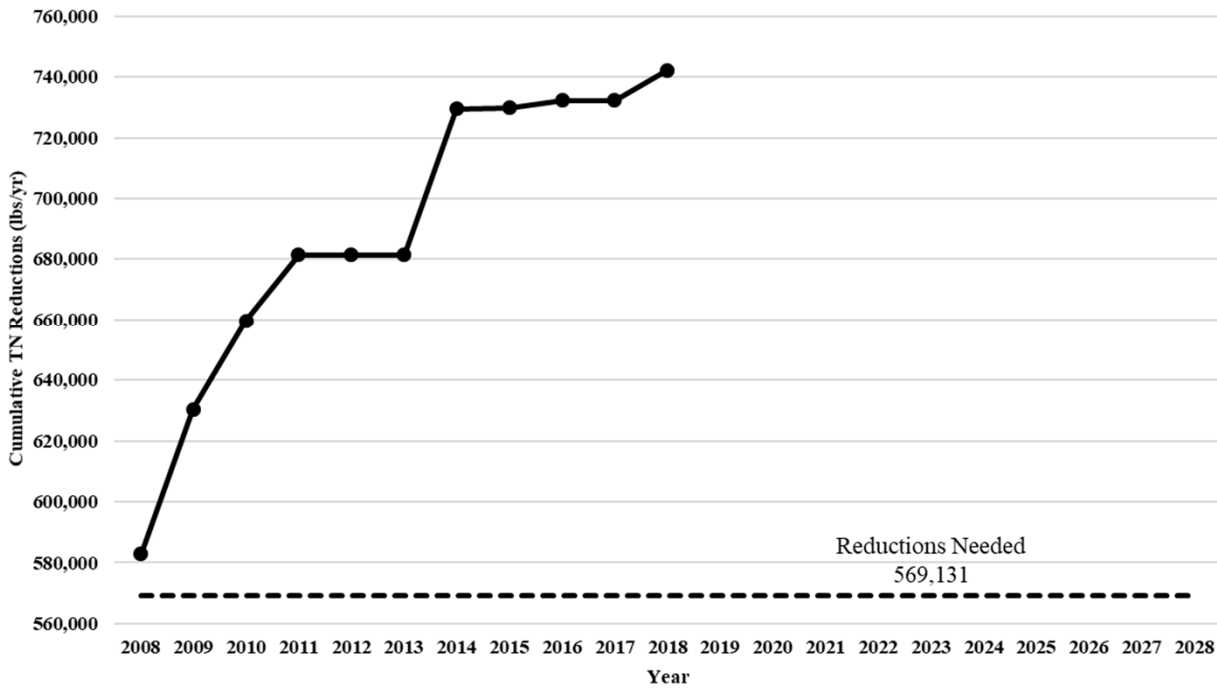
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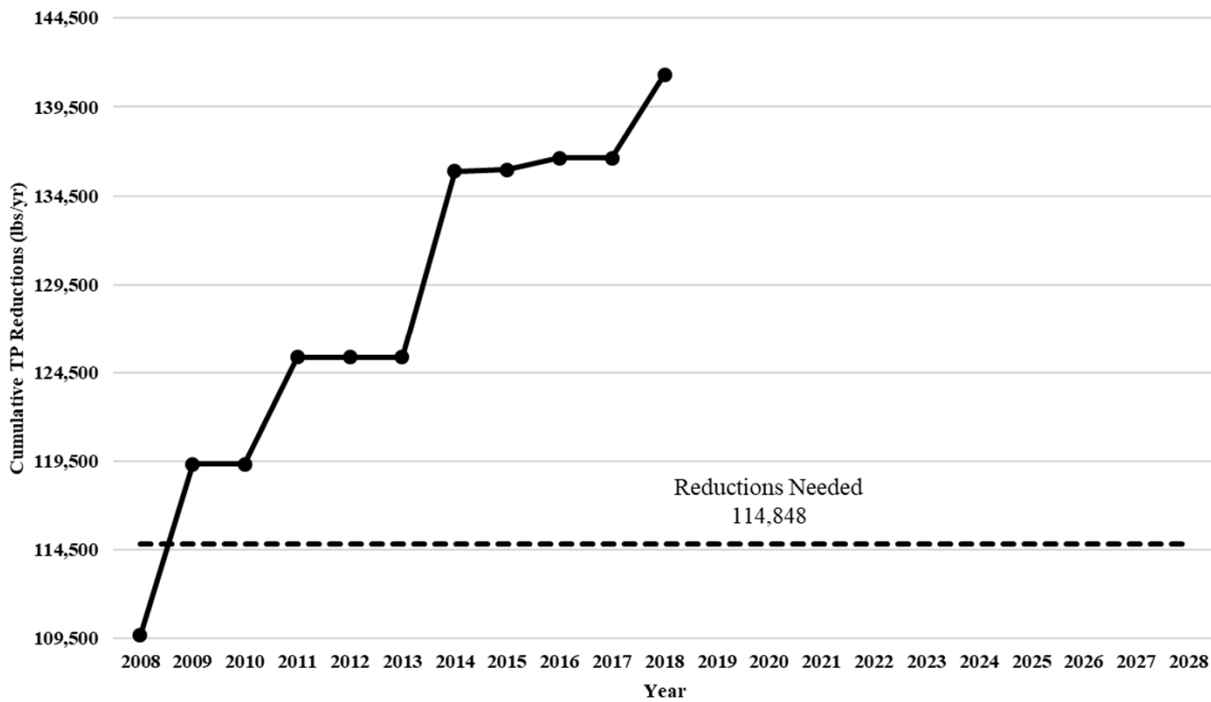
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LSJR Main Stem Freshwater TN Project Reductions



FRESHWATER
TN

LSJR Main Stem Freshwater TP Project Reductions



FRESHWATER
TP