

St. Johns River Accord 2016 Annual Progress Report

by Melissa M. Long, P.E.
Chief, Environmental Quality
City of Jacksonville

Picture courtesy of Barry Cotter



City of Jacksonville Progress



Public Waterway Access

JaxParks Water Access Map

- 1 Palmetto Leaves Park, 13799 Old St. Augustine Road
- 2 Hood Landing, 12804 Hood Landing Road
- 3 Mandarin Park, 14780 Mandarin Road
- 4 County Dock, 2403 County Dock Road
- 5 Goodby's Lake, 9021 San Jose Blvd.
- 6 Nathan Krestul Park, 2001 LaVaca Road
- 7 Ringhaver Park, 5198 118th St.
- 8 Wayne B. Stevens, 4555 Ortega Farms Blvd.
- 9 Curtis Lee Johnson Marina Park, 5434 San Juan Ave.
- 10 Seminole Park, 4170 McGirts Blvd.
- 11 Stinson Park, 4050 San Juan Ave.
- 12 Bakersfield Drive, 6814 Bakersfield Drive
- 13 River Oaks Park, 1201 Brookwood Road
- 14 Chelsea Street, east end of Chelsea St.
- 15 St. John's Marina, 901 Museum Circle
- 16 Southbank Riverwalk, Water taxi dock near Chart House
- 17 Bee Street Park, Bee St. and Utah Ave.
- 18 Metro Park Marina, 4110 Gator Bowl Drive
- 19 Catherine Street, north end of Catherine St.
- 20 Martha Ann Drive, 5112 Martha Ann Drive
- 21 Pottsbury Creek/Beach Boulevard, 8540 Beach Blvd.
- 22 Arlington Road, 5103 Arlington Road
- 23 Blue Cypress Park, 4012 University Blvd. N.
- 24 Arlington Lions Club Park, 4322 Richard D. Gatlin Road
- 25 Reddie Point Preserve, 4499 Yachtsman Way
- 26 Lonnie Wurn, 4131 Ferber Road
- 27 North Shore Park, 7901 Pearl St.
- 28 Bert Maxwell, 680 Broward Road
- 29 TK. Stokes, 2120 Riverview Ave.
- 30 Riverview Park, 9620 E. Water St.
- 31 Ribault River Preserve, 2617 Ribault Scenic Drive
- 32 Harborview, 4100 Harbor View Drive
- 33 Charles Reese Memorial Park, 1200 Ken Knight Drive
- 34 Dinsmore, 11001 New Kings Road
- 35 Thomas Creek Preserve, 17198 Ethel Road
- 36 New Berlin, 9002 Frederick St.
- 37 Fulton Road Landing, 5099 Fulton Road
- 38 Palms Fish Camp, 6359 Heckscher Drive
- 39 Joe Carlucci, 8414 Heritage River Road
- 40 Sister's Creek Marina/Jim King Park, 8203 Heckscher Drive
- 41 Cedar Point Preserve, 9023 Cedar Point Road
- 42 Pumpkin Hill Creek Preserve, 13990 Pumpkin Hill Road
- 43 Big Talbot Island State Park, 15500 Heckscher Drive
- 44 Kayak Amelia, 13030 Heckscher Drive
- 45 Fort George Island (Ribault Club), 11241 Fort George Road
- 46 Almacani, 11080 Heckscher Drive
- 47 Haulover Creek, 10980 Heckscher Drive
- 48 Huguenot Memorial Park, 10980 Heckscher Drive
- 49 Mayport (Michael B. Scanlon), 4870 Ocean St.
- 50 Oak Harbor, 2428 Seaway St.
- 51 Dutton Island Preserve, end of Dutton Island Drive
- 52 Castaway Island Preserve, 2921 San Pablo Road S.
- 53 McCue Park and Boat Ramp, 2510 2nd Ave. N.
- 54 Cradle Creek Preserve, 15th St. South & Fairway Lane



● Motorized watercraft	● Non-motorized watercraft
● Motorized and non-motorized	MAP KEY

Completed & Current Projects

Blue Cypress/Arlington Lions Club Park

- Constructed 800 foot boardwalk extension along St. Johns River connecting the two parks.



Exchange Club Island Park

- Volunteers developed a 0.5 mile nature trail and installed picnic tables.
- Construction of floating dock to begin in fall 2016.
- Grant funding for picnic shelter anticipated in 2017.



Mike McCue Park & Boat Ramp

- Installed new lights in parking lot.



Planned Projects

Jim King Park & Boat Ramp at Sisters Creek

- Installation of additional lighting in parking lot is almost complete.
- Relocation of boater access docks into deeper water to begin in late 2016/early 2017.

County Dock Road Boat Ramp

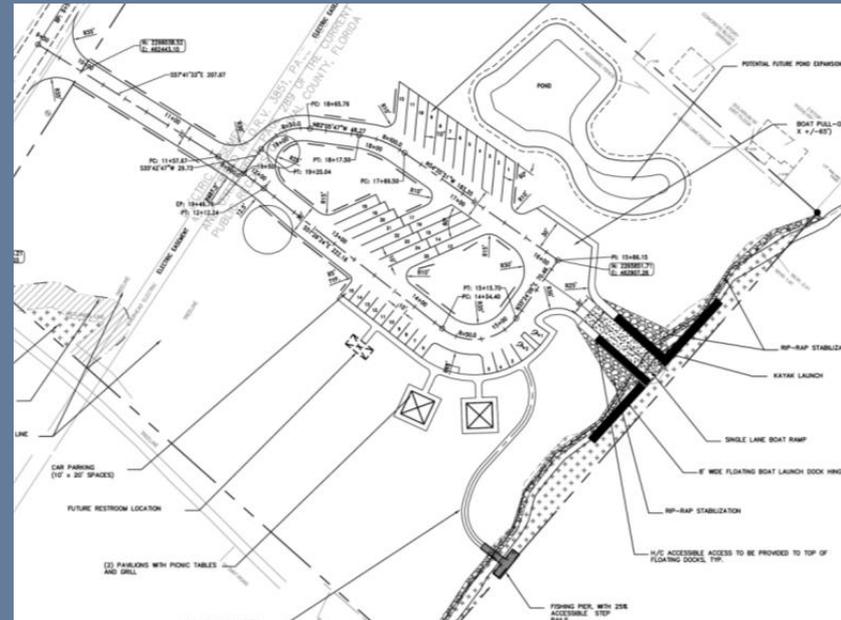
- Replacement of boat ramp, new kayak launch, parking enhancements and removal of hazardous submerged pilings to begin in late 2016.

