



H-GAC's Clean Rivers Program 2013 Draft Basin Highlights Report

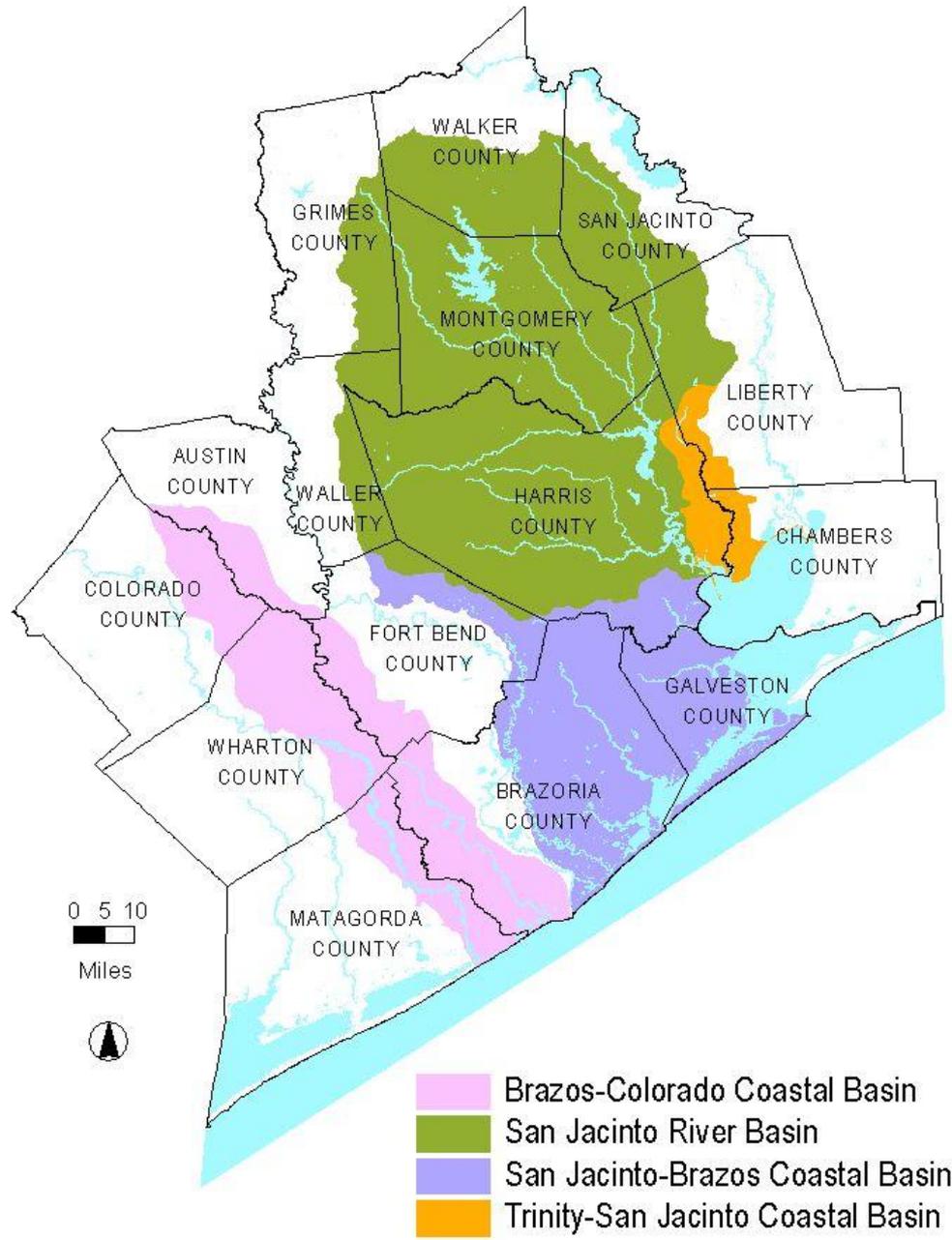


Todd Running, Houston-Galveston Area Council
Clean Rivers Program Steering Committee 4/22/13

