

Fecal loadings in Bayou Chico

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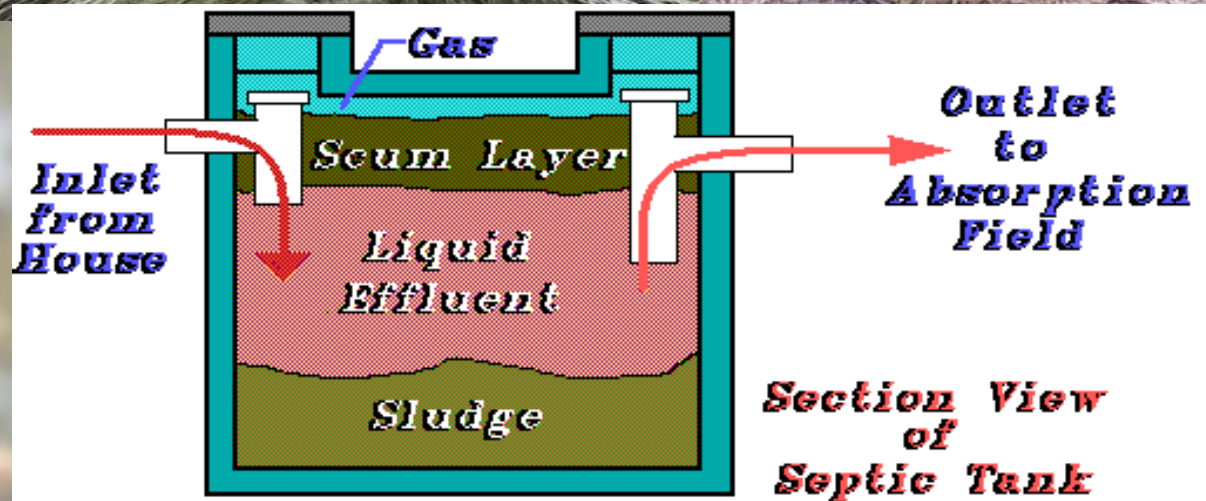
Professor and Director

