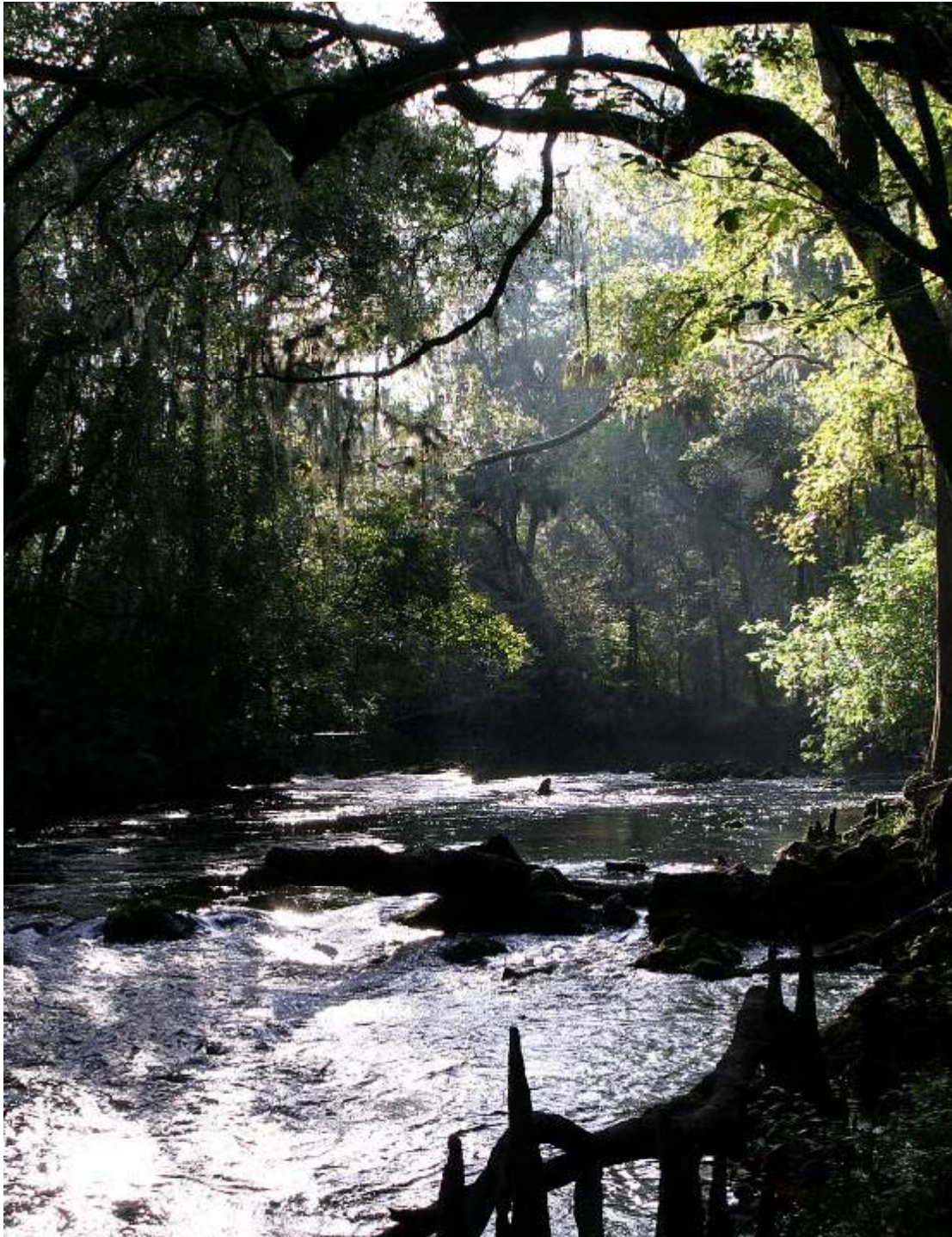




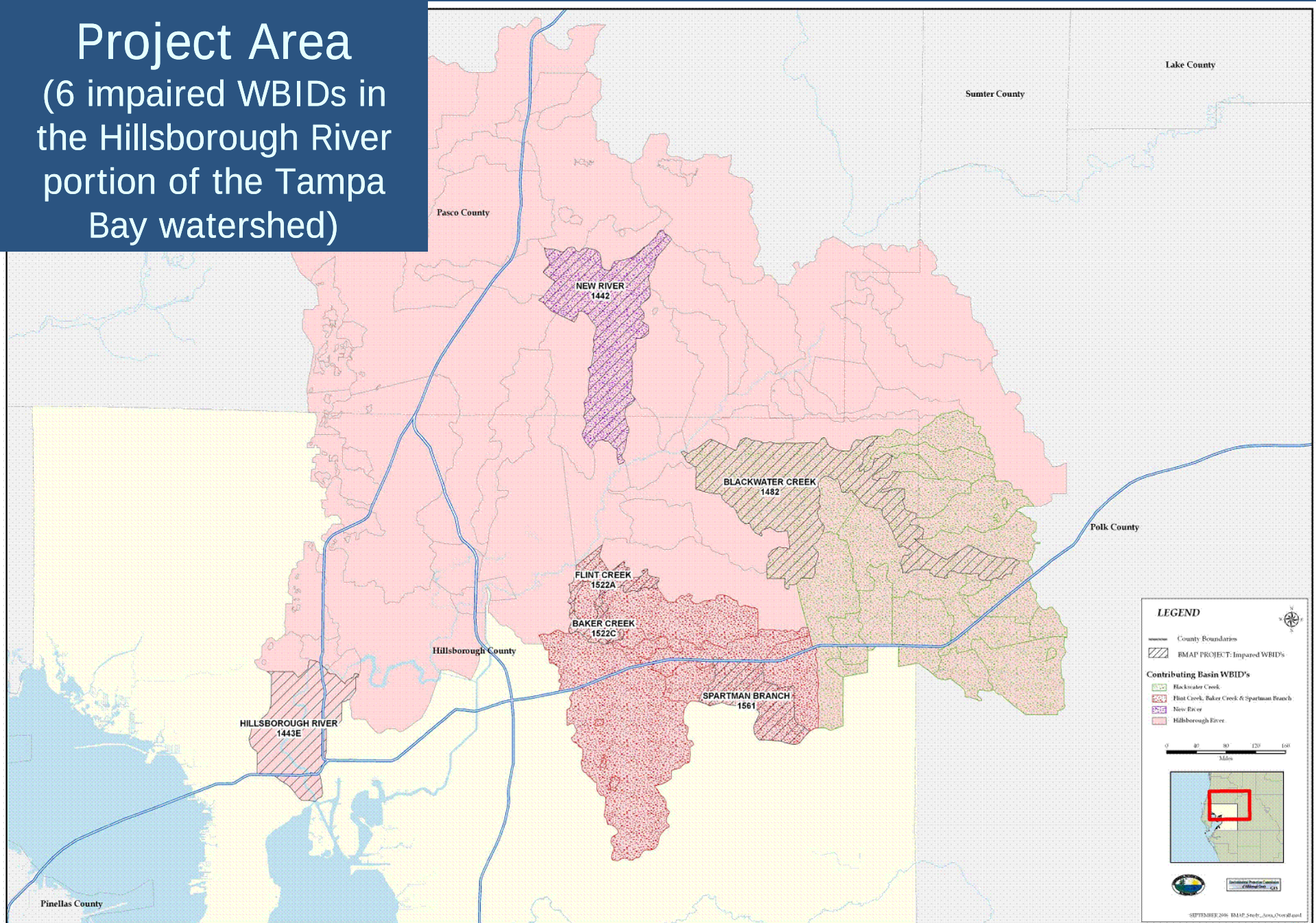
‘Decision Matrix’ update for BMAP WBIDs in the Hillsborough River watershed

Aug. 18, 2011



Project Area

(6 impaired WBIDs in the Hillsborough River portion of the Tampa Bay watershed)



Basin Working Group members

- City of Plant City
- City of Tampa
- City of Temple Terrace
- Hillsborough County
- Pasco County
- Polk County
- Southwest Florida Water Management District
- Florida Department of Agriculture & Consumer Services
- Florida Department of Environmental Protection
- Florida Department of Health
- Florida Department of Transportation
- Tampa Bay Estuary Program

Why is a 'decision matrix' tool needed to help with fecal coliform impairments ?

- Florida currently has water quality criteria for fecal coliform bacteria (e.g., no more than 10% of samples may exceed 400 CFU/100 mL)
- Under federal and state law, FDEP is required to develop TMDLs for WBIDs that aren't meeting these or other water quality criteria
- Coliform bacteria have been used as indicators of potential fecal contamination of water since the late 1800s. (Originally for detecting contamination of water by untreated or minimally-treated sewage.)

Why is a 'decision matrix' tool needed ?