Arlington River

- Dredging from St. Johns River to Cesery Blvd. Bridge to begin in late 2016.

Half Moon Island Preserve

- Completed design for new park on Nassau River with boat ramp, fishing pier, picnic facilities and boat trailer parking.
- Construction of Phase 1 anticipated for 2017.



Northshore Park Kayak Launch

- Completed design for an improved shoreline kayak launch.
- Construction anticipated for 2017.

Charles Reese Memorial Park

- Completed design for fishing pier and kayak launch.
- Construction anticipated for 2017.

Michael B. Scanlan Mayport Boat Ramp

- Construction of additional launch lane anticipated for late 2016/early 2017.

Wayne B. Stevens Boat Ramp

- Replacement of old floating docks with new docks to begin fall 2016.



Future Projects

Metropolitan Park Marina

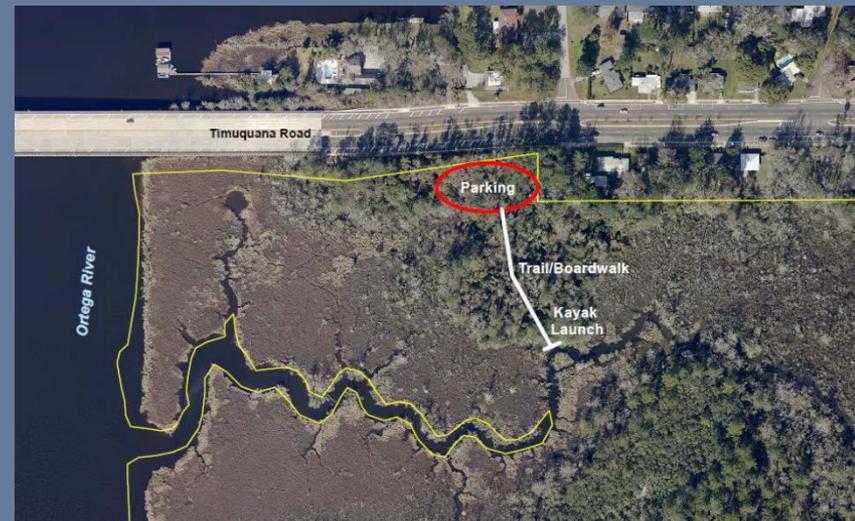
- Designing replacement of fixed, wooden docks with floating, concrete docks.

Joe Carlucci Boat Ramp

- Designing longer floating docks at ramp.

Tillie K. Fowler Regional Park

- Designing a kayak launch, parking and entrance off Timuquana Road.



Maritime Management Plan

If you care about Duval County's waterways,
tell us what you think!

JaxBoatPlan.com

The City of Jacksonville with the support of the Florida Inland Navigation District is creating a Maritime Management Plan. A team from the Northeast Florida Regional Council, University of North Florida and Jacksonville University will be gathering information about maritime facilities and the needs and desires of the community, so that we have a plan to guide us as we maintain facilities, plan for unmet needs and ensure that the important role that water access plays in our economy and our quality of life remains strong for the long term.

Take the survey! JaxBoatPlan.com



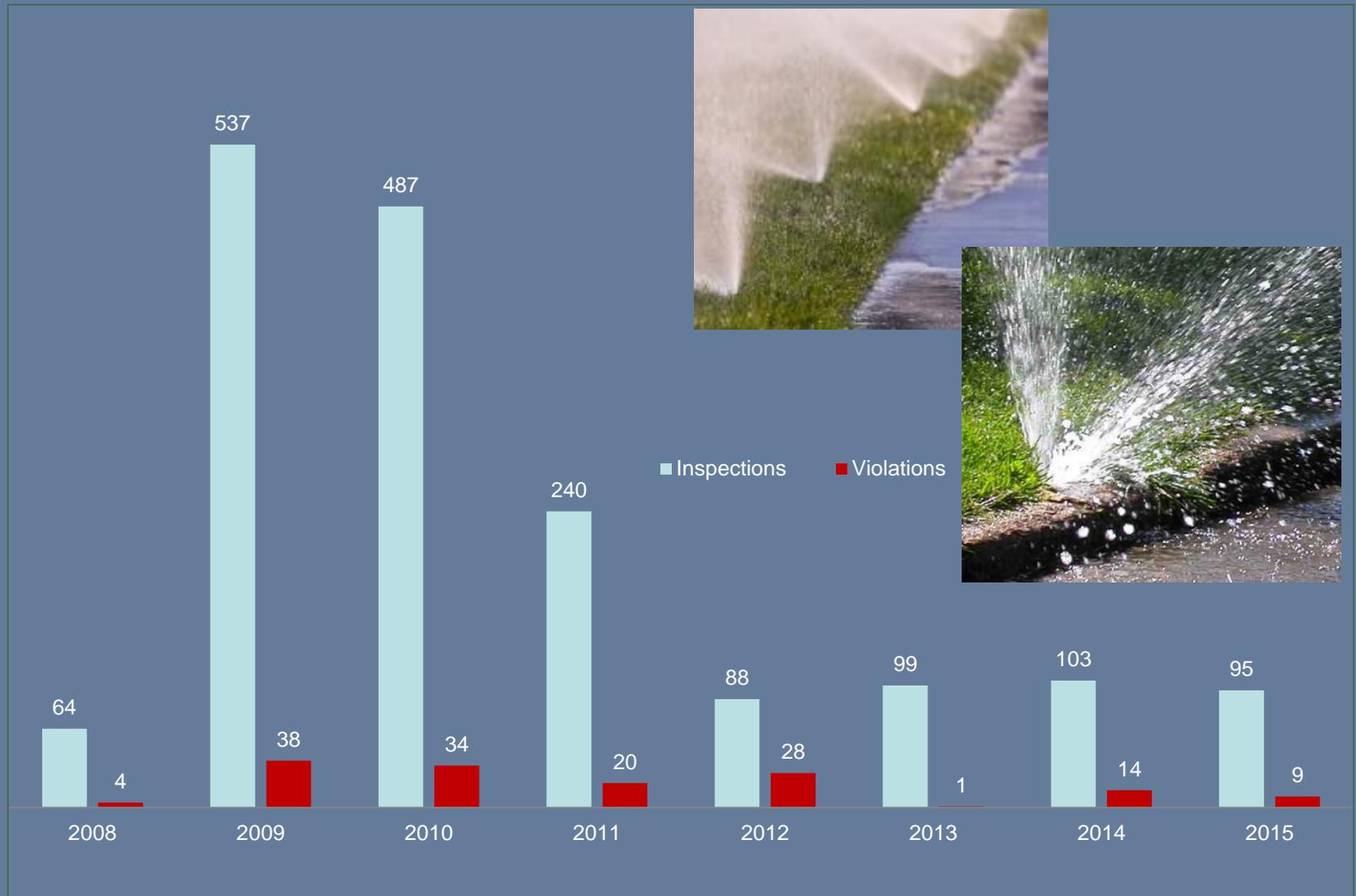
Your input is important as we prepare for a vibrant future for our waterways and our community. Learn more about the plan and how you can get involved at **JaxBoatPlan.com**