**Center for Environmental
Diagnostics and Bioremediation**

<http://www.uwf.edu/cedb/>



Fecal Sources



Fecal Contamination Sources

- Chronic

- Groundwater

- septic tank drainfields, old/broken sewer systems, livestock

- Surface water

- resident waterfowl, wildlife, livestock

- Storm water, episodic

- Groundwater

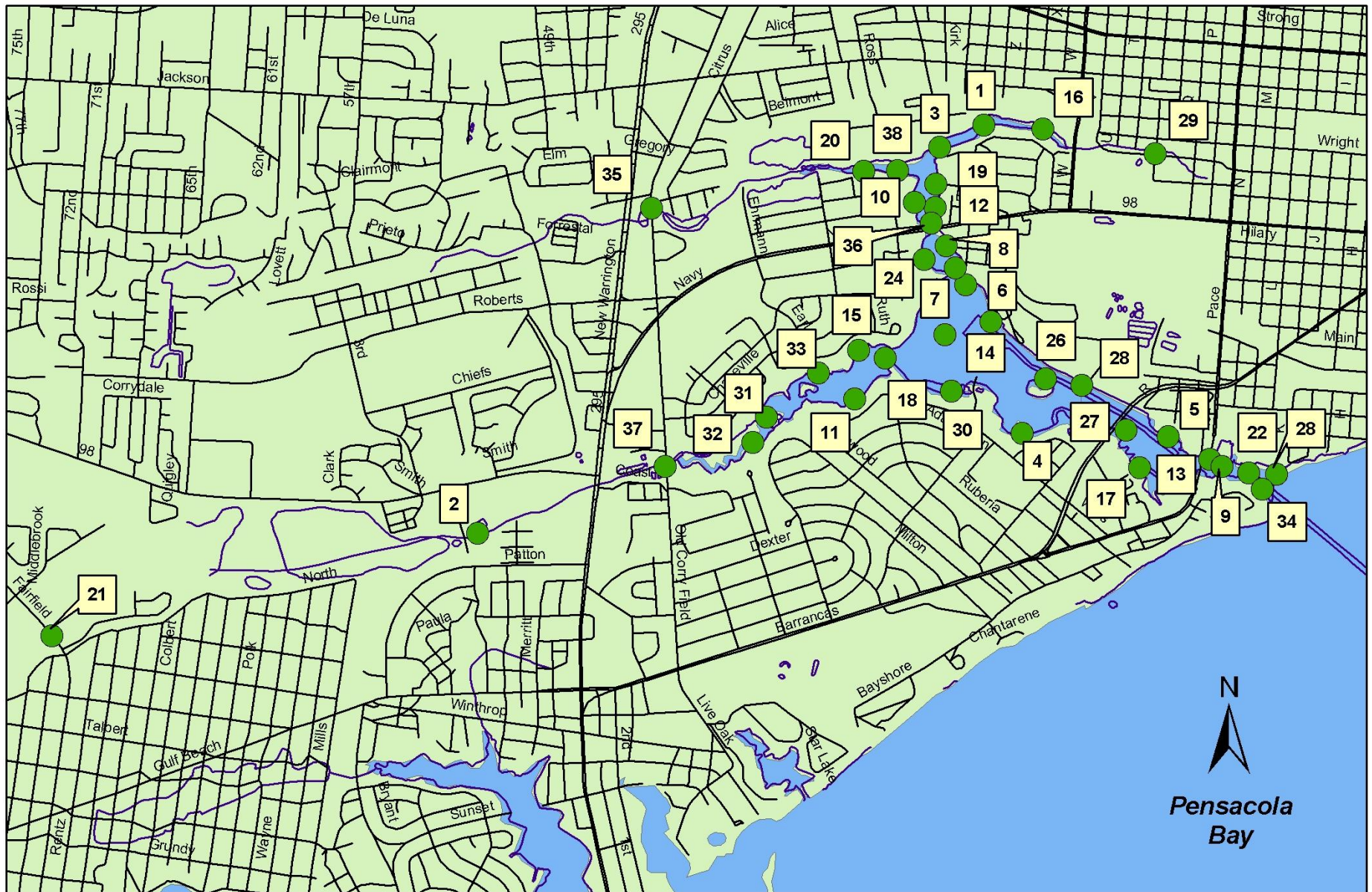
- hydraulic flushing

- Surface water

- runoff, sewer breaks

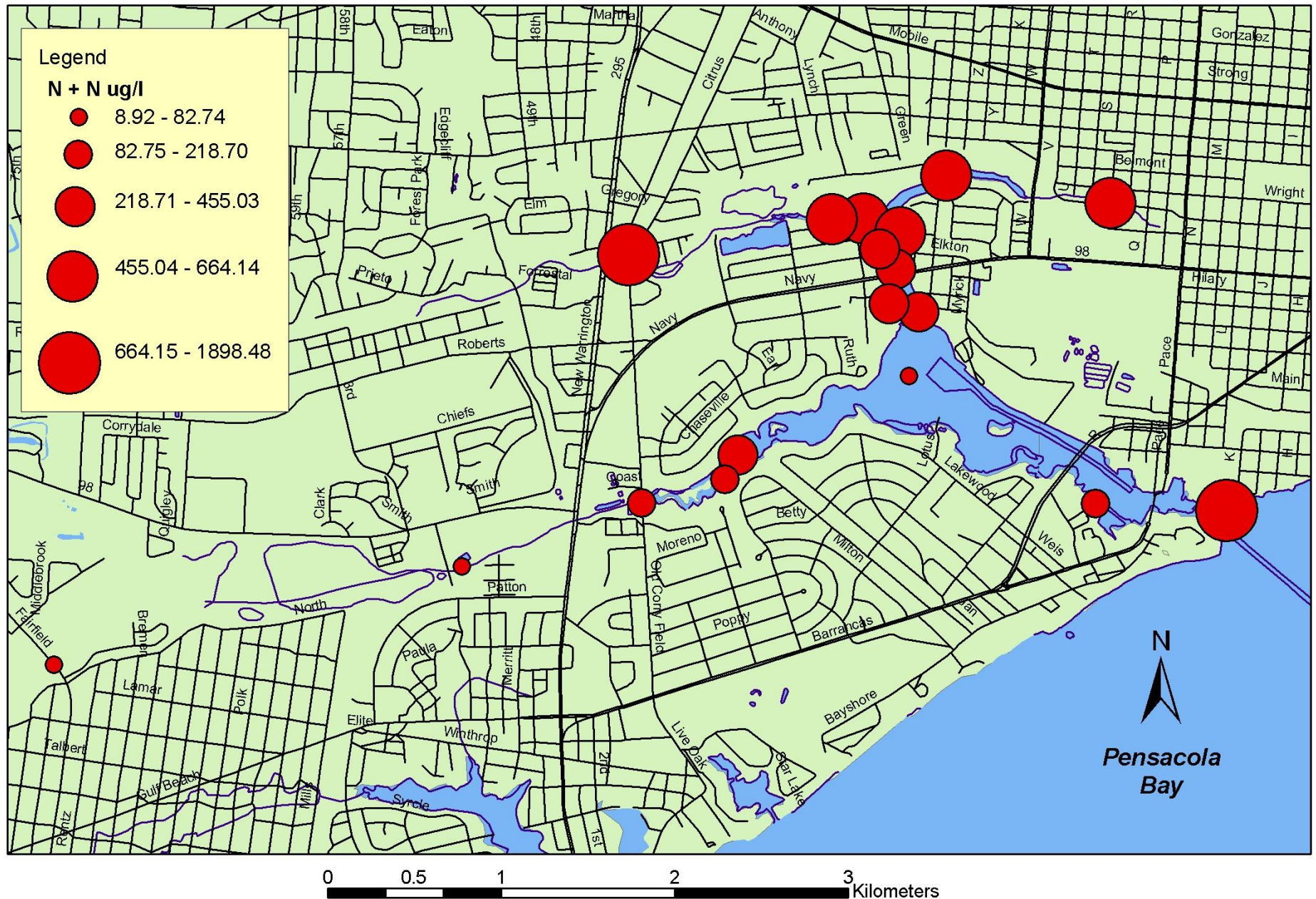
- Pinpoint, high resolution sampling of drainage outfalls, ground water sources
- Three year study to incorporate inter-annual variability and storm events
- Statistical analysis to differentiate storm water from chronic sources