- But, in tropical and sub-tropical areas, fecal coliforms and other bacterial indicators can grow in soils and on vegetation, producing “false-positive” monitoring results
- They can also produce “false-negative” results – some pathogenic viruses and protozoa can survive longer than fecal coliforms in surface waters

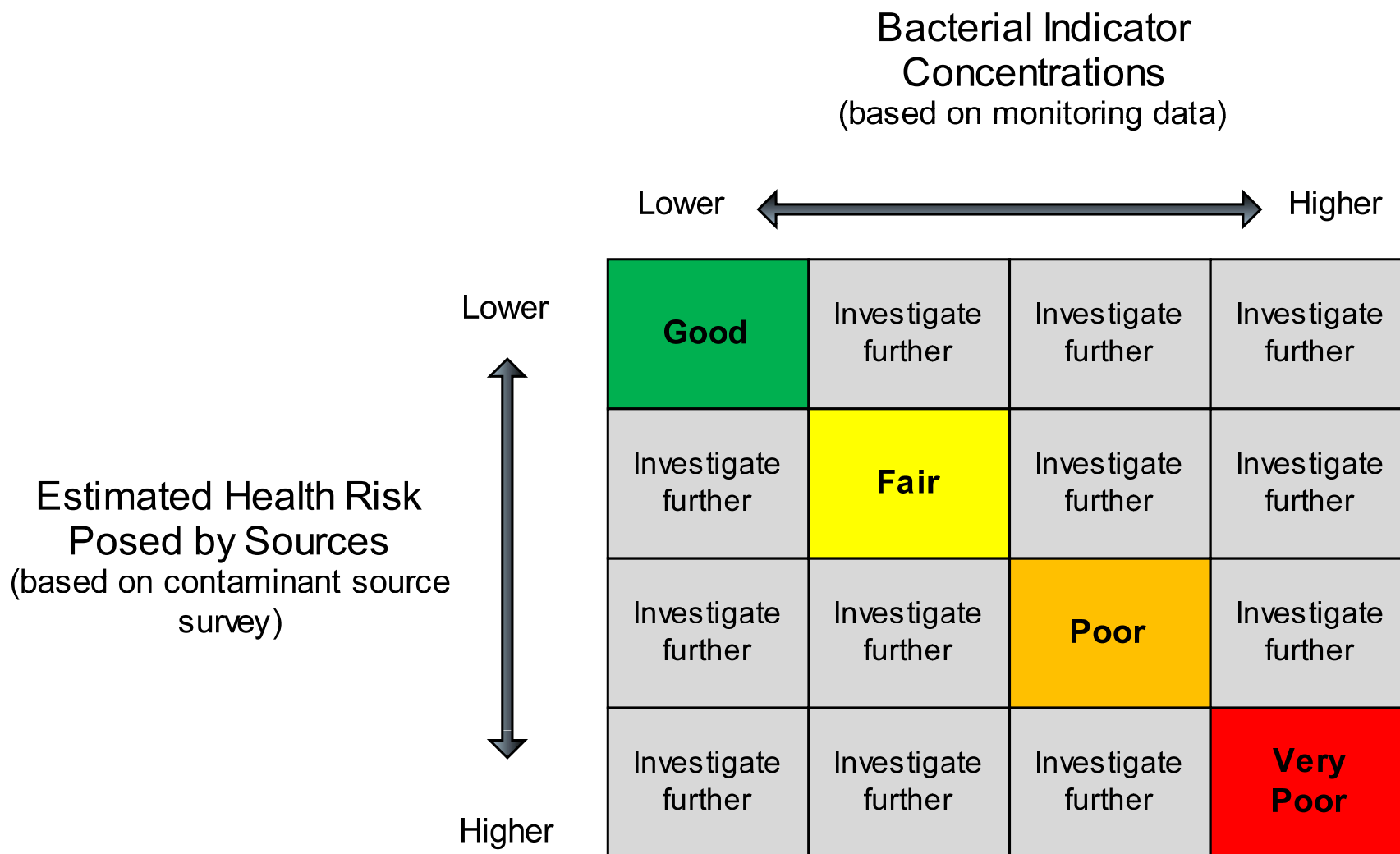
How to address these technical limitations?

- Long-term approach (could take 10+ years):
 - Develop better indicators (using other types of bacteria, viruses, etc.) that more accurately reflect human health risks
 - Some new techniques are currently available, but they are costly, technically complex, and not yet standardized
- Short-term approach
 - Until better indicators are developed, use additional types of information (along with fecal coliform counts) to help protect human health and improve water quality
 - This is the purpose of the 'decision matrix' approach that is used in the Hillsborough River BMAP process

World Health Organization (2003)

“Annapolis protocol” matrix;