Public meetings:

- Oct. 4 @ UNF
- Nov. 1 @ JU
- Dec. 6 @ Beach (TBD)

**Take the survey!
JaxBoatPlan.com**

Irrigation Annual Inspections and Violations





Stormwater Utility :

- 840 square miles
- 66,442 Catch Basins/Inlets
- 13,862 Manholes
- 1,421 miles of pipe
- 224 City maintained ponds
- 462 major outfalls
- 1,421 miles of ditches
- 10 pump stations
- \$ 38.5 million annual budget

Construction Projects - I

Project	Drainage Basin	Status	Treatment
Melba/Green Street	LSJR Trout River	Complete	Flood Control Only
Smith Broward Pond	LSJR Trout River	Complete	Wet Detention
Woodland Acres/Oakwood Villa Area Drainage Phase I	Arlington River	Complete	Wet Detention
Hugh Edwards Road Drainage	Ortega River	Complete	Wet Detention
Pine Forest/Larsen Acres	LSJR Trout River	Complete	Wet Detention
Upper Deer Creek Phase 3	LSJR Trout River	Complete	Wet Detention
Venetia Terrace Drainage	Ortega River	Complete	Erosion Control & Wet Detention
Newtown Drainage main trunk-line improvement (Myrtle & Beaver)	LSJR Trout River	1 st Phase of construction Complete	Wet Detention

Construction Projects - II

Project	Drainage Basin	Status	Treatment
McCoys Creek Pond C	LSJR Trout River	Complete	Wet Detention
Air Liquide Pond Retrofit	LSJR Trout River	Complete	Wet Detention
Mireulo Circle	LSJR Trout River	Complete	Flood Control Only
Paul Avenue Outfall	LSJR Trout River	Complete	Wet Detention
Hamilton Jersey Outfall	LSJR Trout River	Complete	Erosion Control
Pinedale Area	Ortega River	Design in Progress	Flood Control Only
Country Creek Area Drainage Improvements	Ortega River	Complete	Wet Detention

Construction Projects - III

Project	Drainage Basin	Status	Treatment
Avenue "B"/Zinia Outfall	Trout River	Complete	Erosion Control Only
Crystal Springs Area	Ortega River	Commencing Construction	Wet Detention
Bunche Rd. Drainage	Trout River	Complete	Wet Detention
Noroad/Lambing Drainage	Ortega River Basin	Commencing Construction	Wet Detention
Old Plank Rd. Drainage	Ortega River Basin	Design in Progress	Wet Detention
Mandarin Area Drainage (Grand Crique)	LSJR Upstream of Trout River	Complete	Wet Detention
County Creek Area	Ortega River	Complete	Flood Control Only
Messer Area Drainage	LSJR	Design Effort on Hold	Flood Control Only
Septic Tank Phase-Out Program	LSJR	LOC project finishing up, commencing new program with JEA	Water Quality
City-Wide Drainage System Rehabilitation	LSJR - Countywide	Under Construction	Erosion Control & Flood Control