Bayou Chico Station Codes



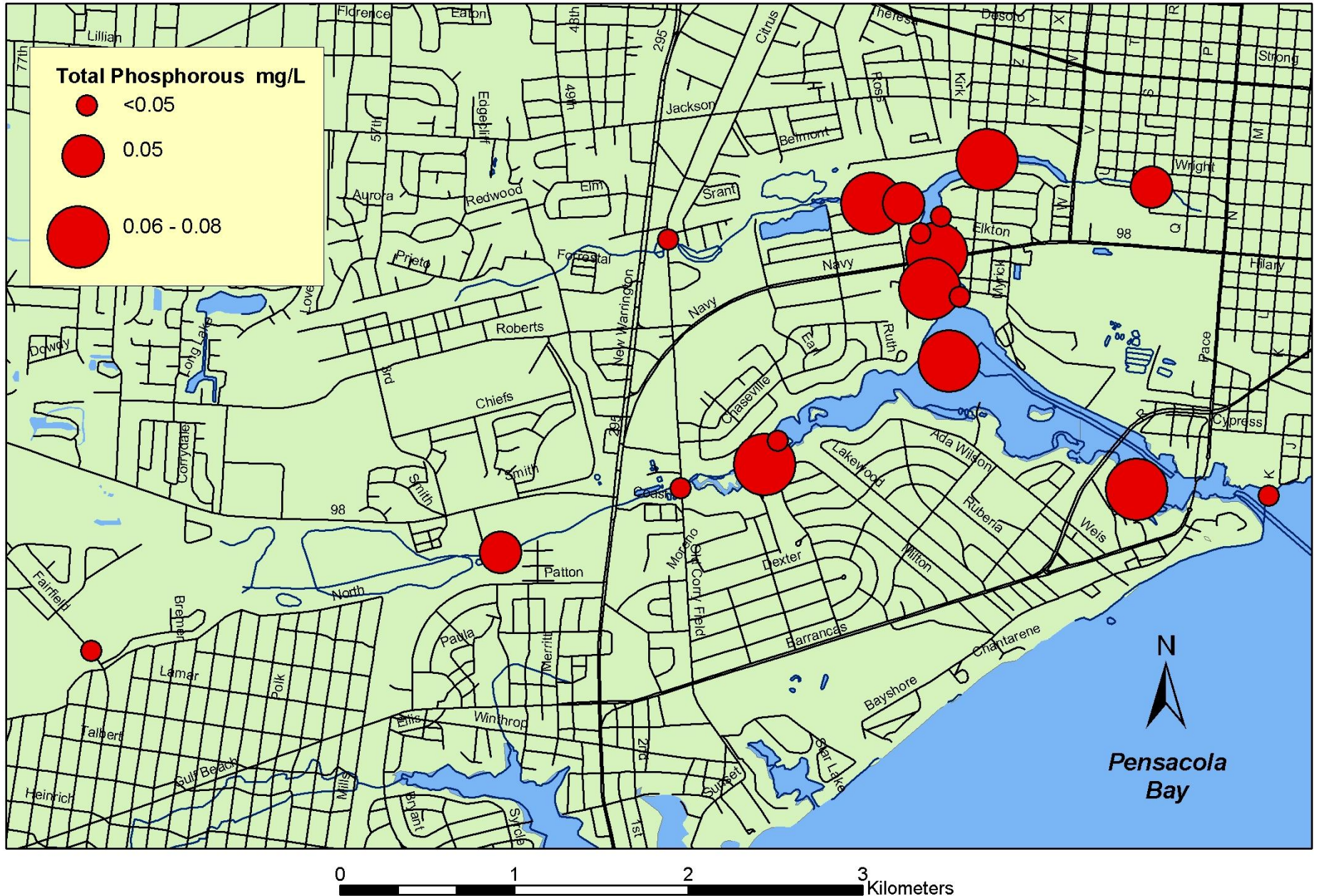
Bayou Chico

Nitrate + Nitrite (ug/L)