Conceptual overview



Decision Matrix developed for Hillsborough River BMAP

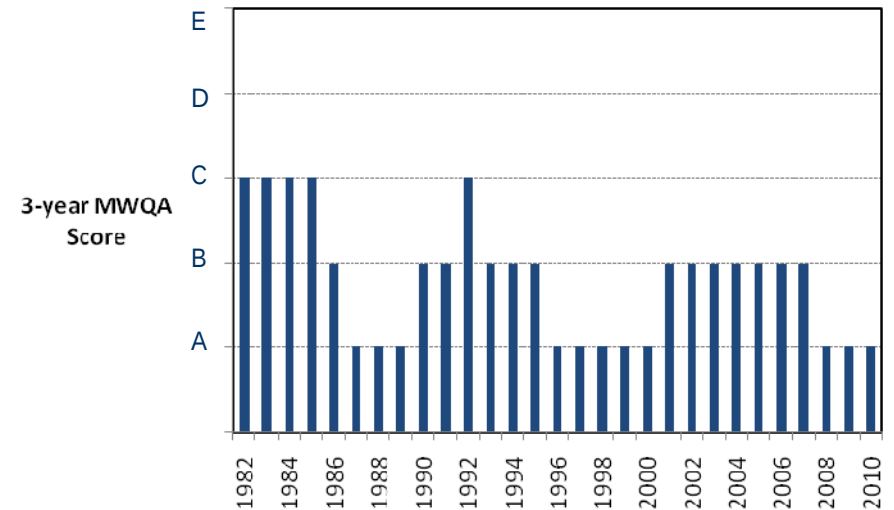
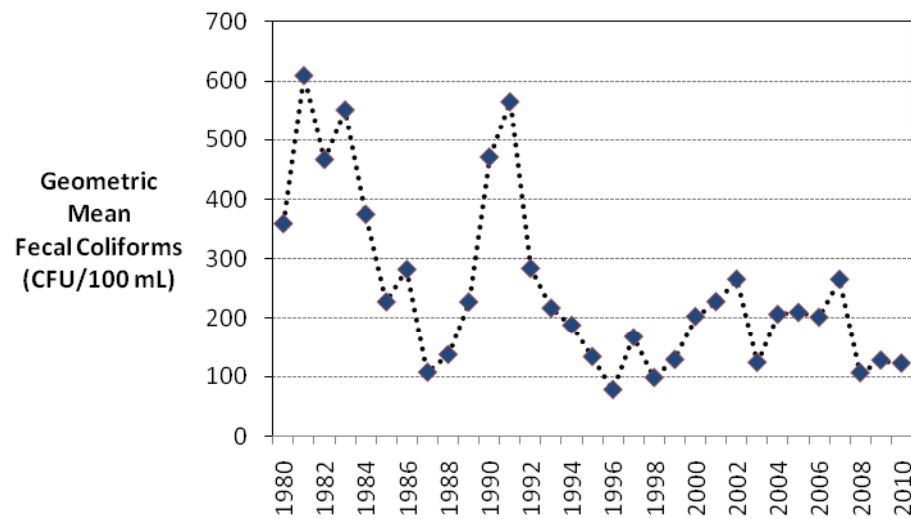
		MWQA group (based on binomial assessment of frequency of 400 CFU/100 mL fecal coliform exceedances)				
		A (≤ 10%)	B (>10% - 30%)	C (>30% - 50%)	D (>50% - 75%)	E (>75%)
Contaminant source survey (CSS) assessment category (likelihood of fecal contamination posing human health risks)	1. Very Low	A1	B1	C1 ^a	D1 ^a	E1 ^a
	2. Low	A2 ^b	B2	C2	D2 ^a	E2 ^a
	3. Moderate	A3 ^b	B3	C3	D3	E3
	4. High	A4 ^b	B4 ^b	C4	D4	E4
	5. Very High	A5 ^b	B5 ^b	C5 ^b	D5	E5

