

# St Johns River Accord Annual Report

## August 3, 2015





## The River Accord

**The River Accord is a Multi-Agency Partnership to Restore the Health of the Lower St. Johns River** via a 10-year, \$700 million initiative to improve water quality, and includes the St. Johns River Water Management District (SJRWMD), Florida Department of Environmental Protection (FDEP), Water and Sewer Expansion Authority—dissolved and now succeeded by JEA— and the City of Jacksonville (COJ). The Florida Department of Health in Duval County (DOH-Duval) provides regulatory assistance rather than capital improvement projects.

Based on decades of research about river restoration programs, the Accord committed to reduce the amount of nitrogen discharged into the river by:

- Phase out older technology wastewater treatment plants;
- Improve other wastewater treatment plants and build expand re-use of treated wastewater for irrigation of lawns, parks, and golf courses;
- Eliminate failing septic tanks;
- Capture and treat stormwater before it enters the river.

In addition to specific efforts to reduce nitrogen loading into the river, the River Accord has four general areas of interest (AOI):

1. Program Accountability
2. Improving Water Quality
3. Tracking the Sedimentation
4. Improving Public Access.

This is the 8th annual summary of the accomplishments.

## AOI #1: PROGRAM ACCOUNTABILITY

### State of the River Report

The Basin Management Action Plan Executive Steering Committee meets to serve as The River Accord steering committee.. An independent State of the River Report by the University of North Florida and Jacksonville University describes the health of the river's biological and chemical ecosystem.

### Water Quality Special Studies

#### Shellfish Harvesting Area Studies

Three years ago, the City Environmental Quality Division (EQD) wrote a scope of work for a shellfish study that would demonstrate sufficient water quality improvement for the State to consider reopening the harvesting areas closed the past two decades. In the absence of funds, EQD

undertook an in-house study. The first-year findings, showing wide-scale compliance with water quality standards. reaped accolades from the Jacksonville Waterways Commission when presented this Spring. Conversations with DACS about reopening the beds are encouraging, and other research entities are looking at the reproductive viability for harvesting.



*Shellfish Sampling, photo by Betsy Deuerling, EQD*

## Mercury Study

During the past year, Jacksonville University and EQD developed a scope for a comprehensive assessment of mercury sources, environmental fate, and ecological and human risk from mercury in the St. Johns and certain tributaries. The Environmental Protection Board (EPB) agreed to tri-fund the study. City Council approved the appropriation and contracts, and the initial equipment requisition has been submitted. Initial study results will be available for the next annual report August 2016.

## AOI #2 IMPROVING WATER QUALITY

### Wastewater Upgrades

To date, the SJRWMD has contributed \$51 million toward wastewater improvements and nitrogen reductions at lower basin utilities.

**Clay County Utility Authority (CCUA):** In addition to the numerous projects listed in previous reports (below), the SJRWMD is co-funding a new project with Clay County Utility Authority (CCUA) to store and treat excess reclaimed water from the Miller Street Plant that would otherwise be discharged into the St. Johns River.

- This project consists of a series of infiltration cells, termed surficial aquifer rapid infiltration basins (SARIBs). Reclaimed water is introduced into the cells where it percolates into the surficial aquifer

at the higher elevations of the site, allowing water to be stored in the soils beneath the site. Subsurface movement of this water continues down slope with a portion to be recaptured in an earthen subsurface collection system.

- Care has been taken to establish grades that will ensure water can only flow from the system to the adjacent wetland and not vice versa. This approach is called the Land Application and Recovery Site (LARS). From the LARS, the recaptured water will be pumped to CCUA's adjoining reclaimed water distribution facility and used to augment the reclaimed water system.
- One horizontal well is also proposed along the northern boundary to capture excess groundwater moving in that direction. The groundwater captured by the horizontal well will also be used to augment the reclaimed water system. Overall, nine surface infiltration cells are proposed that will provide a maximum storage and recharge capacity of about 2.2 million gallons per day and a total nitrogen reduction to the river of 19,374 pounds. Total project cost is estimated at \$2.43 million, with the SJRWMD contributing \$1.13 million.
- CUA continues to expand its reclaimed water system with the construction of transmission mains, reclaimed water storage tanks, and pumping stations. A new reclaimed water storage tank (0.75 million gallons) and pumping station was recently completed at the Ridaught Landing Wastewater Treatment Facility (WWTF) site.