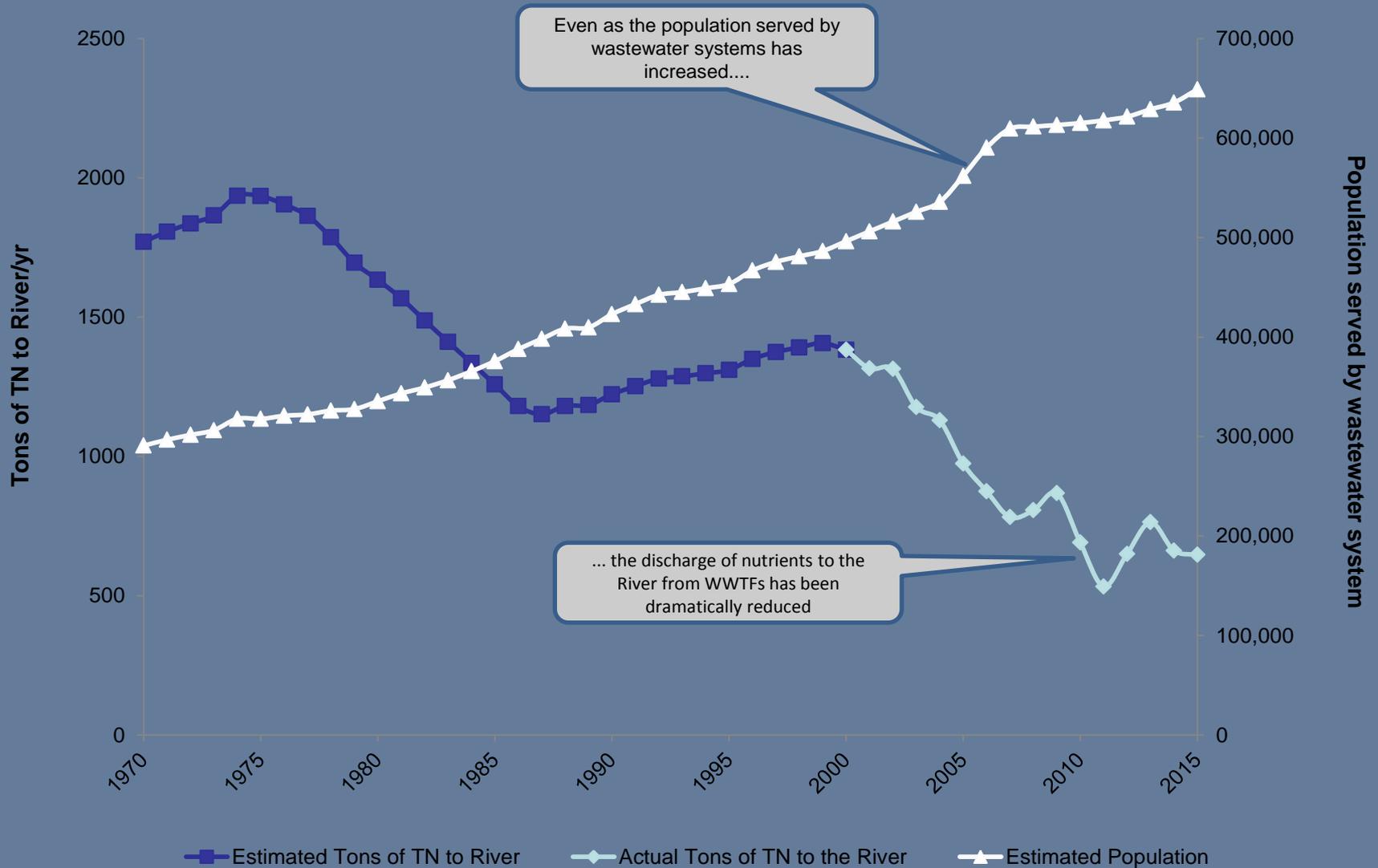
J E A Progress



JEA Progress - Wastewater

- In 2013, JEA fulfilled its last remaining commitments for the River Accord in regards to wastewater improvement projects.
 - These projects also fulfilled JEA's obligations for the LSJR Main Stem TMDL and Basin Management Action Plan (BMAP).
- These completed projects included:
 - Upgrading regional treatment plants
 - Phasing out older technology plants
 - Expanding the utility's reclaimed water system (continuing)
- JEA has achieved a reduction of over 1,600,000 lbs./yr. of nitrogen entering the St. Johns River.
 - JEA's loading to the River has been reduced from 1400 tons of TN/yr in 2000 to less than 600 Tons TN/yr, a 60% reduction

Nitrogen Loading to the River in Duval Co. from Wastewater Treatment



JEA Progress - Reuse

- JEA has completed 190 miles of reclaimed pipe.
- The reuse infrastructure improvements completed to date have left JEA well situated to satisfy the increase in reuse demand from revived development in the Northern St. Johns County area.
 - JEA added more than 1200 new reuse customers in this area over the last 12 months.
 - JEA now has over 6200 reuse customers.



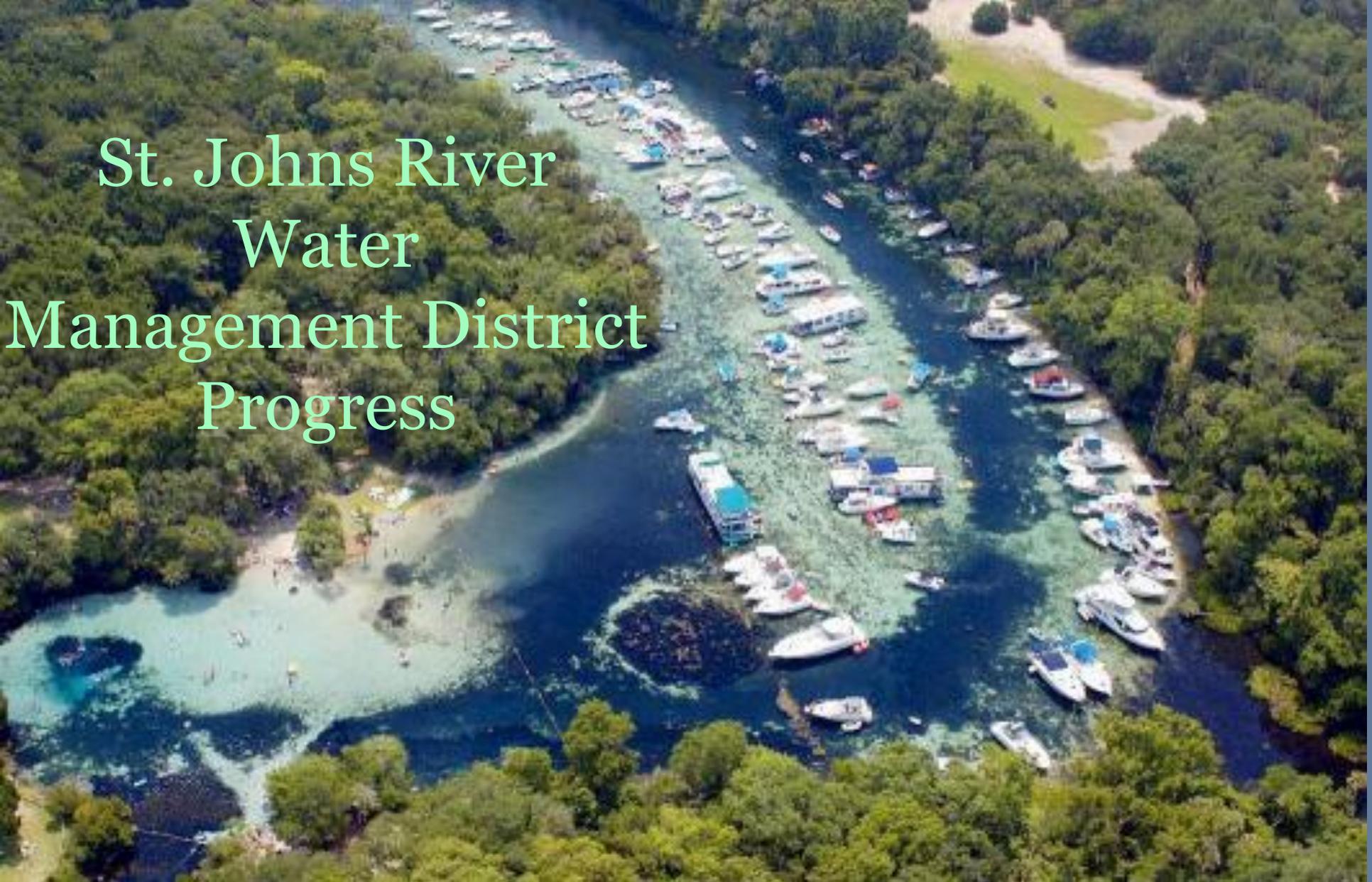
Florida Department of Health Duval County