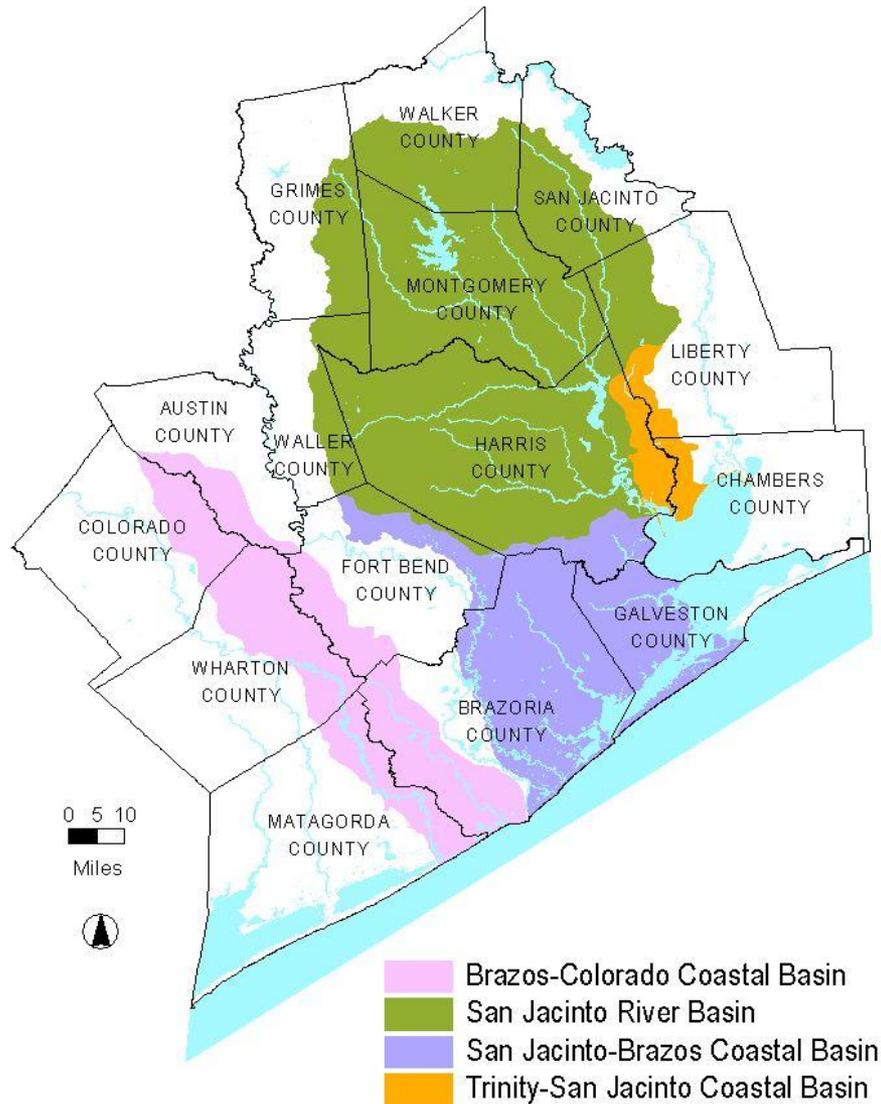


H-GAC Assessment Areas

- 4 Basins
- 15 Counties

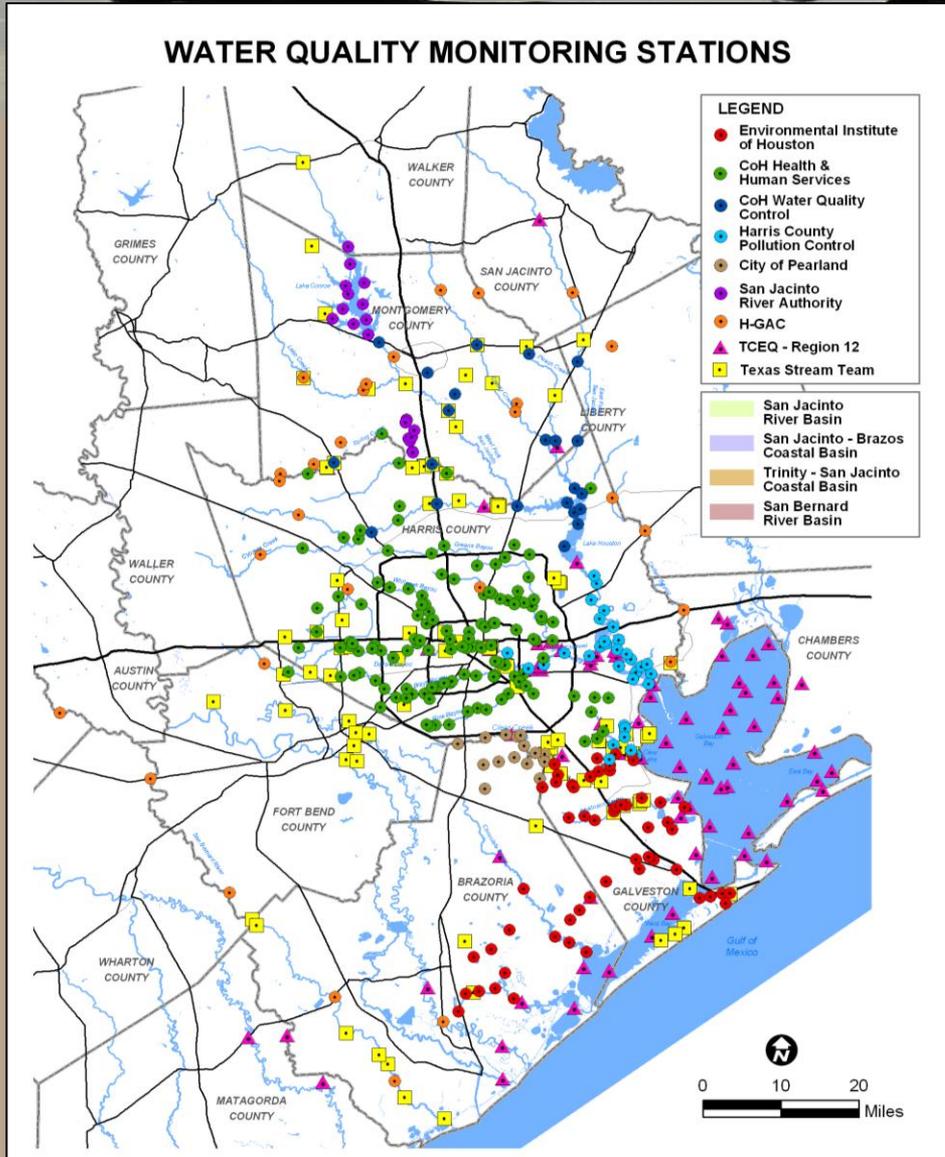


H-GAC's Clean Rivers Program



- One River and Three Coastal Basins
- 16,000 Miles of Streams and Shoreline
- Population of over 5 million

Regional Coordinated Monitoring



Professional Monitoring

- 8 local partners
+ TCEQ
+ USGS
- Over 370 Sites
- Monitored at least quarterly
- All data collected under an approved QAPP

