



City of Jacksonville's Fecal Coliform TMDL Program



- **In the beginning:** the City established a tributary monitoring program.
- **Approximately 100 sites are monitored for field parameters and fecal coliform bacteria.**
 - **Years of fecal coliform violations in Jacksonville tributaries have been documented.**
 - **The “Red Dot Map” was created.**



Fecal coliform geometric mean 1993 - 99

Red dot equals geomean greater than 800 cfu/100mL

Larger the dot the greater the violation



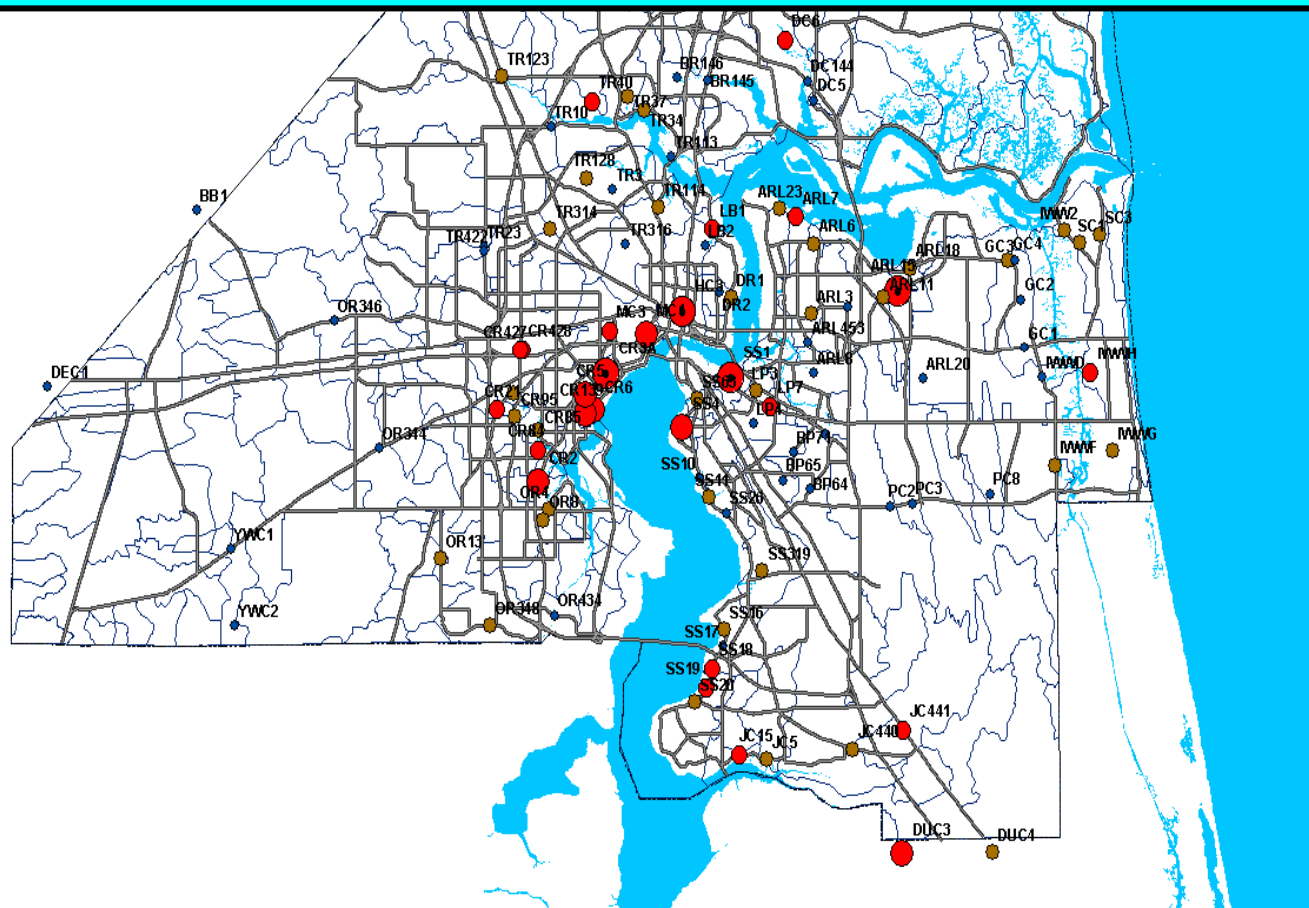
Fecal Coliform Colonies
per 100 mL

APC	100
ARL11	100
ARL15	10000
ARL18	100
ARL20	60
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Red dot equals greater than 800 cfu/100mL