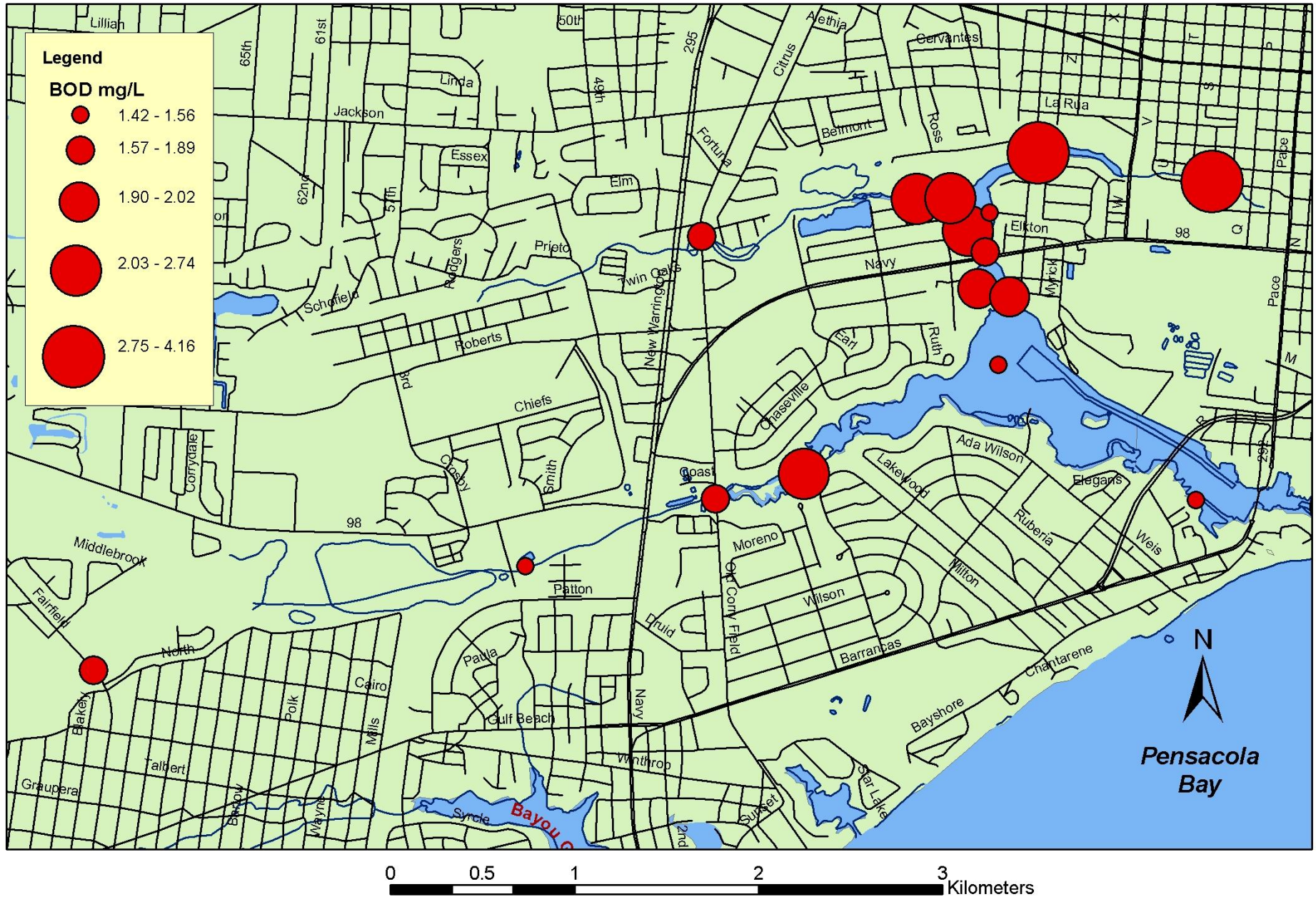
Bayou Chico

Total Phosphorous (mg/L)