Updated water quality data

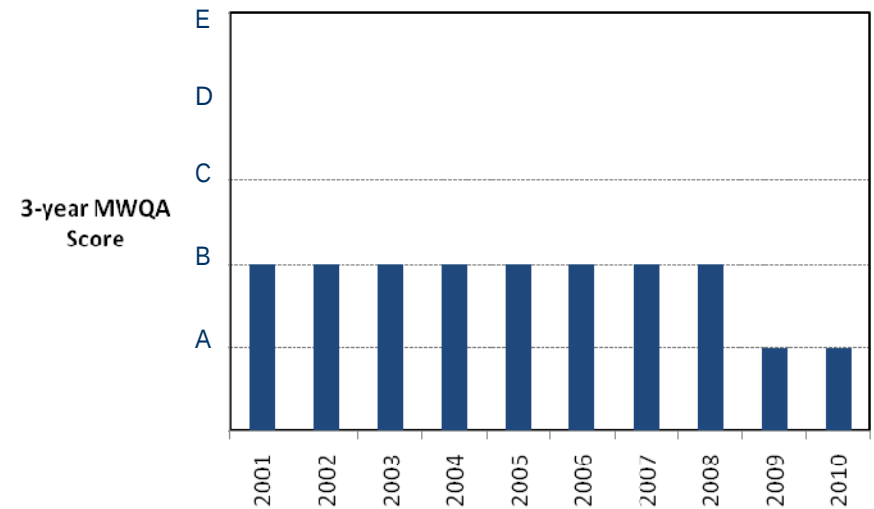
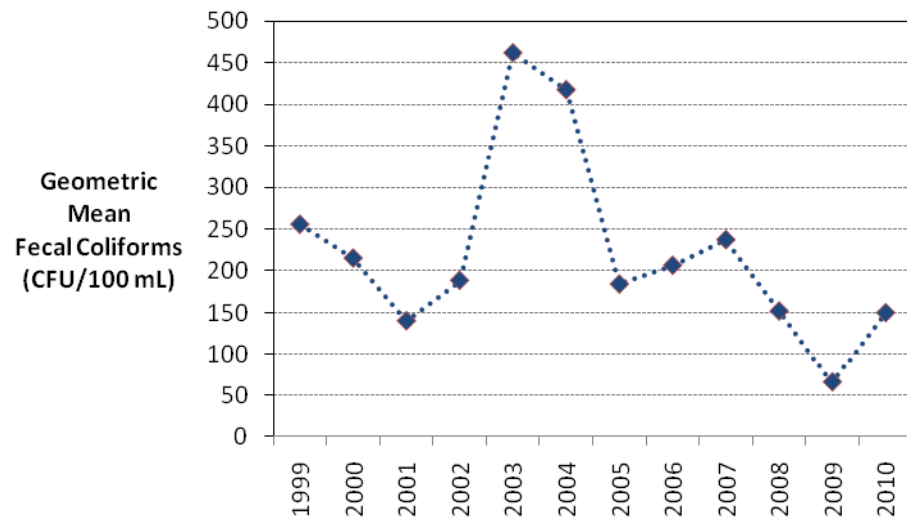
- Fecal Coliform data updated through 2010
- Based on long-term EPC stations only (no follow-up data available from MST stations)
- CSS information has not been updated for these WBIDs

	WBID 1482 Blackwater Creek		WBID 1522C Baker Creek	WBID 1522B L. Thonotosassa		WBID 1522A Flint Creek	WBID 1443E Lower Hillsborough River		
Year	EPC STA 143	EPC STA 108 ¹	EPC STA 107	EPC STA 135 ²	EPC STA 118 ²	EPC STA 148	EPC STA 105	EPC STA 152	EPC STA 137
1980									
1981									
1982		A	C	A	A		C		C
1983		B	C	A	B		C		C
1984		A	C	A	A		C		D
1985		A	C	A	A		C		C
1986		A	B	A	A		B		B
1987		A	B	A	A		A		B
1988		A	B	A	A		A		B
1989		A	B	A	A		A		B
1990	C	B	C	A	B		B		B
1991	C	B	D	A	B	D	B		B
1992	C	B	D	A	B	C	B		B
1993	C	B	D	A	B	C	B		B
1994	B	B	C	A	A	B	B		B
1995	B	B	B	A	A	B	B		C
1996	B	B	B	A	B	B	B		C
1997	A	A	A	A	B	B	A		B
1998	A	A	A	A	B	B	B		B
1999	A	A	A	A	A	B	A		A
2000	B	A	A	A	A	B	A		B
2001	B	A	A	A	A	B	B	B	B
2002	B	A	B	A	A	A	B	B	B
2003	B	A	B	A	A	A	B	B	C
2004	B	B	C	A	A	B	B	B	B
2005	A	A	C	A	A	B	B	B	B
2006	A	A	C	A	A	B	B	B	B
2007	A	A	B	A	A	B	B	B	B
2008	A	A	B	A	A	B	A	B	B
2009	A	A	B	A	A	B	A	A	A
2010	A	A	B	A	A	B	A	A	A