**City of Atlantic Beach:** The city's Main Wastewater Treatment Plant upgrade reached its operational level. Additionally, although not required, the city has completed a reclaimed water facility to serve the irrigation needs of the Atlantic Beach Country Club (formerly Selva Marina Country Club) golf course and a planned subdivision of up to 200 homes.

**City of Jacksonville Beach:** The city completed its wastewater treatment facility upgrade, resulting in a reduction of 21,555 kg/yr. of total nitrogen.

**U.S. Navy:** The U.S. Navy completed the wastewater treatability pilot study at NS Mayport that established the proper treatment process to meet the Total Maximum Daily Load (TMDL).

**JEA:** In 2013, JEA fulfilled its last remaining commitments for the River Accord in regards to wastewater improvement projects. These projects also fulfilled JEA's nutrient reduction obligations for the LSJR Main Stem TMDL and Basin Management Action Plan (BMAP). By upgrading regional treatment plants, phasing out older technology plants, and expanding the utili-

ty's reclaimed water system, JEA has achieved a reduction of over 680,385kg/yr. of nitrogen entering the St. Johns River.

## Wastewater Reuse

**NAS Jacksonville** \$4.2 million project will remove all discharge from the river and apply it to reuse sites on the military base, eliminating 20,196kg/yr. of total nitrogen loading. NAS Jacksonville is aiming to reuse 100 percent of its wastewater thereby eliminating the need to withdraw approximately 37 million gallons per year of potable water from the Florida aquifer and removing 315 million gallons annually of treated wastewater from the St. Johns River. The first phase of the NAS Jacksonville reuse system expansion, completed in July 2013, provides irrigation to the NAS golf course.



*NAS Golf Course Reuse, by Tim Curtin, NAS Jax*

Design and permitting for the second phase reuse expansion to construct a pipeline and spray field at the south antennae farm area on NAS Jacksonville was also completed in 2013. Construction started began in October 2014 with funding from SJRWMD to the City of Jacksonville and will be completed by October 2015.

**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 approximately 2000 new reuse customers in the last year alone, and currently has over 5500 customers. JEA now has the infrastructure in place that can serve more than 12,000 homes in the future. FDEP recognized the current performance and future potential of JEA's South Grid reuse system with the awarding of the 2015 David W York Award, the State's premier reuse system award, to JEA's South Reuse Grid.

## Phasing Out Septic Tanks in High Failure Areas

In the past, the Better Jax Plan undertook phase-out of about 5,000 septic tanks near impaired WBIDs and in failure areas. In 2008, using a grant of ~\$12 million from the State, COJ undertook phase-out of ~600 septic tanks in failure areas of Lincoln Villas Estates and Oakwood Villas. Residual funds are now being used for the remaining area of Lincoln Villas Estates (Phase 2) and to con-

struct laterals from street to house in both areas as a pilot project underway in the current year.

Tributary septic tank phaseout is a part of the LSJ BMAP to reduce nitrogen in the mainstem and tribs. Septic tanks to be phased out in the first phase of this revised program are Lateral Only Connections (LOCs). These are tanks on parcels that have existing sewer infrastructure and either have a sewer lateral in place in the right of way to the property or have the necessary infrastructure to place a lateral to the property line.

In those listed areas, the optimal strategy is “Lateral Only Connection” where existing sewer lines can phase out septic tanks. The LOC program is a lower cost option for nitrogen reduction than traditional stormwater retrofit projects and also addresses the loading of fecal coliform to tributaries by removing failing septic tanks.