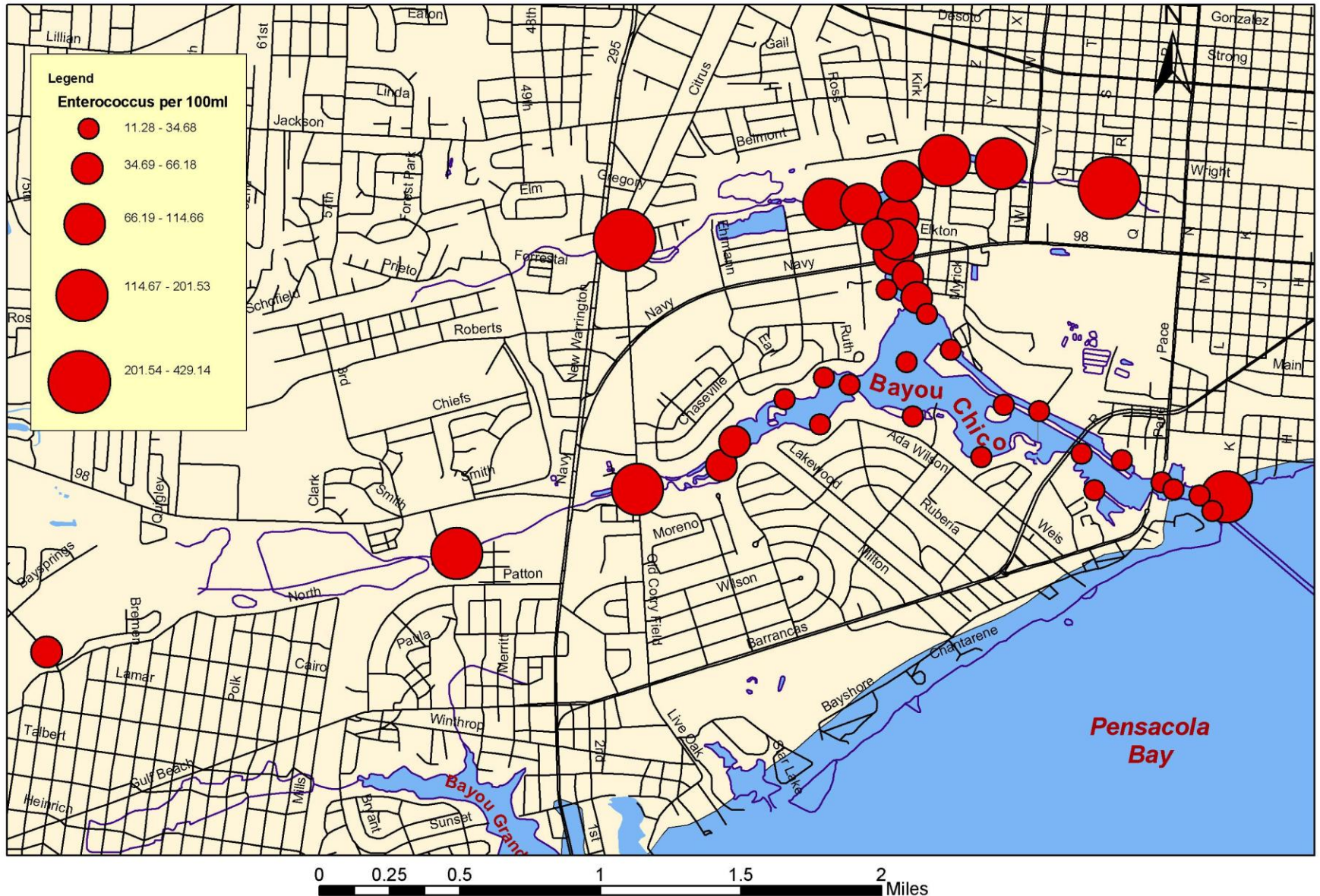


Bayou Chico

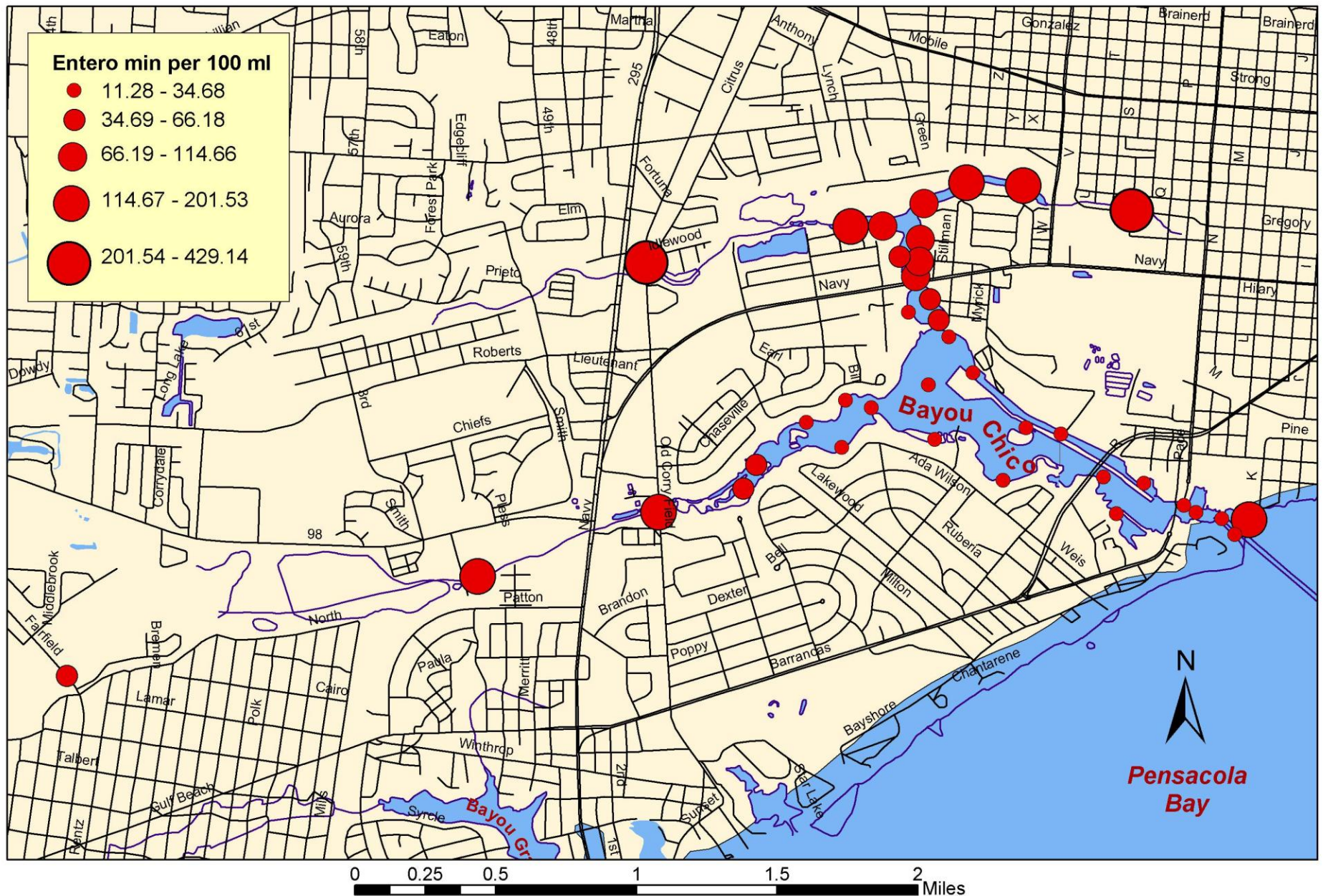
Biological Oxygen Demand (mg/L)



