

CITY OF JACKSONVILLE, FLORIDA

ENVIRONMENTAL & COMPLIANCE DEPARTMENT

ENVIRONMENTAL QUALITY DIVISION

AIR and WATER QUALITY

Presented by Vincent A. Seibold, P.E., MBA
Chief, Environmental Quality Division

Organizational Structure

Effective 10/01/07

Mayor

Chief Administrative Officer

Sustainable Communities

Environmental & Compliance Department

Environmental Quality Division

ENVIRONMENTAL QUALITY DIVISION

6/21/2007

Office of the Chief

Air Quality Branch

Steve Pace, P.E.
630-1212 x3133

Hazardous
Materials Branch

John Flowe, P.E.
630-1212 x3875
&
Allene McIntosh, P.G.
x3112

Technical and
Enforcement
Services Branch

Gary Weis, P.E.
630-1212 x3165
&
Dana Brown
x3817

Surface Water
Quality Branch

Nam Huynh, P.E.
630-1212 x3886

Air Quality Branch

**Steve Pace, P.E.
630-1212 x3133**

Response

**Odors, open
burning
complaints**

Noise

Noise complaints

**Ambient Air
Monitoring**

**Test air quality at
key sites in city**

Permitting/Toxics

**Limit air emissions
and inventory
toxics**

Compliance

**Inspect air
emission sources**

**Monitoring
Demonstration
Study**

**Innovative
prevention of
pollution**

Hazardous
Materials Branch

John Flowe, P.E.
630-1212 x3875

Haz Waste

Technical
assistance to
hazardous waste
generators

Storage Tank
Compliance

Inspect petroleum
storage tanks to
prevent leaks

Storage Tank
CleanUp

Manage cleanup of
gas spills (Allene
McIntosh, P.G.)

Emergency
Response

Environmental risk
assessment of
fires, wrecks,
spills and
PCB regulation

Technical and
Enforcement
Services Branch

Gary Weise, P.E.
630-1212 x3165
&
Dana Brown
x3817

Laboratory
Services

Tests water and air
for trends and
compliance

Groundwater
Services

Well construction
standards and
wellhead
protection

Regulatory
Services

EPB staff and
outreach
(Christi Veleta)

Enforcement
Services

Negotiate
remedies for
violations; refer
for litigation

Surface Water Quality Branch

Nam Huynh, P.E.
630-1212 x3886

Permit

**Limit wastewater
discharges**

Erosion and Sediment Control

**Monitor erosion
controls at
construction sites**

Ambient Water Monitoring and Compliance

**Tests water quality
countywide
(Dana Morton)**

JACKSONVILLE AIR QUALITY EARLY 1960s

**A COMPLEX MIX OF INDUSTRIAL,
COMMERCIAL, AND RESIDENTIAL
AREAS, RESULTING IN CONFLICT.**

JACKSONVILLE 1961

**THE REALIZATION THAT AIR POLLUTION WAS
CREATING ADVERSE IMPACTS CAME TO THE
FOREFRONT IN 1961.**

**THE ARLINGTON AREA EXPERIENCED VEGETATION
DAMAGE.**

JACKSONVILLE 1961

THE 1961 INCIDENT OF VEGETATIVE
DAMAGE LEAD TO A STUDY (1963),
WHICH INDICATED THE NEED FOR AN
"AIR POLLUTION CONTROL PROGRAM".

tiesilk, clothes and calots of shantung and baku each with some special manipulation of the material. Throughout the colors were "delicious."

IRRITANT IN AIR RUINS JACKSONVILLE NYLONS

JACKSONVILLE, Fla., Feb. 16 (UP)—An airborne irritant cost a few more women here their nylon stockings today but authorities said they were lucky they still had their health.

Dr. W. W. Rogers, city health officer, said the condition might be similar to that which arose in Donora, Pa., recently when a "death fog" seared lungs and caused asthmatic patients to die.

The soot particles that apparently carry sulphurous, nylon-attacking acid here fortunately could not be inhaled, Dr. Rogers said. In Donora the irritant was breathed.

A certain degree of moisture in the air converts the sulphuric waste into acid in a rare combination of conditions such as that at Donora, the health officer explained.

"It probably won't happen again in a coon's age," he added. "But if it does it won't be a tragedy because there is so much dilution here. But it ought to point out to people in a congested community to be careful about what they turn loose into the air."

The State Board of Health's industrial hygiene division examined some of the shredded stockings under a microscope and found a tiny soot particle at each hole in the texture.

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Sailors, aw
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to one side,
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with a short

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velvet.

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with chiffon
to one side,
ward tilt.
drape was a
green showe
with a short

NURSE S IN ALL

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plans, Miss C
why it was

SPRINGFIELD, SATURDAY, MAY 27, 1961

Plant and Health Officials Discuss Air Pollution

Steps were taken yesterday by the State Board of Health to eliminate or reduce substances in the air which have caused vegetation in the Springfield and Arlington areas to wither and die.

Representatives of two fertilizer manufacturing companies met with David B. Lee, chief sanitary engineer for the State Board of Health, and city health department representatives to discuss the problem.

Meeting with Lee were Albert Henderson of the Wilson &

RAILROAD SCHEDULES

FLORIDA EAST COAST RAILWAY
Passenger Traffic Office Ph. FL 5-7661































With Pollution Control



**1965 STATE LEGISLATURE ESTABLISHES
"DUVAL AIR IMPROVEMENT AUTHORITY"**

**1970 CLEAN AIR ACT ESTABLISHES THE NATIONAL
AMBIENT AIR QUALITY STANDARDS, STATE
IMPLEMENTATION PLANS, AIR POLLUTION
CONTROL PROGRAM MAINTENANCE GRANTS, ALL
OF WHICH BECOME A PART OF THE
JACKSONVILLE PROGRAM.**

**1971 - ENVIRONMENTAL
PROTECTION BOARD (EPB)
CREATED**

RULE MAKING AUTHORITY

FORGING THE DIRECTION OF AIR

POLLUTION CONTROL; PLATFORM FOR

CITIZEN'S QUESTIONS/CONCERNS.

- Environmental Protection Board (EPB) created in January 1971 by Ordinance 70-1287-600
- Ordinance 84-674-684 enhanced the EPB's authority to enable local environmental rules to be promulgated
- Ordinance 88-117-123 further enhanced the EPB's authority by allowing for fines of up to \$10,000 per day/ per violation to be imposed.
- 1989, the EPB was granted special legislative authority by the Florida Legislature, which allowed for fines of up to \$10,000 per day/per violation.
- The mission of the EPB is to enhance the quality of life for Jacksonville's citizens through protection of the natural environment.

- The EPB oversees the enforcement of environmental regulations, promulgates local environmental rules, acts as a hearing platform for the public with regard to environmental matters and conducts an extensive public education and outreach program.
- Rules adopted by the EPB from 1985 to the present deal with the following subjects: Rule 1 – Organization Procedure & Practice; Rule 2 – Air Pollution Control; Rule 3- Water Pollution;
- Rule 4- Noise Pollution Control; Rule 5; Control of TRS and VOC Emissions from Crude Sulfate Turpentine Processing Facilities;
- Rule 7- Hazardous Materials and Rule 8- Groundwater Resource Management.
- The first rule adopted by the EPB to deal specifically with local issues related to odors and other air pollution nuisances. This rule was adopted in December 1985.

- Other local rules adopted by the EPB dealt with open burning and frost protection, adopted in February 1985.
- A local rule relating to emissions from ships and locomotives was adopted in June of 1990
- Rules relating to noise pollution control were adopted in June of 1986
- Local rules requiring small sewage treatment plants to connect to larger regional facilities was adopted in February of 1987
- Local rules to regulate the emissions of TRS and VOC's from processing facilities was adopted in April of 1991
- Wellhead protection rules were adopted by the EPB in May of 2005

Jacksonville Attainment Status

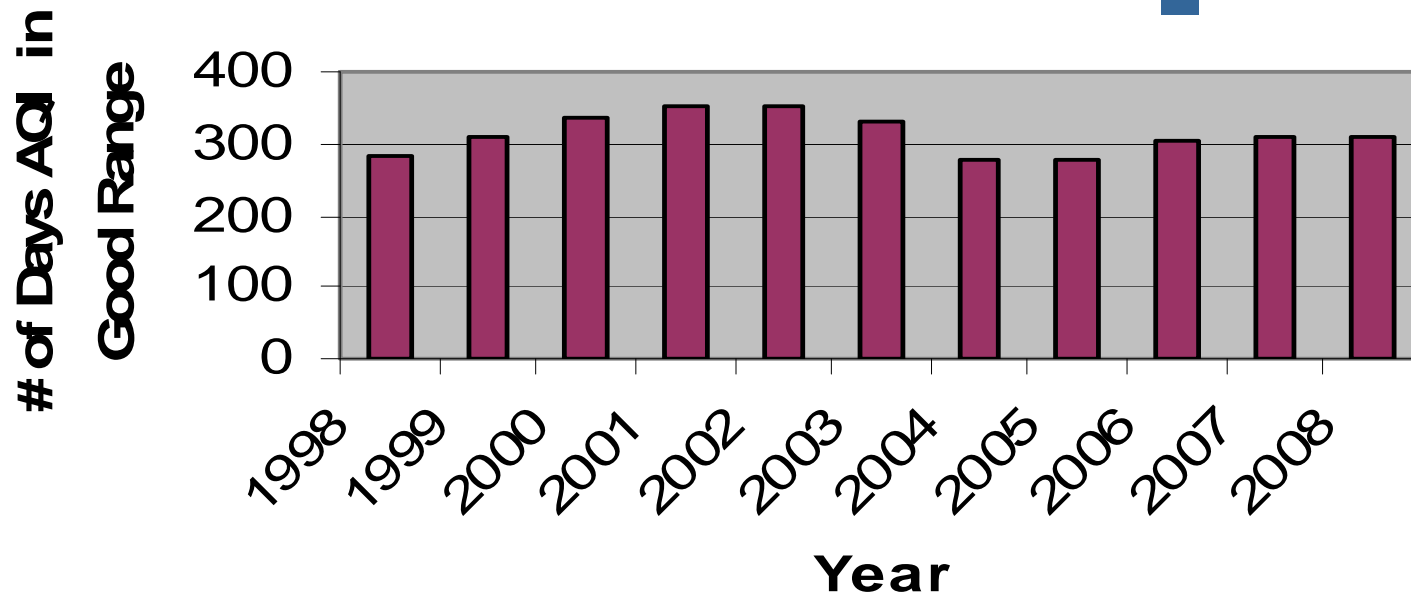
Total Number of Days Air Quality Index was in Good Range in 2008: 312