Stream Team Monitoring

- 92 Volunteers
- 65 Sites

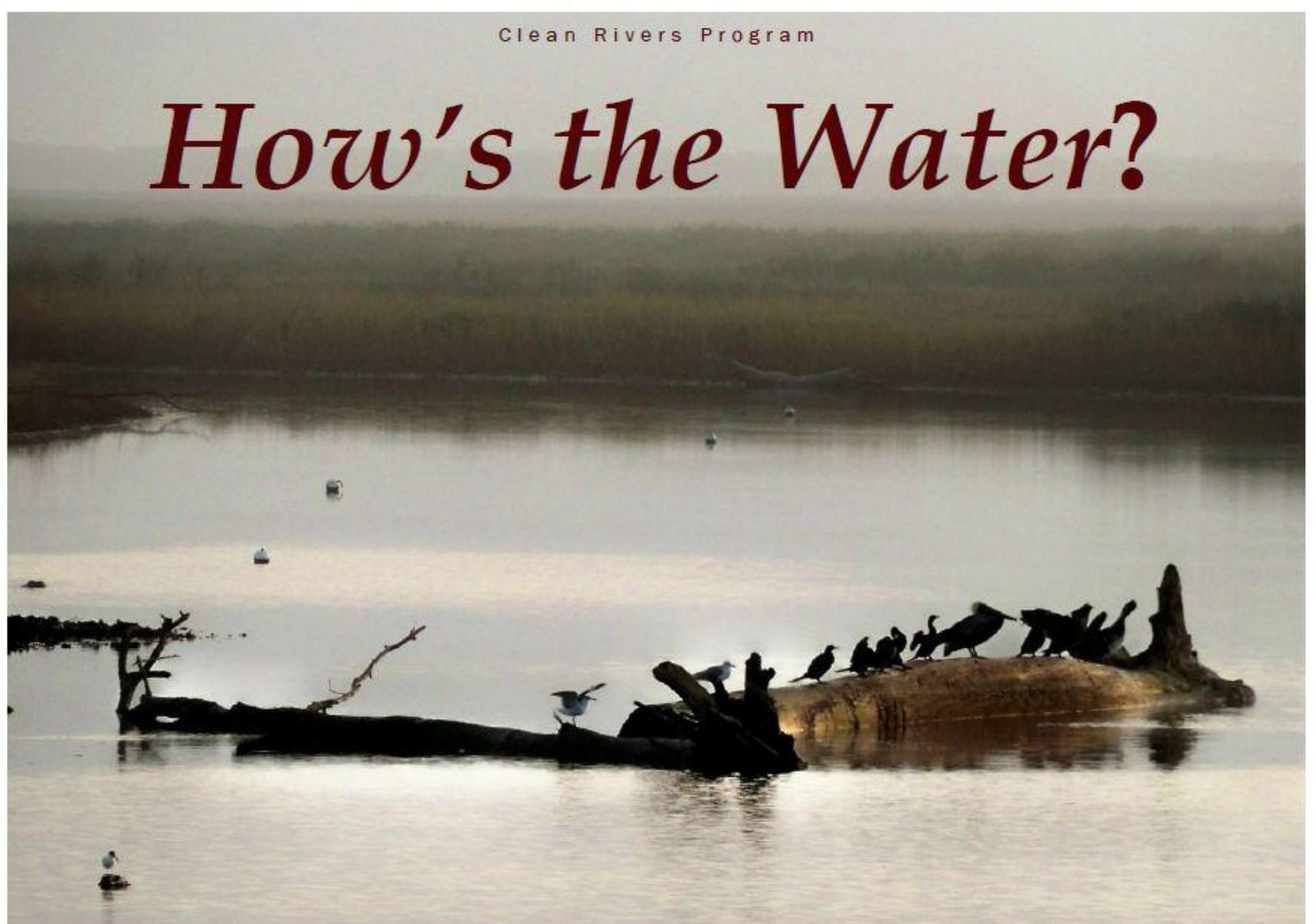
H-GAC's Clean Rivers Program



- Started in 1991
- 16 Partners statewide
- Local stakeholders making decisions about water quality assessments



How's the Water?



2013 Basin Highlights Report Content



- Completed Water Quality Assessment and Established Extent of Impairment and Trends
- Watershed Summaries of Six Segments That Demonstrate Significant Trends in Nutrient Concentrations

2013 Basin Highlights Report Content



- Watersheds Selected
 - Cedar Bayou Above Tidal
 - Lake Houston
 - Cypress Creek
 - Buffalo Bayou Above Tidal
 - Lake Creek
 - Clear Creek Above Tidal

2013 Basin Highlights Report Content



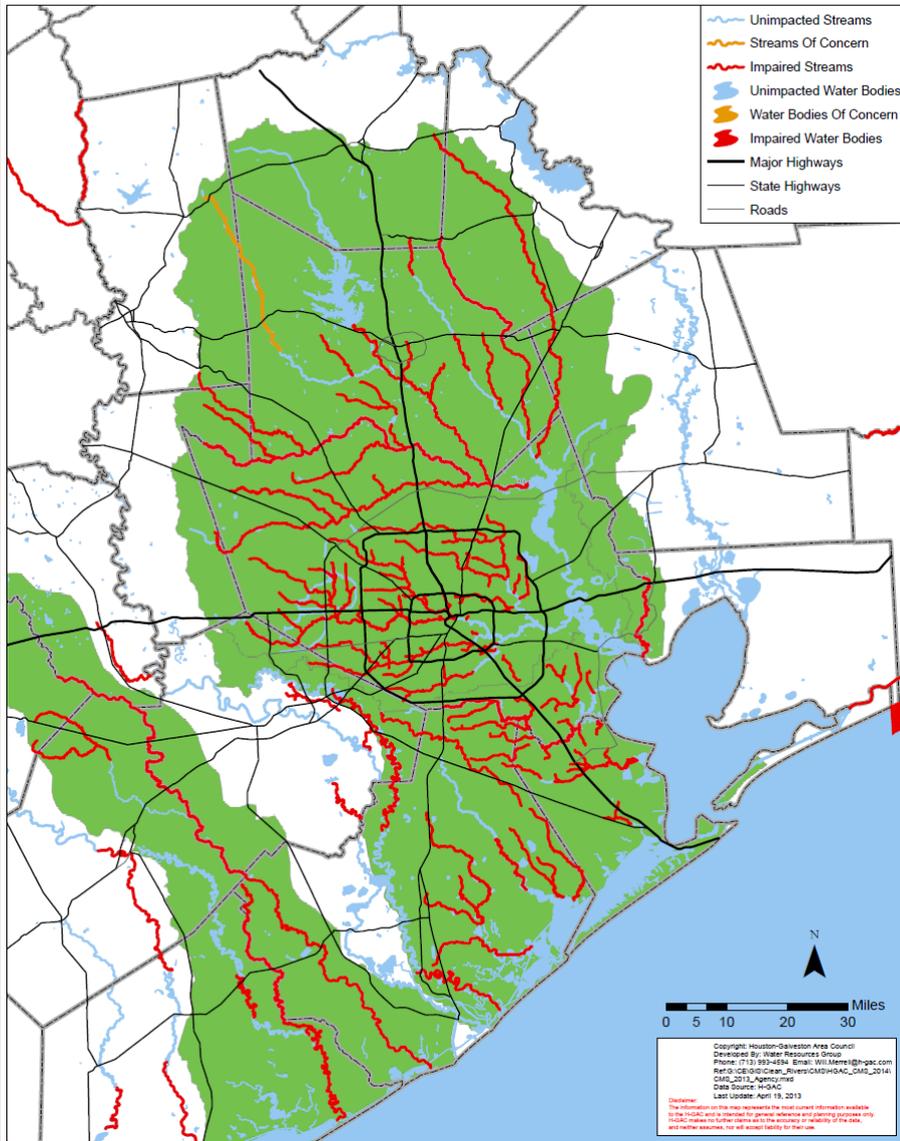
- Watershed Summaries Include
 - Segment Description
 - Hydrologic Characteristics
 - Land Use and Natural Characteristics
 - Description of Water Quality Issues
 - Potential Sources of Water Quality Issues
 - Potential Stakeholders
 - Recommendations for Improving Water Quality
 - Ongoing Projects
 - Major Watershed Events

Watershed	Segment	DO	Bact	chlor	nut	Dioxin	other	Frog_Count
Cedar Bayou	0901		100	100		100		1
Cedar Bayou Above Tidal	0902							5
Buffalo Bayou Above Tidal	1014	8.6	84.4		72.8			3
Buffalo Bayou Tidal	1013	30.8	63.3		36.4		27	3
Caney Creek	1010	16.1	34.6					4
Cypress Creek	1009	41	84.6		84.6		10.4	2
East Fork San Jacinto River	1003		100					3
Greens Bayou Above Tidal	1016	5.4	91.2		80.3			3
Houston Ship Channel	1006	3.5	47.2	4.9	63.8	36.7	36.7	2
Houston Ship Channel/Buffalo Bayou Tidal	1007	17.9	73.9		87.7	24.2	24.2	2
Houston Ship Channel/San Jacinto River Tidal	1005				83.8	100		2
Lake Conroe	1012	4.9		16.4				5
Lake Creek	1015	66.5	40.2					3
Lake Houston	1002		6.8	14.5	42.2		0.1	4
Peach Creek	1011		100					3
San Jacinto River Tidal	1001					43.4		3
Spring Creek	1008	37.6	71.7	1.1	22.3		11.7	3
West Fork San Jacinto River	1004		61		27.3			3
Whiteoak Bayou Above Tidal	1017	3.5	84.6		80.8			2
Armand Bayou Tidal	1113	62.9	59.7	12	17.9	25		3
Bastrop Bayou Tidal	1105	80.2	86.3		6.6			3
Chocolate Bayou Above Tidal	1108	100	100				100	2
Chocolate Bayou Tidal	1107		100			100		1
Clear Creek Above Tidal	1102	60.5	79.5		76.6	47.6	12.8	1
Clear Creek Tidal	1101	41.6	72.8	8.3	17.9	27.6		2
Dickinson Bayou Above Tidal	1104		41.3				41.3	3
Dickinson Bayou Tidal	1103	62.5	86.9	10.1		48.4		1
Old Brazos River Channel Tidal	1111			100				5
Oyster Creek Above Tidal	1110	66.3	24.2	24.2				3
Oyster Creek Tidal	1109		100					3