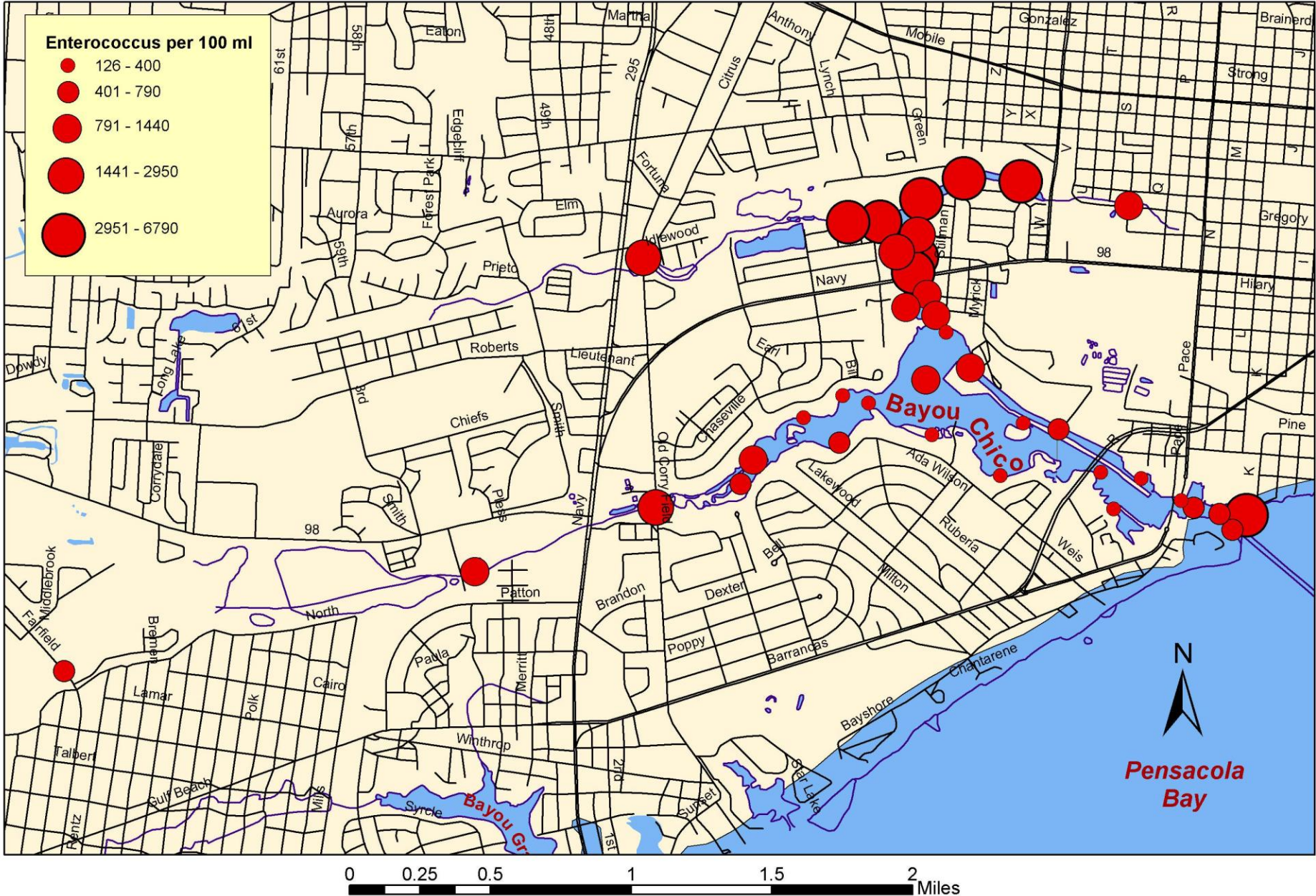
Enterococcus Geomean



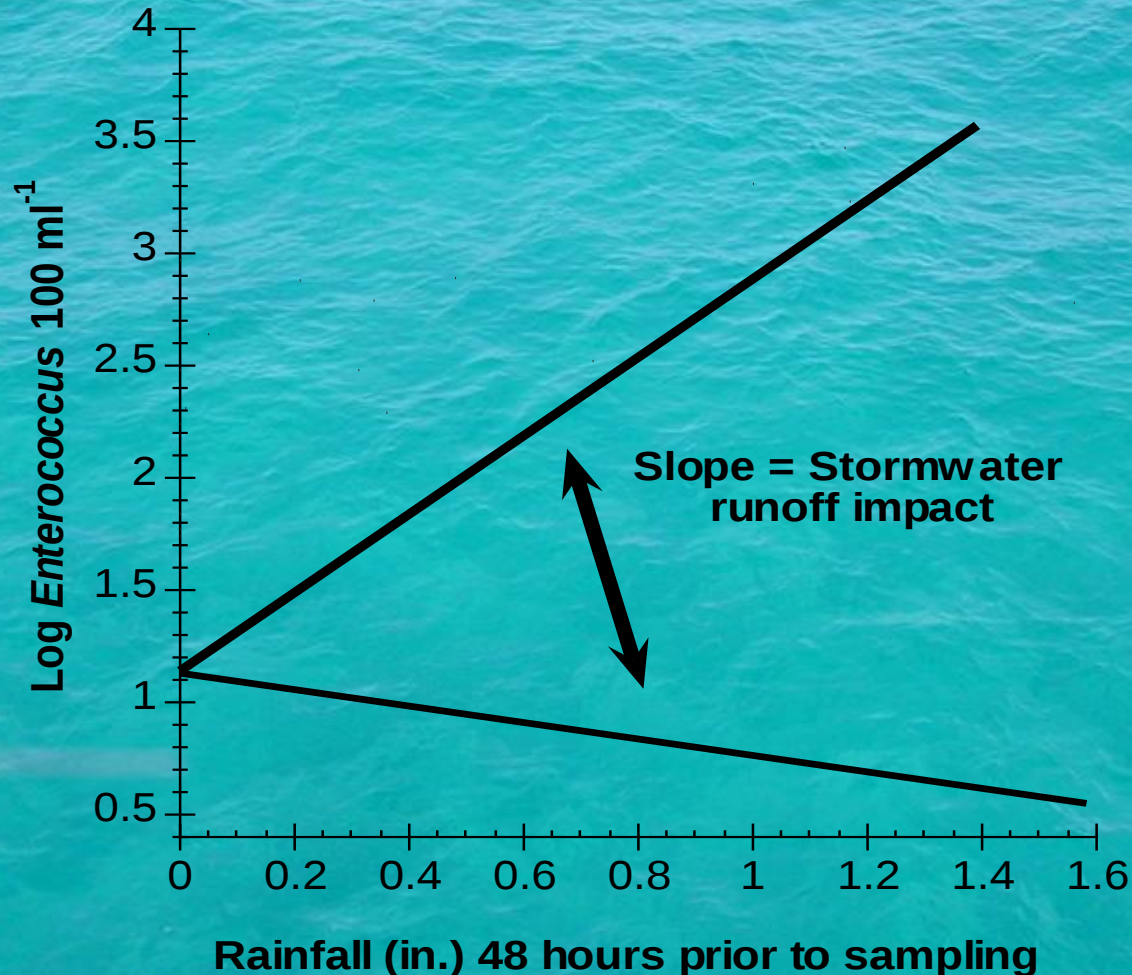
Bayou Chico Water Quality



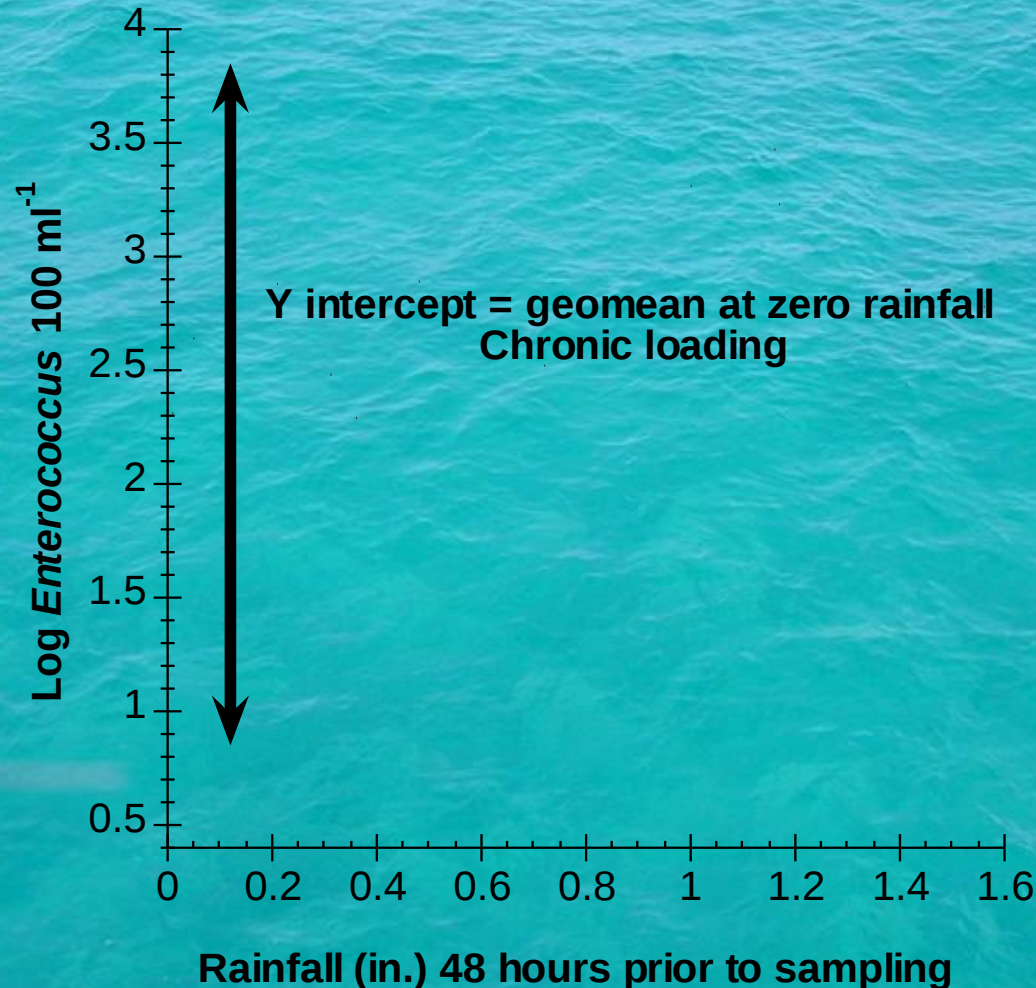