- Duval County is currently classified by EPA as an attainment area for all National Ambient Air Quality Standards (NAAQS).
- Duval County was once non-attainment for Particulate Matter (PM) and Ozone.
- Duval County was designated attainment for the new 8 hour ozone NAAQS in June 2004
- Duval County was designated attainment for the new PM2.5 NAAQS in April 2005.



Jacksonville Air Quality Index (AQI)

**Number of Days Air Quality Index
was in Good Range**



Jacksonville Air Monitoring Programs

■ Criteria Pollutants:

- Sulfur Dioxide (SO₂)
- Nitrogen Dioxide (NO₂)
- Carbon Monoxide (CO)
- Ozone (O₃)
- Particulate Matter < 10 Microns (PM₁₀)
- Particulate Matter < 2.5 Microns (PM_{2.5})

■ Air Toxics

- Mobile Laboratory
- Stationary Sites

Jacksonville Criteria Pollutant Air Monitoring Sites

Monitoring Site	Pollutant	Address
Cedar Bay Rd (CBR)	SO ₂	6801 Cedar Bay Rd
Fort Caroline Site (FCS)	SO ₂	6241 Fort Caroline Rd
Kooker Park (KP)	SO ₂ & NO ₂	2900 Bennett Street
Lee High School (LHS)	CO	1184 S. McDuff Ave
Mandarin (MAN)	PM2.5	14932 Mandarin Rd
JEA SE WTP (MAYO)	O ₃	13600 Wm Davis Pkwy
Rosselle & Copeland (R&C)	CO & PM10	2189 Rosselle Street
Sheffield Elementary School (SES)	O ₃	13333 Lanier Rd
Southside Playground (SPG)	SO ₂ & CO	1605 Minerva St
Sunny Acres Park (SUN)	PM2.5	9429 Merrill Rd

Criteria Pollutant Air Monitoring Sites



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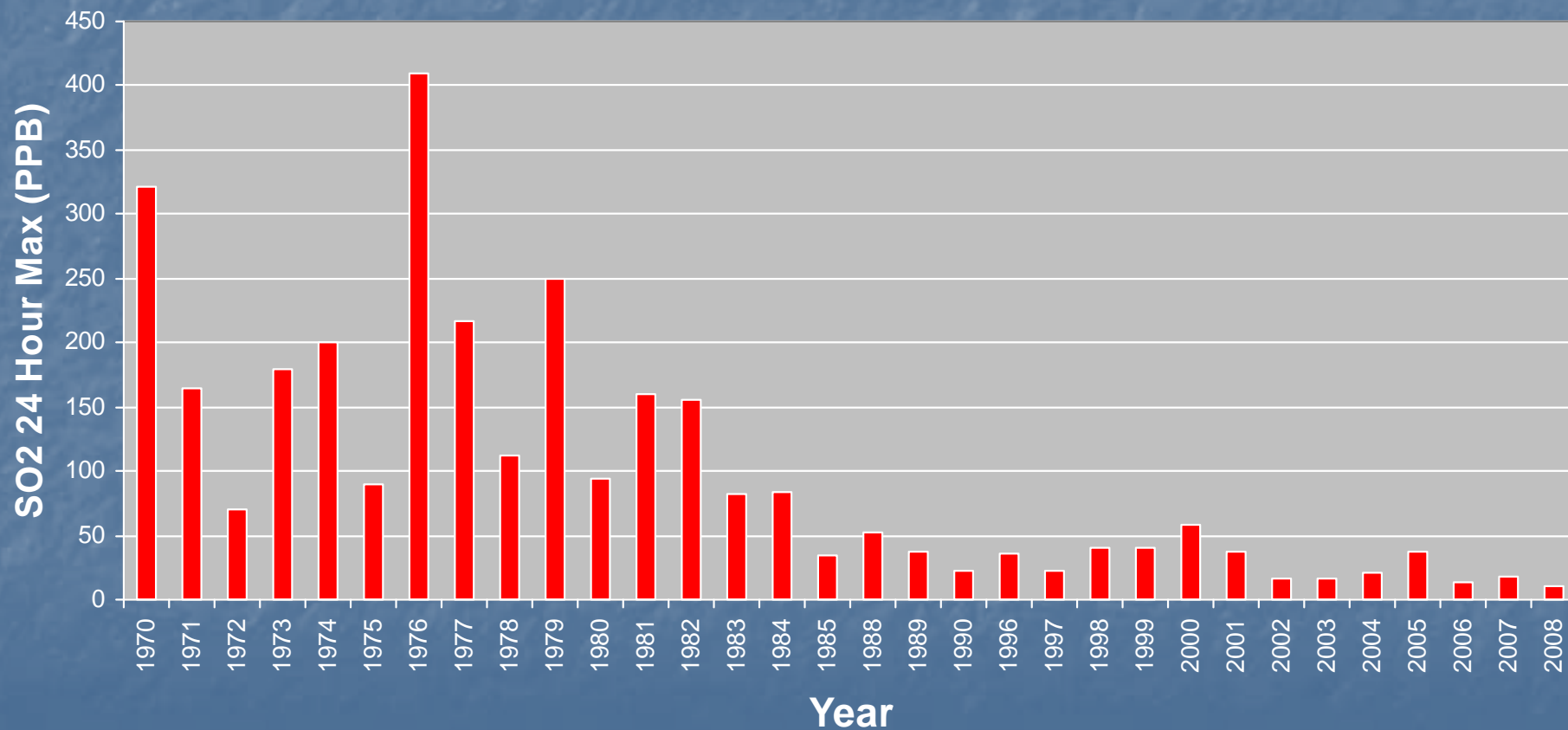
National Ambient Air Quality Standards

Pollutant	Primary Stds.	Averaging Times	Secondary Stds.
Carbon Monoxide	9 ppm (10 mg/m ³)	8-hour ⁽¹⁾	None
	35 ppm (40 mg/m ³)	1-hour ⁽¹⁾	None
Lead	0.15 µg/m ³⁽⁸⁾	Rolling 3 month Average	Same as Primary
Nitrogen Dioxide	0.053 ppm (100 µg/m ³)	Annual (Arithmetic Mean)	Same as Primary
Particulate Matter (PM ₁₀)	Revoked ⁽²⁾	Annual ⁽²⁾ (Arith. Mean)	
	150 µg/m ³	24-hour ⁽³⁾	
Particulate Matter (PM _{2.5})	15.0 µg/m ³	Annual ⁽⁴⁾ (Arith. Mean)	Same as Primary
	35 µg/m ³	24-hour ⁽⁵⁾	
Ozone	0.075 ppm	8-hour ⁽⁶⁾	Same as Primary
	0.12 ppm	1-hour ⁽⁷⁾ (Applies only in limited areas)	Same as Primary
Sulfur Oxides	0.03 ppm	Annual (Arith. Mean)	-----
	0.14 ppm	24-hour ⁽¹⁾	-----
	-----	3-hour ⁽¹⁾	0.5 ppm (1300 µg/m ³)

- (1) Not to be exceeded more than once per year.
- (2) Due to a lack of evidence linking health problems to long-term exposure to coarse particle pollution, the agency revoked the annual PM10 standard in 2006 (effective December 17, 2006).
- (3) Not to be exceeded more than once per year on average over 3 years.
- (4) To attain this standard, the 3-year average of the weighted annual mean PM2.5 concentrations from single or multiple community-oriented monitors must not exceed 15.0 $\mu\text{g}/\text{m}^3$.
- (5) To attain this standard, the 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed 35 $\mu\text{g}/\text{m}^3$ (effective December 17, 2006).
- (6) To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm.
- (7) (a) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1 , as determined by appendix H.
(b) As of June 15, 2005 EPA revoked the 1-hour ozone standard in all areas except the fourteen 8-hour ozone nonattainment Early Action Compact (EAC) Areas.
- (8) Final Lead rule signed October 15, 2008