Watershed	Segment	DO	Bact	chlor	nut	PCB	other	Frog_Count
Barbours Cut	2436				100	100		2
Bastrop Bay / Oyster Lake	2433							5
Bayport Ship Channel	2438			100	100	100		2
Black Duck Bay	2428			100	100	100		2
Burnett Bay	2430			100	100	100		2
Chocolate Bay	2432	35.6	62.6		4.8	38.7		3
Christmas Bay	2434							5
Clear Lake	2425	8.4	18.4	65.1	80	92.3		2
Drum Bay	2435							5
East Bay	2423	30		100		100		2
Lower Galveston Bay	2439			100		100		2
Moses Lake	2431			19.6	19.6	54.4		3
San Jacinto Bay	2427			100	100	100		2
Scott Bay	2429			100	100	100		2
Tabbs Bay	2426				72	72		3
Texas City Ship Channel	2437			100	100	100		2
Upper Galveston Bay	2421			89.5	95.7	100		2
West Bay	2424	9	4.3	11.4	1.3	88.5		2
Gulf of Mexico	2501						44	5

Bacteria Impairments in the H-GAC Area

Bacteria Impairments and Concerns



Approximately 50% of stream miles in the H-GAC area are impaired by bacteria.

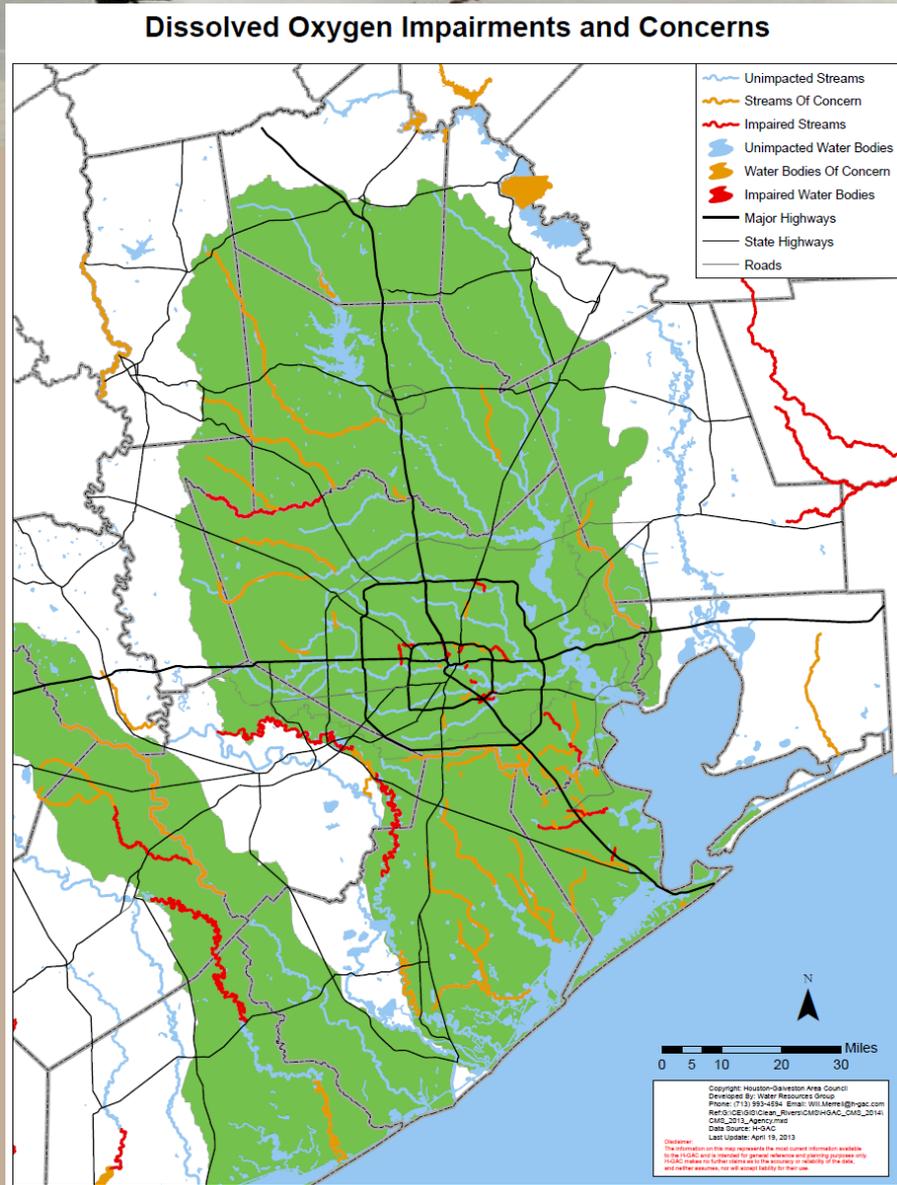
26%



17%



DO Impairments in the H-GAC Area



Approximately 24% of stream miles in the H-GAC area are impaired or have a concern regarding Dissolved Oxygen (DO).