Septic Tank Enforcement Project

- **1,632** properties within impaired WBIDs were provided septic tank-related outreach, educational materials and inspections
- **32** homes were already connected to JEA
- **6** parcels were vacant
- **65** property owners refused access
- **11** property owners received official notices to correct sanitary nuisance violations:
 - Direct Laundry Discharge
 - Sewage on the Ground
 - Broken/ Unsealed Septic Tank Lids
 - Damaged/ Eroding Drainfields
 - Missing/ Broken Cleanout Caps
 - Malfunctioning High-level Water Alarms

Enforcement continued until all sanitary nuisances were abated.

St. Johns River Water Management District Progress



SJRWMD reuse and treatment plant improvement partnership

- SJRWMD and the state have contributed \$46.5 million to date.
- Partnership projects completed:
 - Atlantic Beach
 - Jacksonville Beach
 - Neptune Beach
 - JEA
 - CCUA
 - Orange Park
 - NAS-Jacksonville
- Continue cost-share funding for nutrient reduction projects benefiting the river and springs. (SJRWMD and the state have contributed an additional \$11.9 million through competitive cost share project funding.)

Upstream efforts

- **Tri-county Agricultural Area (TCAA)**
 - Final phase (wetlands) complete on SJRWMD/St. Johns County partnered project to construct an additional agricultural runoff treatment facility near Hastings
 - Treatment of 1,425 acres draining to Deep Creek
 - Engineering design underway on FDACS-funded regional treatment within the Deep Creek Watershed
 - Year 4 (State FY 15-16 funding cycle) of Tri-County Agricultural Area Water Management Partnership
 - Led by FDACS with total 4 year funding support from SJRWMD (\$2.35 million), Legislature (\$750,000), FDEP (\$2.6 million) and FDACS (\$1.8 million)
 - 14 projects approved for funding (FY 15-16)

Upstream efforts cont'd.

- Deep Creek West and Dog Branch RSTs annual performance reported in BMAP annual report updates
 - TN and TP average annual load reductions for 2009-14 exceeded estimates included in LSJR Main Stem BMAP for both Deep Creek West and Dog Branch RSTs.
 - The overall treatment efficiencies for the Deep Creek West RST system from 2009- 2014 were approximately 48% for TN and 51% for TP.
 - The overall treatment efficiencies for the Dog Branch RST system from 2009 – 2014 were approximately 66% for TN and 67% for TP.
- Both the Deep Creek West and Dog Branch RST facilities were offline during 2015 to undergo design improvements to improve water quality treatment.
- Starting in 2016 both RSTs became operational and monitoring continues by the SJRWMD and St. Johns County.

Upstream efforts cont'd.

- **Lake George gizzard shad harvest**
 - 1.17 million lbs. harvested June-September 2013 (approximately 8,000-9,000 lbs. of TP removed)
 - 1.39 million lbs. harvested May-September 2014 (approximately 9,000-11,000 lbs. of TP removed)
 - 1.36 million lbs. harvested May-August 2015 (approximately 9,000-10,800 lbs. of TP removed)
 - Year 4 of gizzard shad harvest initiated May 2016.

SJRWMD – Regular Program Activities within the LSJR

- Ongoing Monitoring
 - River and Tributary Water Quality
 - Phytoplankton Community Composition
 - Submersed Aquatic Vegetation (back for 2015!)
- Cooperative Funding and Assistance
 - USGS Continuous Real-Time River Network
 - FDEP assistance for the Lake George and Crescent Lake TMDLs
- Nuisance Bloom Monitoring
 - Coordination with FDEP and FDOH for Occurrence and Algal Toxin Data Alerts
- Exploring New Technologies
 - Molecular Genetic Methods Assessment for Plankton Identification
 - Satellite Remote Sensing for Algal Bloom Extent Monitoring

Florida Department of Environmental Protection (DEP) Progress



Total Maximum Daily Loads (TMDLs)

- Science-based
- Water quality targets
- Based on Florida water quality standards
- TMDLs established for:
 - Lower St. Johns River (LSJR) Main Stem
 - LSJR Tributaries