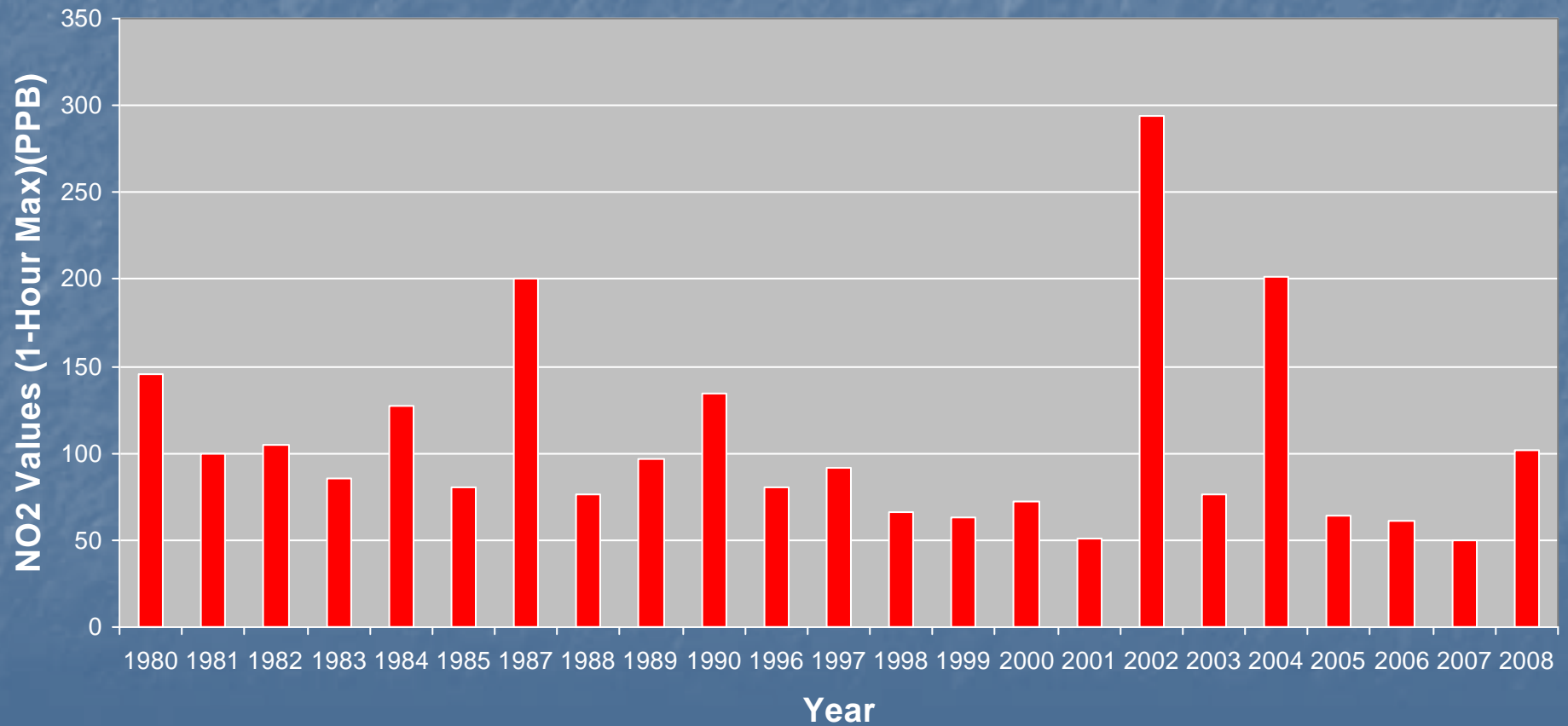
Sulfur Dioxide (SO₂) 24 Hour Max Concentration Per Year

SO₂ Data



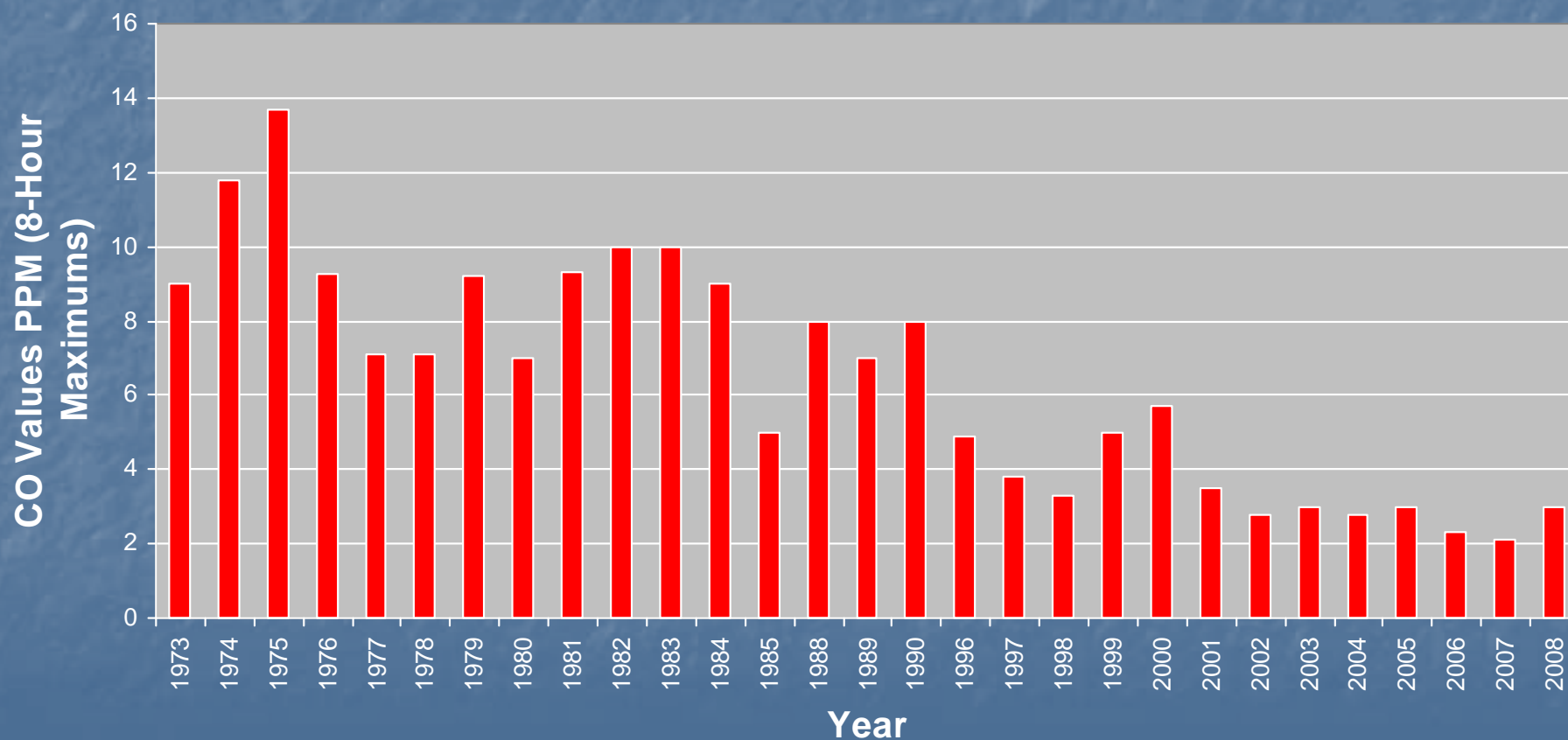
Nitrogen Dioxide (NO₂) 1 Hour Max Concentration Per Year

NO₂ Data (1-Hour Maximums)