Larger the dot the greater the violation

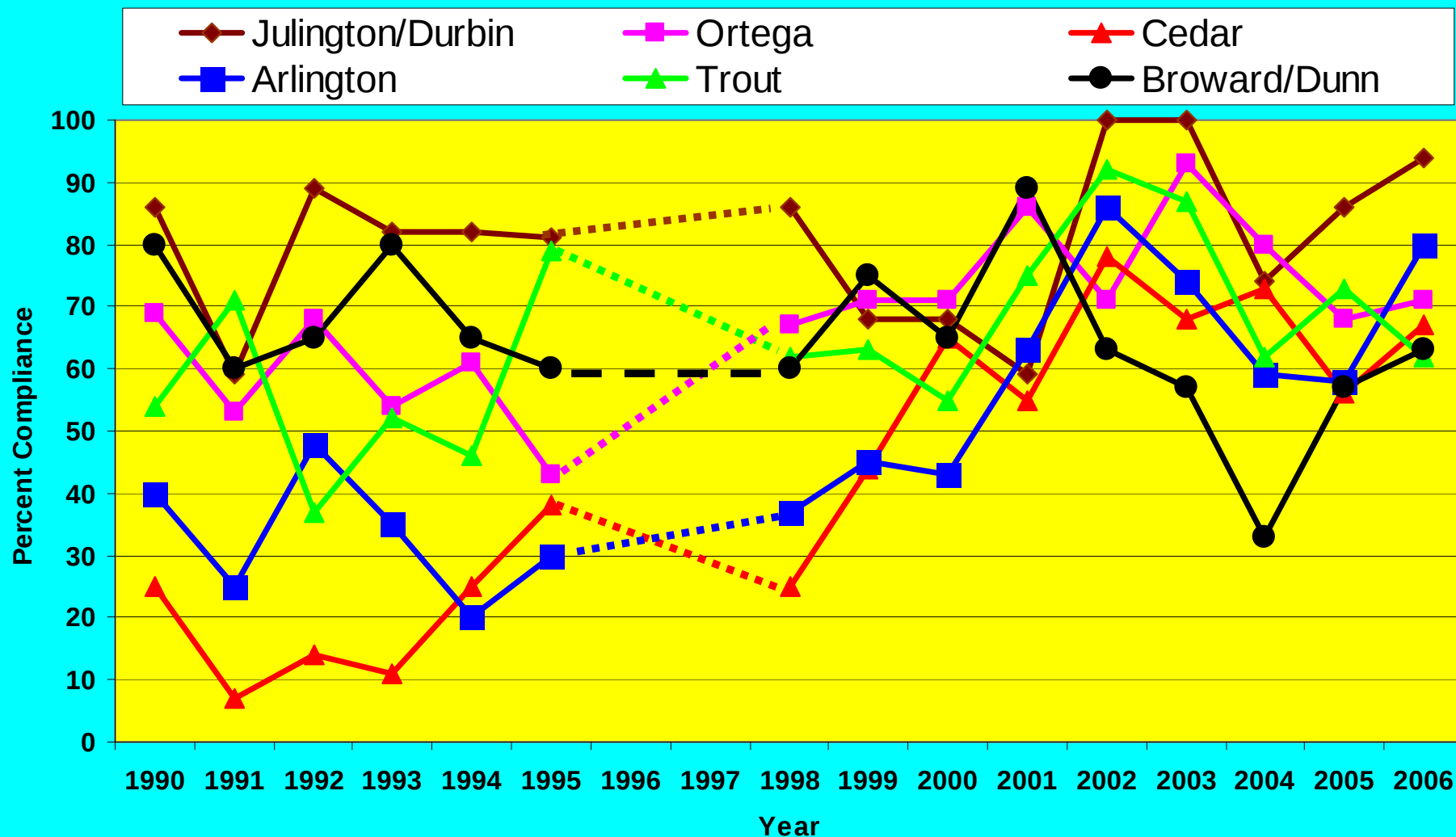
First Quarter 2004



Drawn by:
Michael R. Thomas,
Environmental Quality Division