Loading reductions are calculated from an FSU model and will be reported in the summer 2016 Accord Status Report.

The current strategies weigh toward nitrogen levels in the St. Johns River (NPDES permit) whereas earlier proposals to phase out septic tanks pertained to tributary fecal coliform and dissolved oxygen concerns, with some impaired for nitrogen as well.

### Florida Department of Health in Duval County (DOH-Duval) Septic Tank Enforcement

In 2014, DOH-Duval provided monthly progress reports to FDEP which indicate a total of 3,382 sites were provided septic tank-related educational materials and consisted of a project notification letter, “A Homeowner’s Guide to Septic Systems” EPA Pamphlet 832-B-02-006, and “Not in My Sep-



Provided by Scott Turner  
FL Health Duval County

tic System” EPA refrigerator magnets. Where residents were not available at time of inspection, door hangers were used to leave the materials for them.

Each site was investigated for sanitary nuisance violations and it was discovered that approximately 258 of the properties inspected were already connected to a centralized sewerage system and were forwarded to JEA for further review. It was also deter-

mined that approximately 93 of the parcels were vacant property and 72 property owners refused access to inspectors.

Forty-four property owners received official notices due to violations discovered during the project period.

Violations included a variety of sanitary nuisance conditions such as 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 corrected. The outreach and education provided as part of this project increased public awareness of the many nutrient (i.e. TN and TP) and fecal coliform sources and their impacts on water quality.

The effects of such awareness is anticipated to increase the number of homeowners having their septic systems pumped out and inspected on a regular basis, more efficient water usage, a decrease in hazardous chemicals being discarded into septic systems, and better maintenance of septic systems in general.

It is expected that these effects will be observed long after the end of this project, which should aid in further reductions of fecal coliform bacteria from septic systems.

### Nonpoint Source Successes

There have been many successes in Accord implementation and pollutant reduction during the year:

- The City of Jacksonville provided five additional wet detention projects, completed prior to 2013, that reduce total nitrogen (TN) for a total reduction of 404 kg/yr.



McCoy's Creek Stormwater Pond, by John Flowe, EQD

- St. Johns County has the Masters Tract Regional Stormwater Treatment (RST) Facility currently under construction. The first phase is scheduled for completion in February and the second phase in December 2015.
- Clay County augmented its education and outreach program through a five year contract with the St. Johns Riverkeeper. This contract will pay the Riverkeeper to provide outreach to schools, special

events, and associations, while teaching about water quality, erosion control, and marketing about rain barrels.

- Two municipal separate storm sewer system (MS4) projects were completed in the marine reach for a reduction of 2,953 kg/yr. of TN. One nonpoint source (non-MS4) project was completed in the freshwater reach for a reduction of 199 kg/yr.

## Agricultural Projects

In addition to two regional stormwater treatment (RST) facilities that the SJRWMD has constructed to treat agricultural runoff in the Tri-County Agricultural Area (Putnam, St. Johns, and Clay counties), St. Johns County is utilizing state funding, with the assistance of the SJRWMD, to construct an additional agricultural runoff treatment facility near Hastings.

- This facility will treat 1,425 acres of agricultural runoff also draining to Deep Creek. During the upcoming year, construction should also begin on a Florida Department of Agriculture and Consumer Services (FDACS) funded regional treatment within the Deep Creek watershed.
- Deep Creek is a major contributing tributary entering the St. Johns River from the Tri-County Agricultural Area (TCAA).

Additionally, FDACS, FDEP, SJRWMD, USDA Natural Resources Conservation Services and the University of Florida have completed the third year of the Tri-County Agricultural Area Water Management Partnership (TCAA-WMP) in conjunction with the TCAA growers and other stakeholders to cost share the implementation of certain BMPs.



*Photo provided by SJRWMD*

This program is being led by FDACS with funding support of \$1.5 million from the SJRWMD and \$1.9 million from the FDEP, plus an additional \$750,000 from the state in 2011.