Carbon Monoxide (CO) 8 Hour Max Concentration Per Year

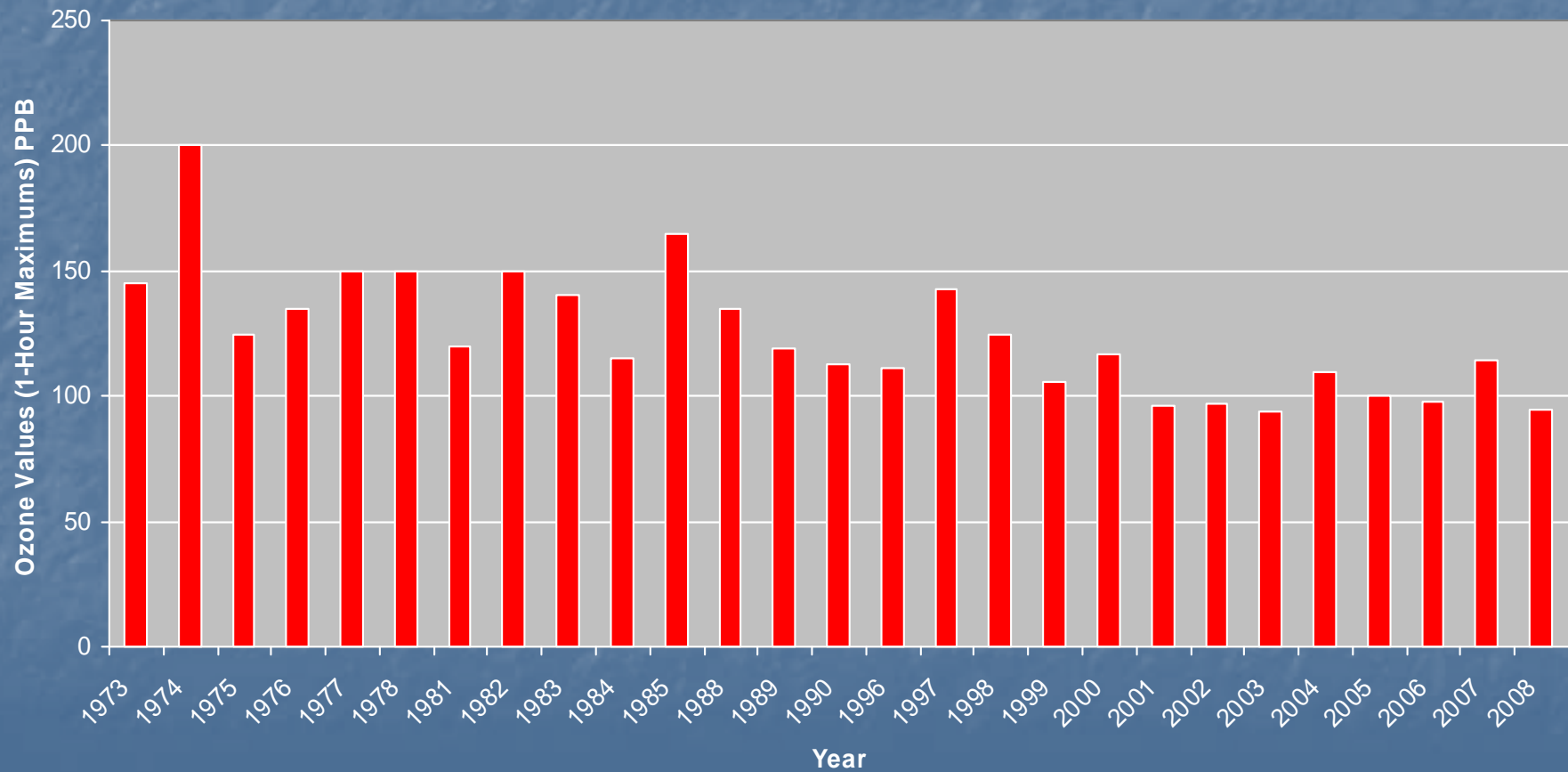
Carbon Monoxide Data (8-Hour Maximums)



Ozone (O_3)

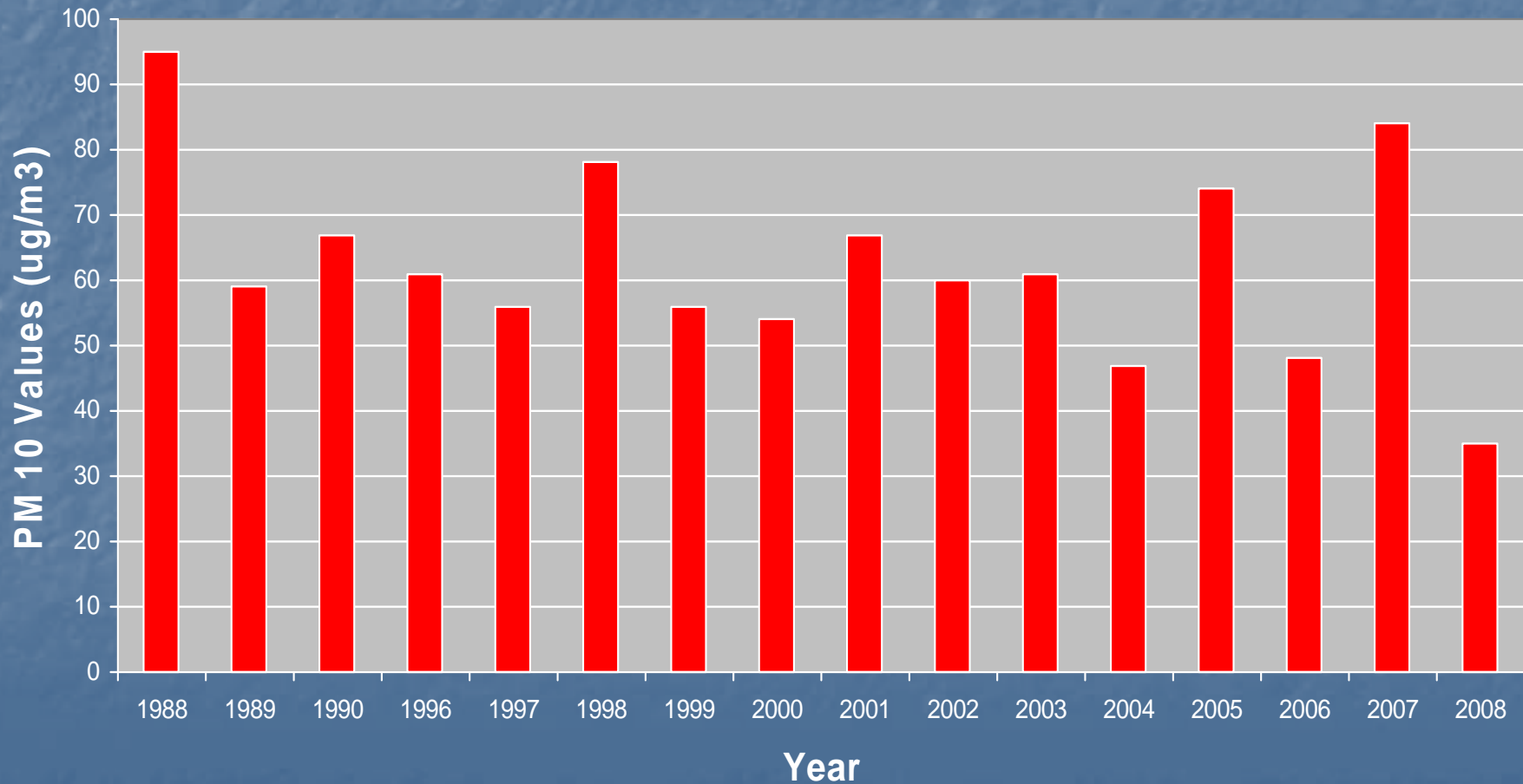
1 Hour Max Concentration Per Year

Ozone Data (1-Hour Maximums) PPB



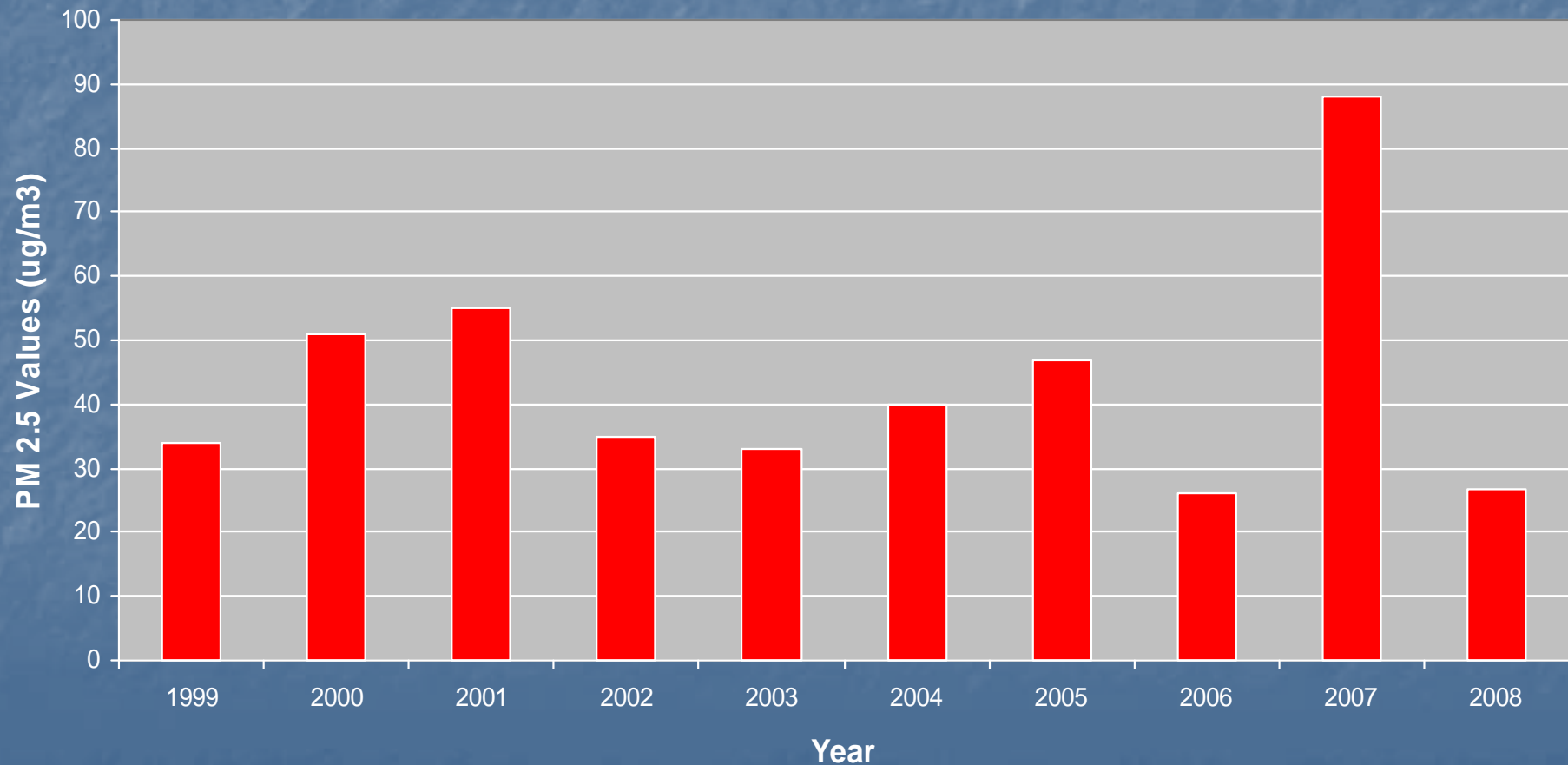
Particulate Matter <10 Microns (PM₁₀) 24 Hour Max Concentration Per Year