City of Jacksonville

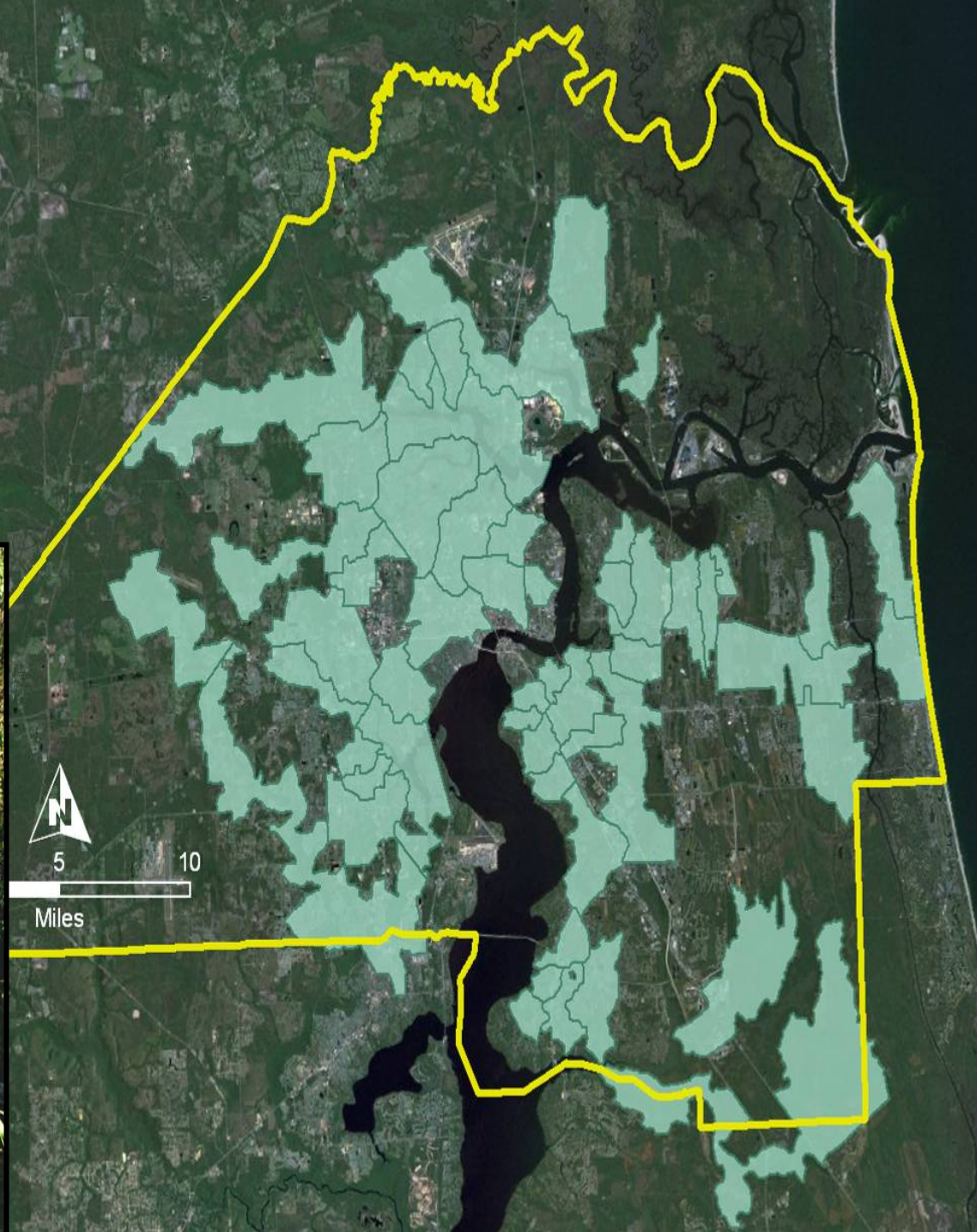
Duval County Tributary Monitoring Stations
First Annual Quarter Fecal Coliform Data

