

St. Johns River Accord 2015 Annual Progress Report

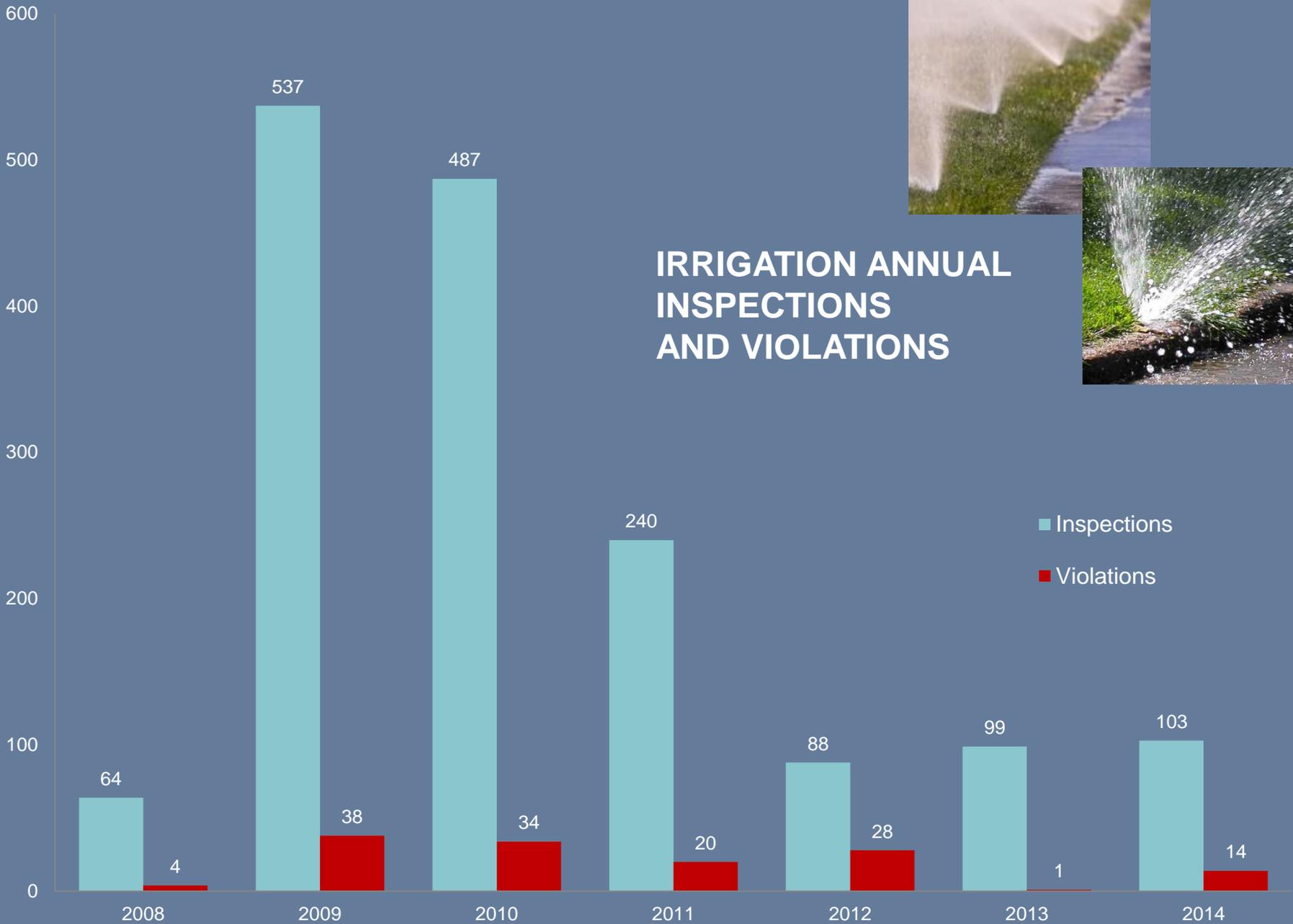
by Melissa M. Long, P.E.
Chief, Environmental Quality
City of Jacksonville

Picture courtesy of Barry Cotter



City of Jacksonville Progress





A photograph of a sunset over a body of water. The sun is low on the horizon, creating a bright orange glow and a long, shimmering reflection on the water's surface. In the background, a bridge is visible against the sky.