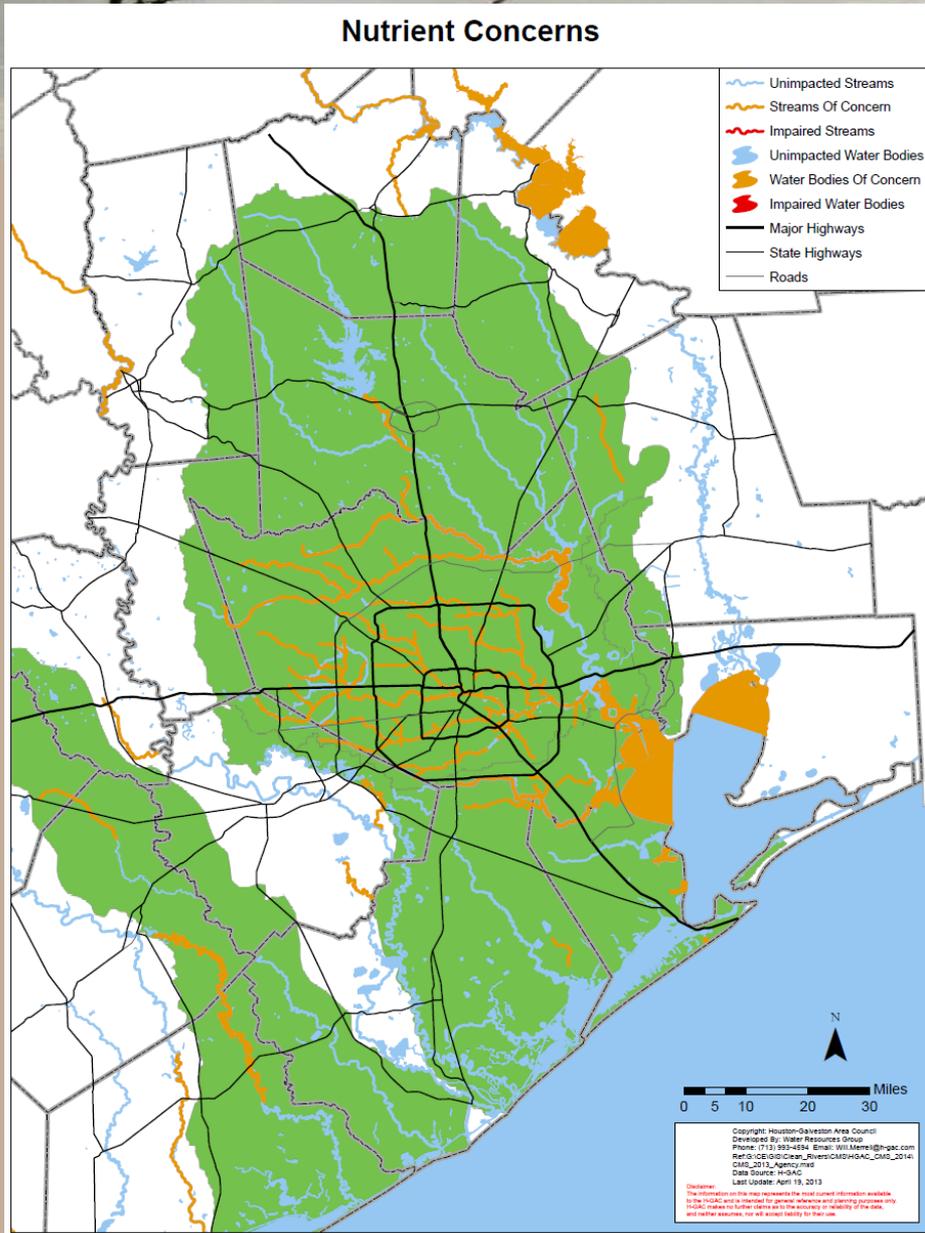
4%



9%



Nutrient Concerns in the H-GAC Area



Approximately 29% of stream miles in the H-GAC area have a nutrient concern.