Basin Management Action Plans (BMAPs) adopted to address TMDLs:

- LSJR Main Stem BMAP
 - for nutrients – October 2008
- LSJR Tributaries BMAP 1
 - for fecal coliform – December 2009
- LSJR Tributaries BMAP 2
 - for fecal coliform – August 2010

BMAP Progress

- BMAP stakeholders report project progress and monitoring results annually. They also meet annually to review the events of the past year and steps moving forward.
- Adopted BMAPs and annual progress reports can be found on the DEP website at:
<http://www.dep.state.fl.us/water/watersheds/bmap.htm>

Tributaries BMAP I

- The first tributaries BMAP addressed the 10 worst-case tributaries impaired for fecal coliform.
- The BMAPs 5th year assessment has been completed.
- Stakeholders conducted field investigations to prepare for the next 5-year plan.
- Additional efforts have been identified in Phase 2 of this BMAP.



Source ID Monitoring

- DEP is using strategic source ID monitoring to guide efforts.
 - Quantitative polymerase chain reaction or qPCR to determine the DNA of the bacteria.
 - Artificial sweetener called sucralose commonly known under the brand name Splenda.
 - A common pain killer, acetaminophen known under the brand name Tylenol.



Tributaries BMAP I Progress

Tributary Name	Total number of Fecal Coliform Data Points (2008-2015)	Number of Exceedances	Percent Exceedance
Deer Creek	195	100	51%
Goodbys Creek	185	106	57%
Open Creek	158	96	61%
Terrapin Creek	123	81	66%
Newcastle Creek	149	106	71%
Miramar Creek	137	100	73%
Miller Creek	199	170	85%
Hogan Creek	228	195	86%
Big Fishweir Creek	281	254	90%
Butcher Pen Creek	191	178	93%

Tributaries BMAP II

- The second tributaries BMAP addressed the next 15 worst-case tributaries impaired for fecal coliforms.
- In 2015, field investigations and source ID monitoring were performed where TMDLs are not being met to guide next 5 year plan.
- Additional efforts have been identified in Phase 2 of this BMAP as well.

Tributaries BMAP II Progress

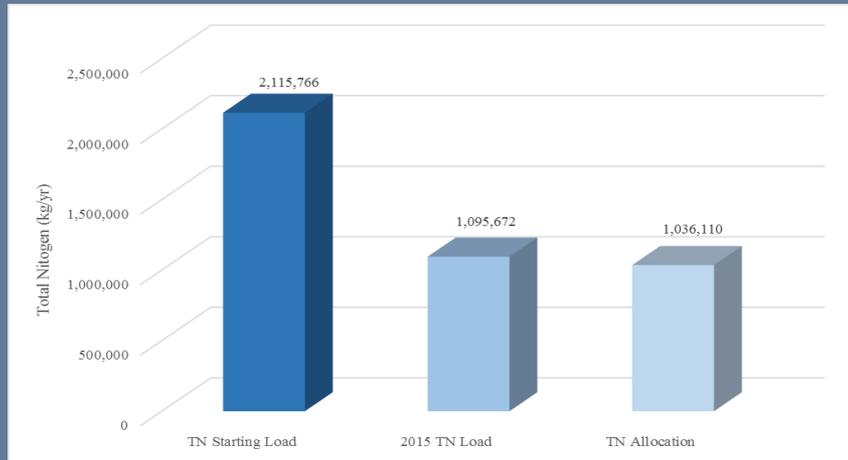
Tributary Name	Total number of Fecal Coliform Data Points (2008-2015)	Number of Exceedances	Percent Exceedance
Greenfield Creek	50	12	24%
Trout River (Lower Reach)	57	16	28%
Pottsburg Creek	82	30	37%
Sherman Creek	306	129	42%
Trout River (Middle Reach)	163	69	42%
Moncrief Creek	210	92	44%
Cormorant Branch	143	64	45%
Fishing Creek	314	155	49%
Wills Branch (North Prong)	62	38	61%
Blockhouse Creek	28	18	64%
McCoy Creek	234	149	64%
Hopkins Creek	261	172	66%
Deep Bottom Creek	161	122	76%
Williamson Creek	179	153	85%
Craig Creek	181	169	93%

Lower St. Johns Main Stem BMAP

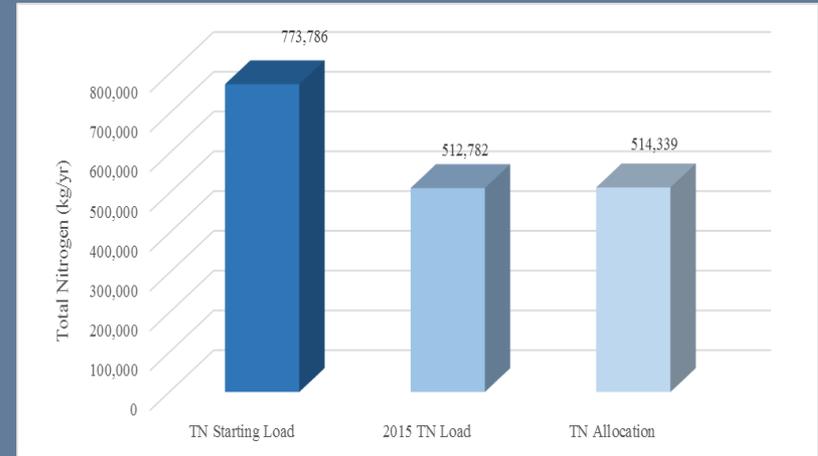
- The Main Stem BMAP 7th year assessment has been completed.
- Projects and reductions continue.

Main Stem TMDL Load Reductions

- The figures below illustrate load reductions made by the stakeholders and the remainder of nutrient loading in each river segment to achieve the TMDLs.