The TCAA-WMP accepts applications twice each year to accommodate grower planting and harvesting seasons. The

spring cycle application deadline is June 1 and the fall deadline is Dec. 1 of each year.

Prior to the current funding cycle, seven projects have been approved for funding (July 1, 2013 – June 30, 2014) as well as fertilizer banding equipment for six farmers.

In the FY 14 – 15 funding cycle, the TCAA-WMP has approved funding for eight water management projects as well as fertilizer banding equipment for seven farmers.

In the new FY 15-16 funding cycle, the TCAA WMP has received 18 grower applications for project cost share funding for water management projects. All 18 applications will be reviewed by the Partnership Technical Support Team, with minor modifications in some cases, and then considered for approval by the Partnership Project Selection Committee. Both groups are made up of individuals representing the FDEP, FDACS and SJRWMD.

The project applications include 12 irrigation drain tile, two drip irrigation, one linear overhead irrigation and three overhead irrigation. Water management practices are designed to retain nutrients in the field by reducing annual water discharge volume. Fertilizer banding practice helps to improve nutrient uptake efficiency by the crop by applying fertilizer applications directly to the planted row. This efficiency has shown to decrease phosphorus fertilizer rates by 30 percent.

## Irrigation

Since March 2009, SJRWMD limits irrigation to 2 days/week during daylight savings time and one day during Eastern Standard Time. COJ also enforces watering restrictions in Duval County. For 2014, EQD received 171 complaint issues.

- 103 of the 171 complaints were inspected.
- 61 of the 171 complaints had educational/complaint letters mailed out.
- 14 violations were observed out of the 171 complaint issues that resulted in a warning tickets.
- Eight (8) addresses of the 171 issues made up 41 repeat inspections.
- One (1) of the inspections resulted in Water to Air Heat Pump verifications that are exempt.

## Tributary BMAPs in Duval County

To address bacteria contamination issues in multiple tributaries, the Lower St. Johns Tributaries Basin Management Action Plan (BMAP) I was adopted by FDEP in December 2009. BMAP II was adopted in September

2010. Combined, these BMAPs address programmatic and project plans for 25 water body identification num-

bers (WBIDs).

Both BMAPs set targets to be achieved during a five-year period after adoption.

An interagency work group Tributary Assessment Team (TAT) comprised of FDEP, COJ EQD and Public Works Department, DOH-Duval, JEA, Florida Department of Transportation (FDOT), NS Mayport, City of Atlantic Beach, City of Neptune Beach, and City of Jacksonville Beach continue to implement the Tributary Pollution Assessment Manual developed in 2006.

When sample results indicate a continual bacterial contribution to the streams, field staff investigate the contributing region of the watershed to identify potential sources. The team has identified and eliminated many significant sources thanks to this effort. In some tributaries, bacteria results remain high. To augment TAT follow-up sampling and observation practices, FDEP continues to test the BMAP I tributaries for sucralose, acetaminophen and quantitative polymerase chain reaction (qPCR) marker HF-183 to verify human sources of bacterial contamination.



*TAT seeks pollution, Photo by Betsy Deuerling, EQD*

The combined presence of these three parameters indicates a strong potential presence of human waste sources. Results from some of BMAP I tributaries indicate the presence of human waste sources. The TAT is working to track the location of these sources further up in the watershed through additional monitoring efforts.

Additionally, JEA will deploy their remote-controlled television cameras in storm conveyances to locate entry points of domestic wastewater into the storm sewer system. Field work has revealed two common themes in many of the LSJR Tributaries, especially those in highly urbanized areas of Jacksonville: Litter and trash inputs are a problem in some areas; and the overflow of food and

grease containers at restaurant and convenience store sites are frequent.



*Photo by Anita Nash, FDEP*

To address litter and trash in problem areas, COJ plans to organize community “stream clean-ups” during Phase 2 of this BMAP. To address the overflow of food and grease behind food-related establishments, the TAT will learn more about how commercial dumpsters and grease recycle containers can be identified as in need of maintenance .