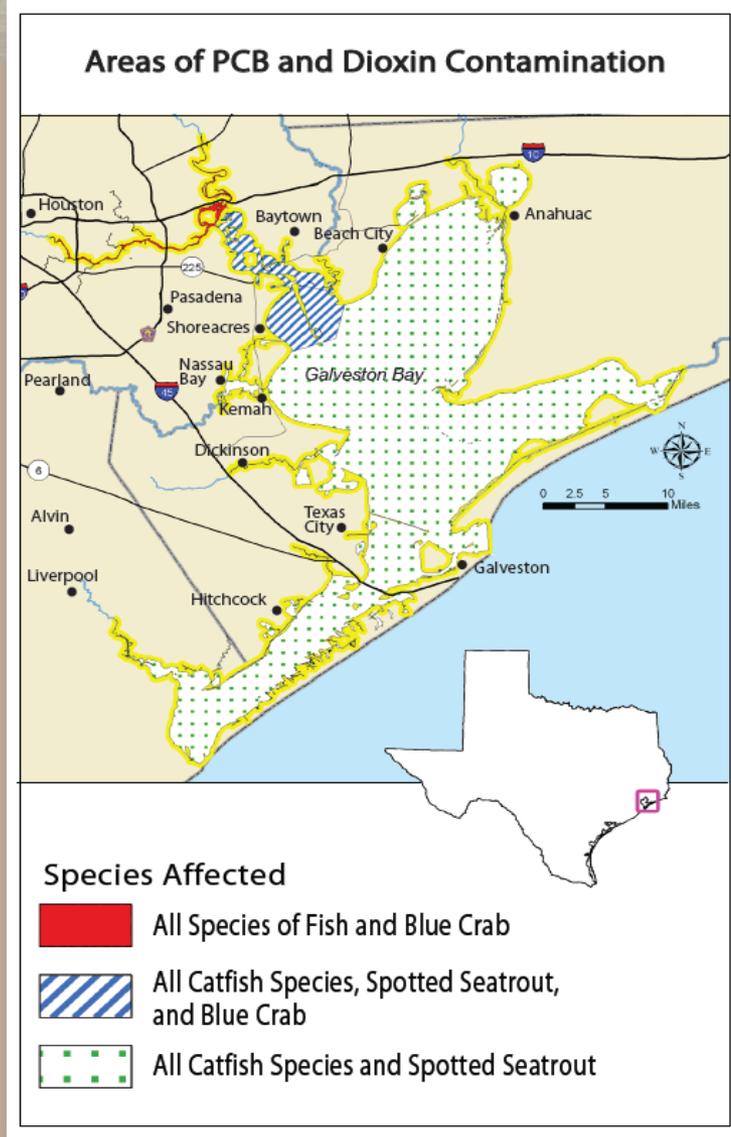
20%



35%



PCB/Dioxin Impairments in the H-GAC Area



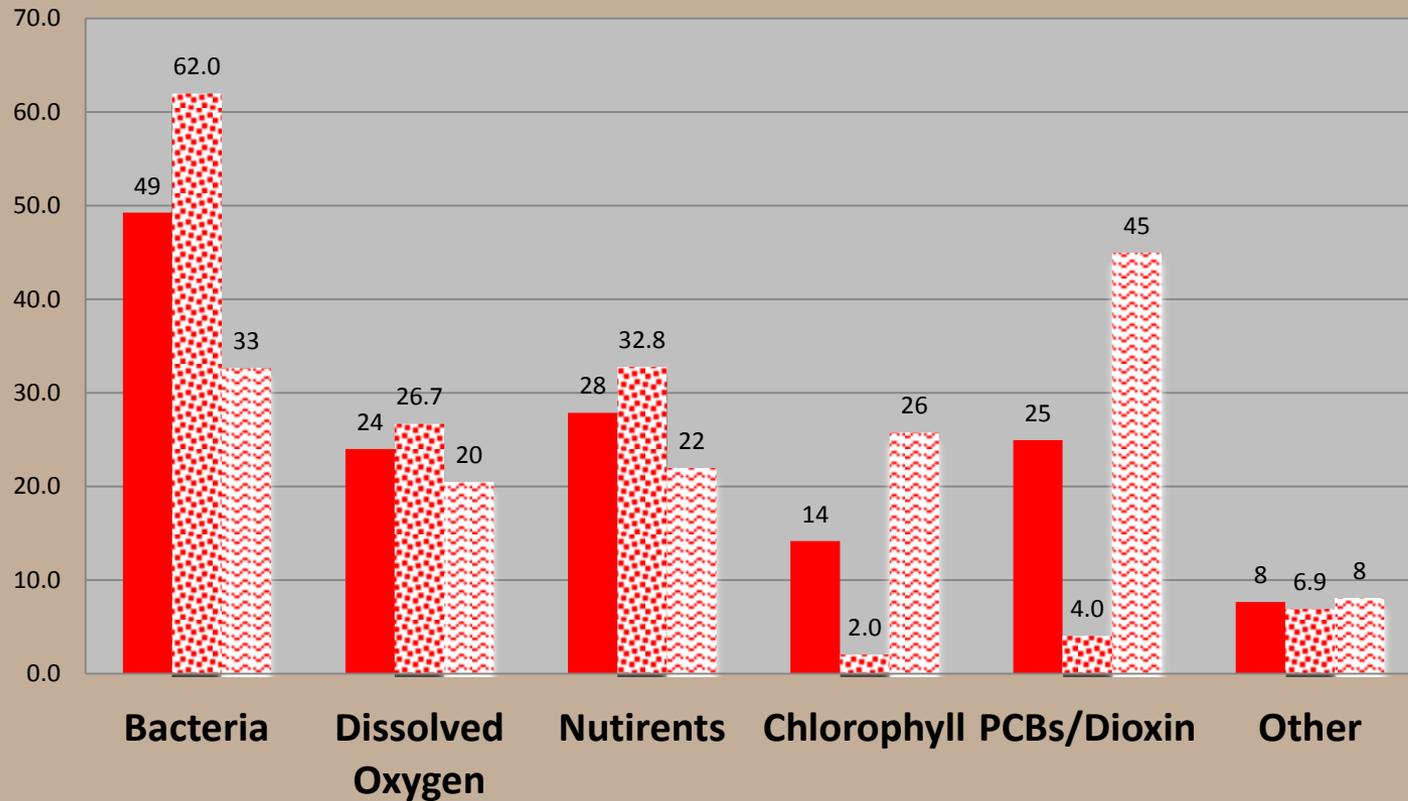
Approximately 25% of segments in the H-GAC area are impaired by PCB/Dioxin.

Majority of the impaired segments are tidal or bay segments.

Impairments and Concerns - 2012 Integrated Report



■ All Water Bodies ■ Non-tidal ■ Tidal



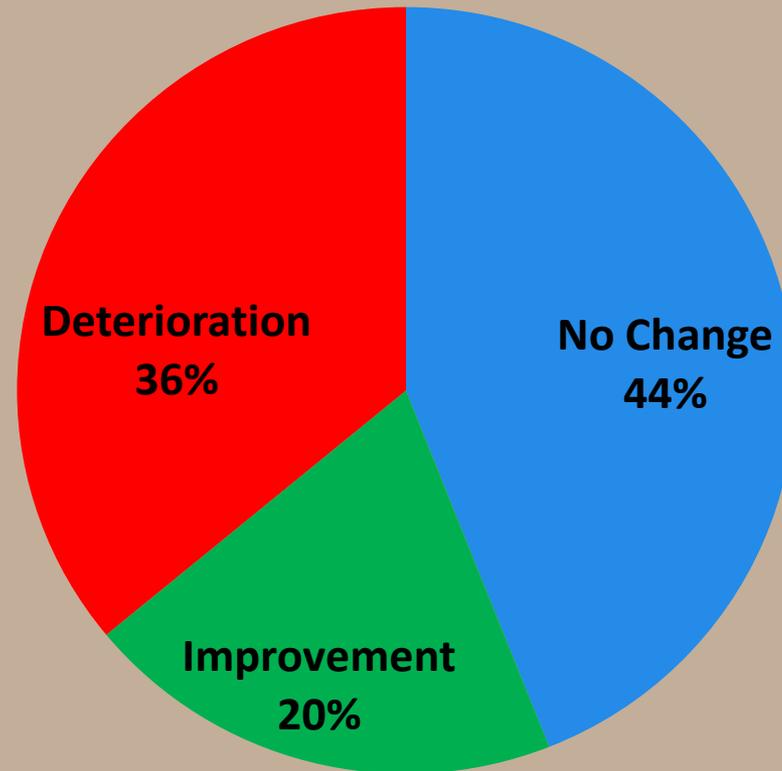
2013 Basin Summary Report



Nutrients: Trends and Relationships

- This year's Highlights Report focused on nutrients and dissolved oxygen issues
- Trends were identified using several statistical methods; only trends that existed prior to the beginning of the drought and that were supported by more than one analysis were selected for discussion
- Relationships between stream flow, rainfall, and other parameters were examined