Progress towards the TN TMDL in the marine section



Progress towards the TN TMDL in the freshwater section

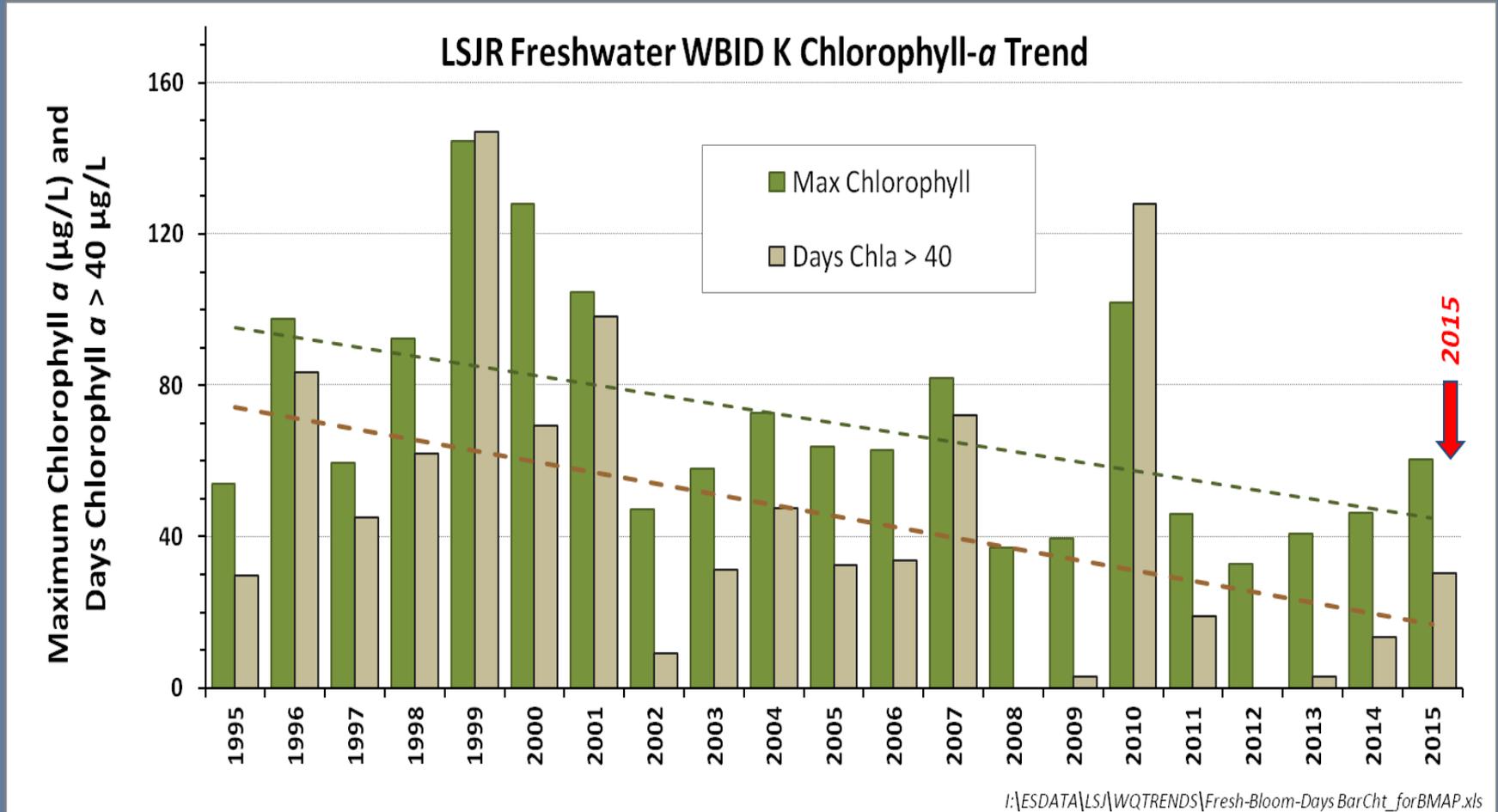
- “Starting Load” is based on the data period used in the TMDL.
- “2015 Load” compared to the starting load shows a significant reduction achieved.
- “Allocation” is the target.