Basin Comparison Annual Percent Compliance Fecal Coliform Bacteria 1990 - 2006



Gradual improving trend, averaging 50 to 80 percent compliance with one-time grab maximum standard of 800 cfu/100mL

As of 2008 DEP
has verified 55
WBIDs as
impaired for fecal
coliform bacteria



1997 Jacksonville gets serious about understanding the fecal coliform problem in local tributaries

- Identify sources**
- Take corrective action**
- Continue monitoring**

The 1997 St. Johns River Summit

- Bacteria in the tributaries were highlighted as an issue.
- Former Mayor John Delaney, former SJRWMD Executive Director Henry Dean and former speaker, Florida House of Representatives John Thrasher.
- Initiated the first Special Legislative Appropriation (SLA) from the Florida legislature to environmental issues in the lower St. Johns River. (**\$ 5-10 million per year to lower SJRB**)



Not all fecal coliform are from human sources...in 1998
the City funds “Microbial Source Tracking”
Study

Jacksonville Environmental Protection Board
Study

**Use of Bacterial Antibiotic Resistance Patterns to
Determine the Source of Fecal Contamination in
Surface Waters of Jacksonville**

performed by:



Valerie J. Harwood
Department of Biology
University of South Florida

2000 Better Jacksonville Plan Septic Tank Phase-Out Projects



Rank	Sanitary Nuisance Failure Area	No. Residences	Estimated Cost (Low)
1.	Pernecia/Johnnie Circle	242	3.3 million
2.	Murray Hill B	1245	18.5 million
3.	Lake Forest	1109	20.2 million
4.	Scott Mill Hill	541	12.8 million
5.	Glynlea (lower)	452	10.5 million
6.	Oakwood Villa Estates	2781	23.7 million
	Total	6731	89 million

In 2003 the City proposes a “Reasonable Assurance Plan”

- Proposes a plan to bring Duval tributaries into compliance for fecal coliform bacteria**
- Forms a partnership with: COJ/EQD, COJ/PW, DCHD, FDEP & JEA**
- The “Plan” was ultimately not approved by the US EPA but the partnership continued evolving into the Tributary Assessment Team (TAT)**