PM 10 Data (24 Hour Maximums)



Particulate Matter <2.5 Microns (PM_{2.5}) 24 Hour Max Concentration Per Year

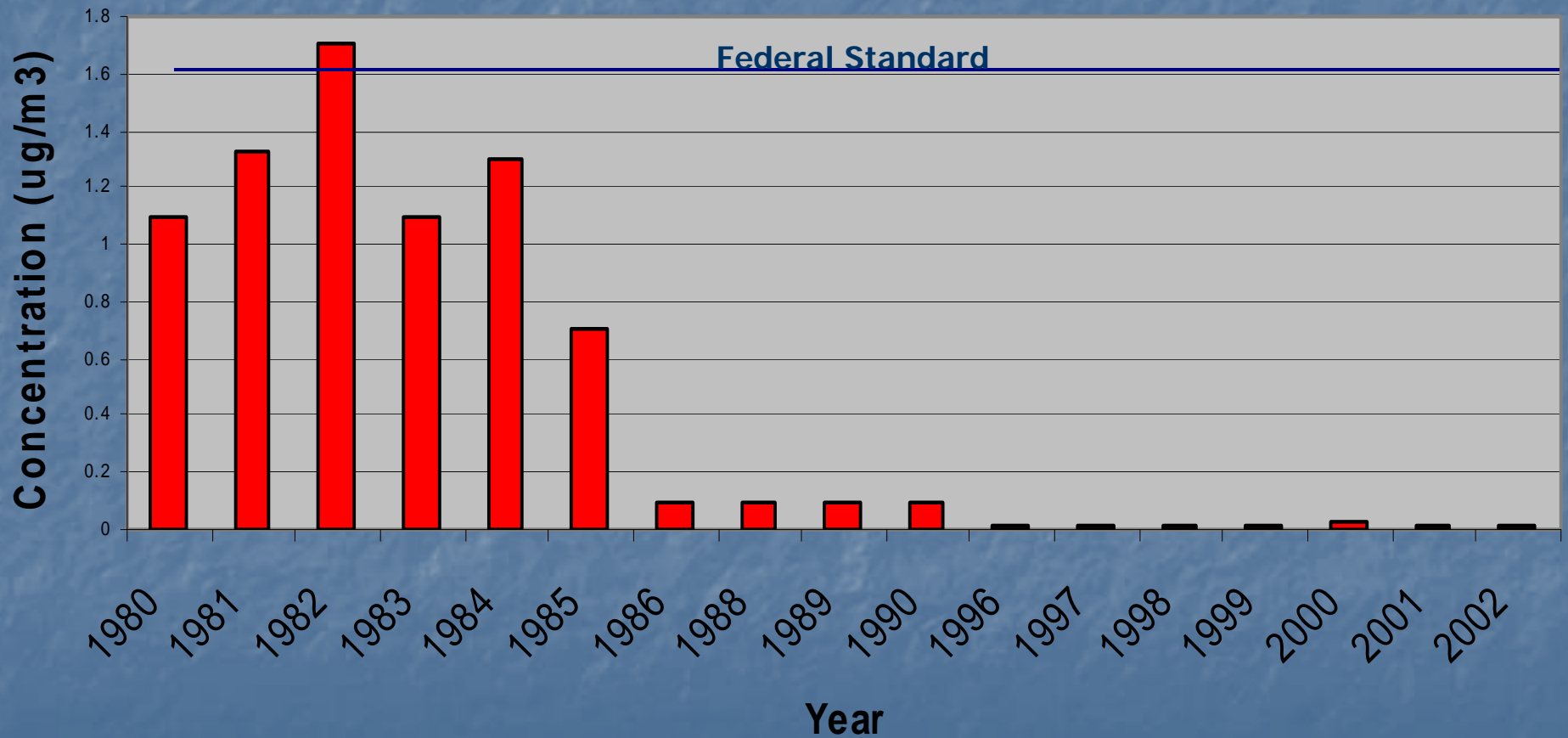
PM 2.5 Data



Lead (Pb)

Quarterly Max Concentration Per Year

Lead monitoring was discontinued in 2002



**2005 to 2008
PM2.5, 24 hour average concentrations,
micrograms per cubic meter**

	2006	2007	2008	3YR AVG	STD
■ Mandarin	20.1	30.8	17.5	22.8	35
■ Sunny Acres	21.6	32.8	18.4	24.2	35

(Concentrations at each site represent the 98% data, used for compliance determinations)

2005 to 2008 PM10, annual arithmetic average, micrograms per cubic meter

	2005	2006	2007	2008	Std
■ R/C	25.8	25.0	25.8	25.0	150
■ BUC	22.6	22.2	22.7	19.7	150
■ G&G	22.1	21.1	21.9	18.9	150
■ KP	N/A	N/A	N/A	18.5	150

(The arithmetic mean is not to exceed 150 ug/m³ more than once per year averaged over 3 years)

2005 to 2008 OZONE Data

4th highest 8 hour ozone data, parts per billion

	Sheffield	Mayo Clinic
2005	76	77
2006	79	75
2007	76	81
(2005-2007)		
3 year AVG.	77	78 STD= 80 ppb
2008	71	64
(2006-2008)		
3 year AVG.	75	73 STD= 75 ppb

Jacksonville Air Toxics Monitoring Program

- Began Monitoring with Mobile Lab (1997)
- Added Two Stationary Monitoring Sites (1999)
- Added Three Stationary Monitoring Sites (2002)
- Use EPA TO-15 Monitoring Method
- Monitors for 40 Organic Pollutants

Air Toxics Monitoring Pollutant List

Dichlorodifluoromethane (Freon 12)

Chloromethane

1,2-Dichloro-1,1,2,2-Tetrafluoroethane
(Freon 113)

Vinyl chloride

Bromomethane

Chloroethane

Trichloromonofluoromethane (Freon 11)

1,1,2-Trichloro-1,2,2-Trifluoroethane
(Freon 114)