Progress towards the TP TMDL in the freshwater section

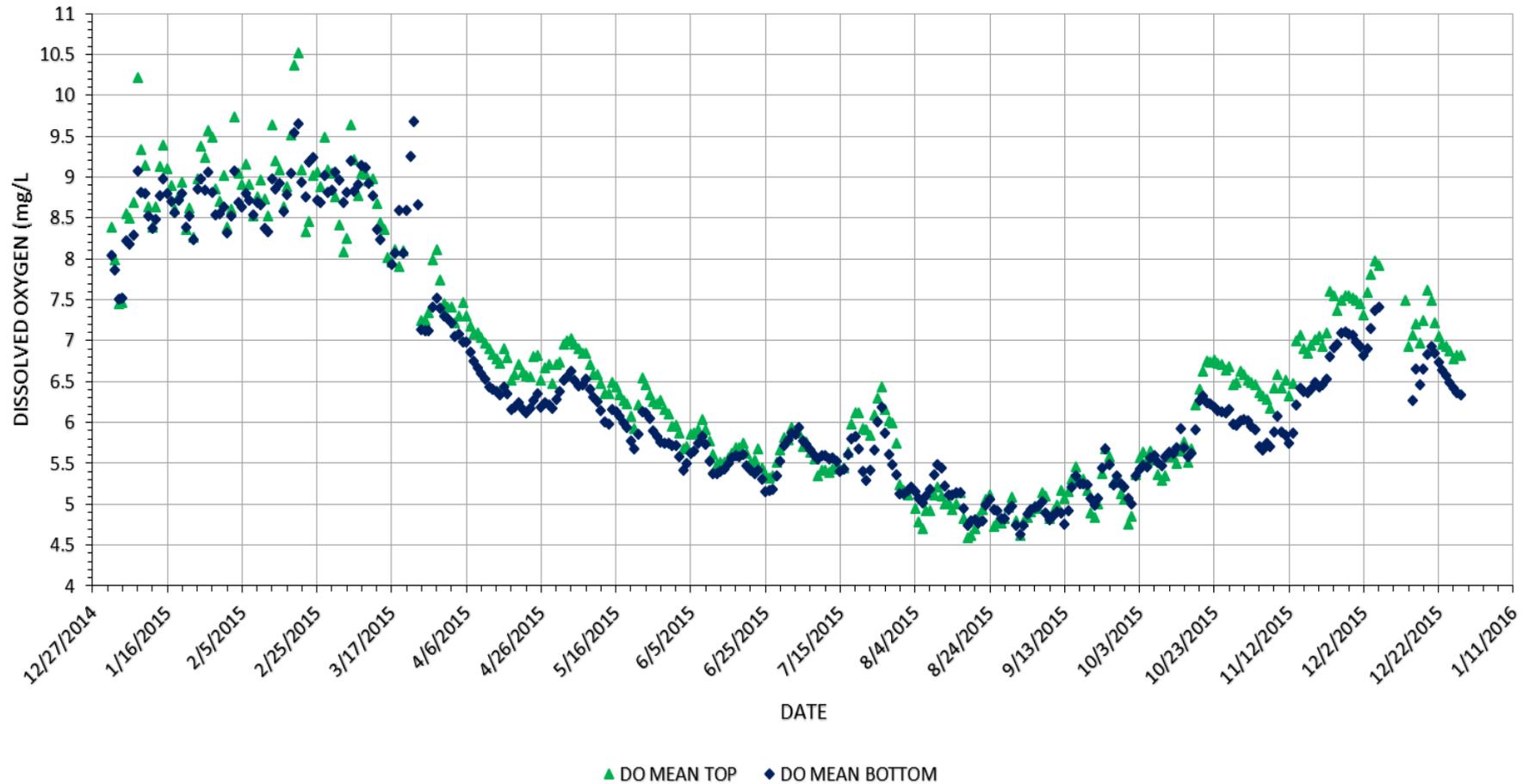
Freshwater TMDL Criteria Performance

Chlorophyll-a Trends at the Racy Point Station



Marine TMDL Criteria Performance

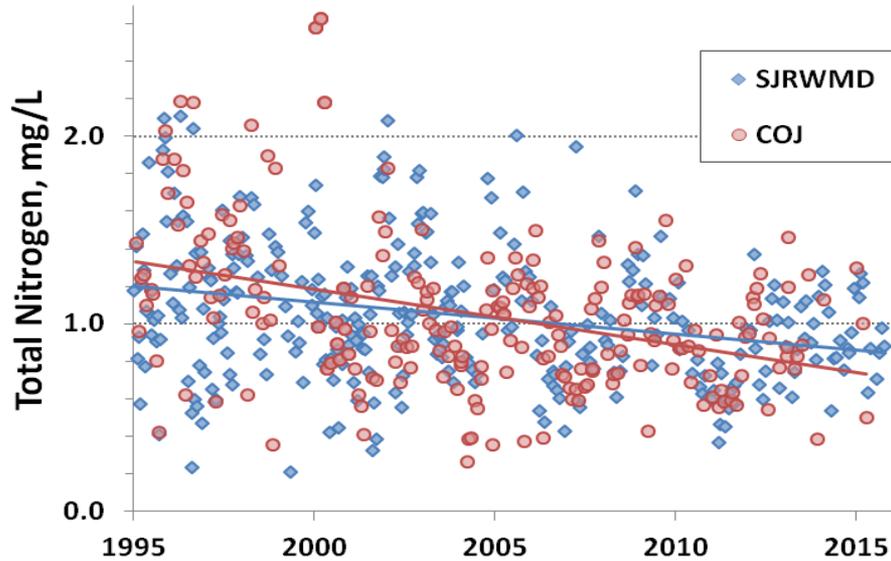
DAMES POINT DAILY AVERAGE DISSOLVED OXYGEN 2015



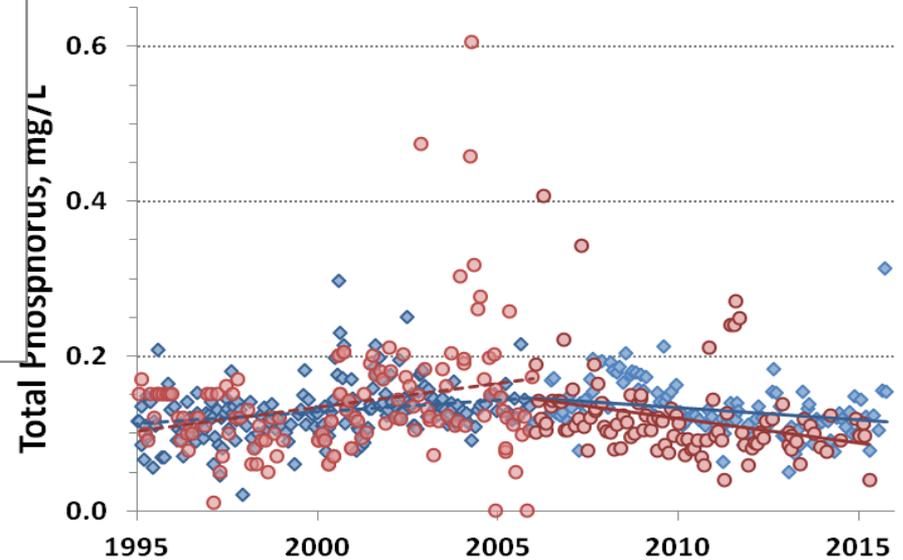
SONDE	DO 4.0-<4.2	DO 4.2-<4.4	DO 4.4-<4.6	DO 4.6-<4.8	DO 4.8-<5.0	EXPOSURE
Top	0	0	0	8	20	0.53
Bottom	0	0	1	11	19	0.61

Marine TMDL Criteria Performance

a. TN Concentration



b. TP Concentration



and still more to come.....