Enterococcus Max



Modeling station-specific chronic vs. storm water fecal loading



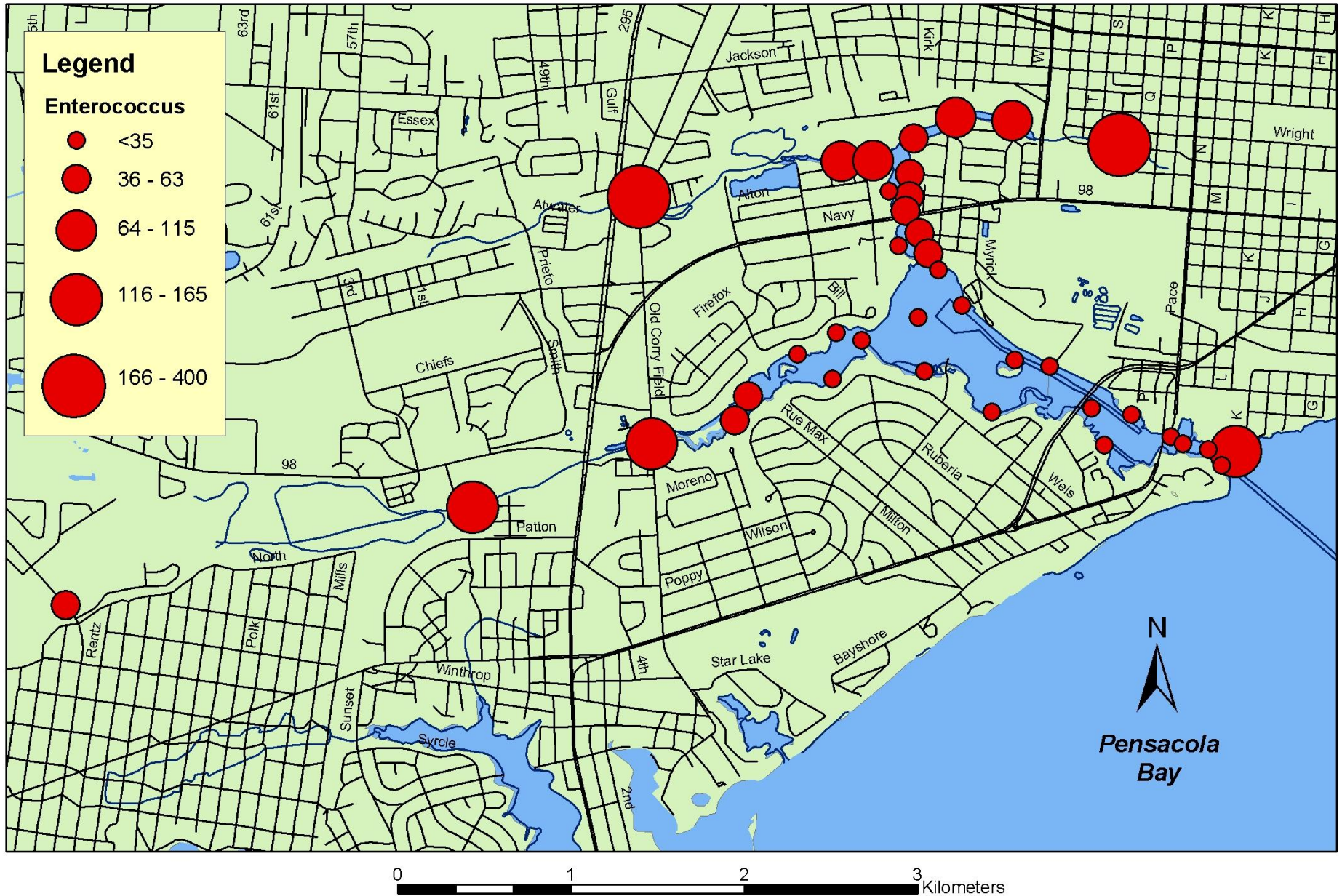
Modeling station-specific chronic vs. storm water fecal loading