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 | Under Construction | 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 | Under Construction | Erosion Control |
| Pinedale Area | Ortega River | Design in Progress | Flood Control Only |
| Country Creek Area Drainage Improvements | Ortega River | Under Construction | Wet Detention |

Construction Projects - III

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

Improving Public 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 |

Southbank Riverwalk

- Total reconstruction using lightweight concrete and adding new lighting and park amenities.



Southbank Riverwalk

Michael B. Scanlan Mayport Boat Ramp

- Added new floating docks at this popular boat ramp.

Trout River Pier

- Completed major renovation of south end of the Trout River fishing pier.



Exchange Club Island Park

- Completed design of park development:
 - Floating dock
 - Kayak landing
 - Picnic facilities
 - Nature trail
- Construction to begin in fall 2015.



Blue Cypress/Arlington Lions Club Boardwalk

- Designed 800 ft. extension of the shoreline boardwalk.
- Construction to begin in fall 2015.

Mike McCue Boat Ramp Lighting

- Addition of lights to this popular boat ramp on ICW at Beach Blvd is underway.

Jim King Park and Boat Ramp at Sisters Creek

- Completed design for relocation of boater access docks into deeper water and adding more lighting to the parking lot.
- Lighting to be installed later this year.
- Dock project to begin in 2016, pending award of FIND grant.

County Dock Road Boat Ramp

- Completed design for ramp replacement, parking improvements and removal of navigational hazards.
- Construction to begin in 2016, pending award of FIND grant.

Northshore Park Kayak Launch

- Design is underway for an improved shoreline kayak launch
- Construction projected for 2017, pending award of FIND grant.

Half Moon Island Preserve

- Design is underway for new boat ramp, fishing pier, picnic facilities and parking.
- Construction projected for 2017, pending award of FIND grant.

Charles Reese Memorial Park

- Design is underway for fishing pier and kayak launch
- Construction projected for 2017, pending award of FIND grant.

Greater Jacksonville Kingfish Tournament (July 13-18)

- Another successful year!
- Participation:
 - 128 boats competed for cash and prizes
 - 164 in Jr. Angler Tournament
 - 34 from JaxParks Summer Camp
 - 47 in Down at the Dock Fishing Derby





Florida Department of Health Duval County

- **1,145** properties within impaired WBIDs were provided septic tank-related outreach, educational materials and inspections
- **92** were discovered to be connected to JEA
- **34** parcels were vacant
- **13** property owners refused access
- **21** properties received official notices to correct sanitary nuisance violations

Violations included direct laundry discharge and sewage on the ground surface, unsealed and broken septic tank lids, damaged drainfields, collapsed septic tanks, plumbing back-up, and illicit discharge pipes.

Enforcement continued until all sanitary nuisances were abated.