1,1-Dichloroethene

Dichloromethane

1,1-Dichloroethane

Cis-1,2-Dichloroethene

Air Toxics Monitoring Pollutant List

Chloroform

1,1,1-Trichloroethane

Benzene

1,2-Dichloroethane

Carbon Tetrachloride

Trichloroethene

1,2-Dichloropropane

Cis-1,3-Dichloropropene

Trans-1,3-Dichloropropene

Toluene

1,2-Dibromoethane

1,1,2-Trichloroethane

Tetrachloroethylene

Air Toxics Monitoring Pollutant List

1,2-Dichlorobenzene

Chlorobenzene

Ethylbenzene

Meta/Para-xylene

Styrene

Ortho-xylene

1,1,2,2-Tetrachloroethane

1,3,5-Trimethylbenzene

1,2,4-Trimethylbenzene

Alpha-chlorotoluene

1,3-Dichlorobenzene

1,4-Dichlorobenzene

1,2,4-Trichlorobenzene

Hexachlorobutadiene

Jacksonville Mobile Laboratory Air Toxics Monitoring Sites



Jacksonville Mobile Laboratory Air Toxics Monitoring Sites

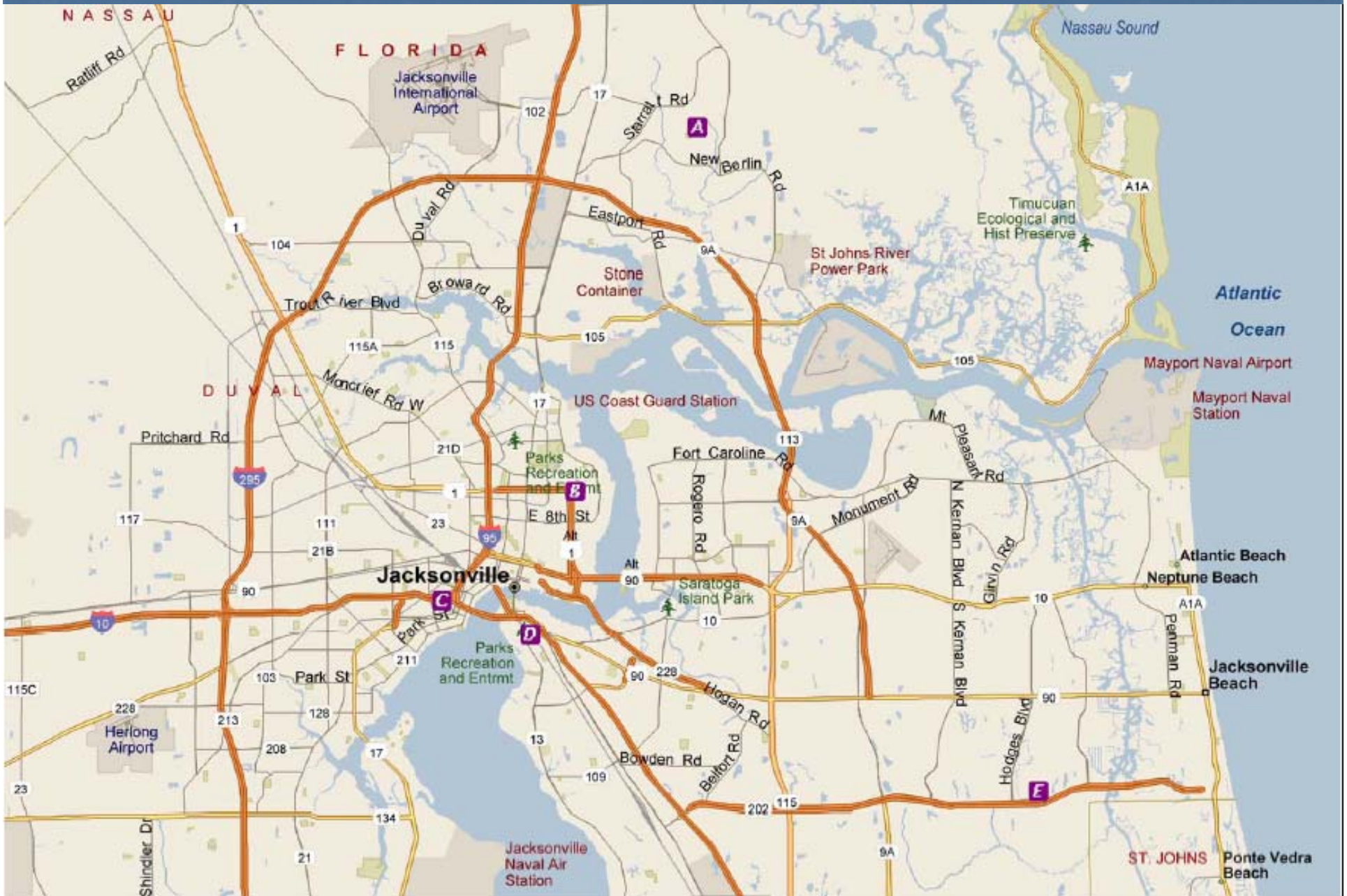
- 1 = Ramona Blvd Elementary School, 5540 Ramona Blvd
- 2 = Fire Station #21, 3518 Morrow Street
- 3 = Fire Station #44, 8275 Western Way
- 4 = University of North Florida, 4567 St Johns Bluff Road South
- 5 = D-Graphics, 2900 Powers Ave
- 6 = NAS Cecil Field,
- 7 = Reichold Chemical Inc, 54 Wamsley Road
- 8 = Anheuser Busch, 111 Busch Drive
- 9 = Fire Station #5, 347 Riverside Ave
- 10 = JEA Southside Generating Station, 801 Colorado Ave
- 11 = Crown Point Elementary School, 3800 Crown Point Road
- 12 = Fire Station #28, 9200 Hogan Road
- 13 = Fleet Maintenance Tire Shop, Superior Street
- 14 = Fire Station #52 = 6130 Collins Road
- 15 = Museum of Science & History (MOSH), 1025 Museum Circle
- 16 = Fire Station #48, 9687 Blount Island Blvd
- 17 = Fire Station 34, 11248 Ross Blvd

Jacksonville Mobile Laboratory Air Toxics Monitoring Sites

- 18 = Fire station #31, 7443 Wilson Blvd
- 19 = Florida Highway Patrol Station – Group G, 7223 Normandy Blvd
- 20 = Biltmore Exceptional Elementary School, 2101 West Palm Ave
- 21 = Reynolds Lane Elementary School, 840 Reynolds Lane
- 22 = St Luke's Hospital, 4201 Belfort Road
- 23 = IFF Chemical Holdings Inc, 2051 Lane Ave
- 24 = Jacksonville Marine Institute, 5454 Arlington Expressway
- 25 = Trail Ridge Landfill, 5110 US Highway 301
- 26 = JEA Northside Generating Station, 4377 Hecksher Drive
- 27 = Atlantic Dry Dock, 8500 Hecksher Drive
- 28 = River City Parking, 225 Tallyrand Ave
- 29 = Fire Station #39, 1408 Gator Bowl Blvd
- 30 = JEA Kennedy Generating Station, 4215 Talleyrand Avenue
- 31 = JEA Lift Station #39, 1640 Talleyrand Avenue
- 32 = Rosselle & Copeland, 2195 Rosselle Street
- 33 = Merrill Road Substation, 7730 Merrill Road
- 34 = Eastport Road Substation, 9323 Eastport Road



Jacksonville Stationary Air Toxics Monitoring Sites



Jacksonville Stationary Air Toxics Monitoring Sites

A = Sheffield Elementary School, 13333 Lanier Street

B = Kooker Park, 2900 Bennett Street

C = Rosselle & Copeland, 2189 Rosselle Street

D = Southside Playground, 1605 Minerva Avenue

E = Mayo Clinic, 13600 WM Davis Parkway





A corkboard with a data table and a small note.

DATE	TIME	TEMPERATURE	RELATIVE HUMIDITY	WIND SPEED	WIND DIRECTION	WEATHER
10/10/01	08:00	15.0	65	1.2	SE	Partly Cloudy
10/10/01	12:00	18.0	60	1.5	SE	Sunny
10/10/01	16:00	16.0	65	1.0	SE	Partly Cloudy
10/10/01	20:00	14.0	70	0.8	SE	Clear
10/11/01	08:00	12.0	75	0.5	SE	Foggy
10/11/01	12:00	15.0	70	0.8	SE	Partly Cloudy
10/11/01	16:00	13.0	75	0.5	SE	Foggy
10/11/01	20:00	10.0	80	0.2	SE	Clear



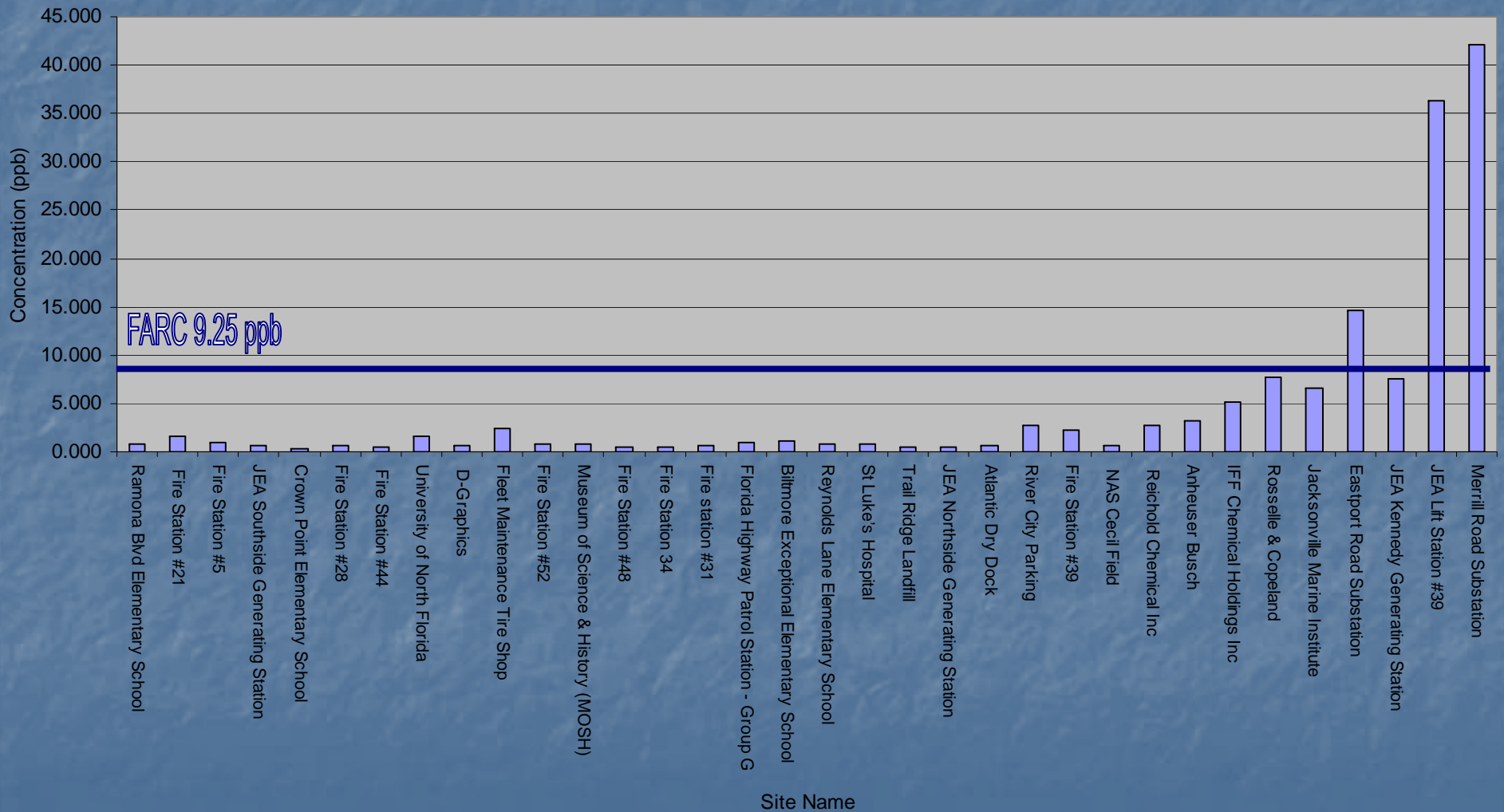
High Benzene Concentrations at Air Toxic Monitoring Sites