The TAT will assist Department of Business and Professional Regulation or Florida Department of Agriculture and Consumer Services by reporting observations of locations in need of clean up and support.

The obvious bacteria sources were eliminated during phase 1 of the BMAPs and now more intensive source identification techniques will be used during phase 2.

### Other BMAP Progress

The sixth annual LSJR Main Stem BMAP progress report encompassed the period of Jan. 1, 2014, through Dec. 31, 2014, addressing nutrient impairments in the main stem of the river.

During this time,

- City of Palatka completed its first flush treatment project.
- City of Jacksonville continued building stormwater projects and pursuing water quality credit trading efforts, and phased out septic tanks via LOC program.
- Agriculture continued BMP implementation, the Tri-County Agricultural Area (TCAA) Water Management Partnership, and the BMP compliance process.
- City of Atlantic Beach completed the construction of a reclaimed water facility to provide irrigation water to the Atlantic Beach and Country Club.
- JEA continues to expand its reuse transmission system.
- Ongoing activities will continue by many entities including illicit discharge elimination programs, pub-

lic education and outreach, street sweeping, and local ordinances to control nutrient sources.



TAT Walk the Stream, by Barry Cotter, EQD

### Nutrient Status of the River Reaches

The Wastewater Treatment Facilities (WWTFs) and MS4s in the **freshwater reach** have achieved their portion of the TN and total phosphorous (TP) required reductions.

Also, WWTFs in the **marine reach** have achieved their portion of the TN required reductions.

A summary of the reductions are reflected below:

- WWTF progress toward the TP freshwater TMDL has achieved reductions of 43,133kg./yr. TP.
- WWTF progress toward the TN freshwater TMDL has achieved reductions of 169,089kg./yr. TN.
- WWTF progress toward the TN marine TMDL has achieved reductions of 945,189kg./yr. TN.
- MS4 progress toward the TP freshwater TMDL has achieved reductions of 244kg./yr. TP.
- MS4 progress toward the TN freshwater TMDL has achieved reductions of 1045kg./yr. TN.
- MS4 progress toward the TN marine TMDL has achieved reductions of 69,133kg./yr. TN.
- Additional reductions have also been made by stormwater sources outside MS4 areas in both the marine and freshwater sections, as well as by agricultural sources.

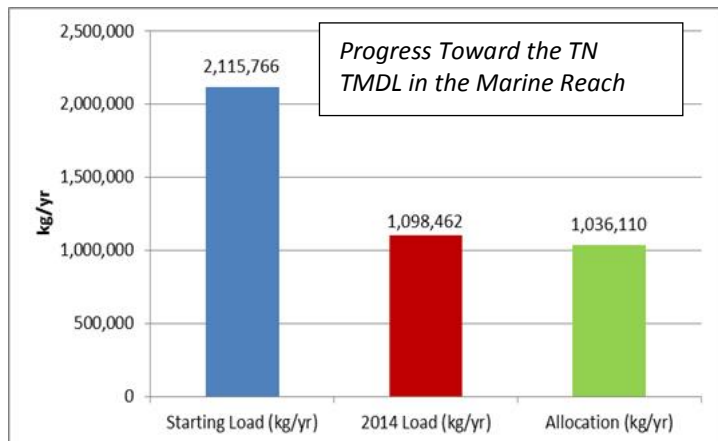
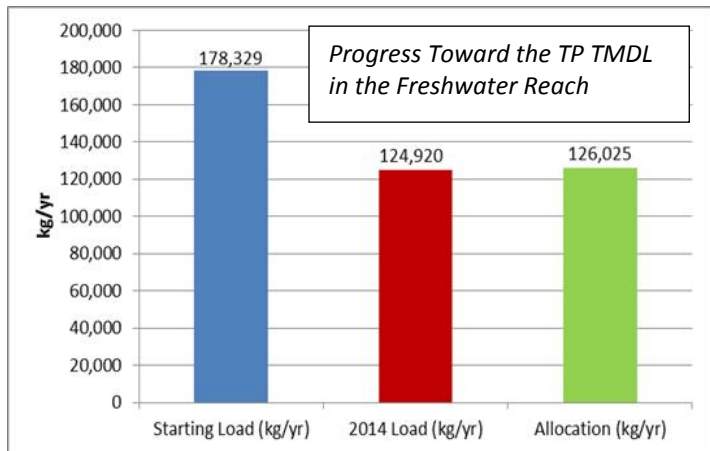
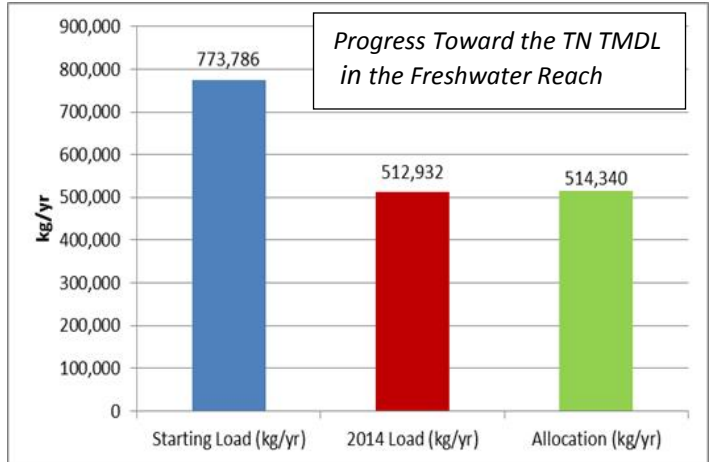
### Excerpts from the 2014 LSJR BMAP Annual Progress Report, Florida Department of Environmental Protection