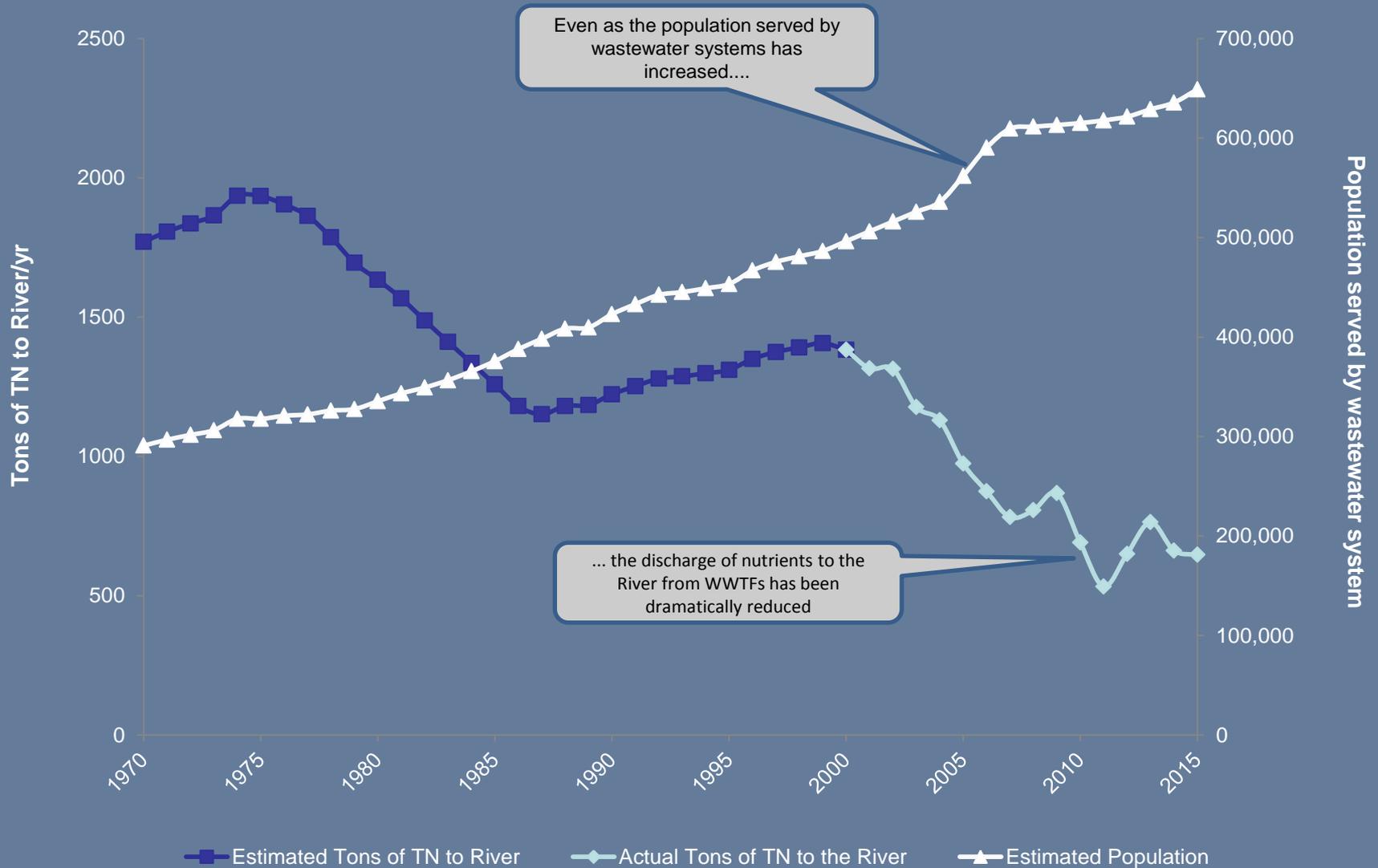
J E A Progress



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

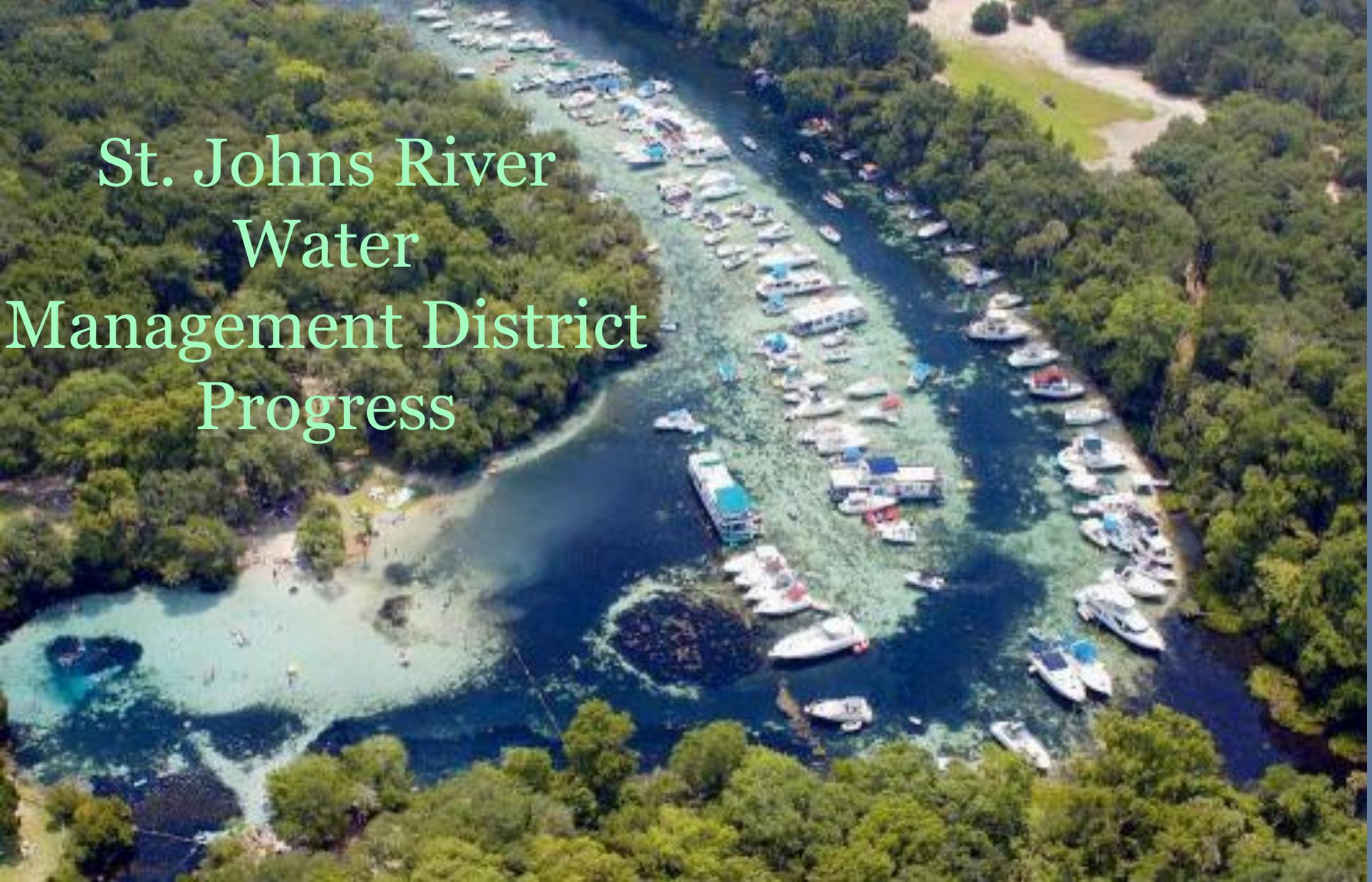
Nitrogen Loading to the River in Duval Co. from Wastewater Treatment



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.

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
 - Clay County
 - Orange Park
- Continue cost-share funding for nutrient reduction projects benefiting the river and springs.

SJRWMD reuse and treatment plant improvement partnership

- **NAS Jacksonville (U.S. Navy)** — \$4.2 million (\$2.2 million Navy, \$2 million State) Remove all treated wastewater from the river (except in wet weather) and apply it for reuse and sprayfields on Station. Estimated TN reduction to river by 2015: 54,412 lbs/yr.
 - Phase I construction by city of Jacksonville from Station reuse pond to Station golf course complete (\$400,000 State grant).
 - Phase II construction by city of Jacksonville from the Station reuse pond to the South Antenna Farm will be completed by end of August 2015 under \$1.4 million State grant.
- **Clay County Utility Authority** — Project revised from reservoir to series of sub-aquifer infiltration basins resulted in lower project cost and improved TN reduction. 19,374 lbs./yr. TN reduction to river with a maximum storage and recharge capacity of 2.2 mgd.
 - Project nearing completion.

Upstream efforts

- **Tri-county Agricultural Area (TCAA)**
 - Phase I (pond) 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 3 (State FY 14-15 funding cycle) of Tri-County Agricultural Area Water Management Partnership
 - Led by FDACS with funding support from SJRWMD (\$1.5 million), Legislature (\$750,000) and FDEP (\$1.9 million)
 - 8 projects approved for funding
 - Fertilizer banding equipment for 7 growers
 - Fertilizer banding may decrease phosphorus fertilizer rates by 30 percent

Upstream efforts cont'd.

- Monitoring continues on existing (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.

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)
 - Year 3 of gizzard shad harvest initiated May 2015.