- Began in 2003
- Benzene Health Effects
 - Group A, Human Carcinogen
 - Causes Increased Incidence of Leukemia
 - Causes Increased Reproductive Effects
 - Short-term Inhalation - Drowsiness, Dizziness, Headaches
 - Long-term – Blood Disorders, Reduced # of Red Blood Cells, Aplastic Anemia

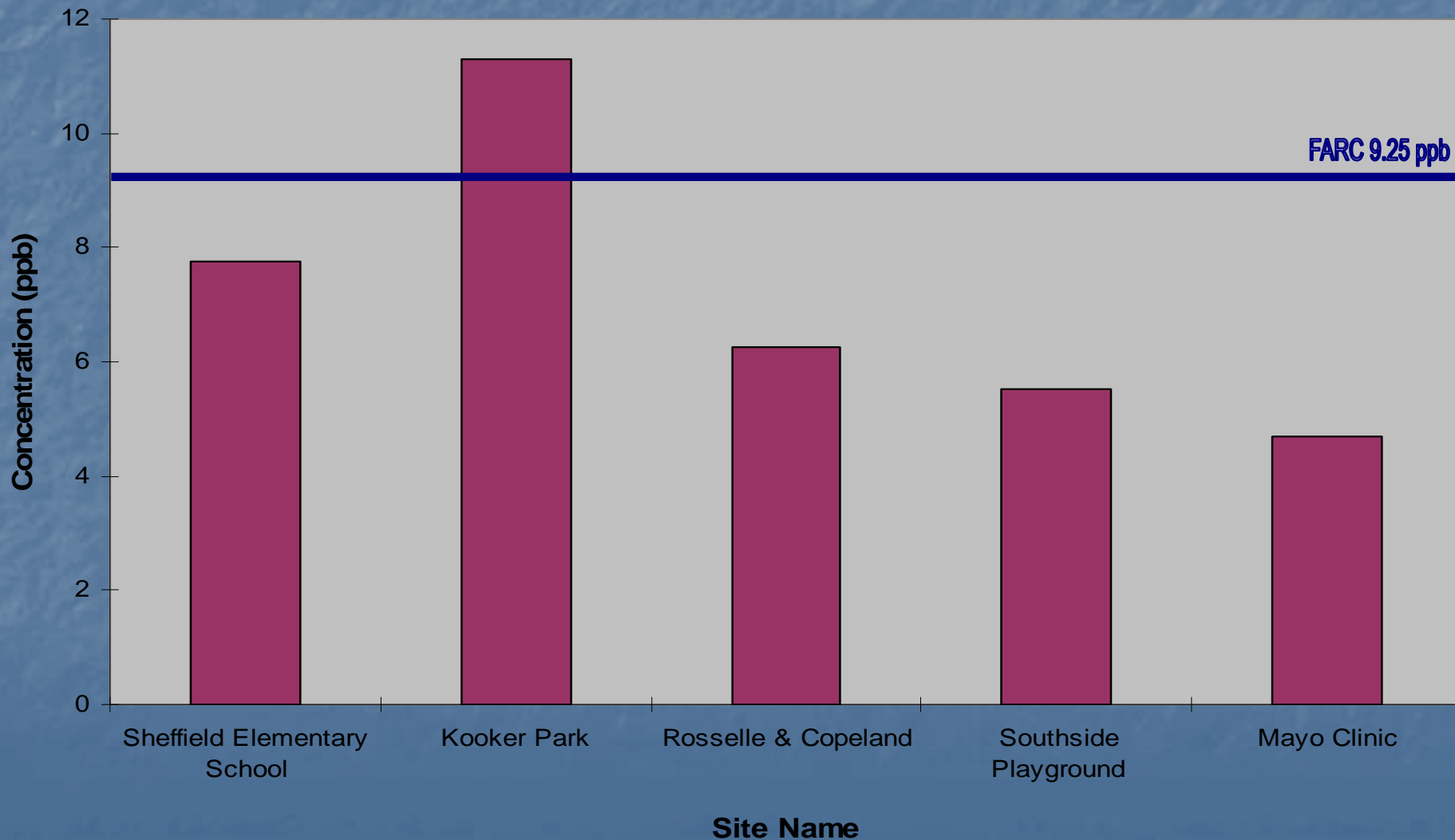
Jacksonville Air Toxics Monitoring Data

Mobile Laboratory Sites

Max Benzene Concentration



Jacksonville Air Toxics Monitoring Data Stationary Sites Max Benzene Concentration per Site



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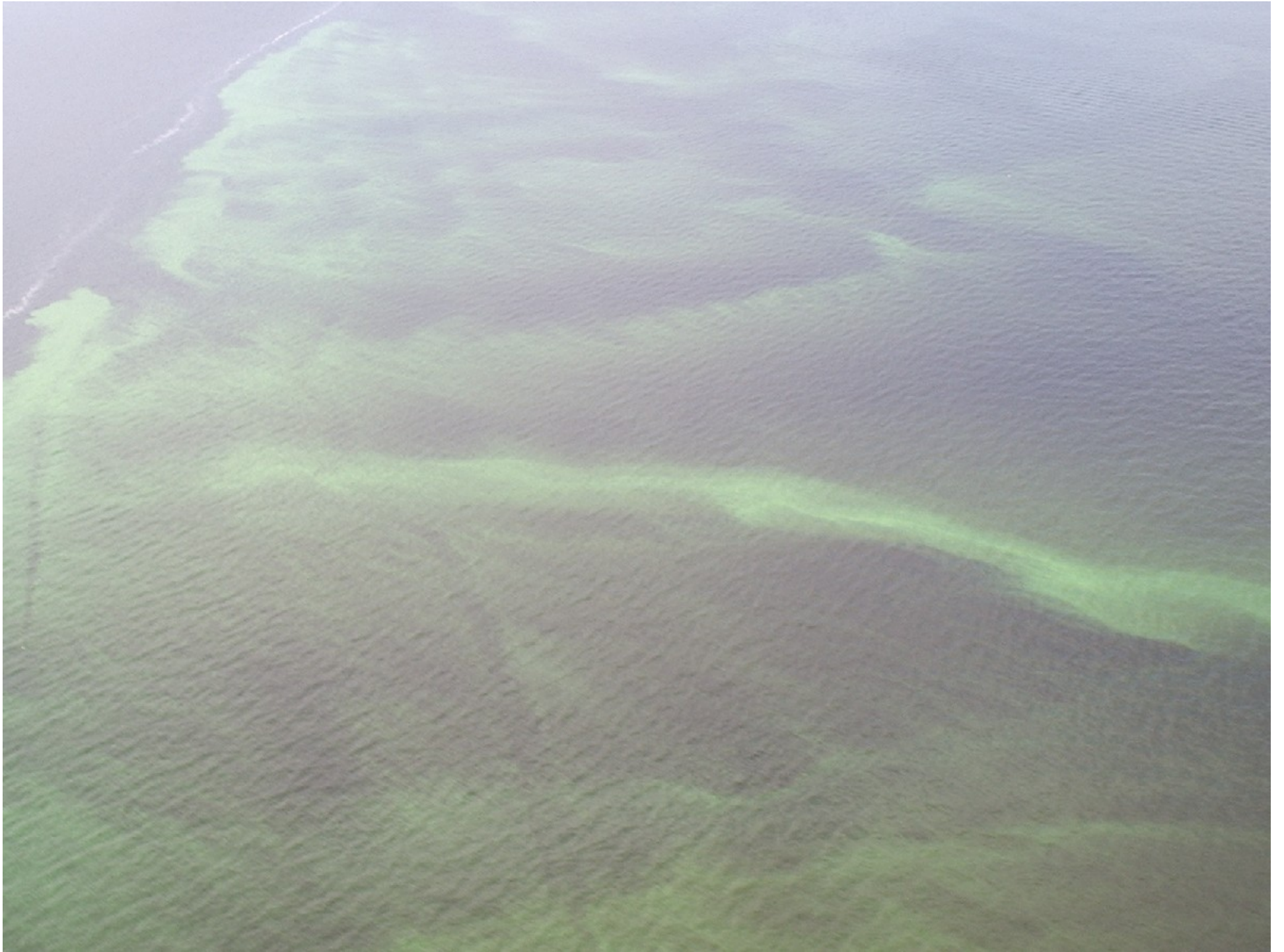
WATER QUALITY DISCUSSION

TMDL

Maximum amount of a specific pollutant that a waterbody can assimilate while maintaining its designated uses.