Progress in meeting TMDLs in various reaches, is presented in the graphs below, where:

TMDL=total maximum daily load

TN=total nitrogen

TP=total phosphorus



To learn more about the BMAPs and review the annual updates, please visit the Florida Department of Environmental Protection's webpage:

<http://www.dep.state.fl.us/water/watersheds/bmap.htm>



Fishing the St Johns River by John Flowe



## AOI #3 TRACKING SEDIMENTATION

COJ Stormwater Utility attributes include:

- 670 sq. miles
- 55,100 catch basins/inlets
- 11,500 manholes
- 2100 control structures
- 1,400 miles of pipe
- 224 stormwater ponds
- 435 major outfalls
- 1207 miles of ditches
- 10 pump stations
- \$44 million annual expenditures

Utility stormwater project status follows.

<b>Construction Projects</b>	
<b>Completed</b>	
Melba/Green Street	LSJR Trout River
Smith Broward Pond	LSJR Trout River
Woodland Acres/Oakwood Villa Area Drainage Ph. I	Arlington River
Hugh Edwards Road Drainage	Ortega River
Pine Forest/Larsen Acres	LSJR Trout River
Upper Deer Creek Phase 3	LSJR Trout River
Venetia Terrace Drainage	Ortega River
McCoy's Creek Pond C	LSJR Trout River
Paul Avenue Outfall	LSJR Trout River
Riverview Area Drainage	Cedar River
Miruelo Circle	LSJR Trout River
<b>Phase I Completion</b>	
Newtown Drainage main trunk line (Myrtle & Beaver)	LSJR Trout River
<b>Under Construction</b>	
Air Liquide Pond Retrofit	LSJR Trout River
City-Wide Drainage System Rehabilitation	LSJR - Countywide
Hamilton Jersey Outfall – in progress	LSJR Trout River
Country Creek Area Drainage Improvements - Pending	Ortega River
Avenue "B"/Zinia Outfall	Trout River
<b>Design</b>	
Bunche Rd. Drainage	Ortega River
Crystal Springs Area	Ortega River
Noroad/Lambing Drainage	Ortega River
Mandarin Area Drainage (Grand Cirque)	LSJR Upstream of Trout River
Lower Eastside Phase III	LSJR

Septic tank phaseout (STPO) by the Utility is ongoing (p.4.)