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
 - FWRI Fisheries Independent Monitoring Expansion
 - 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
 - Hyperspectral Image Analysis for Comprehensive SAV Mapping
 - Molecular Genetic Methods Assessment for Plankton Identification
 - Satellite Remote Sensing for Algal Bloom Extent Monitoring

Florida Department of Environmental Protection 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 coliforms – December 2009
- LSJR Tributaries BMAP 2
 - for fecal coliforms – 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 FDEP's 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 coliforms.
- The BMAP's 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

- FDEP 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 (BMAP I) | TMDL Data (1996-2003) Exceedance Median | BMAP Data (2010-2014) Exceedance Median | Phase I Progress Toward TMDL |
|------------------------------------|--|--|---|
| Newcastle Creek | 2,500 | 1,622 | 42% |
| Hogan Creek | 5,000 | 1,622 | 73% |
| Butcher Pen Creek | 2,400 | 2,850 | -23% |
| Miller Creek | 5,000 | 5,100 | -2% |
| Miramar Creek | 5,000 | 2,100 | 63% |
| Big Fishweir Creek | 3,000 | 2,900 | 4% |
| Deer Creek | 2,765 | 1,376 | 59% |
| Terrapin Creek | 1,367 | 920 | 46% |
| Goodbys Creek | 3,000 | 840 | 83% |
| Open Creek | 1,000 | 920 | 13% |

Tributaries BMAP I Frequency

| Tributary Name (BMAP I) | Total Number of Data points (Jan 1, 2007 – June 30, 2014) | Number of Exceedances | Minimum Number of Exceedances – Considered Impaired | Percent Exceedance |
|-------------------------|---|-----------------------|---|--------------------|
| Newcastle Creek | 117 | 90 | 17 | 77% |
| Hogan Creek | 170 | 143 | 23 | 84% |
| Butcher Pen Creek | 161 | 148 | 22 | 92% |
| Miller Creek | 181 | 151 | 24 | 83% |
| Miramar Creek | 99 | 81 | 15 | 82% |
| Big Fishweir Creek | 284 | 255 | 36 | 90% |
| Deer Creek | 163 | 81 | 22 | 50% |
| Terrapin Creek | 81 | 68 | 13 | 84% |
| Goodbys Creek | 189 | 112 | 25 | 60% |
| Open Creek | 86 | 59 | 13 | 69% |
| Open Creek (Marine) | 60 | 31 | 10 | 52% |

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 will be 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 | TMDL Data (1996-2003) Exceedance Median | BMAP Data (2010-2014) Exceedance Median | Phase I Progress Toward TMDL |
|--------------------|---|---|------------------------------|
| Craig Creek | 3,000 | 2,550 | 17% |
| Deep Bottom Creek | 2,200 | 1,500 | 39% |
| Cormorant Branch | 1,500 | 811 | 63% |
| Hopkins Creek | 1,200 | 16,351 | -19% |
| Fishing Creek | 1,300 | 1,081 | 24% |
| Blockhouse Creek | 2,200 | 1,081 | 62% |
| Williamson Creek | 2,400 | 2,300 | 5% |
| Pottsburg Creek | 800 | 1,532 | -183% |
| Middle Trout River | 1,184 | 641 | 69% |
| Greenfield Creek | 1,354 | 721 | 66% |
| McCoy Creek | 2,510 | 1,200 | 62% |
| Moncrief Creek | 2,600 | 1,300 | 59% |
| Sherman Creek | 1,400 | 1,231 | 17% |
| Wills Branch | 4,000 | 1,000 | 83% |
| Lower Trout River | 1,000 | 721 | 47% |