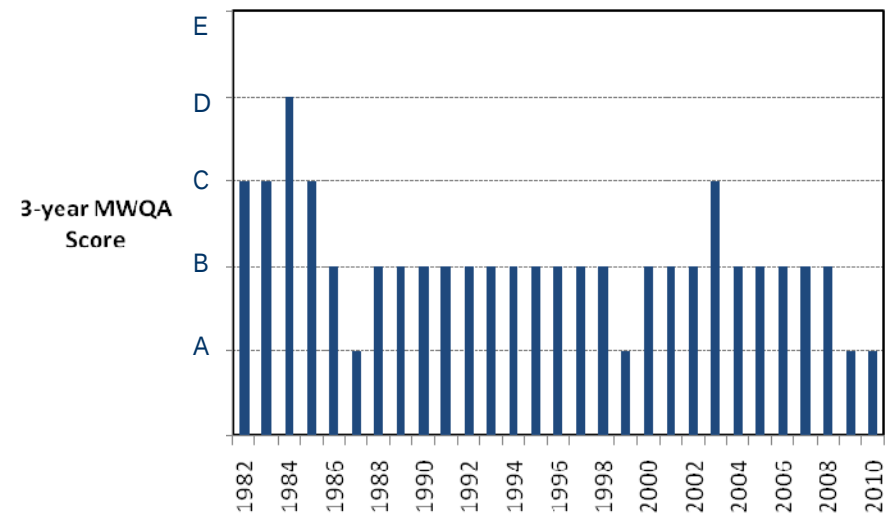
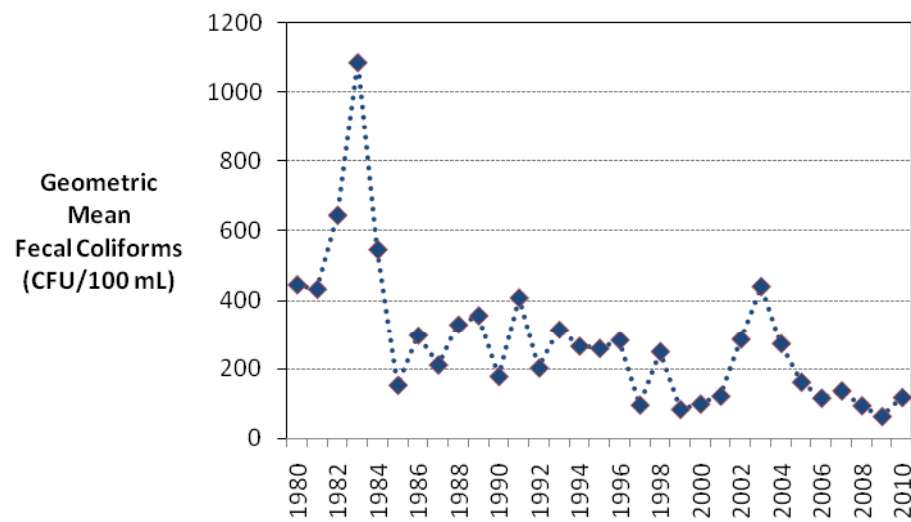
WBID 1443E EPC Sta. 105 LHR at Rowlett Park Dr



WBID 1443E EPC Sta. 152 LHR at Sligh Ave



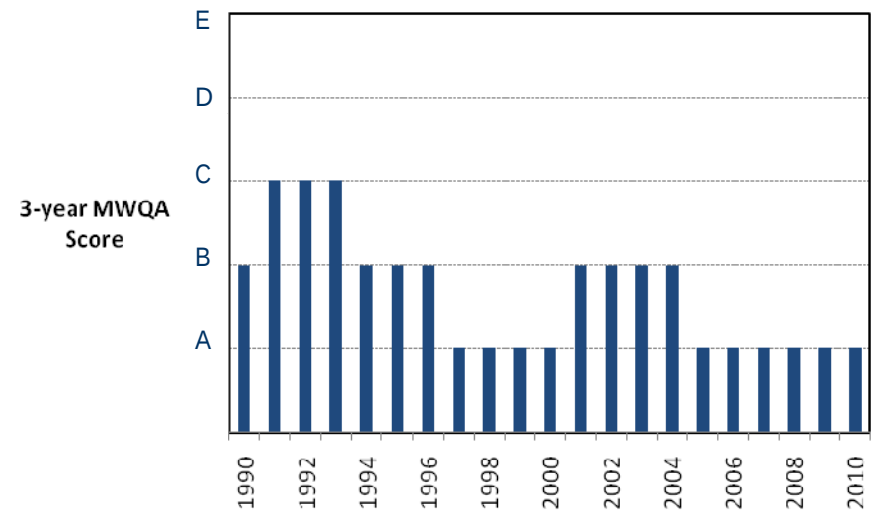
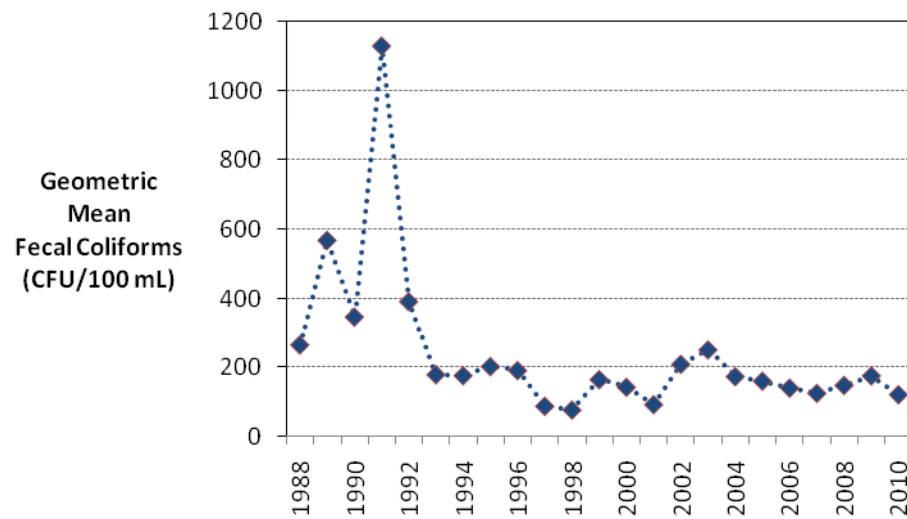
WBID 1443E EPC Sta. 137 LHR at Columbus Drive