**Is the Lower St. Johns River
(LSJR) impaired?**

See for yourself.....



copyright Bill Yates / CYPIX 2005



Microcystis Bloom - I-295 (north view) over mid-channel St. Johns River - 08.19.05 - 2:43pm
copyright Bill Yates / CYPIX 2005 all rights reserved

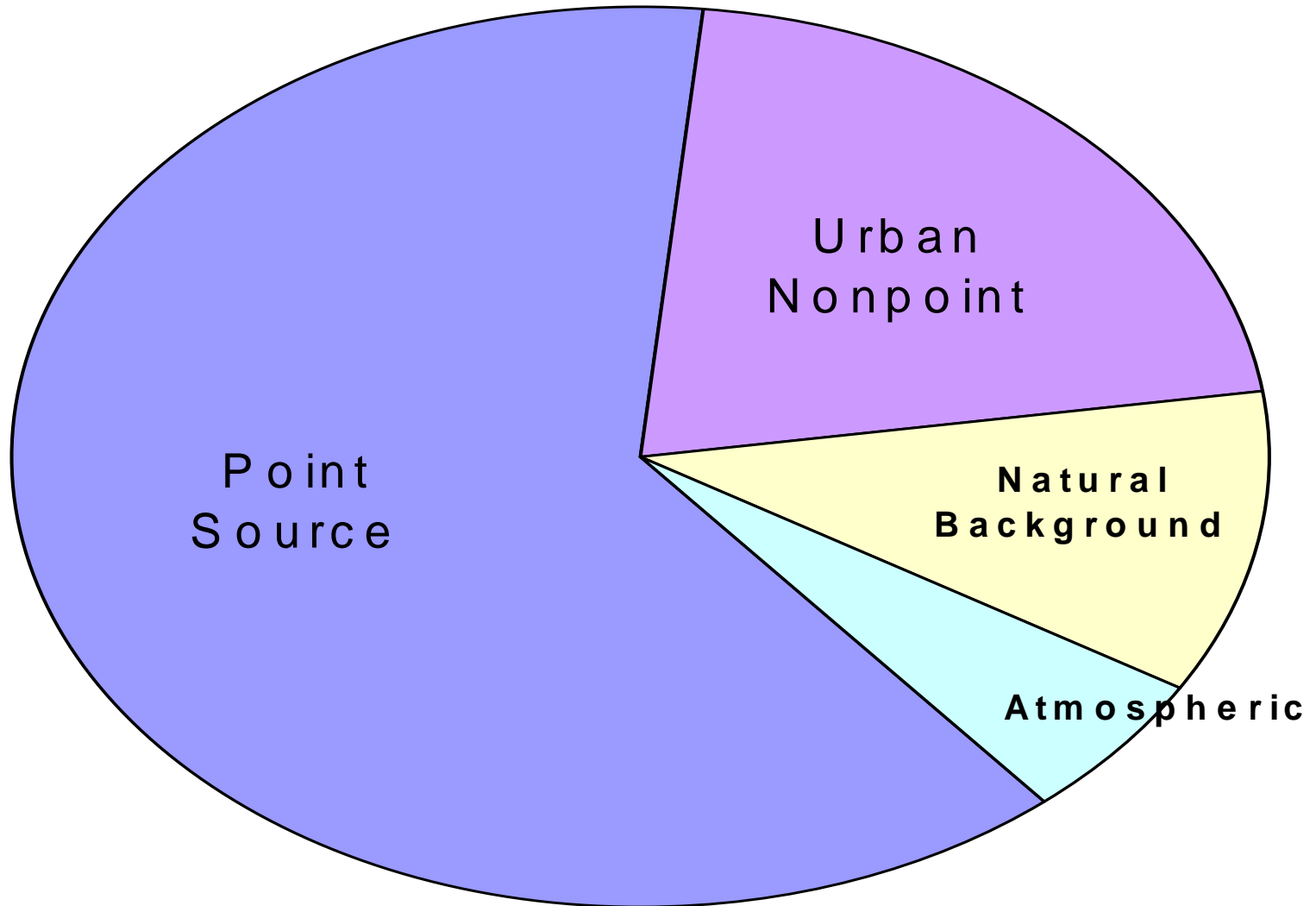
What's the major impairment of the Lower St. Johns?

Primarily Related to Excess Nutrients

- algal blooms
- resultant low Dissolved Oxygen
- lower transparency and resultant loss in submerged aquatic vegetation



Nitrogen Loading to the Lower St. Johns River



Duval County MS4 Allocation	150 Metric Tons (MT)
Beaches	2.5 MT
Florida Dept. of Transportation	15 MT
Post-1995 Capital Improvement Project Credit	9.0 MT
Future Capital Improvement Projects	20.5 MT
Balance	93.5 MT

BIG PICTURE

**COMPREHENSIVE STRATEGY
FOR TMDL / BMAP COMPLIANCE**

9 Action Components

1. **Master Stormwater Management Plan**
 - **River Accord**
 - **Stormwater Utility**
 - **Structural Controls (DEP still evaluating methodology)**
 - **Capital Improvement Projects**
 - **Best Management Practices**
2. **Stormwater NPDES Program**
 - **Street Sweeping**
 - **Pollution Prevention**
 - **Education & Outreach – Florida-Friendly Landscaping**
3. **Water Quality Monitoring Program**
 - **River Report (Accord)**
4. **Water Quality Credit Trading**

9 Action Components

continued

5. Reuse Ordinance (Ch 752 O.C.)

- Required Connection when available
- Stormwater Reuse?

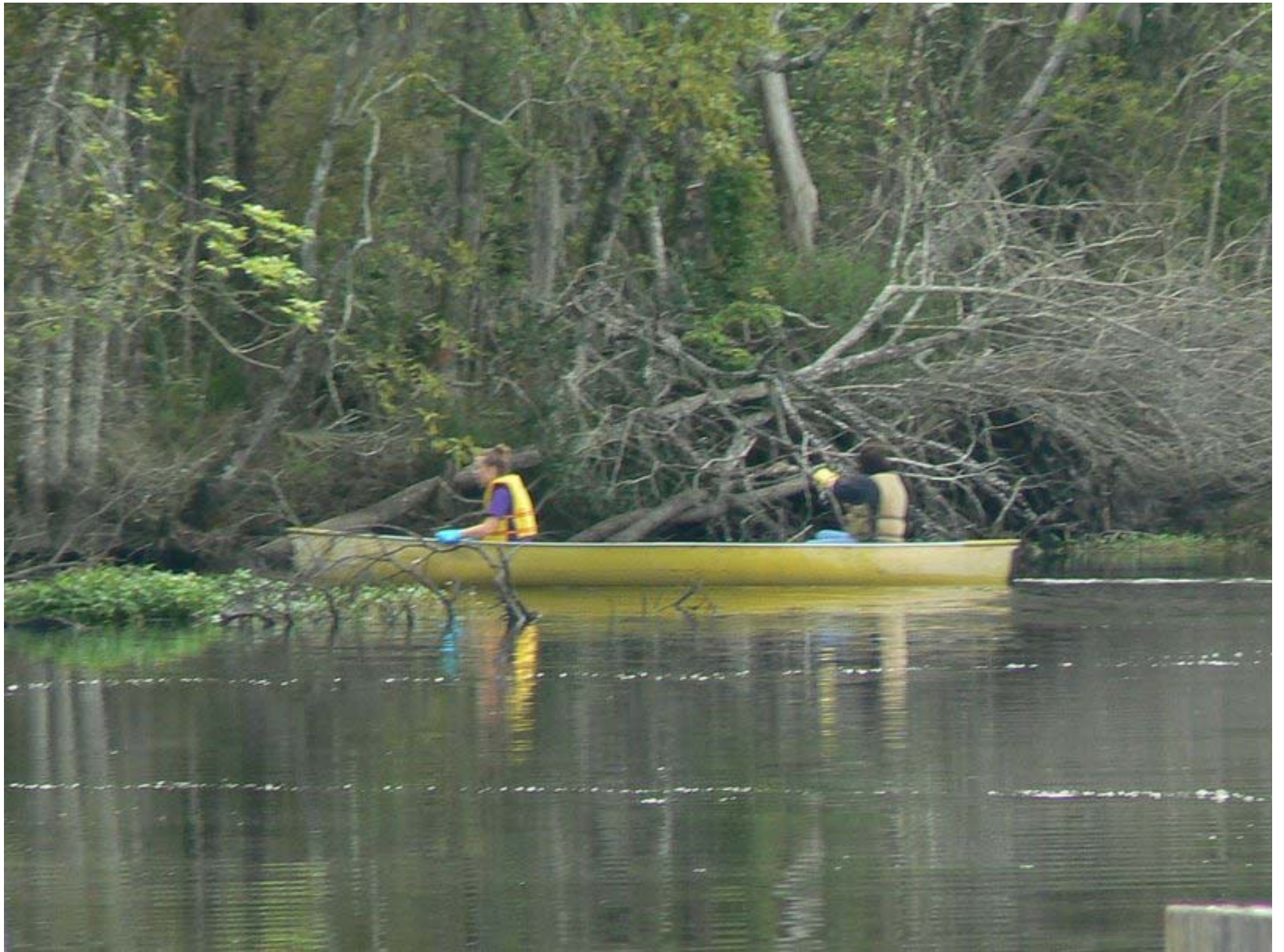
6. Septic Tank Phase-out

7. Septic Tank Inspection Program (proposed)

8. Landscape Irrigation Ordinance (2008-030)

9. Fertilizer Ordinance (2008-028)







QUESTIONS?

Contact Information:

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