Tributaries BMAP II Frequency

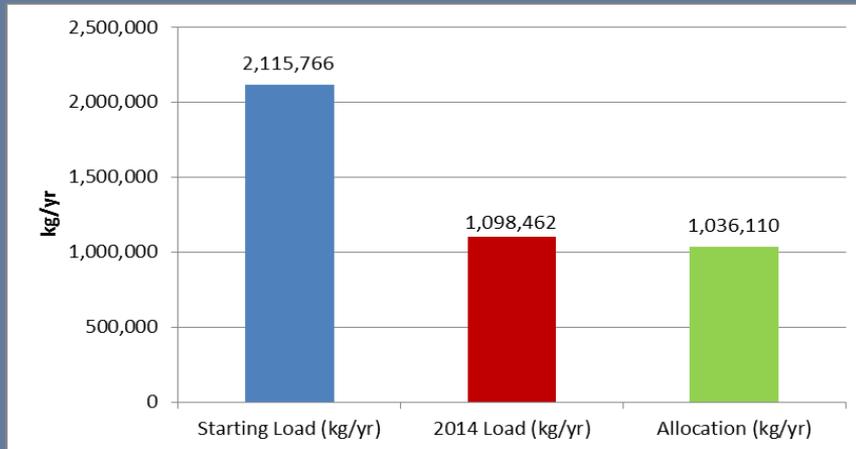
| Tributary Name | Total Number of Data points (Jan 1, 2007 – June 30, 2014) | Number of Exceedances | Minimum Number of Exceedances – Considered Impaired | Percent Exceedance |
|--------------------|---|-----------------------|---|--------------------|
| Craig Creek | 171 | 159 | 23 | 93.0% |
| Deep Bottom Creek | 81 | 69 | 13 | 85.2% |
| Cormorant Branch | 99 | 51 | 15 | 51.5% |
| Hopkins Creek | 80 | 36 | 13 | 45.0% |
| Fishing Creek | 209 | 110 | 28 | 52.6% |
| Blockhouse Creek | 40 | 23 | 7 | 57.5% |
| Williamson Creek | 119 | 101 | 17 | 84.9% |
| Pottsburg Creek | 67 | 19 | 11 | 28.4% |
| Middle Trout River | 93/42 | 37/26 | 14/8 | 39.8/61.9% |
| Greenfield Creek | 38/3 | 18/2 | 7/* | 47.4%/* |
| McCoy Creek | 161 | 97 | 22 | 60.2% |
| Moncrief Creek | 206 | 118 | 27 | 57.3% |
| Sherman Creek | 181 | 62 | 24 | 34.3% |
| Wills Branch | 75 | 43 | 12 | 57.3% |
| Lower Trout River | 56 | 12 | 10 | 21.4% |

Lower St. Johns Main Stem BMAP

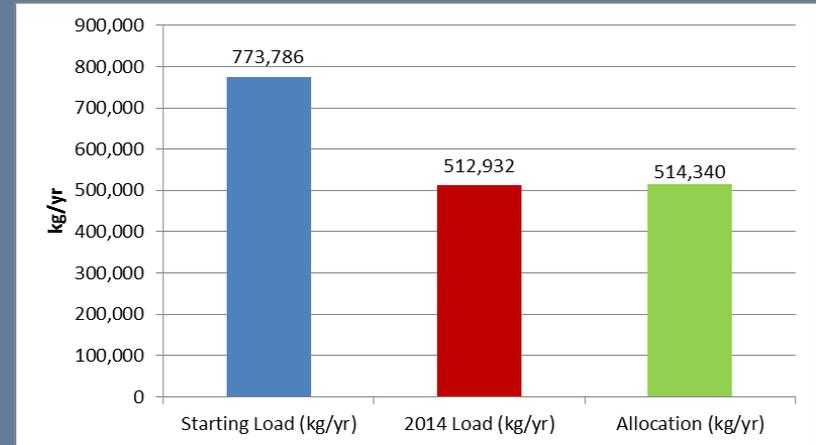
- The BMAP's 5th year assessment has been completed.
- Projects and reductions continue.

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.