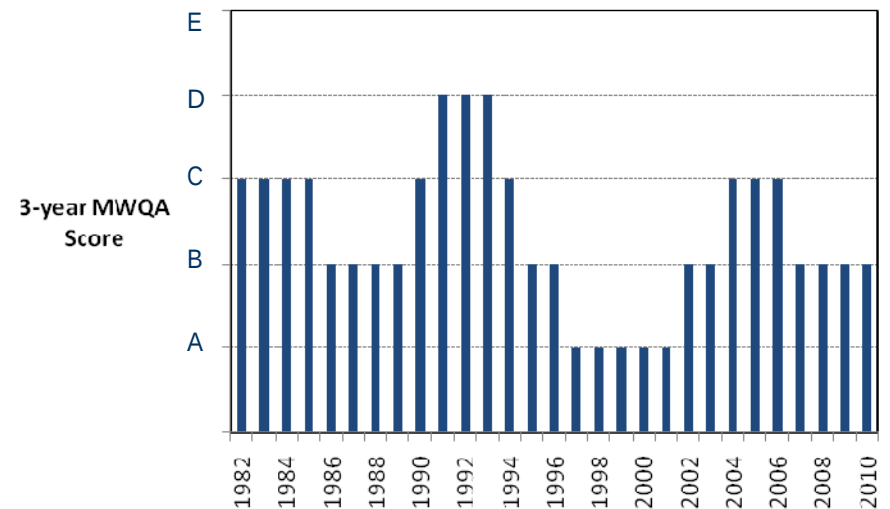
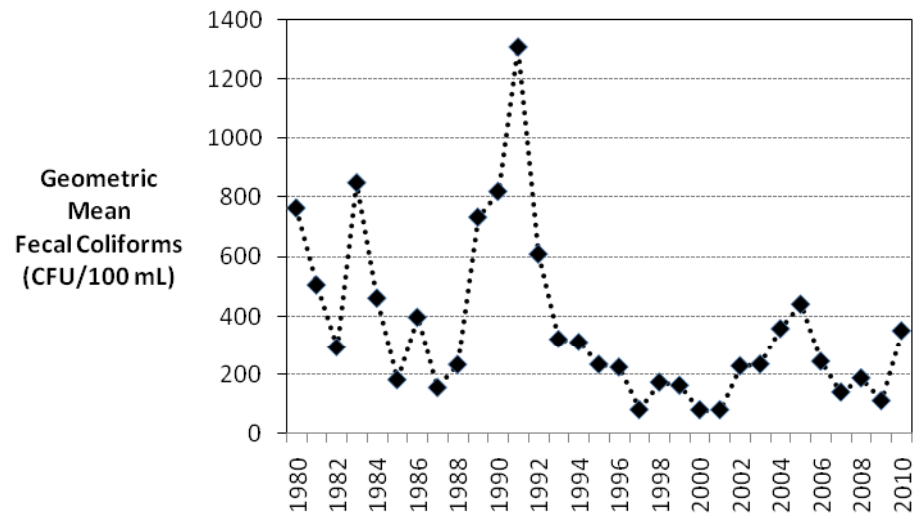
WBID 1482