### Erosion and Sediment Enforcement

SJRWMD and COJ both inspect complaints of erosion and sedimentation from construction sites. From 1,126 inspections, EQD issued 29 notices to correct violations at 15 sites, with six moving to formal enforcement cases last year in Duval County.

## AOI #4 IMPROVING PUBLIC ACCESS

The River Accord, along with its Preservation Project partners, continues working to improve public access to the St. Johns River and its tributaries. The past year's improvements are described below. More information is available at [www.JaxParks.com](http://www.JaxParks.com).

### Blue Cypress/Arlington Lions Club Park Boardwalk Extension

Designs have been completed for extending the existing shoreline boardwalk approximately 800 feet from Blue Cypress Regional Park to the boat ramp at Arlington Lions Club Park. Construction should begin in fall 2015.



*Blue Cypress/ALCP Boardwalk Photo by Barry Cotter, EQD*

### Michael B. Scanlan Mayport Boat Ramp

Additional floating docks were added to the heavily used boat ramp in Mayport.

### Exchange Club Island Park

Designs have been completed for constructing a floating dock, a kayak landing area, picnic facilities and a nature trail on the island. Construction should begin in fall 2015.

### Mike McCue Boat Ramp Lighting

Installation of new lights in the parking lot at this popular boat ramp on the Intracoastal Waterway should be completed in summer 2015.

### Northshore Park

Design is underway for development of an improved kayak launch at this park along the Trout River. Construction is projected for 2017, pending award of a FIND grant.

### Southbank Riverwalk

The entire Southbank Riverwalk in downtown was reconstructed using lightweight concrete and adding new lighting and park amenities.



*Southbank Riverwalk Photo by John Flowe, EQD*



*Friendship Park and Fountain Refurbished Photo by John Flowe*

### Jim King Park and Boat Ramp at Sisters Creek

Installation of new lights in the parking lot at this popular boat ramp on the Intracoastal Waterway is expected in fall 2015. Designs have been completed for relocating the floating docks at the boat ramp into deeper water. Construction should begin in 2016, pending award of a FIND grant.

### Half Moon Island Preserve

Design is underway for development of a new boat ramp, fishing pier and picnic facilities at this undeveloped park property near intersection of Main Street North and the Nassau River. Construction is projected for 2017, pending award of a FIND grant.

### Charles Reese Memorial Park

Design is underway for development of a fishing pier and kayak launch at this park along the Ribault River. Construction is projected for 2017, pending award of a FIND grant.

**Trout River Pier**

A major renovation of the south end of the Trout River fishing pier was completed in October 2014.



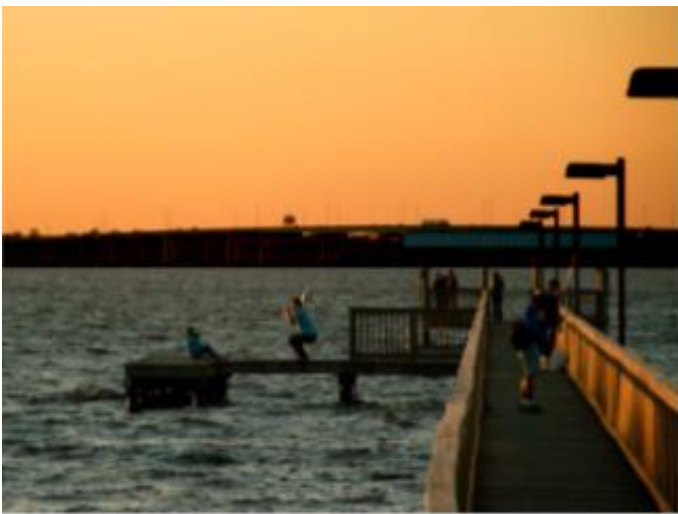
Trout River Pier; Photo provided by Brian Burket, Jax Parks



Arlington Lions Club Boardwalk and Pier  
Photo by Barry Cotter, EQD

**County Dock Boat Ramp**

Design phase is complete for replacing the boat ramp, enhancing the parking area and removing approximately 100 old, submerged pilings that pose a navigational hazard for those using this ramp. Construction should begin in 2016, pending award of a FIND grant.