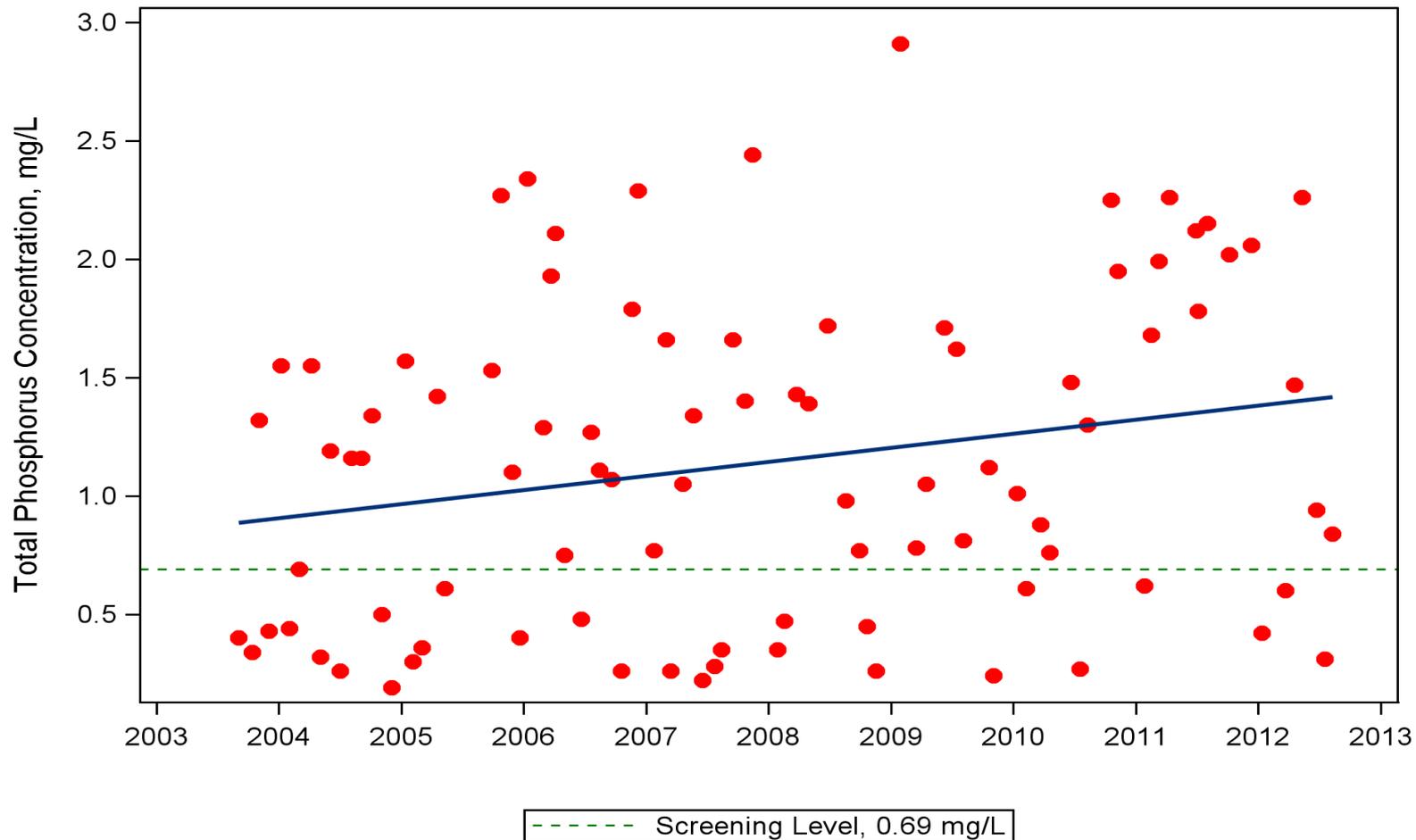
Nutrients - Seven-Year Trends



2013 Basin Summary Report



**Total Phosphorus Concentration
Station 11360, Buffalo Bayou Above Tidal**

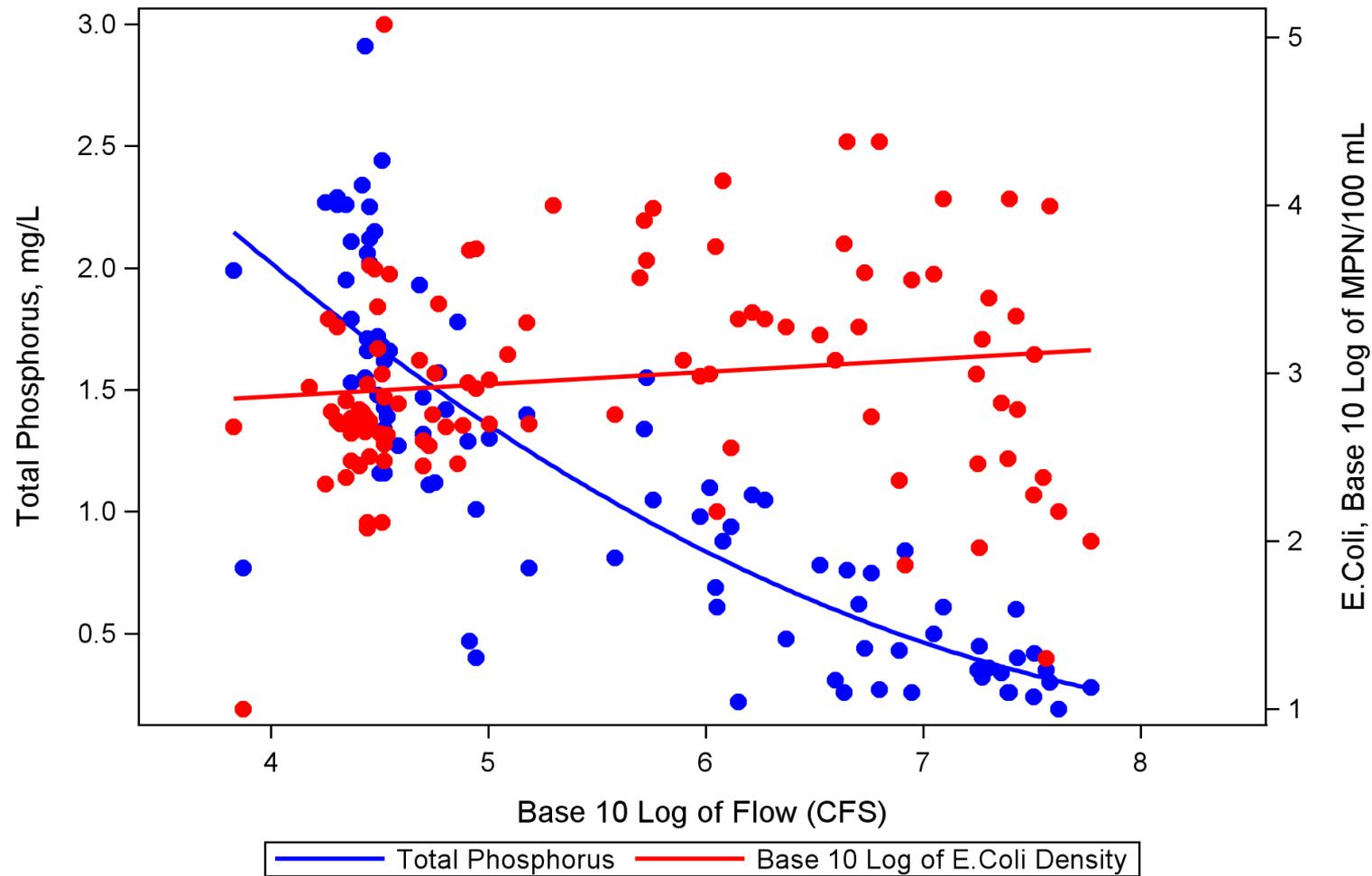


2013 Basin Summary Report



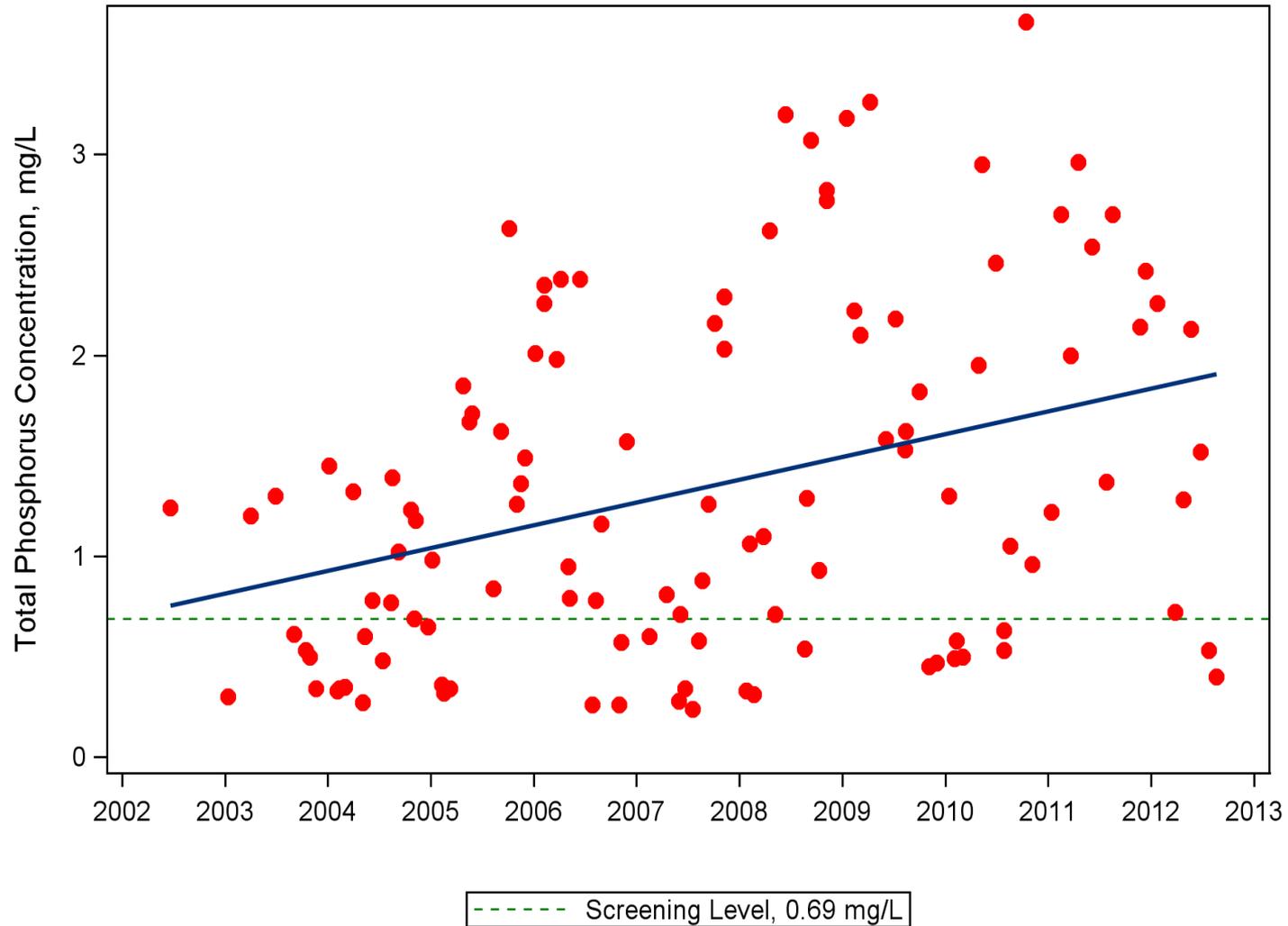
Relationship of E. Coli Density and Total Phosphorus Concentration with Streamflow