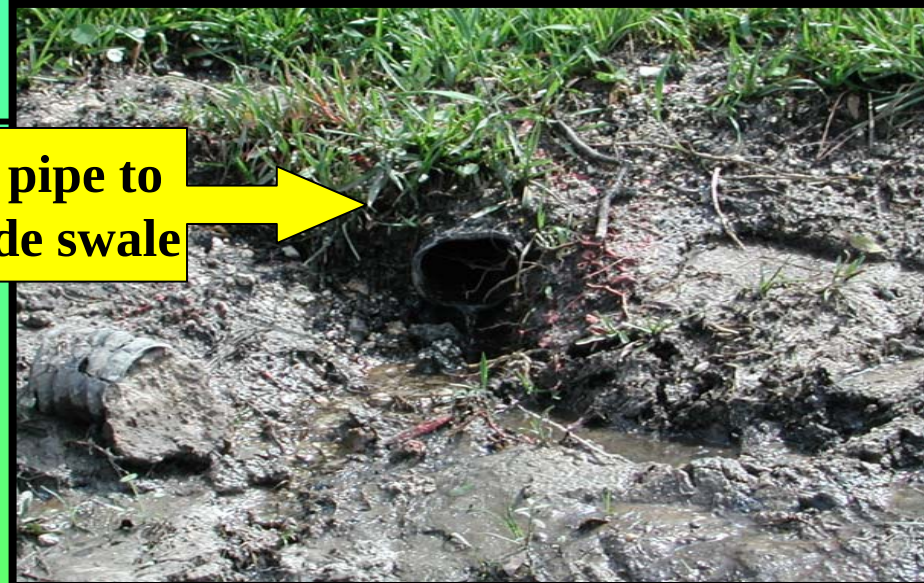


2005 City of Jacksonville Septic Tank Ordinance

- Publicly owned water and sewer system must be expanded into areas with failing septic tanks.
- Criteria for ranking failure areas and creating “sanitary nuisance” designation.
- Establishes the “Failed Areas List”



Illegal pipe to
roadside swale



**In-kind civil
penalties paid as
a result of
sanitary sewer
overflows fund
the development
of
Tributary
Pollution
Assessment
Manual**

**Tributary Pollution Assessment
Summary Report**

FINAL JULY 2006



A report prepared for:

**The
Tributary Assessment Team**

Jacksonville, Florida

Prepared by



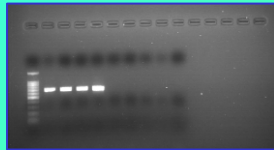
**7406 Fullerton Street, Suite 350
Jacksonville, Florida 32256**

Tributary Pollution Assessment Manual

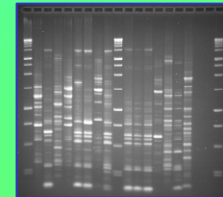
- Uses microbial source tracking techniques

Non-human

Human



**Library-
independent MST**



**Library-
dependent MST**

Tributary Pollution Assessment Manual

- Evaluated other source tracking tools: fluorometry, thermal imaging.
- Uses a partnership of responsible entities
- Weight of evidence approach for source ID
- Recommends corrective actions

Fluorometry

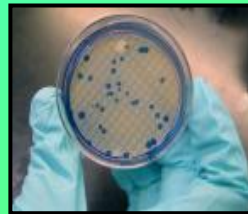
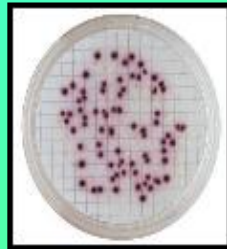


Thermal Imaging



2007 Special Legislative Appropriation Funds for Tributary Assessment

- \$380,000 Tributary Restoration Project
- \$145,000 advanced MST analysis
- \$120,000 to COJ for tributary restoration including creation of microbiology capabilities (fecal coliform analysis)



2007 Special Legislative Appropriation

- Public Service Announcements for:
 - pet waste
 - septic tank maintenance



FDEP in conjunction with the tributary basin working and technical groups are preparing tributary technical report and draft TMDLs

Newcastle Creek Technical Report (WBID 2235)

Draft November 2007

Prepared For:



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DRAFT

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Division of Water Resource Management, Bureau of Watershed Management

NORTHEAST DISTRICT • LOWER ST. JOHNS BASIN

TMDL Report Fecal Coliform TMDL for Miramar Creek (WBID 2304)

David Wainwright



July 2005

Florida Department of Environmental Protection

Other fecal coliform related studies:

USGS Jacksonville Tributary Study (2000-2010)

- Pre and Post sanitary sewerage water quality assessment.
- Quantify benefits of septic tank phase-out.

FDEP funded Septic tank assessment for nutrients and fecal coliform bacteria

Other corrective actions:

- JEA infrastructure rehab and maintenance
- Potential illicit discharge program
- Private lift-station inspection program



Questions?