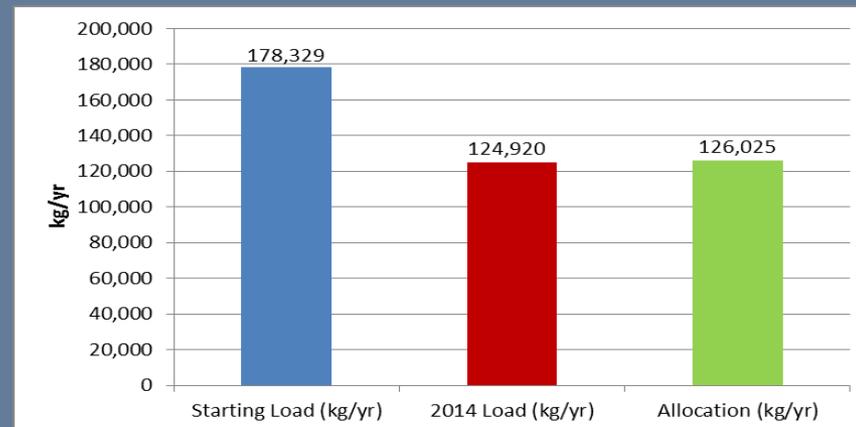


Progress towards the TN TMDL in the marine section



Progress towards the TN TMDL in the freshwater section

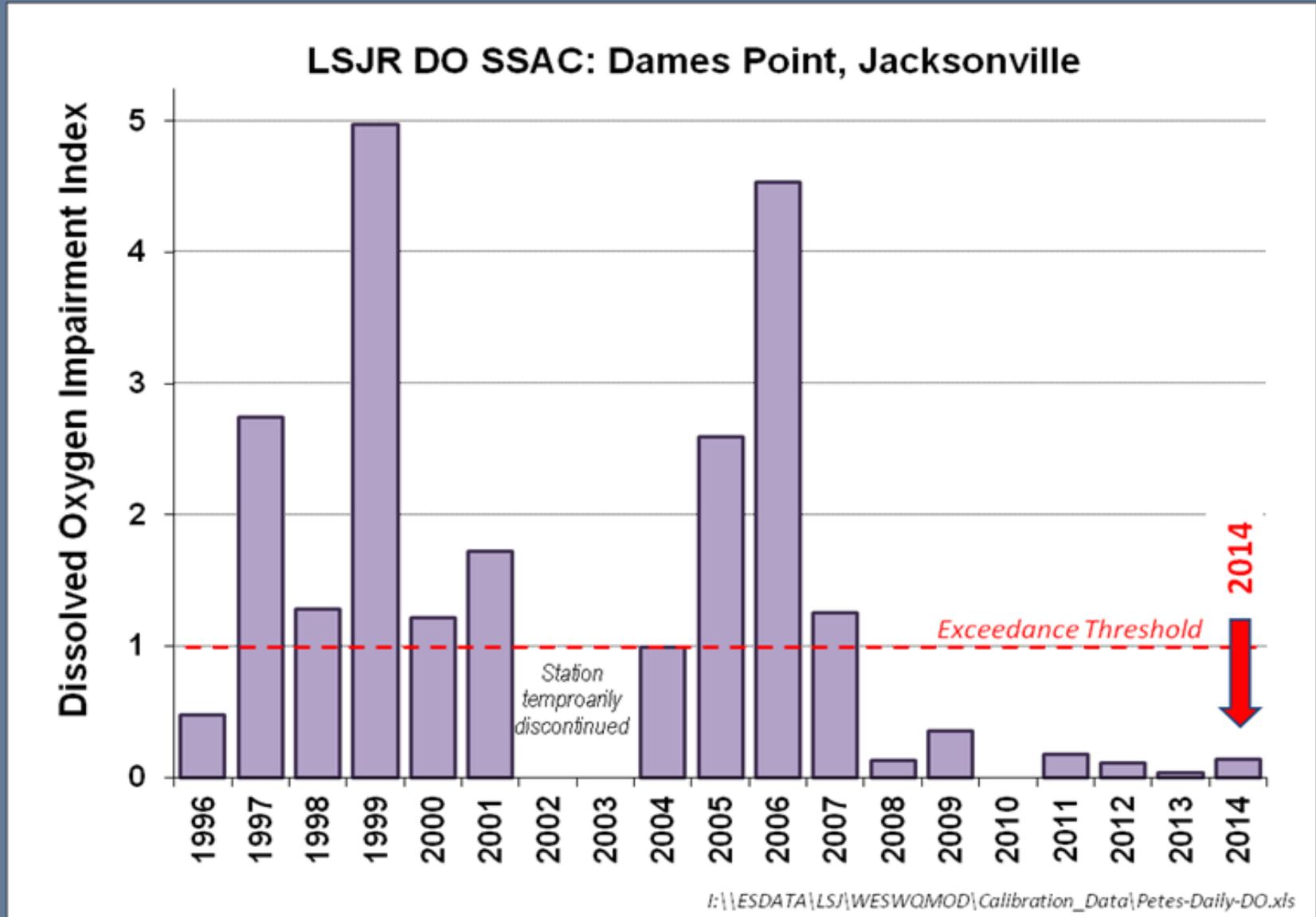
- “Starting Load” is based on the data period used in the TMDL.
- “2013 Load” compared to the starting load shows a significant reduction achieved.
- “Allocation” is the target.



Progress towards the TP TMDL in the freshwater section

Marine TMDL Criteria Performance

Levels of Low DO Impairment Based on the LSJR Criteria for 1996-2014



and still more to come.....