Station 11360, Buffalo Bayou Above Tidal

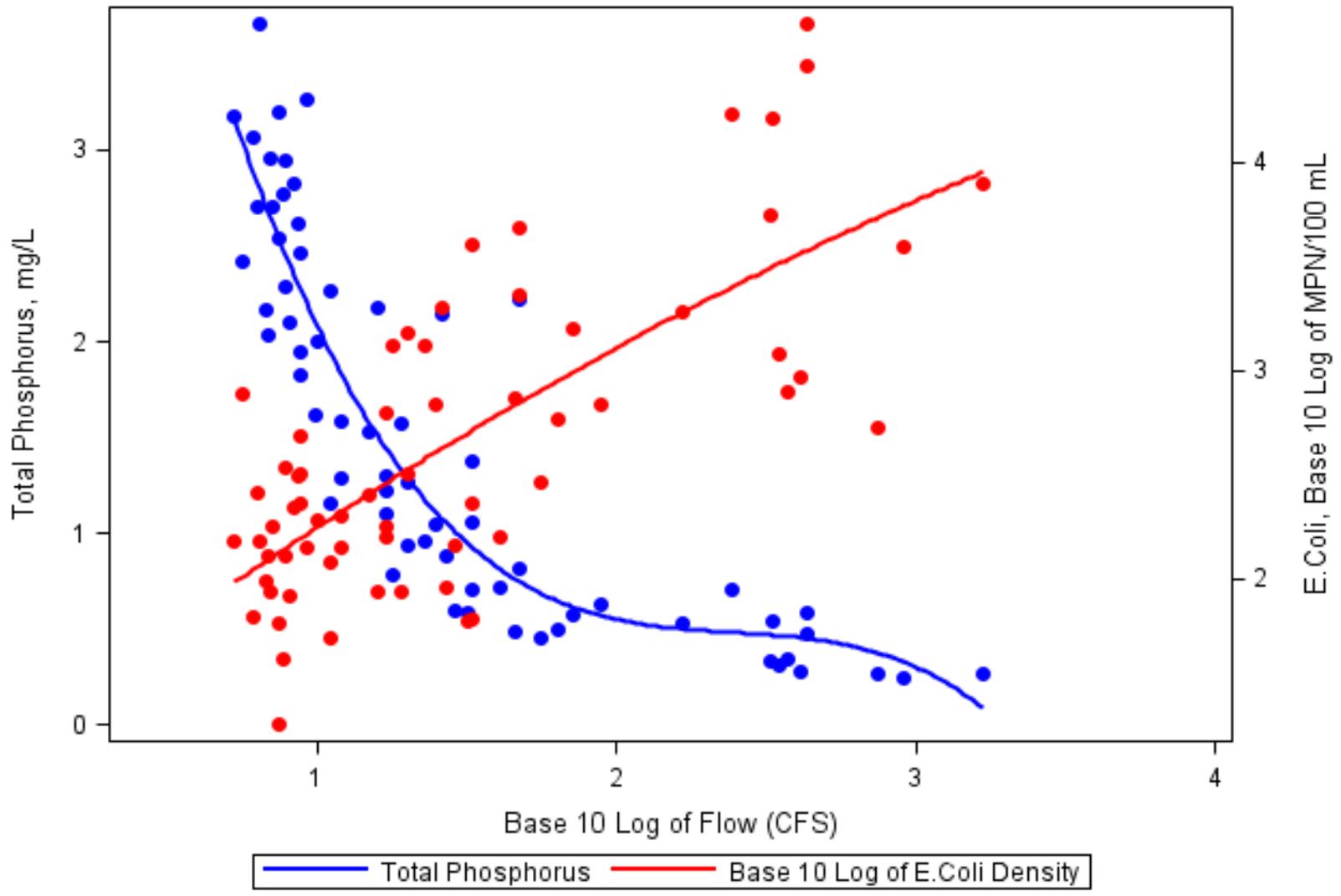




Total Phosphorus Concentration Station 11332, Cypress Creek



Relationship of E. Coli Density and Total Phosphorus Concentration with Streamflow
Station 11332, Cypress Creek





Questions?



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