EPC Sta. 143

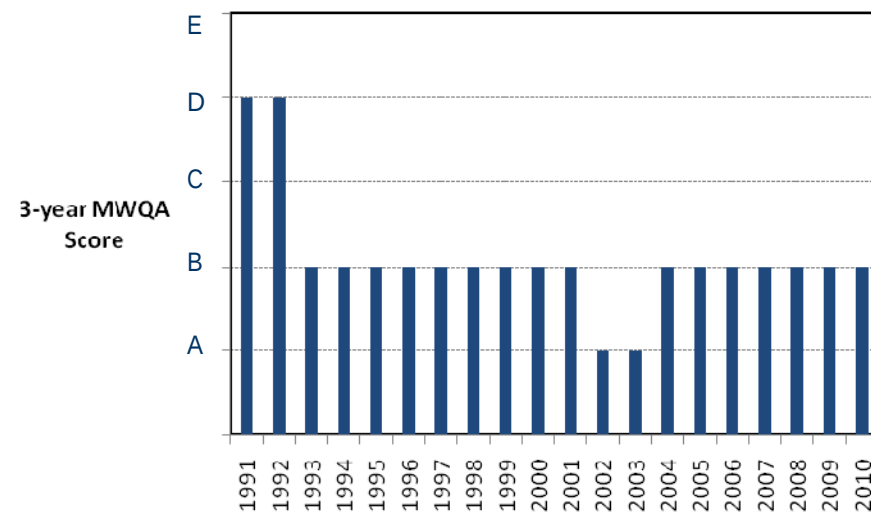
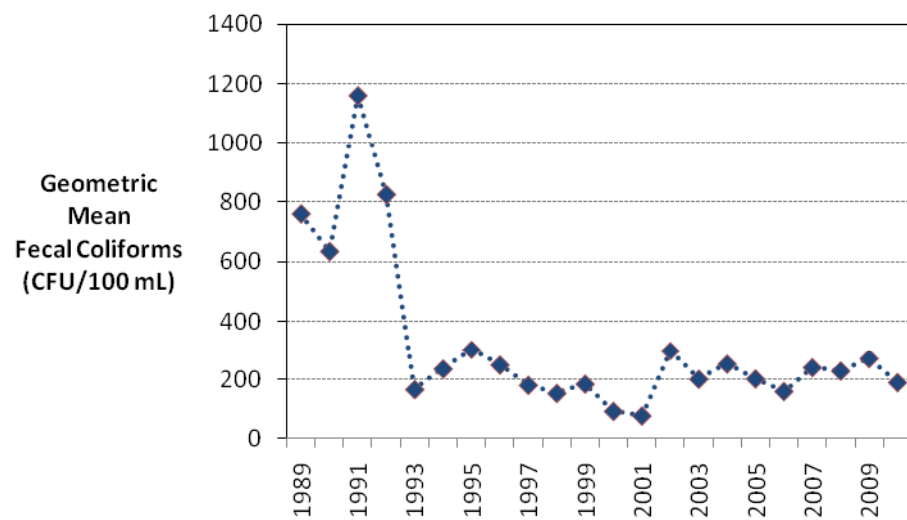
Blackwater Creek at SR 39



WBID 1522C EPC Sta. 107 Baker Creek at Thonotosassa Road



WBID 1522A EPC Sta. 148 Flint Creek at US 301



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Year	EPC STA 143	EPC STA 108 ¹	EPC STA 107	EPC STA 135 ²	EPC STA 118 ²	EPC STA 148	EPC STA 105	EPC STA 152	EPC STA 137
1980									
1981									
1982		A	C	A	A		C		C
1983		B	C	A	B		C		C
1984		A	C	A	A		C		D
1985		A	C	A	A		C		C
1986		A	B	A	A		B		B
1987		A	B	A	A		A		B
1988		A	B	A	A		A		B
1989		A	B	A	A		A		B
1990	C	B	C	A	B		B		B
1991	C	B	D	A	B	D	B		B
1992	C	B	D	A	B	C	B		B
1993	C	B	D	A	B	C	B		B
1994	B	B	C	A	A	B	B		B
1995	B	B	B	A	A	B	B		C
1996	B	B	B	A	B	B	B		C
1997	A	A	A	A	B	B	A		B
1998	A	A	A	A	B	B	B		B
1999	A	A	A	A	A	B	A		A
2000	B	A	A	A	A	B	A		B
2001	B	A	A	A	A	B	B	B	B
2002	B	A	B	A	A	A	B	B	B
2003	B	A	B	A	A	A	B	B	C
2004	B	B	C	A	A	B	B	B	B
2005	A	A	C	A	A	B	B	B	B
2006	A	A	C	A	A	B	B	B	B
2007	A	A	B	A	A	B	B	B	B
2008	A	A	B	A	A	B	A	B	B
2009	A	A	B	A	A	B	A	A	A
2010	A	A	B	A	A	B	A	A	A