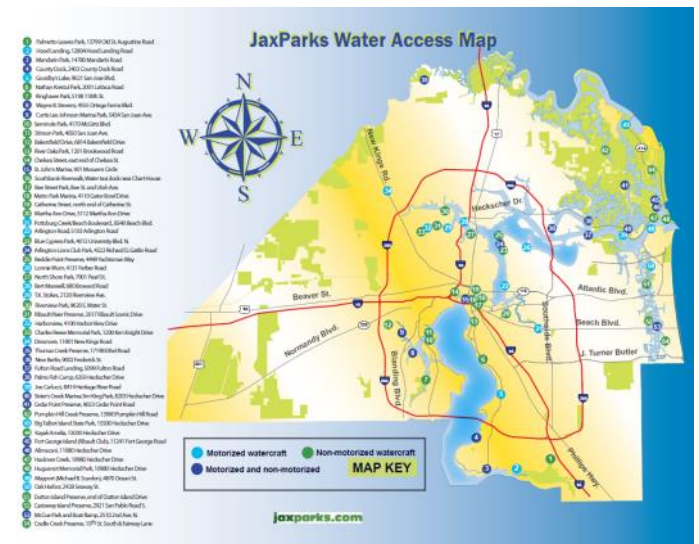
County Dock, Photo by John Flowe

**2015 Greater Jacksonville Kingfish Tournament (July 13-18)**

Successfully completed the 35th year of the Greater Jacksonville Kingfish Tournament, the largest of its kind in the country. In addition to the General Tournament, the event also included contests for Junior Anglers and Redfish as well as a “Down at the Dock Fishing Derby” in partnership with the Down Syndrome Association of Jacksonville, Inc.

**County Water Access Map**

Parks, Recreation, and Community Services has developed a map of locations for access to water in Duval County. Thumbnail below.



The map can be accessed at:  
<http://www.coj.net/departments/parks-and-recreation/recreation-and-community-programming/docs/waterfront/brochure2012.aspx>

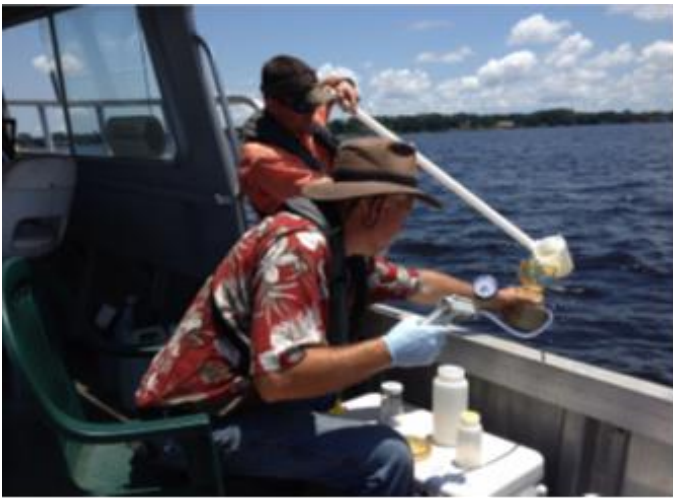
Also, the Greater Jacksonville Paddling Guide is available online.



*Shellfish Area ,  
Photo by Betsy Deuerling, EQD*



*Ferry Jean Ribault  
Photo by John Flowe*



*Sampling River from RSV Anna McLeod  
Photo by Betsy Deuerling, EQD*



*County Dock,  
Photo by John Flowe*

A link to this report will be posted in downloadable \*.pdf (Acrobat) format at <http://www.coj.net/departments/neighborhoods/environmental-quality.aspx>

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*Cover photo "Mug Race" provided by Palatka Yacht Club and the Girardin Family*