Site ID	Site Description	R^2	Slope	p value	Intercept	p value	Geomean @ zero rain
34	S-Street	0.001	0.019	0.912	2.611	6.65E-19	408.78
35	Corry Field Road North	0.368	0.612	0.006	2.373	3.81E-13	236.01
33	Ditch	0	0.002	0.994	2.253	1.45E-11	178.92
37	Brigadier	0.042	0.225	0.385	2.167	5.06E-12	146.95
36	Corry Field Road South	0.143	0.396	0.069	2.152	4.69E-15	141.94
18	NW end	0.241	0.698	0.015	1.965	4.12E-12	92.28
16	NE Branch East End	0.169	0.565	0.046	1.961	5.47E-12	91.5
17	NW Branch Gazebo	0.167	0.541	0.047	1.897	5.03E-12	78.92
15	NE Branch Midway	0.341	0.895	0.003	1.855	1.38E-11	71.66
12	Church Fragmites	0.174	0.587	0.043	1.724	9.72E-11	52.98
13	Sawgrass at Tin Boat House	0.307	0.884	0.005	1.712	2.21E-10	51.58
14	NE Branch Mouth	0.312	0.816	0.005	1.708	4.12E-11	51.07
26	West end Last Dock	0.086	0.316	0.289	1.654	6.67E-07	45.05
11	Navy Boulevard Bridge	0.339	0.945	0.003	1.641	4.40E-10	43.71
25	West Branch Marsh Point	0.087	0.419	0.183	1.625	1.07E-08	42.18
10	Vince Whibbs GMC Storm Drain	0.247	0.633	0.014	1.58	3.15E-11	38
9	Tressle Apartments	0.323	0.644	0.004	1.569	1.31E-12	37.04
38	Fairfield	0.106	0.38	0.121	1.536	5.21E-11	34.35
19	Rip Rap	0.322	0.894	0.004	1.316	1.64E-08	20.71
3	Pace Storm Drain	0.204	0.569	0.052	1.308	1.42E-07	20.34
27	Swamplillies at Green Roof	0.116	0.436	0.154	1.288	4.49E-07	19.39

Bayou Chico

Enterococcus CFU/100 ml
Geomean at Zero Rainfall



Site ID	Site Description	R^2	Slope	p value	Intercept	p value	Geomean @ zero rain
11	Navy Boulevard Bridge	0.339	0.945	0.003	1.641	4.40E-10	43.71
15	NE Branch Midway	0.341	0.895	0.003	1.855	1.38E-11	71.66
19	Rip Rap	0.322	0.894	0.004	1.316	1.64E-08	20.71
13	Sawgrass at Tin Boat House	0.307	0.884	0.005	1.712	2.21E-10	51.58
14	NE Branch Mouth	0.312	0.816	0.005	1.708	4.12E-11	51.07
20	Juncus at Apartments	0.263	0.747	0.01	1.124	1.26E-07	13.32
18	NW end	0.241	0.698	0.015	1.965	4.12E-12	92.28
30	Pelican Pole	0.255	0.652	0.027	1.108	1.21E-06	12.82
9	Tressle Apartments	0.323	0.644	0.004	1.569	1.31E-12	37.04
10	Vince Whibbs GMC Storm Drain	0.247	0.633	0.014	1.58	3.15E-11	38
2	Bahia Mar Fuel Dock	0.297	0.628	0.016	1.16	9.07E-08	14.44
21	Channel Marker 17	0.231	0.625	0.037	0.832	5.09E-05	6.79
35	Corry Field Road North	0.368	0.612	0.006	2.373	3.81E-13	236.01
6	Midbayou (Scrapyard/Island)	0.368	0.608	0.006	0.92	1.58E-07	8.32
29	Bell Marine Fragmites	0.23	0.597	0.038	1.17	4.39E-07	14.8
12	Church Fragmites	0.174	0.587	0.043	1.724	9.72E-11	52.98
28	Tire Pole	0.259	0.576	0.026	1.243	3.88E-08	17.48
3	Pace Storm Drain	0.204	0.569	0.052	1.308	1.42E-07	20.34
16	NE Branch East End	0.169	0.565	0.046	1.961	5.47E-12	91.5
17	NW Branch Gazebo	0.167	0.541	0.047	1.897	5.03E-12	78.92

Bayou Chico

Enterococcus Rain Dependence

